An investigation into sense of belonging at French lower secondary schools

By

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A thesis submitted to the University College London (UCL) for the degree of DOCTOR OF PHILOSOPHY

I, Diogo Amaro de Paula, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

This thesis investigates sense of belonging at school among French lower secondary students, which previous literature has shown to be importantly connected to a student's wellbeing, academic performance, life satisfaction and happiness. Conceptually, this work proposes a definition of sense of belonging at school that complements existing literature with a phenomenographic analysis of 33 qualitatitive interviews where students discuss their own understanding of belongingness. Following the phenomenographic tradition, three complementary ways in which students make sense of belongingness were identified: wellbeing, friendships and school identity ('belonging' expressed primarily in opposition to at least one other school).

Empirically, by using a mixed methodology that includes, in addition to the interviews, a series of regression analyses of the 2018 PISA dataset, this work explores and describes the relationships between sense of belonging at school and various student characteristics such as gender, immigration, socioeconomic background and individual and collective identities, inclunding ethnicity, which are rarely part of French sociological research. Furthermore, the study discusses limitations in statistical analyses to capture the complexity of students' identities, while addressing such limits with qualitative evidence.

The work establishes that the main drivers of sense of belonging at French schools are wellbeing and academic performance, which also mediate the interactions between gender, immigration and socioeconomic background and 'belongingness'. It also determines that there is a strong impact of school context in defining how students develop their sense of belonging.

Impact Statement

Sense of belonging at school is strongly connected to student wellbeing, as well as their performance at school. Despite its importance, recent evidence has shown levels of sense of belonging at school is low in many countries, including France. Better understanding sense of belonging at school is thus crucial for enhancing life satisfaction and learning outcomes of students. Building on existing conceptual understandings of 'sense of belonging at school' developed in the literature, this thesis presents a demographically diverse group of French secondary students' perspectives and critically considers these in relation to both previous theoretical work and a commonly used quantitative measure in this area, the PISA framework.

The thesis analyses students' voices from 33 interviews through a phenomenographic lens and successfully identifies three complementary conceptions of sense of belonging at school. These conceptions were contrasted with other conceptual understandings of belonging found in the literature, as well as the PISA framework used for statistical analysis in this thesis, to propose its own theoretical understanding for sense belonging. In this process, the thesis assessed the validity of the framework used in PISA questionnaires, while describing areas in which it fails to accurately capture the phenomenon of sense of belonging at schools as it was revealed during the interviews. This validity assessment carries important implications for the way in which PISA data touching on student sense of belonging and wellbeing should be analysed in future scholarship.

In the discussion of the main findings from the phenomenographic interviews, this thesis also tackles ethnic identity as a main driver of students' sense of belonging at French schools. Ethnicity is a very sensitive topic in French academia and few papers discuss it directly, often relying on imperfect proxies such as immigration background and nationality. By presenting results considering the 'origin' of students, which is the appropriate terminology combining ethnicity and immigration background in the French context, this thesis increases the complexity of the education debate in the country and reveals the cruciality of areas that were previously underplayed.

The thesis also has methodological contributions as other examples of combining phenomenography with quantitative statistical analysis to investigate sense of belonging were not found in the literature. The joint analysis of the same phenomenon, sense of belonging at school, using different methodological approaches is important not only because it triangulates and validates findings, but also because it promotes dialogue between disciplines that use different methodologies. Furthermore, by referencing French literature that was not available in English, this thesis also provides a dialogue between academic traditions and enhances the access of anglophone academia to the discussion around education in France.

Finally, by giving voices to students in French lower secondary schools to express their sense of belonging and how it correlates with other dimensions of student identity, the conclusions of this thesis can inform policy change that promotes more inclusive school environments where students are more likely to feel like they belong.

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Introduction

There is mounting evidence of the importance of sense of belonging at schools as a driver of student wellbeing, academic performance and life satisfaction (Faircloth and Hamm 2005, Gilman and Anderman 2006, Cueto et al. 2010, Millings et al. 2012, Tian et al. 2015, Choi 2018, Allen et al. 2020). However, in various contexts, a growing number of students feel excluded, alienated and ostracized by their schools. Many of these, end up seeking belonging elsewhere, which often leads to violence and social exclusion (Burnett and Walz 1994, Anderman 2002, Millings et al. 2012, Tian et al. 2015). In this context, it is crucial to further understand how students build their sense of belonging at school and what the main drivers of such belonging are.

Global trends from large assessments such as TIMSS and PISA show that the number of students feeling unsafe at school has increased, while the number of those who report that they belong in schools has decreased (Prusinski et al 2019, OECD 2020). Although there is a global tendency of decreased belonging in schools, such a phenomenon is very context and culture-specific (Chiu et al. 2016, Riley 2019). France, which is the focus of this study, is a particularly curious example of a country to study in relation to the sense of belonging of its students. Only 38% of students taking the PISA survey agreed with the statement "I feel like I belong at school", the lowest among all OECD member countries participating in the survey, where on average 71% of students agree with the same statement. Also, around 30% of French students agreed with the statement "I feel like an outsider in school", while on average 20% of students across OECD countries feel the same way (OECD 2019). Such a low level of belonging, combined with an insufficient number of previous studies in the country, show the importance of developing more scholarship on the matter in France.

The first step to understand sense of belonging at schools is to conceptualize it. The concept of belonging is employed within a number of different disciplines, including political sciences, race relations, sociology, psychology, and cultural studies (Halse 2018). Across these traditions, some definitions of belonging include the feeling of being "at home" and "safe" (Yuval-Davis 2006), "a sense of ease with oneself and one's surroundings" (May 2011) or the "sense of being somewhere where you can feel confident that you will fit in and feel safe in your identity" (Riley 2017). This general definition is that of a psychosocial state of mind, which is built on the way individuals construct their identity in relation to their social surroundings (Miller 2003). As a result, this psychosocial understanding of belongingness, or the feeling of being at home in one's country, is often a collective experience of belonging affected by one's identity, including, for example, ethnicity, nationality, or social class (Weedon 2004).

After considering the various definitions of belonging present in the literature, together with interviews with students, the work presented here draws on the definition of sense of belonging as being the feeling that someone can be themselves in a specific social context without having their wellbeing threatened. This definition is large enough to comprise the three conceptions of belonging outlined by students in the phenomenographic interviews – wellbeing, friendships and identity, while also corroborating and building on previous psychosocial conceptualizations of belonging found in the literature, notably Goodenow (1993).

As shown in the literature (Yuval-Davisd 2006, Riley 2017) and confirmed by the interviews presented in Chapter 4, students at schools feel like they have a larger sense of belonging when they have shared identity and values with people around them, including colleagues and teachers. Additionally, the concept proposed by this thesis also includes notions of wellbeing and social networks (in the form of friendships), which were defined as key elements of school belonging by the students who participated in the qualitative interviews. Despite establishing one definition as the one used for the methodology of the thesis, which is innovative in its use of phenomenography as an approach to give voices to students in a collective way, the literature review chapter recognizes that definition of sense of belonging is dynamic and contingent on social, historical and cultural contexts. Chapter 1 therefore considers a series of different definitions of belongingness, stemming from various disciplines including political sciences, race relations, sociology, psychology, and cultural studies.

Given its collective and social reality, enhancing sense of belonging has political implications for the way groups claim recognition of their right to belong (Scheibelhofer 2007). Specifically, sense of belonging at school appears to have strong implications for the lives of young people in school and the opportunities they will encounter, as students who feel like they belong in school tend to have higher reported levels of wellbeing and life satisfaction (Branscombe et al. 1999, Gilman and Anderman 2006, Millings et al. 2012, Fisher et al. 2015, Tian et al. 2015, Choi 2018, Allen et al. 2020). Boosting students' sense of belonging to their schools can also provide an effective way to increase social cohesion (Tabane and Human-Vogel 2010, Healy 2019) and can lead to better academic performance, lower dropout rates, and higher school completion (Goodenow 1993, Ryan and Powelson 1991, Gonzalez and Padilla 1997, Ryan and Patrick 2001, Faircloth and Hamm 2005, Cueto et al. 2010).

Given the importance of enhancing sense of belonging, in general, and specifically to the school context, this research investigates how lower secondary school students in France define or make sense of their sense of belonging at school. Additionally, this research identified the main drivers of

students' perceived inclusion and exclusion at school, which leads to a higher or lower sense of belonging. The thesis answers four main research questions based on students' perception of their sense of belonging: (1) How do both individual student and school characteristics relate to sense of belonging in French schools as suggested through analysis of standardised international measures in PISA? (2) How do French school students conceive of or articulate sense of belonging at school in their own words? (3) How do a student's individual and collective identities identified during the qualitative interviews connect with their sense of belonging at school? (4) How do French students' own accounts and perspectives relate to the measures used within internationally standardised questionnaires regarding their sense of belonging at school?

To respond to those questions around sense of belonging at school, the thesis uses a mixed methodology that includes: (1) statistical analysis of PISA 2018 data discussing generalizable insights on the main student and school-level characteristics connected to perceived inclusion and exclusion at schools and (2) a qualitative analysis following a phenomenographic approach of over 30 purposely collected interviews with students from three lower secondary schools in the Paris metropolitan area.

The use of mixed methods is crucial to this thesis, as qualitative interviews allow for fuller access to multifaceted, complex ways individuals identify beyond the categories pragmatically employed in PISA surveys. In particular, phenomenography, a novel and interesting approach which has not been fully explored in the French context, is deployed in this thesis as part of the mixed methods as it gives voices to students in proposing a collective concept of belonging that makes sense to them. Additionally, through the qualitative analysis, the student characteristics used for statistical analysis were expanded into more complex ways in which students identify, which are referred to in this thesis as student identities. Furthermore, mixed methods facilitate an important, underdeveloped dialogue across and between disciplines and qualitative materials help us better explore processes, rather than simply identifying correlations between variables. In this sense, qualitative approaches can help identify some of the possible limitations of instruments used in quantitative analysis. This thesis shows, for example, to which extent some students fail to understand the PISA questionnaire administered to them.

Theoretical framework

The first chapter of this thesis introduces the concept of belonging employed in this work based on the literature review and the phenomenographic interviews, which is the feeling that someone can be themselves in a specific social context without having their wellbeing threatened. In order to explain how this concept reflects on the literature, the section conceptualizes the theoretical

framework for the analysis carried out in the subsequent chapters, as well as a critical engagement with the main papers studying similar fields. The chapter starts with a discussion on how sense of belonging or "belongingness", as it is referred to in part of the literature, was defined across time in different areas of research, including psychology, political science, social theory, and education studies (Anant 1966, Tajfel 1982, Goodenow 1993, Miller 2003, Yuval-Davis 2011, Halse 2018, Chin 2019). After the presentation of contrasting ways in which belonging is defined across different fields of study, the chapter focuses on the description of the definition of belonging in social theory (Halse 2018), as well as social psychology (Goodenow 1993), used in the methodology of the thesis. The specific application of belongingness investigated in this thesis is sense of belonging at school, which applies social and psychosocial theory to the education context. The first section of the Chapter also includes a discussion on the theoretical lenses employed to investigate sense of belonging in school, in particular safety (Ma 2003, Richmond and Smith 2012, Oscon et al 2017, Strayhorn 2018, Miles and Richards 2019) and connectedness (Rosenberg and McCullough 1981, Baumeister and Leary 1995, Strayhorn 2008, Ahn and Davis 2020). The sections also reflect the empirical applications of such lenses in previous empirical work and how they apply to the phenomenographic interviews presented in Chapter 4.

Following the conceptual discussion on belonging, the first chapter describes the state of current research investigating the main variables connected to belongingness at school. The first set of previous works gives grounding to the importance of belonging at school by showing how several other areas of students' lives are affected by their perceived feeling of inclusion at schools. Much previous literature was developed pointing out the various impacts sense of belonging at schools has on students' wellbeing, life satisfaction, and happiness (Branscombe et al. 1999, Gilman and Anderman 2006, Millings et al. 2012, Fisher et al. 2015, Tian et al. 2015, Choi 2018). Many studies also link a higher reported sense of belonging at schools to higher academic performance in standardized tests (Goodenow 1993, Ryan and Powelson 1991, Gonzalez and Padilla 1997, Ryan and Patrick 2001, Faircloth and Hamm 2005, Cueto et al. 2010, Prusinski et al. 2019). The literature review also investigates the interactive relationship between belongingness at school and other student characteristics looking more into the determinants of such perceived belonging. Furthermore, sense of belonging at school is connected with several student and school characteristics, such as gender (Van Zanten 2001, Ma 2003, Sanchez et al. 2005, Hughes et al. 2015), ethnicity (Van Ewijk and Sleegers 2010, Roche and Kuperminc 2012, Delgado et al. 2016, Jang et al 2021), immigration background (Mok et al. 2016, DeNicolo et al. 2017, OECD 2017) and socioeconomic background (Duru-Bellat et al. 2008, Chiu et al. 2016). For example, most previous works have described situations in which students with a recent immigration background are less

likely to report that they belong at schools than students without an immigrant background (Mok et al. 2016, DeNicolo et al. 2017). On the other hand, the relative importance of a student's gender in their perceived inclusion at school is much less conclusive, as some studies point in the direction of girls having a higher sense of belonging at school, while others find that boys have higher outcomes of belongingness (Sanchez et al. 2005, Hughes et al. 2015). The literature review also highlights that the specificities of national education systems and cultural specificities are extremely important to understand how sense of belonging at schools plays out (Yuval-Davis 2006, Yuval-Davis 2010, Prusinski et al. 2019, OECD 2019). In this context, country-specific investigations such as this thesis are a very important addition to the current literature, especially when they draw on the voices of students themselves through a phenomenographic analysis.

To give grounding to the specificities of the French education system, after contextualizing the main determinants and impact of sense of belonging to students' lives, the third section of Chapter 1 illustrates some previous works trying to answer questions about student sense of belonging in French schools, which is aligned to the investigation carried out in this thesis (Plender 1974, Keaton 2005, Ward 2007, Zoïa 2013). Together with the presentation of some previous works, the chapter first discusses the historical context in which the French education system was constructed and the contemporary implications of its historical background. This section gives particular attention to the debate around ethnicity and immigration in France and its relative importance in the discussion of sense of belonging at schools, which was also shown in much of contemporary literature on the matter (Keaton 2005, Van Zanten 2011, Safi 2013, Ichou 2016). Given the fundamental role of ethnicity as an individual and group identifier in French schools, as shown by these few papers that studied the matter directly, Chapter 1 moves back in the direction of conceptualizing it as an important element of research in a country where such discussion is often silenced (Safi 2003, Ichou 2016). In fact, in France, discussing with students about their ethnic identity is rare in the country's academic debate, which makes it an important contribution of this thesis.

As a result, the fourth section of the chapter provides the theoretical framework for studying ethnicity in France that will be used throughout this thesis, particularly in Chapter 4, which uses a mix of phenomenography and qualitative research. The framework discusses the main ways in which the debate around ethnicity can take place in discussions with students in light of the country's historical and contemporary specificities in addressing such characteristics. Another important aspect of this thesis is moving away from solely discussing migration as an acceptable measure of diversity in France and understanding the cruciality of ethnicity to determine the school experience of students. For this, the phenomenographic interviews explore the intersection of immigration and ethnic background and the extent to which they affect a student's sense of belonging at school. In

order to consider the complexity of immigration and ethnic background in the French context, the terminology chosen by this work focused on the word 'origin', combining migration background with ethnicity. This choice of terminology allows this thesis to move away from solely discussing migration as an acceptable measure of diversity in France and understanding the cruciality of ethnicity to determine the school experience of students. For this, the phenomenographic interviews, as well as the qualitative analysis, explore the intersection of immigration and ethnic background and the extent to which they affect a student's sense of belonging at school.

Methodology

The second chapter presents the methodology used in Chapters 3 and 4. Chapter 2 starts with a discussion on the epistemological debate around using a mixed methodology, specifically using two methods developed through two separate epistemological foundations. The contrast of the main ontological assumptions behind the methods used for investigation in this thesis then gives room for a discussion on the strategy used to foster dialogue between those two research schools in the thesis, as well as its implications for the conclusions of the research. In that sense, the chapter also presents the main benefits of using mixed methodologies, both in theoretical and empirical terms. The advantages of using mixed methods are also illustrated in the first section of Chapter 2 where some examples of the practical application of such methodological approaches are presented (Alasuutari et al. 2008, Blaikie and Priest 2019). The chapter also presents several of the limitations of using such methods and describes the solutions that were used in this work to remediate such shortcomings (Howe 2004, Giddings 2006, Hammersley 2008). For example, multi-methodology research does have some philosophical limitations as it can be ambiguous or incoherent given that epistemological assumptions proposed to one area of work do not necessarily hold for the other (Creswell and Garrett 2008). To avoid such incoherence, this work fully justifies how new knowledge was derived from many sources using various tools. In this sense, a pragmatic strategy to put together different research methods should be informed by strategic essentialism (Spivak 1980, Gunaratnam 2003), which temporarily categorizes identity, including ethnicity, in the statistical analysis, and then further explores these categories as more complex and less provisional identities in the interviews. This tactic ensures that temporary categorizations allow for a deeper understanding of the characteristics of a certain group in order to promote political change and progress for that group.

Another advantage of using mixed methods is the partial triangulation of findings, assuming that a single reality can be known objectively through different methods of research (Blaikie and Priest 2019). A research object can be understood from different perspectives by research methodologies approaching it from different viewpoints, which is a way of verifying that object in a more scientific

manner. In this work, triangulation, although present, is not the main aim of a mixed methodology as only the quantitative data relies on the positivistic acquisition of objective knowledge through the research methodology, while the qualitative interviews conducted for this study construct knowledge through a more interpretivist lens.

After a discussion of the joint use of the two methodologies of this thesis, Chapter 2 presents each one of them individually. The first one, presented in the second section of the chapter, is statistical analysis following a statistical tradition, which relies on positivistic philosophic assumptions (Angrist and Pischke 2008, Verbeek 2008, Wooldridge 2016). The statistical work applies regression analyses to PISA 2018 data in order to produce generalizable findings discussing the main student-level and school-level characteristics that correlate with a student reporting a higher or lower sense of belonging, as measured by a series of statements they respond to in the PISA questionnaire. This first method of secondary data analysis leads to generalizable results with intentioned objectivity, which contrasts with the second method presented in Chapter 2 and analysed in Chapter 4. In particular, the statistical model deploys a multilevel analysis that disentangles the importance of student-level and school-level characteristics to explain sense of belonging at schools.

The second method, for which the methodology is discussed in the last section of Chapter 2, draws from the interpretivist tradition and uses a phenomenographic approach (Marton and Booth 1997 Ballantyne et al. 1998, Marton 2015, Durden 2019). Such an approach is a distinctive contribution of this thesis by conceptualizing belonging considering both evidence from the literature, as well as conceptions coming from students' voices. Despite being grounded on interpretivism, phenomenography does not entirely reject objectivism, nor fully embraces subjectivism, following somewhere into a non-dualistic ontology (Marton and Booth 1997). The section first describes the theoretical background behind phenomenography also showing some works in the literature that were grounded in such tradition, as well as the limitations in the possible use of phenomenography and how they were overcome in this thesis. Following the theoretical and methodological foundation for research, which is based on phenomenography, the section then describes the actual method used for investigation. In the description of the method, the chapter gives important details on how the qualitative interviews took place and how schools and students were selected. In addition to the data production, collection, and its main epistemological assumptions, the section also describes the approach phenomenography has to treat the data, which consists of an in-depth and repetitive analysis of the transcripts as well as the recordings to identify commonalities that then turn into conceptions of the phenomenon it intends to describe, which are ways in which students make sense of their sense of belonging at school. In the phenomenographic tradition, conceptions are the ways in which individuals understand the phenomenon (Akerlind 2005, Marton

2015, Durben 2019). The main objective of phenomenographic research is to identify and describe complementary conceptions, or qualitatively different conceptions, as these complementary conceptions are called in the phenomenographic tradition (Durben 2019).

Findings

The last two chapters of this thesis present the main results from statistical evidence and phenomenographic analysis. The third chapter describes an actual statistical analysis of PISA 2018 data and the main findings derived from such analysis. The chapter starts by presenting the dataset, as well as the way in which inferential analysis took place. The main statistical method following the econometric tradition applied to education research consist of regression analysis, of which the epistemological assumptions grounded on the positivistic tradition, is discussed in detail (Angrist and Pischke 2008, Verbeek 2008, Wooldridge 2016). The main regressions used to give grounding to the results are presented, explained, and discussed (Goldstein 2011, Wooldridge 2016). These regressions use multilevel models, which jointly analyse the connection between sense of belonging at schools and both individual-level and school-level characteristics. The use of such models allows for disentangling the importance of individual and school features to understand student sense of belonging at school. This technique helps identify to which extent a higher sense of belonging to school is due to school characteristics and to which extent it is due to the characteristics of students within a school.

The results from the statistical analysis applied to education research complement existing academic research by adding several methodological improvements to the current literature. First, it provides an in-depth country investigation, which includes multilevel analyses (Angrist and Pischke 2008, Wooldridge 2016), which distinguishes school-level and individual-level characteristics and allows for controlling for fixed effects at the school level. Few papers try to link classroom composition, or school diversity, with sense of belonging, a gap in the literature that will be partially filled by the multilevel quantitative analysis. Second, this research uses the most recent version of PISA data for the year 2018, which has not been explored in the literature yet and provides results that update previous analyses using data from 2003 and 2015 (Duru-Bellat et al. 2008, Chiu et al. 2016). Third, the methodological specificity of using mixed methods where regression analyses serve as a first contextualizing step has not been found in the literature review, in a way that quantitative evaluation serves to complement phenomenographic work.

The chapter puts forward several results describing the main individual-level and school-level characteristics that are connected to students' perceived sense of belonging at schools in France, which is much lower than across most other OECD countries. The findings come from a

representative sample of 15-year-olds in France and are hence generalizable to all students of that age group in the country. The main results show that the most important student characteristic that helps explain feelings of exclusion and inclusion are life satisfaction and academic performance in reading and mathematics. The fact that a link is identified between academic performance and sense of belonging means that other characteristics that are correlated with academic performance also indirectly affect belongingness. For example, students in vocational schools, poorer students and those who are immigrants or who were born to immigrant parents all have worse test scores and are hence expected to have a lower sense of belonging. This means that, although immigration background and school tracking per se do not lead to lower levels of belongingness, the connection between coming from an immigrant family or attending vocational schools and having a lower sense of belonging at school happens through lower academic performance. For example, given that students with an immigrant background in France tend to have lower academic results, and students with lower academic results are less likely to feel like they belong at school, then their immigrant background will also be correlated with a lower perceived sense of belonging. Although such correlations can be implied, it is hard to assess causality using PISA data as it is only cross-sectional, covering only one point in time, and the change in students' characteristics across time cannot be measured. As Chapter 2 describes further in detail, part of the issue with causality was addressed through the use of hierarchical models, which eliminate the presence of confounding factors at the school-level. Nonetheless, as presented in the Chapter, some confounding factors at the student-level could still be present, including for example student resilience.

Furthermore, Chapter 3 shows that school-level characteristics play an important role in the understanding of sense of belonging. For example, school diversity is negatively correlated with sense of belonging at school, meaning that students at schools with a large share of immigrants have a significantly lower sense of belonging to those schools. Nonetheless, for students with an immigrant background, the share of other immigrant students in their school does not affect how easily they make friends and how lonely they feel at school (two of the areas of belongingness investigated in PISA data). By enhancing the understanding of the socioeconomic and demographic profile of students who feel like they belong in school, the findings of the chapter can be used to inform policy change by helping identify possible target groups who are less likely to feel like they belong in school. Furthermore, by reviewing some key aspects of the design of PISA questionnaire, the conclusions can be useful to elaborate on possible improvements to the survey.

Beyond the findings described above, Chapter 2 concludes by describing that in fact, the student and school level characteristics present in the dataset were insufficient to explain most of the variation in sense of belonging at an individual level, given that the analysis is grounded on a limited number of

quantitative variables available. This is especially true considering that a substantial part of the variation in sense of belonging of individuals that is in fact explained by the statistical model comes from its correlation with the variable of life satisfaction, which is a concept intimately connected to sense of belonging at schools. That means that most of the reasons why certain students respond in a certain way to each of the six statements measuring sense of belonging at school remain unanswered. The insufficiency of variables available in the dataset to fully explain sense of belonging at school further justifies the need for qualitative analyses of such phenomenon, as in semi-structured interviews, students can more freely describe what affects their belongingness.

In the context of further exploring the main drivers of inclusion and exclusion in French schools, Chapter 4 presents the findings from interviews carried out in three lower secondary schools, each of which is located in a different suburb of Paris. The comparability of these three schools serves as grounding to affirm the contingency and context-specificity of the findings. This chapter draws primarily on 33 qualitative interviews collected for the purpose of this study, which were analysed through the lens of phenomenography and qualitative research. The Chapter starts with a discussion on the motivation for such a study based on the need for further scrutinizing the quantitative findings, as well as the main methodologic assumptions of qualitative interviews in the interpretivist tradition following a phenomenographic approach. The methodological discussion is less theoretical than in Chapter 2 and focuses instead on describing the actual application of the method, including the procedures followed and describing the institutions where the study took place.

Part of the contribution of this thesis is to add to the existing conceptual understanding of sense of belonging by giving voices to students. With this purpose, Chapter 4 presents its main findings illustrating how sense of belonging at school plays out from the perspective of the 33 students who took part in the phenomenographic interviews. The way the meaning of belongingness is created is contingent and context-specific, which reinforces the importance of these one-to-one discussions with students who can clarify their meaning-making specificities.

The phenomenographic analysis of the interview recordings, transcripts and field notes led to the first set of results presented in the chapter describing how sense of belonging at school is conceptualized by students, while contrasting their perspectives with the academic debate discussed in Chapter 1. Following a phenomenographic approach, the study complements the definitions of belonging proposed in previous literature with the qualitatively different, or complementary, ways in which students gave meaning to their sense of belonging in schools and what the main conceptions of belongingness are. The interviews show a vast majority of participants highlighting the importance of their social interactions at school, particularly their friendships, as the main way of

making sense of their perceived belongingness at school. The second conception put forward by students is general wellbeing or the sense of feeling good while at school. Various students identified belongingness at school as part of a generally pleasant state of mind. The third and last conception was a sense of identity created in opposition to another school, which was identified in the first school where interviews took place. In this conception, students felt like they belonged in their school because the collective identity of that school was different from that of another school in the same neighbourhood. The conceptions identified are contrasted with other concepts of belonging found in previous literature showing how, by giving voice to students, phenomenography contributes to the theoretical debate on the concept of belonging.

The conceptions of belongingness in the first part of this set of findings were then contrasted with the definition of belonging used in the PISA surveys, which is based on six statements loosely based on Goodenow's (2003) framework. The framework developed through the interviews has some similarities with the one used in PISA, particularly in terms of friendship and appreciation by peers, which were directly included in one statement and indirectly included in two other statements. However, the wellbeing of students was included as a separate module in PISA and the collective identity of the school, as opposed to another one was not part of their framework. The Chapter also discusses the validity of the statements in the framework, by assessing to which extent students were capable of understanding them. Many interviews confirmed the difficulties some students faced in responding to three of the statements in their official translation in French, particularly students with lower academic performance. Chapter 4 explores those difficulties illustrating various situations in which students failed to understand the actual meaning expected from the statements, which calls for a revision of the framework to ensure general comprehension of respondents.

The second set of findings in Chapter 4, using qualitative research, discusses a similar exercise to the one developed in Chapter 3, meaning that they connect the perceived sense of belonging of students at school with student-level characteristics. However, informed by the strategic essentialism employed by Spivak (1980) and Gunaratnam (2003), the temporary categories used in Chapter 3 were dismantled, and participating students are able to freely describe their identity during the interview. The section showed that students' identities, both individual and collective, operate as unidirectional mediators through which sense of belonging at school is shaped and conceptions emerge. For example, the shared ethnic identity of students in one school was a crucial way in which they conceptualized belonging to their school as opposed to another school in the neighbourhood with a very different ethnic makeup. These findings, which also come from a phenomenographic analysis, connect students' experiences of belonging or not belonging at school with the way they construct their identity. As a result, the second set of findings dives deeper into

the main connections between sense of belonging at school and its interactions with other student-level characteristics previously discussed in Chapter 3, which were expanded from categories into identities.

Some of the ways through which certain identities and characteristics lead to a higher sense of belonging were on par with previous findings of the literature in other national contexts, as well as the quantitative evidence from Chapter 3. These ways that work as mediators, or channels, between a certain characteristic and an enhanced or increased sense of belonging were called *channels, or mediators, of belongingness* in this thesis. The term channel is used in this thesis to describe ways through which a student characteristic impacts a given conception of belonging. For example, the findings from PISA data presented in Chapter 3 show that higher academic performance does affect sense of belonging because it boosts student wellbeing in school. In this case, wellbeing is the channel, or mediator, through which academic performance influences sense of belonging at school. However, Chapter 4 innovates in the provision of a phenomenographic framework, which gives voices for students to describe the channels through which individual and collective identities operate by influencing their sense of belonging in each of the conceptions identified by them. For example, although the quantitative analysis of PISA data concluded that academic performance was one of the main determinants of sense of belonging at school, most of the students did not directly associate their grades with their feeling of belonging at schools. On the other hand, gender and ethnicity were important factors in explaining how students made friends, which is one of the main conceptions behind sense of belonging in school. School characteristics, as part of a collective identity of students, were also a crucial dimension through which sense of belonging at school is constructed, especially in the case of the conception of collective identity and otherness.

Following both quantitative and qualitative findings, the last chapter provides a discussion on the main conclusions of the thesis and how to conciliate seemingly contradictory findings such as the ones produced in Chapters 3 and 4. The Conclusion reviews the main outcomes presented throughout the thesis, showing the areas in which quantitative and qualitative findings corroborate each other, as well as the dissimilar conclusions of those two approaches. In Chapter 5, the main findings are also contrasted with previous literature, highlighting the impact of the thesis on the contemporary discussion on sense of belonging at schools. Finally, the last chapter also provides some insights on further research that is needed to continue the investigation of the topic, as well as a discussion on the limitations of the methodologies used and the findings proposed.

Chapter 1 – Theoretical Framework & Literature Review

This chapter starts with a discussion on theoretical works that contextualize and delimit the area of study of sense of belonging, or "belongingness"[1], and a reflection on how these works informed the concept of belonging employed in this thesis. The first section of this chapter provides the theoretical grounding and structure to the research, based on how belongingness and identity were conceptualized and investigated in earlier studies. This section then shows how the conceptualization of belongingness applies to school contexts in delimiting how students feel included in or excluded from the schools they attend. The first section also explains what sense of belonging at school means and how student perception of their own belongingness plays out, particularly in the context of social theory. The section reviews sense of belonging at school from different points of view and then justifies the understanding employed throughout the thesis, which builds on both the literature and the conceptions developed by students during the phenomenographic interviews.

The second section provides a critical assessment of the literature building on a larger discussion of previous works using qualitative research, as well as regression methods, to investigate research topics that are similar to this thesis'. In particular, it highlights the importance of sense of belonging at school, and its relevance to explaining student wellbeing, health and academic performance. The discussion on the link between student characteristics and sense of belonging is then reversed in causality, as this section moves on to explore the main student characteristics determining sense of belonging at school. These previous academic papers are aligned with the overarching research questions of this thesis and the section justifies how the answers to these questions contribute to filling the existing knowledge gaps in the literature. The section also prepares the discussion of the following chapters that contrast the thesis' findings with those from existing literature.

The third part of the chapter presents a brief history of the French education system and how its particularities play out in defining, studying, and understanding sense of belonging to French schools. As the literature shows, the distinctive predictors of sense of belonging in different countries highlight the importance of national studies. Given the national context analysed in this thesis, the literature review includes several works that were carried out and published in French. This part also reviews those research pieces and the discussion of the findings they put forward contrasting them to the ones already available in the Anglo-Saxon tradition.

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[1] In social theory, the term belonging can be used both as a verb "to belong", or as a noun, "belongingness" (Halse, 2018).

The last section of this chapter builds on existing literature on ethnic categorization, and in particular on the few studies on the matter in France, to justify how ethnicity is conceptualized in this work, especially in the analysis of phenomenographic interviews. The last section also reflects on the scarce literature discussing ethnicity in France and how this thesis contributes to the current debate by bringing together students' voices to discuss their ethnic identity and sense of belonging.

1.1 Conceptualizing sense of belonging and belongingness

In this work, sense of belonging at school is understood through a psychosocial lens, especially in the intersection of psychology and sociology with education studies (Miller 2003, Yuval-Davis 2006, May 2011, Halse 2018). Building on previous literature outlined in this section and reflecting the interviews with students, this thesis employs the concept of sense of belonging as the feeling that someone can be themselves in a specific social context without having their wellbeing threatened. At school, this sense of belonging is the feeling of comfort within one's identity in relation to friends, teachers and other individuals participating in the school environment, which often occurs in the form of shared identity or shared values. The decision to select this concept comes from the literature described in the following sections, which values wellbeing and social context, as well as from the discussions with students analysed through the lens of phenomenography and presented in the fourth Chapter, which stress the importance of wellbeing, solid friendships and a shared school identity. This definition is large enough that it covers the Goodenow framework that is used in the PISA data analysis and also does not conflict with the conceptions proposed by students in the phenomenography discussed in Chapter 4, ensuring a theoretical cohesion throughout the thesis.

The commitment to one vision of belonging for the purpose of this work does not ignore that the definition of sense of belonging is dynamic and contingent on social, historical and cultural contexts. Over time, academics have come to propose very different understandings of belongingness, stemming from various disciplines including political sciences, race relations, sociology, psychology, and cultural studies (Halse 2018).

A more general definition of belonging, which can be found across many disciplines, sees it as emotional attachment, or the feeling of being "at home" and "safe" (Yuval-Davis 2006). "Home", nonetheless, can be expanded into different concepts including the nation-state, a community, a social class or, in the case of this work, schools. One of the very initial thoughts on belonging comes from Maslow (1954), who describes it as a personal fulfilment of an individual in the process of becoming what they are capable of becoming through the development of their capabilities. In that sense, this preliminary discussion of belonging understands it as part of someone's personal accomplishment and development more than that person's perceived interaction with the world around them. Indeed, in his view notably drawn from psychology, belonging is a natural urge from individuals, and it is included in the third rank of Maslow's (1954) hierarchy of basic human needs.

However, Maslow's vision of individual belonging seemingly unaffected by collectiveness was later challenged. In keeping with the understanding of belonging in the field of psychology and psychiatry, Anant (1966) theoretically defines belongingness in terms of "personal involvement in a social

system", which means an individual's personal experience of being recognized and accepted as a member of the group by other group members. The group and the group members can be part of different segments of society including organizations, natural environments, cultural communities, or in the case of this thesis, the school environment.

Echoing and deepening Anant's collective understanding of belonging, Hagerty et al. (1992) bring up another dimension to understand and define one's belonging as part of one's participation in a system or environment. The authors defined belongingness as the experience of personal involvement in a system or environment so that the person feels themselves to be an integral part of that setting. For this involvement to lead to higher belongingness of an individual, the individual should be accepted by others in the group. This definition is similar to Anant's concept; however, it also includes some individual characteristics and traits that connect them to the group, which is a step forward from Anant's initial concern. Hagerty et al. (1992) point out two main attributes of belonging: the first one being in relation to one's personal experience of feeling valued and accepted by others, and the second being a feeling of harmonization by which an individuals' characteristic is also perceived as being part of the larger group.

In psychology, particularly social psychology, belongingness has been studied especially in its absence, linking to the feelings of exclusion and lack of conformity to the group (Tajfel 1982). For example, those feelings of exclusion or otherness can occur after an individual is separated from their parents or families (Yuval-Davis 2006). In social psychology, the exclusion is expanded from the family circle and understood as a lack of membership to a particular group, which can also include a community or, as in the case of this thesis, a school (Yuval-Davis 2011).

The study of belongingness is, however, not confined to psychology. Social and political theories also use this concept to understand a variety of social phenomena. Belonging is an important concept to mediate the complex relationship between the self and society (May 2011). In fact, May (2011) defines it as "a sense of ease with oneself and one's surrounding", meaning that belonging is a subjective state that necessarily involves the surrounding people. Miller (2003) describes belongingness from a sociological point of view as the subjectivity through which the individual constructs their identity in relation to their social surroundings. In this sense, belonging somewhere implies that one feels safe with their own identity in that place (Riley 2017). Social belongingness also has political implications. Feeling at home in one's country is often a collective experience of belonging affected by one's identity, including, for example, ethnicity or class (Weedon 2004).

As a result, the sociological reality of belonging somewhere can have political implications in the way groups claim recognition of their right to belong (Scheibelhofer 2007). In political science, for

example, social and cultural boundaries dividing individuals within a social group are the defining features that push some into exclusion and others into belonging (Yuval-Davis 2011). In the political understanding of belonging, a commonality of political ideals and ethical values leads individual experience into belongingness. This values-driven political belonging is key to understanding belongingness to a nation-state, for example (Halse 2018). Nations are articulated around institutional systems, and also shared values between their citizens. Hence, the extent to which an individual feels as though they belong (or not) within a given nation relates to their relationships with national institutions and nationally shared values. Sense of belonging to the nation is very similar to belongingness to other social groups. As Anderson (1983) famously claimed, those nations still function as distinct social groups, despite an individual member of such groups never meeting or hearing about most other members. The distinctive predictors of sense of belonging in different countries highlight the importance of national studies, like this one.

In this work, the primary focus is on the psychosociological understanding of what belonging is, especially in the intersection of those areas with education studies, which concentrate on understanding belonging at school. The definition of belonging used here is that of a feeling that someone can safely be themselves in a specific social context without having their wellbeing threatened, which combines both psychological and sociological aspects of belonging.

The understanding of belonging as a state of physical and emotional safety was part of a large literature starting with Maslow (1954, 1962) for whom belonging emerges when "physiological and safety needs are fairly well gratified" (Maslow 1962). More recently, several other authors have described belonging, and in particular school belonging, through the lens of safety (Ma 2003, Richmond and Smith 2012, Oscon et al 2017, Strayhorn 2018, Miles and Richards 2019…). Ma (2003) theorized belonging as being part of a school climate where students feel cared for and safe, while Pedergast et al (2018) used a definition of belonging where a supportive teaching and learning environment creates safe spaces for students. Cemalciar (2010) emphasizes how belonging to school is in fact the promotion of a safe environment where social relationships can unfold.

These theoretical lenses connecting sense of belonging and sense of safety were empirically confirmed in previous research. For example, Richmond and Smith (2012) analysed sense of belonging of aboriginal youth in Canada who were studying in urban school settings. Through focus group discussions, they concluded that the students' sense of belonging was essentially connected to their feeling of safety, and in particular cultural safety, at the school. Miles and Richards (2019) conducted semi-structured interviews with girls with autism and also identified their sense of belonging as being a feeling of safety in school, especially in terms of safety to establish social

connections. Strayhorn's (2018) personal experience as a college student recalls his sense of belonging as being his sense of being safe and secure at school, while his sense of exclusion was intimately connected with experiences that made him feel unsafe.

The feeling of safety is intimately connected with that of wellbeing and unsafety is a direct threat to a student's security, comfort and happiness (Ma 2003, Pedergast et al 2018, Miles and Richards 2019). The need for feeling safe as a part of a student's feeling of belonging was also put forward in the interviews presented in Chapter 4, where students highlighted their wellbeing as a key conception of belonging to school.

In social theory, the term belonging can be used both as a verb "to belong", or as a noun, "belongingness" (Halse 2018). In this work, the term will take the form of a noun referring to "one belonging to a particular social group, collectivity or organization". Belonging to a social group is by no means a tangible binary state, people can feel like they belong or do not belong to a certain group to various degrees. Furthermore, those social groups, or social collectivities as defined by Calhoun (2003), can take various forms, ranging from the home where an individual resides, or their community, to their profession or the country where they were born. Belongingness is the cognitive and affective attachment to others in a group (Chin 2019). Such groups can be defined based on external or internal criteria. The internal criteria that serve for group identification have two necessary components: a cognitive one, "sense of awareness of membership", and an evaluative one based on "value connotations" (Tajfel 1982). In the presence of those internal criteria, intergroup behaviour and identification emerge. The link between an individual's identity and that of the group they participate in is what leads to feelings of belongingness or exclusion. This idea of collective unity in the participation of a group goes beyond the simple aggregation of individuals as belongingness stems feelings of safety and familiarity in being part of the group, not just the group participation per se. Indeed, belongingness follows both an internal and external dynamic where situations and other individuals affect the way someone feels and thus their sense of belonging.

A key concept to understanding sense of belonging at school is school connectedness, which identifies with a range of terminology, including school bonding, school climate, notions of territory, school attachment, and orientation to school (Libbey 2004). Various scholars have previously theorized belonging as referring to connectedness (Rosenberg and McCullough 1981, Baumeister and Leary 1995, Libbey 2004, Strayhorn 2008, Ahn and Davis 2020…). To Rosenberg and McCullough (1981), despite the many definitions of belongingness, it generally refers to "a feeling of connectedness, that one is important or matters to others". Strayhorn (2008) conceptualized belonging in the school context as being "a perceived support from one's peers, teachers and family

members". Ahn and Davis (2000) argue that there is in fact a conceptual and empirical overlap between sense of belonging and social capital, as belonging emerges from social interactions with other people. In their conceptual framework, they exemplify the theoretical overlap in terms and themes used to understand belonging and social capital. Baumeister and Leary (1995) also propose a definition of belongingness as a need for "frequent, affectively pleasant interactions in the context of a temporally stable and enduring framework of affective concern". In their socially oriented approach, belonging is driven by connection with others in stable environments. Belonging and connectedness are intimately linked areas and some authors even argue that "connectedness and belongingness are used interchangeably" (Juvonen 2007) and that both concepts refer to sense of acceptance, respect, support, and feeling positive about one's surroundings (Juvonen 2007, Stracuzzi and Mills 2010, Riley 2019).

Such theoretical lenses to understand belongingness also find grounding in empirical works. Ma (2003) finds out that sense of belonging develops as part of the social environment and Miles and Richards (2019) point to belonging being built in situations where students can locate friends and stick together with them. Hill (2009), who has done work similar to Olcon et al (2017), investigates the link between school belonging and youth suicide. However, unlike Olcon et al (2017), Hill (2009) sees belonging through the lens of connectiveness rather than safety. In his work, Hill (2009) uses specifically the vision of connectedness from the Native American tradition. Here 'connection' is understood as 'interrelatedness, intertwining and interlacing', which is applied to society, communities and also to schools. In Chapter 4 of the current thesis, students present friendships and their feeling of connection to social networks as one of the main conceptions of sense of belonging to school.

For the purpose of this thesis, the social ecosystem where one belongs is discussed in relation to the school where they study. Here, the term "belonging" is used to understand and measure to which extent students belong at school and how those students conceptualize their belongingness at school. Despite focusing on belonging at school, specifically, it is impossible to ignore that belongingness to one social group does not happen in isolation from belonging to other social collectivities where an individual participates (Yuval-Davis 2006). In critical social theory, belongingness gravitates around inclusion and exclusion of individuals within their political community at large (Chin 2019). In particular, in the context of belonging at schools, this dual conceptualization of otherness and belonging can also be used in the school community.

Building on these views on belonging in social theory, Fiske (2004), for example, defines belongingness as conformity to group norms. In his view, belonging is a useful predictor of ordinary

social behaviour, which can be ethical or unethical as long as it is the ingroup's general behaviour that ensures an individual's belonging to the group. Fiske's conceptualization of belonging moves one step ahead from earlier definitions by recognizing not only the collective implications to the construction of belonging, but also how sense of belonging of members of a group shapes the collectivity.

1.1.i Identity and its connection to sense of belonging

A key concept behind the sociological definition of belongingness is identity and how someone's identity interacts with other identities within a given collectivity. Identity, and its connection to belongingness, have grown as a core concept in social sciences since the 1960s due to its strong political implications, particularly giving grounding to civil rights movements (Wetherell 2010). In this sense, group membership asserted in the form of collective identity is a critical force to promote social progress and change (Hall 1996, Yuval-Davis 2010).

Individual identity emerges from the recognition of one's self as a different entity, physically separate, from someone else's self. In contrast, collective identity evolves in the identification of similarities of one's self with other people's selves within a given group (Anthias 2002). The dynamic search for sameness and otherness between one's individual identity and the collective identity of the group where that individual participates leads to perceived feelings of inclusion and exclusion (Anthias 2002, Yuval-Davis 2006). Notably, identities are plural, meaning that the dynamic described is not unique or exclusive, as individuals can see themselves as part of a number of groups at once. Furthermore, different identifications to different groups become more or less salient according to the context. The individual perception of being included and feeling safe or familiar with that group creates the notion of belonging to such a group (Chin 2019).

This identity, however, is complex and cannot be reduced to a unique set of personal characteristics of an individual within a social group. Identities are "stories that people tell themselves and others about who they are" (Martin 1995). These stories can be connected to individual "attributes, body images, vocational aspirations or sexual prowess", as well someone's perception as being a member of a "collectivity or grouping such as ethnic, racial, national, cultural, religious" (Yuval-Davis 2006). In fact, identity is not always individual or personal, as these "stories" told by people are often collective and convey a collective understanding of identity (Yuval-Davis 2010). Although a given individual can identify primarily or exclusively with one identity, their social location is often defined by a combination or intersection of various identities and therefore various possibilities of belonging (Yuval-Davis 2006). For example, Jang et al (2021) found that national belonging in Hong Kong is driven by a combination of age, gender and origin.

In fact, belongingness is a complex concept as it discusses people's identities and how they perceive those individual identities to take part in collective identities. In this sense, identity is central both in theoretical and analytical terms to understand belongingness (Yuval-Davis 2010). Identities do not exist in the void and even when they pertain to an individual's experience and feelings, they still exist within a delimited social context (Chin 2019). Due to the uniqueness of one's identity, as well as of collective identities created by individual ones, belongingness is, therefore, the study of a wholeness that can hardly be divided into parts or categories (Ville and Guérin-Pace 2005).

The term belongingness and its attached meaning are constructed in an interconnected social manner, both in general and, especially, in school contexts. This means that the feeling of belonging or not belonging to a given social group is delimited through the interaction with other individuals in the group (Wright 2015). Furthermore, the interconnectedness of belonging happens as a changing process that takes new forms whenever the interactions with other individuals of a given social group change (Yuval-Davis 2006). Hence, belongingness is a dynamic, transitory process, contingent on the interconnections between that individual and the group they could belong to.

In this work, students' belonging is studied and understood as a psychosocial phenomenon, in the light of the social context built on the social interactions where belongingness was developed and where it is discussed. The choice of situating belonging as a psychosocial phenomenon ensures that this work uses a definition that is large enough to cover the Goodenow framework that is used in the PISA data analysis (Chapter 3), as well as the conceptions proposed by students as revealed through phenomenographic analysis (Chapter 4), ensuring a theoretical cohesion throughout the thesis. The major social context where belonging at school takes place are the schools themselves, which are physical and figurative entities where students build their identity and belonging (Stables 2003). Although schools are just a physical entity, a building, they are also a place made of the relationships between the people who are part of it, their identity and how they feel in relation to it (Riley et al. 2018). Such framework connecting sense of belonging, individual and collective identities within a social context is important given the various implications that sense of belonging and identity jointly have in areas such as political progress (Hall 1996, Yuval-Davis 2010), social cohesion (Tabane and Human-Vogel 2010, Healy 2019) and general wellbeing (Gilman and Anderman 2006, Millings et al. 2012, Tian et al. 2015, Choi 2018).

The social nature of sense of belonging makes its construction and understanding very contingent on context and very culturally specific (Yuval-Davis 2006, Yuval-Davis 2010). Such specificity limits the analysis that can be made using cross-national data where students in all countries were provided with the same questionnaires measuring belonging in the same way, which is the case of TIMSS and

PISA (Prusinski et al. 2019, OECD 2019). Although cross-national data are able to provide evidence for comparing how different countries fare in terms of the provision of safe learning environments to children, there is a need to understand national examples in more detail. National examples are capable of providing more detail on the specificities of each country's school ecosystems, including curriculum and teaching practices, as well as the specificities in the relationships among students and between them and their teachers. This makes it important to produce phenomenographic work focusing on one national reality, such as the one presented in this thesis, which sheds light on the culturally specific understanding that students have of belonging in France where work on belonging is rare, as shown in the literature review, despite the lower performance in standardized metrics of school belonging (OECD 2019, pages 131 and 133). The phenomenography is particularly helpful to understand the specificities of national country contexts as it identifies the specific ways in which students make sense of key concepts, such as belonging, in their local reality.

1.1.ii Sense of belonging at school

More specifically than focusing on students' belonging at school, this work will study students' *sense* of belonging at school. The word *sense*, as it is used in this work, stresses the necessity to understand belongingness as a perception and a feeling, rather than an absolute and objective state of mind. This means that the methods used in this research aim to understand and explore how students define their sense of belonging at school and to what extent they feel like they belong. The perception of belonging through the lens of students' own described experiences (Chapter 4) and agreement or disagreement with statements in a questionnaire (Chapter 3) are defined as their sense of belonging rather than belonging per se. In both contexts, the way in which belonging is investigated in this work will be through the inquiry into students' individual social and psychological experiences and subjectivities, as derived from their own descriptions.

This means that the object of analysis in this work, is sense of belonging, rather than actual belonging. There are two reasons for this conceptual decision. First, based on previous research, sense of belonging has more important implications and connections to other dimensions of a student's wellbeing and their life in school (Branscombe et al. 1999, Gilman and Anderman 2006, Millings et al. 2012, Tian et al. 2015, Choi 2018). A student's perceived state of mind, (i.e. sense of belonging), is more intimately connected to other psychological aspects than a presumably true state of mind behind their perceptions (i.e. actual belonging). There can be a mismatch between students' perceptions of themselves and their relationships to the world and to others and the realities of their relationships. In this work, the discussion will be around the students' perceptions or their *sense* of belonging. Second, pragmatically, given that the methodology used in this work is

grounded on secondary data analysis from students' self-declared belongingness, as well as semi-structured interviews, a student's sense of belonging is a more accessible area of research than belongingness itself.

Schools cannot simply be understood as institutions where knowledge is transmitted from one generation to the next (Riley 2022). In addition to providing learning opportunities to students, an ideal school should also ensure that students feel like they are part of their educational environment, including having social relationships that are meaningful, intimate, and satisfying (Baumeister & Leary 1995, Lavigne et al. 2011). They must also feel that they are appreciated and supported by others, including colleagues, teachers, and other individuals at school (Ryan & Deci 2000). In this context, defining and understanding sense of belonging at school is of vital importance to ensure students' successful participation in the education system.

Sense of belonging at school as an area of study has been first conceptualized in a framework for research developed by Goodenow (1993), which was named *Psychological Sense of School Membership*. The author defined belonging, or psychological membership in the school, as "the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment" (Goodenow 1993). The framework, which was often used as a questionnaire, consists of a series of statements provided to children, where they should agree or disagree with each of them. The responses to the statements should provide guidance in understanding which children feel like they belong at school and which ones do not.

The first step Goodenow (1993) took to develop a measure of school membership was to generate a pool of 42 potential items reflecting issues raised by the research literature. Items included perceived appreciation of one's character, personal acceptance, inclusion, respect, and encouragement for participation, as well as the perceptions of other students, teachers, and other school personnel. In a subsequent stage of Goodenow's study, one-third of the statements proposed based on the literature were rephrased into negative statements to prevent students from systematically responding in the same way to each one of them. For example, "It is easy for people like me to be accepted here" was turned into "It is hard for people like me to be accepted here". Then, every statement was presented as a 5-point Likert scale, with choices ranging from them being not at all true (1) to being completely true (5).

As a second step, some ambiguous and redundant items were eliminated, and the item count dropped from 42 to 28 items. These items were administered to three different samples of early adolescent students, including urban and suburban students, as well as students of different ethnic groups. After the testing with the samples of students, a final list of 18 items was confirmed. Those

items went through a process of validity and reliability testing, which confirmed both that they are valid and reliable, and are displayed on the Table 1 below (Goodenow 1993). The internal consistency reliability was tested both for urban and sub-urban samples using the Cronbach's alpha as an indicator. The results showed that reliability was 0.875 for suburban students in Study 1 and 0.884 the following year in Study 3. Among urban students, the internal consistency reliability stood at 0.803 for those taking the English version of the scale and 0.771 for those taking the Spanish version. The usual threshold for scales measuring attitudes reported by Helmstadter (1964) and conventionally used stands at 0.8 for good internal consistency and 0.7 for acceptable consistency. Goodenow (1993) argues that his results are sufficiently close, and that the reliability of the measure is acceptable.

Table 1 Psychological Sense of School Membership

1. I feel like a real part of (name of school).
2. People here notice when I'm good at something.
3. It is hard for people like me to be accepted here.
4. Other students in this school take my opinions seriously.
5. Most teachers at (name of the school) are interested in me.
6. Sometimes I feel as if I don't belong here.
7. There is at least one teacher or other adult in this school I can talk to if I have a problem.
8. People at this school are friendly to me.
9. Teachers here are not interested in people like me.
10. I am included in lots of activities at (name of school).
11. I am treated with as much respect as other students.
12. I feel very different from most other students here.
13. I can really be myself at this school.
14. The teachers here respect me.
15. People here know I can do good work.
16. I wish I were in a different school.
17. I feel proud of belonging to (name of school).
18. Other students here like me the way I am.

Building on the discussion on the collective implications of sense of belonging at school, Goodenow's framework already shows clear evidence that one's belonging at school is not a solely individual concept as it derives largely from one's interactions with their peers, as well as with teachers, who are explicitly mentioned in four of the statements, and other adults. Goodenow's (1993) eighteen

statements were largely used to develop the framework of sense of belonging used by the PISA survance, which is used in the analyses of Chapter 3, that gives the statistical evidence for the findings put forward in this thesis. The PISA surveys use a framework largely similar to the one proposed by Goodenow (1993), although their definition of school belonging is more focused on relationships surrounding students. The OECD (2019) defines sense of belonging at school as "the need to form and maintain at least a minimum number of interpersonal relationships based on trust, acceptance, love and support".

In addition to the slight change in the definition of belonging, part of the statements originally present in Goodenow's work, particularly the ones pertaining to a student's relationship with their teachers, was captured by an evaluation of teacher's fairness, rather than sense of belonging at school. In the case of PISA, as further discussed in the methodology in Chapter 2, only six statements were selected and the combination of them provides the metrics for the measurement of sense of belonging of each student. Those six items, similarly to Goodenow's (1993) eighteen statements, also went through a process of testing for validation and reliability with a sub-sample of students.

Although Goodenow's framework is comprehensive and widely used for research on sense of belonging at schools, it is still categorical and reduces the number of possible areas in which belongingness can be identified. Approaches that narrow down a phenomenon to a few categories/statements are necessary tools for survey design and subsequent quantitative data analysis. Nonetheless, they erase the complexity of the phenomenon and they strip students from the agency in identifying their own concepts of sense of belonging at school. As is detailed in Chapter 2, this thesis will use an adapted framework based on Goodenow's (1993) that was used in the PISA surveys, containing six statements, for the analysis of quantitative data, but the categories present in the framework will then be tested against students' own definitions and understanding as part of the qualitative interviews.

Since Goodenow's framework was launched, the way sense of belonging at school is studied and discussed in academic papers has varied widely. A systematic review of over fifty studies of sense of belonging in school argued that the most consistent definition of school belonging is "the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment" (Allen et al. 2018). Such definition stresses the importance of a socio-ecological context of school environment that goes beyond the student's individual feelings and perceptions also considering the broader context of school-based and student-teacher relationships. As a result, it is important to focus not only on a student's individual perspective, but also on the school context and the networks surrounding such students (Allen and Kern 2017).

St-Amand et al. (2017) also reviewed many academic papers that define sense of belonging at school and found some common elements to most of those papers. One of the commonalities they found suggests that school belongingness requires a perceived synergy between students and the social group they should belong to. Those synergies should be created through positive social relations through respect and valorisation of a student's individuality and similarities in the form of common characteristics. This feeling of similarity with the other, including peers and teachers, is concluded as the most important of all proposed attributes of belonging. The authors also highlight the fundamental importance of positive emotions and greater well-being to boost students' sense of belonging, as well as positive social relations and effective pedagogy.

Juvonen (2006) brings another dimension to the debate by arguing that sense of belonging at school is chiefly connected to a student's relation to their teachers, colleagues and also to the need for adapting one's behaviour to meet the norms and expectations set by teachers and colleagues. Allen et al (2018) also stress the importance of student-teacher relationship as a defining feature of the socio-ecological context in which sense of belonging at school unfolds. This builds onto theories that authors such as Anant (1992) and Fiske (2004) developed for sense of belonging in general. Similarly, Baumeister and Leary (1995) define sense of belonging as a function of the respect, acceptance, and support that someone receives in a given social context, again confirming previously developed theories for sense of belonging and applying them to school environments. These authors stress the need for an alignment between culture, expectations and beliefs of students and those of the schools they attend.

Despite all those studies trying to assign one unequivocal meaning to sense of belonging at school, it is important to recognize that sense of belonging can be differently defined by students themselves, as shown by the phenomenographic analysis of interviews in this thesis. This is a particularly important thought given that data collected on student sense of belonging is often reported by students themselves, and they can have very different understandings of the meaning they give to a question about their sense of belonging at school. There are a few examples of the use of a phenomenography approach, which is in line with the methodology of this thesis, as described in Chapter 2, to understand the main "conceptions" used by students to define sense of belonging as they experience in their current school setting. As further clarified in the third section of Chapter 2, according to the phenomenographic tradition, the ways in which an individual understands the phenomenon are called "conceptions" (Akerlind 2005, Marton 2015, Durben 2019). The main objective of a phenomenographic research is to identify and describe qualitative differences in those conceptions (Durben 2019). For example, Rands and Gansemer-Topf (2016) find a limited number of ways in which students conceptualize and describe belonging on college campuses. The researchers

identified a number of situations and experiences where students felt like a legitimate member of, or alienated from, their student community. Another example of phenomenographic inquiry of sense of belonging at schools comes from Pesonen et al. (2016), who interviewed Finnish pupils with special education needs. They identified conceptions associated with sense of belonging of those pupils, both in terms of barriers to belongingness, such as poor individualization and stigma, and facilitators of sense of belonging, such as good relationships with adults and a respectful and supportive school climate.

The dialogue between predetermined categories of belonging that are used in frameworks such as Goodenow's or PISA's and more loosely defined ideas of belonging where the student plays a major role in the definition of that belonging is exactly one of the areas of discussion of this thesis. While the provisional framework of fixed categories, which are predefined options in a questionnaire, is used to produce statistical findings in Chapter 3, the pertinence of those categories and the understanding students have of them becomes a major subject of discussion in Chapter 4 that draws on qualitative interviews. Fixed categories are useful for collecting comparable information through surveys as they restrict responses to only a few possibilities. However, the restriction of respondents' freedom to express their answers to questions in an interview can be limiting and the qualitative interviews therefore proposed more open answers, rather than preestablished categories.

The move from an evaluation of the relationship between certain school-level and individual-level characteristics and a student's sense of belonging at school in Chapter 3 using fixed categories, towards more fluid and complex identifications that emerged from students in Chapter 4, will be informed by the tactic of strategic essentialism (Spivak 1980). The process, which is described more in detail in Chapters 2 and 4, consists of the use of temporarily fixed categories for statistical purposes that can then be de-essentialized in the subsequent analysis. Despite the initial shortcomings of using fixed categories, those normative and deterministic labels are necessary tools for comparative statistical discussions, such as the one presented in Chapter 3 (Jenkins 2015). However, in the analysis of the qualitative interviews, the provisional categorizations are replaced by more complex identities, as well as a more complex understanding of sense of belonging at school.

Another important aspect of the discussion on the collective impact of the constructed sense of belonging at school is the physicality of the members of this collective entity. As for general sense of belonging, the social group students belong or do not belong to at school is not necessarily constituted of known individuals. In most bigger schools, students do not personally know all other students, or teachers and education staff that constitute the social environment of the school.

Anderson (1983) drew on the idea of national identity being shaped by individuals participating in a community claiming that these national communities function as distinct social groups, although most of the individuals who claim membership of these groups never come in contact with each other. The way students perceive their membership to the social groups formed by schools is somewhat analogous to that of citizens participating in a nation. Schools are a discursive system more than just a physical space where classes take place (Stables 2003). That means that a child's interaction with other individuals at school does define their sense of belonging to that school, but also non-physical interactions with a school setting that is composed of unknown individuals who create the discursive space. Although not all students are familiar with each other, they are linked through various codes, norms, and commonalities. The sense of inclusion or exclusion in this education setting is hence not only a product of physical interactions, but also a more general sense of common identity. The student's individual identity is in turn partially contingent on the collective identity of school (Yuval-Davis 2006, Chin 2019). As a result, schools and school cultures are crucial to foster sense of belonging by strengthening communities and contributing to young people's sense of agency (Riley 2019). In parallel, higher engagement and pursuit of sense of belonging at school are powerful tools for positive transformation in school. In this process, teachers are key actors to promote change and the findings in this thesis aim to better inform how belonging at school is understood by students and which students are more or less likely to feel part of the school or ostracised from it.

As stated in the previous section, belongingness is understood here as a psychosocial phenomenon, which implies that belongingness to school is also defined as belonging to the social groups within those schools (Ma 2003, Akar-Vural et al. 2013). More specifically, Ma (2003) has shown that school climate characteristics are a better way of fostering belonging than school context characteristics. Goodenow and Grady (1993) also consider the social environment at school as a driving force of sense of belonging and define it as the extent to which students feel "accepted, respected, included and supported" in the school environment. They argue that alignment between student and school values is primarily based on the perception of similar social values between schools and students. Sense of belonging at school is also understood in the context of the social relationship students develop with their peers and teachers (Baumeister and Leary 1995, St-Amand 2017), as well as their overall participation in school (Dunleavy and Burk 2019).

Furthermore, a higher sense of belonging at schools is often associated with more positive social relationships and a more cooperative learning environment (Osterman 2010), as well as higher social integration of students (Van Houtte and Stevens 2009). In fact, sense of belonging at school goes hand-in-hand with several social factors in and outside of school as detailed in the next section.

Building on these various definitions, this work defines sense of belonging as the feeling that someone can be themselves in a specific social context without having their wellbeing threatened. At school, this sense of belonging is the feeling of comfort within one's identity in relation to friends, teachers and other individuals participating in the school environment, which often occurs in the form of shared identity or shared values. This definition is large enough that it covers Goodenow's (1993) framework that is used in the PISA data analysis and also does not conflict with the conceptions proposed by students in the phenomenography, ensuring a theoretical cohesion throughout the thesis. The definition meets both sociological and psychological understandings of sense of belonging at school presented earlier and is confirmed both by quantitative findings, which identify school environment (social dimension) and life satisfaction (psychological dimension) as key determinants of sense of belonging at school and by qualitative findings where conceptions of friendships and school identity (social dimension) are presented side-by-side to wellbeing (psychological dimension).

1.2 Variables connected to sense of belonging

As shown in the previous section, a student's sense of belonging is partially connected to their individual characteristics, as well as those of other students around them. In turn, the connection can also happen in the opposite direction, meaning that this sense of belonging can also influence an individual's perception and experience. This dual relationship is clear in the case of a student's academic performance which can at the same time influence that student's perception of belonging at school and also be influenced by how the student feels like they belong. For example, on the one hand, by feeling part of the school they attend, students might study more and enhance their grades, while, on the other hand, students that schools classified as good can develop stronger feelings of inclusion at a school where they excel. As a result, it is important to differentiate the causes and the consequences of sense of belonging at school. On the one hand, certain variables are understood as predictors, meaning that they influence sense of belonging and explain why some children feel like they belong at school while others do not. On the other hand, some variables or student characteristics are seen as outcomes of a student's belongingness, meaning that those variables are partially a consequence of the student's sense of belonging.

The importance of studying sense of belonging comes not only from the overall objective that students perceive themselves as being part of the school environment, but also because several past research studies have shown that belonging at school leads students to have higher academic performance, better health outcomes and improved general wellbeing (Roeser et al. 1996, Gonzalez and Padilla 1997, Faircloth and Hamm 2005, Allen and Bowles 2012, Tian et al. 2015, Choi 2018…). The first part of this section "How sense of belonging impacts students' lives" presents such studies and supports the importance of sense of belonging at school by highlighting the impact it has on several outcome variables, such as the ones aforementioned.

Furthermore, as it was argued, while several student characteristics are affected by their belonging at school, the relationship between students' characteristics and identity can also take the opposite direction, as sense of belonging can also be explained by other student characteristics (Goodenow 1993, Anderman and Freeman 2004, Fisher et al. 2015, Chiu et al. 2016, DeNicolo et al. 2017). That means that some variables help explain why certain students feel like they belong at school, while others do not. Many of those studies, which will be presented more in detail in the following two sections, argue that some of the main determinants of sense of belonging at school are connected to areas of a student's identity, namely gender, socioeconomic status, academic results, and often immigration background and ethnicity (Gonzales and Padilla 1997, Sanchez et al. 2005, Lorcerie 2011, Chiu et al. 2016, DeNicolo et al. 2017). A meta-analysis of school belonging looking into fifty-one published studies on the matter identified ten major themes that influence school belonging at

the student-level: "academic motivation, emotional stability, personal characteristics, parent support, peer support, teacher support, gender, race and ethnicity, extracurricular activities and environmental/school safety" (Allen et al. 2018). The distinctive predictors of sense of belonging in different countries highlight the importance of national studies, which aim to understand the specificities of a country's reality. The second part of this section, "Determinants of sense of belonging at school", presents previous research pieces discussing how some student characteristics influence or are influenced by the sense of belonging at school.

1.2.i How sense of belonging at school impacts students' lives

Enhancing students' sense of belonging at school is an objective on its own, as it is desirable that students feel part of their schools, boosting not only their wellbeing, but also social cohesion (Tabane and Human-Vogel 2010, Healy 2019). However, a higher sense of belonging at school also can lead to improvements in other areas of a student's life. This section makes the point for promoting a higher sense of belonging at school, not only as a measure of how well integrated into the school environment students are or how high their wellbeing is, but also given that sense of belonging at school impacts other aspects of a student's life. For example, sense of belonging has been shown as a relevant tool to achieve higher grades and decrease dropout. Furthermore, a higher sense of belonging is also linked to higher non-education outcomes such as stronger mental health, higher life satisfaction, and lower levels of depression (Ma 2003). As a result, striving for a higher sense of belonging to school can also lead to more social cohesion, better education outcomes for students, as well as higher overall wellbeing.

School performance

One of the main areas directly impacted by a student's sense of belonging is their academic performance at school. Over the past three decades, educational research significantly expanded its interest in sense of belonging and especially investigated the effect of students' sense of belonging at school on educational outcomes, such as test scores, dropout, and repetition (Anderman 2002). Researchers have tried to build a connection between students being comfortable and feeling like they are part of an educational environment and their academic success in such environments, measured through standardized tests, likelihood of dropout, or even perceived performance.

Since the 1990s, several studies have consistently pointed to students who feel like they belong at school achieving higher academic results than students who feel out of place in the education setting (Gonzalez and Padilla 1997, Roeser et al. 1996, Goodenow 1993). More recent research using cross-country TIMSS data has shown that across most countries, higher achievement in science and mathematics is correlated with a higher likelihood of feeling safe at school (Prusinski et al. 2019).

Some works have also confirmed and reviewed the connection between academic performance and sense of belonging when looking into country-specific examples (Ryan and Powelson 1991, Ryan and Patrick 2001, Faircloth and Hamm 2005). Aligned with previous literature on academic performance and sense of belonging at school, Cueto et al. (2010) discuss how Peruvian students transition between lower and upper secondary. The study argues that socioeconomic status had no direct effect on sense of belonging, although it had an indirect effect through academic achievement. Students who are more well-off have higher grades and students with higher grades are more likely to report that they belong at school and to transition to high school. Interestingly, they find that some more disadvantaged groups, such as rural ones, have a higher sense of belonging despite lower school performance.

Along the same line, some authors (Epstein 1992 and Wehlage et al. 1989) discuss how sense of belonging at school is a defining concept to understand why certain students drop out, while others remain at school to conclude their education. These authors discuss how feelings of exclusion and separation emerging from a lack of sense of belonging at school can lead certain students to quit the school setting altogether by dropping out. Flynn (1997) also provides a long list of positive impacts emerging from a higher sense of belonging at school. He argues that students who feel like they belong at school have lower rates of absenteeism, as well as higher participation in extra-curricular activities and higher motivation to be at school.

In other works, sense of belonging at school is shown to positively influence not only the academic performance of older students, but also the emotional development and behaviour at school of younger children. Eccles and Roeser (2009) present this link by showing that students with higher sense of belonging at school also tend to better manage their emotions at school and are less likely to show behavioural problems. Analysing younger cohorts, Sanchez et al. (2005) also point to a significant link between sense of belonging at school and student motivation, engagement, and attendance. Christenson and Thurlow (2004) come to similar conclusions and argue that a lower sense of belonging can lead to a generalized process of "disengagement" from school.

Although the correlation between academic motivation and sense of belonging is clear, it is hard to disentangle the causal links between both. Better academic results can lead to students feeling more at ease at school to the same extent that their higher sense of belonging can boost their grades. Indeed, Willims (2003) discusses more in detail the relationship between sense of belonging and several student features, notably socioeconomic characteristics, used to explain it. The author points out how, oftentimes, there is no clear causal link, but rather a correlation, between the two variables in the way the studies are conducted. Although in some cases of inferential statistics,

reverse causality can be discarded as implausible (for example, it would be extremely unlikely that a higher sense of belonging affects some student's innate characteristics, which are by definition impervious to social influence), in other cases, it is hard to rule out reverse causation. That means that although studies point to sense of belonging and academic performance being connected, they can both affect each other at the same time instead of proposing one unequivocal pattern of interaction between both phenomena.

Following Willims' (2003) criticism and in contrast to most works, Liu and Lu (2011) discuss a similar context when studying Chinese schools reaching different conclusions. The authors analysed the reverse correlation and concluded that sense of school belonging was not related to the changes in academic achievement for the cohort they examined in Chinese schools. Curiously, another study on Chinese students (in this case those studying in Australia) points to a significant link where sense of belonging is in fact negatively correlated with academic performance (Ho et al. 2017). In that work, it is argued that acculturative stress was not significantly associated with academic achievement. Intriguingly, Chinese students in Australia who do not feel like they belong at school tend to perform better than those who do. This reveals a complex interaction between sense of belonging at school and academic performance meaning that there is no unambiguous relationship between those two dimensions of a student's life that holds for all students, schools, and national contexts. In Chapter 4, the analysis of the qualitative interviews shows to which extent the ways in which students connect their grades to their sense of belonging at school vary.

Health and wellbeing

Although a high sense of belonging at school should be an educational goal as end in itself, to ensure social cohesion and a positive school environment, the matter is often studied as a means to achieve other outcome variables of wellbeing, from mental health to academic success at school. Research has also reached beyond academic records and tried to link sense of belonging to various factors ranging widely from students' involvement in crime or their health conditions. Several studies have shown how sense of belonging at school is linked to various measures of wellbeing and life satisfaction (Branscombe et al. 1999, Ma 2003, Gilman and Anderman 2006, Millings et al. 2012, Tian et al. 2015, Choi 2018). Ma (2003) concluded in her study that mental and physical conditions are more important to explain a student sense of belonging than their individual and family characteristics.

In contrast, students who do not belong in school seek belongingness elsewhere. Some papers tried to link a weaker sense of belonging of students at school to gangsterism and violence, meaning that the gang will fill the gap of a low sense of belonging by serving as a source of group identity for its

members (Burnett and Walz 1994) or depression and social exclusion (Anderman 2002). Using longitudinal data, Anderman (2002) first identified school-level variables that related to a perceived sense of belonging, such as school size, grade configuration, and urbanicity. Then he assessed the significance of the relationship between sense of belonging and various social phenomena, finding a significant correlation between belongingness in school and depression or school rejection. Another source of longitudinal data, in this case from the United States, also pointed to higher levels of school belonging being associated with lower deviance and undisciplined behaviours in class (Dornbush et al. 2001). In a study investigating Flemish students, Demanet and Van Houtte (2012) show that higher levels of sense of belonging are correlated with lower levels of misconduct, but they did not find a link between belongingness and social cohesion in school. The study also concluded that such positive outcomes of a higher sense of belonging at school affect both native-born and immigrant students.

Sense of belonging at school is also directly related to improved mental health, leading to lower rates of depression and perceived hopelessness (Fisher et al. 2015). The authors argue that a low sense of belonging provides an important target for early assessment of depression. As a result, promoting interventions that improve an individual's sense of belonging may decrease the likelihood of depressive behaviour. Kia-Keating and Ellis (2007) interviewed several Somali adolescents who resettled in the United States and concluded that sense of belonging is associated with lower depression and higher self-efficacy. Reddy et al. (2003) who quantitatively evaluated a panel of over 2,000 students in grades 6 to 8, also link sense of belonging measured as perceived proximity to teachers with lower rates of depression and higher self-esteem. A few other studies highlight the importance of belonging for individual self-esteem (Baumeister and Leary 1995, Hernandez et al. 2017). Studies have also shown that students who feel like they belong at school have much higher odds of being cognitively on track (Anderman and Freeman 2004). Similarly, sense of belonging also significantly boosts students' emotional development and behaviour as shown by a review from Eccles and Roeser (2009).

In addition to its impact on students' psychological wellbeing, sense of belonging to the community also seems to have effects on individuals' mental health. For example, Kitchen et al. (2012) found a strong link between a lower sense of belonging and lower self-reported mental health. The paper includes mixed methodology when studying residents of Hamilton, a city in Canada with one of the countries' highest sense of belonging to their community.

Nevertheless, the same caveat is valid for research trying to connect health and school belonging: it is hard to dissociate correlation from causation, as greater mental health and lower depression can

also help students integrate and feel like they belong. Ma (2003), for example, provides a very interesting use of hierarchical models to distinguish differences in sense of belonging within or between schools in New Brunswick, Canada. She concluded that sense of belonging at school was mostly affected by mental and physical characteristics rather than individual and family characteristics. She points out that student self-esteem and health were the two single most important predictors of sense of belonging.

Allen and Bowles (2012) review a series of articles showing that sense of belonging, through the construction of social networks and a sense of community, lead to positive psychological functioning, as well as higher self-esteem and life satisfaction. The authors also refer to several works pointing to the importance of belonging in reducing stress, anxiety, and depression. Sharma and Malhotra (2010) interviewed over 500 students in India and concluded that happiness is strongly driven by a higher sense of belonging. Anant (1966), who helped conceptualize collective sense of belonging, also stresses the negative relationship between belongingness and several mental health conditions such as anxiety and depression.

1.2.ii The link between student characteristics and sense of belonging

As seen in the previous section, sense of belonging has a strong importance in predicting several other variables ranging from academic performance to health and general wellbeing. Overall, the vast majority of papers discussing sense of belonging at school analyse the relationship it has on several outcome variables, namely academic results, health, and social cohesion. Few papers see those results as determinants of sense of belonging, and many simply acknowledge that those outcome variables are correlated with sense of belonging in some context. It is indeed hard to disentangle causality from correlation as sense of belonging to school can affect and be affected by the same variable at the same time. For example, if a positive correlation between academic results and sense of belonging at school is identified, it can be the case both that students with higher academic results have higher general wellbeing and then feel like they belong at school or that students who belong at school study harder and then will achieve better grades.

Given the importance of ensuring that students feel like they belong at school, this current section discusses some examples in the literature of attempts to explain what results in higher or lower student perception of their sense of belonging, which is what the thesis investigates in the context of lower secondary school students in France. Interestingly, given the difficulty in establishing causation, some of the same characteristics that are influenced by sense of belonging at school also do impact it.

Immigration background and ethnicity

A student's education experience varies significantly based on their immigration background, origin, or ethnicity. Several studies on sense of belonging at school have focused on immigrant students or those belonging to certain ethnic, racial, or cultural communities. Such a focus is unsurprising given the strong evidence of lower education performance of immigrant students (Gibson 1987, Padilla and Gonzalez 2001, Schwartz and Siefel 2006, Glick and Hohmann-Marriott 2007) or students of marginalized ethnic minorities (Glew et al. 2005, Glick and Hohmann-Marriott 2007, Wilson et al. 2011). A recent literature review found strong evidence that student perceptions of school safety and feeling of exclusion, which are intimately connected to sense of belonging are racialized (Allen et al. 2020). Roche and Kuperminc (2012), for example, succeed in quantifying the impact of the acculturative stress Latino students in the United States suffer from with their school performance. The authors argued that one of the factors through which discrimination stress would result in lower grades is sense of belonging at school. This means that students who suffer from discrimination would have lower perceived sense of belonging at the schools they attend, and this lower belongingness will, in turn, lead to lower academic performance. Furthermore, by differentiating American-born Latinos who suffer from discrimination stress, but not from immigration stress, it concludes that, among the examined students, ethnicity more than immigration was hampering their school performance through a deficient sense of belonging. Another study on Mexican American students in California shows that sense of belonging is a defining feature dividing resilient from non-resilient students (Gonzales and Padilla 1997). The study also concluded that sense of belonging works as a mediator through which a recent immigration background would lead to some students being more resilient than others. Friendship, in particular, is shown to impact both sense of belonging and academic record of the four largest national groups of Latino students in the United States, Mexican, Central-South American, Puerto Rican, and Cuban (Delgado et al. 2016). Some studies go as far as saying that not only a better sense of belonging can enhance the academic outcomes of immigrant students, but also decrease the gap between them and their native counterparts (DeNicolo et al. 2017). Evidence from these studies corroborates the fact that sense of belonging can work as a driving force in explaining why students with a recent immigrant background or who belong to an ethnic minority have lower academic resilience or performance.

A cross-country report from the OECD (2017) using PISA data shows that immigration background plays a strong role across most countries in explaining sense of belonging at school, even when controlling for socioeconomic background, gender, and school performance, children are often less likely to feel like they belong at school if they are first- or second-generation immigrants. France has a similar pattern to other countries and immigration background does affect some dimensions of

sense of belonging, and so does school composition, measured in terms of the share of immigrant students.

As described earlier in the conceptualization of sense of belonging, the way children perceive their presence at school is connected not only to their individual characteristics, but also to school-level features. In fact, school characteristics may play an equally strong role as individual features in determining whether a student does or does not feel like they belong.

However, few papers try to link classroom composition, or school diversity, with sense of belonging, a gap in the literature that will be partially filled both by the multilevel quantitative analysis that considers school characteristics in Chapter 3 and the phenomenography in Chapter 4. Mok et al. (2016) try to link classroom composition in Germany (as a percentage of Turkish-origin students in the class) with students' sense of belonging and performance. The authors found a small negative impact of the proportion of Turkish-origin students in the performance of a class. On the other hand, a higher presence of Turkish-origin students boosted sense of belonging of those students, while not having an influence on sense of belonging of non-Turkish German students.

In the American context, Van Ewijk and Sleegers (2010) point out that higher concentrations of African Americans at schools negatively affect the performance of other African American students, while not influencing the academic scores of students of other ethnicities. Studying the same national context, but contrasting students in middle school and high school, Brenner and Graham (2007) came to different conclusions. They showed how ethnic minorities, particularly African Americans have their levels of belonging plummet after joining schools where fewer students have the same ethnic affiliation. Furthermore, their paper describes how school composition is important after transitioning from lower to upper secondary in order to ensure that African American students feel like part of the school.

Another study (Morales-Chicas and Graham 2017) confirms a similar pattern for Latinos in the United States as the one attested for African Americans (Brenner and Graham 2007). Transitioning from a middle school with a larger presence of one's ethnic minority into a high school where this minority is less present can lead to lower levels of belongingness, as well as lower academic achievement.

In contrast with those studies, research carried out in Flemish-speaking parts of Belgium concluded that sense of belonging is poorly related to school features, such as school ethnic composition, once other student characteristics are taken into account (Van Houtte and Stevens 2009). The research

found that, although schools do matter in explaining variance in sense of belonging, the individual features of students are much more significant than school-level ones.

Analyses such as the one done by Van Houtte and Stevens (2009) are indeed very important. This thesis combines both individual-level and school-level characteristics into a multilevel analysis, which is explained in detail in the methodology chapter. This type of analysis helps separate the impact of school and individual-level characteristics on the outcome variable of sense of belonging. Chiu et al. (2016) also recurs to multilevel analysis using PISA data from 2003, which carried similar metrics of sense of belonging to the ones used in this work. Their descriptive analysis concluded that students in more egalitarian cultures often had a higher sense of belonging at school than those in more hierarchical cultures. In the study, the most powerful explanatory values for sense of belonging were students' socioeconomic background, as well as the interaction between teachers and students.

Most of the studies presented in this section reinforce the importance of immigration and ethnic backgrounds as a driving force to understand to which extent students feel like they belong at school. Although the majority of studies look into those backgrounds as individual characteristics, some also pay attention to the collective identity of students in a school and how it connects to one's individual experience. This issue remains an important area of scrutiny to examine how sense of belonging unfolds, as well as its impact on various areas from social cohesion to wellbeing.

Gender

Gender is often understood as a major characteristic explaining sense of belonging at school. Comparative data from TIMSS shows that, in most countries around the world, boys are more likely to feel unsafe in schools than girls (Prusinski et al. 2019). Interestingly, the same study found that girls' academic achievement is also higher than boys' across most countries, which points to a correlation between school safety and school performance. Sanchez et al. (2005) interviewed over 100 Latino students in the United States, primarily of Mexican and Puerto Rican heritage, concluding that girls outperformed boys in several metrics of academic success, as well as sense of belonging at school. Nonetheless, gender differences did not significantly explain the link between academic performance and sense of belonging, despite impacting each of those two outcomes independently. Ma (2003), discussed previously in this chapter, used statistical analysis to assess several variables linked to sense of belonging at school, including gender. Her research pointed to a significant gender bias leading to girls having a higher perceived sense of belonging in schools in the context of the Canadian province of New Brunswick. In her work, gender is indeed the second-best predictor of sense of belonging at school, following individual self-reported self-esteem, which is arguably

another psychological state of mind more than one's individual characteristic. In her work, gender was much more significant than socioeconomic background, language spoken at home, and academic performance.

Many studies investigate the intersection of gender and ethnicity or gender and immigration background. Hughes et al. (2015) show how girls of all ethnicities in the United States report higher values of sense of belonging, which is on par with their superior academic outcomes when compared to boys of the same ethnic group. These findings particularly hold for poorly performing students and those of African American background where the pro-girl gender bias is even more significant. On the other hand, as the authors followed students between grades 6 and 8, they argued that although there is no growth in the reported sense of belonging of girls between those years, African American and Euro-American boys do see some significant increase in their sense of belonging during the same period.

A review of several statistical studies by Lorcerie (2011) argues that, in France, gender is a more powerful characteristic to explain school sense of belonging than family migration history, especially when those two characteristics are jointly assessed. The author found little discrepancy in levels of reported sense of belonging between children with and without a recent immigration background in basic education. However, girls with an immigrant background systematically outperform native ones at school in terms of both sense of belonging and academic performance. On the other hand, among boys, the results show the exact opposite, as those with a recent immigrant background usually have lower outcomes of sense of belonging and academic performance than native boys.

Van Zanten (2001) produces similar evidence through qualitative analyses. She notices that girls perceived as being part of an ethnic minority have higher academic results than other girls, while boys from the same ethnic communities form the most disadvantaged group. Brinbaum and Kieffer (2009) analyse panel data for French lower secondary students between 1995 and 2005 and argue for an observable bias against immigrants and children of immigrants as well as a significant gender bias favouring girls. In addition, they also found that when those two biases, based on gender and immigration background, are put together, the gender bias is stronger. Lacoe (2015) also connects gender and ethnicity to understand which students feel safer at school. The survey data for New York she presents shows a clear pattern where Latino and Black students feel less safe, but also male students in comparison with female ones.

Socioeconomic background

Only one study was found to point to socioeconomic background as a main explanatory variable behind sense of belonging at school. Chiu et al. (2016) use to multilevel analysis using PISA data from

2003, which carried similar metrics of sense of belonging to the ones used in this work. In the study, the researchers evaluate the joint impact of a series of individual and school-level characteristics on a students' sense of belonging, including gender, immigration background, academic performance, teacher's attitudes, school characteristics, among others. They conclude that the most powerful explanatory values for sense of belonging were students' socioeconomic background, as well as the interaction between teachers and students.

Interaction between various characteristics

Students' identities are complex, and it is hard to look into only one characteristic in isolation. As a result, many of the papers discussed in the previous sections look into the intersection of characteristics, rather than isolated categories to understand sense of belonging at schools. Looking into national belonging, rather than school belonging, Jang et al. (2021) analyse how youth in Hong Kong feel in terms of their overall belongingness (to one's self, to personal networks and to society), as well as their national belonging to China. Investigating the interaction between gender and immigration background, they assess that, women, especially those who immigrated from mainland China, had much higher sense of overall belongingness than men from mainland China and other women. This corroborates findings from Brinbaum and Kieffer (2009) and Lacoe (2015) both of whom identify higher levels of sense of belonging at schools among girls with an immigrant background than native girls and boys with a recent immigrant background. Investigating the link between race and gender on sense of belonging at schools, Hughes et al. (2015) found that women of ethnic minority background had higher sense of belonging than both boys of ethnic minorities and White girls.

1.3 Sense of belonging to French schools

The specificities of national education systems are extremely important predictors of how sense of belonging at school play out. Duru-Bellat et al. (2008) use PISA data from 2003 to connect sense of belonging at school to country-level characteristics of each country's national education systems. The authors primarily focused on curricular implications of the system and conclude that countries whose education systems value a unique path to graduation, rejecting notions like tracking and streaming into vocational and general classes, do tend to have children report higher levels of belonging at school. Corroborating the importance of how core values of an education system predict sense of belonging, Chiu et al. (2016) concluded that students in more egalitarian education systems, which result from more egalitarian societal conceptions, often had a higher sense of belonging at school than those in more hierarchical cultures.

Nonetheless, studying how central values of national education systems play out in defining belongingness to those systems is rare. This work discusses in Chapter 4 how several core characteristics of the French education system explain why certain children feel excluded while others feel like they are part of their schools. This section introduces what those core characteristics are, how they came together historically, and what are the main implications of their design to sense of belonging at schools.

1.3.i The design of French education system and its connection to sense of belonging

The development of France's public education system picked up speed during the late 19th century, especially as a result of the defeat by Prussia in the Franco-Prussian war (Matasci 2014). The main set of laws and policies that gave grounding to universal, free, mandatory, and secular provision of basic education was launched in the 1880s by Education Minister Jules Ferry. From the start, the construction of French education system was conceived as a vector for nation-building in a country where regional identity was extremely strong. In that sense, there is a strong confluence from the onset of French education system, as proposed by the policymakers who originally designed it, between sense of belonging to the nation-state and sense of belonging to the school through which national identity is funnelled. In order to understand which children feel like they belong in French schools and why, it is important to first highlight the link between the established education system and how it works to promote national identity, and sense of belonging to the national state, through education.

The French education system was developed in line with the notion of civic nationalism, which constitutes an ideal of nation-state described by Ernest Renan (1887). In his speech later published as an article, Renan criticizes German nationalism based on ethnicity and language and puts

forwards a contractual notion of the nation dependent on a daily plebiscite. The metaphor Renan uses to illustrate this contractual notion of the nation means that individuals should repeatedly and unrestrictedly confirm their adherence to a national project, in the same way citizens vote in a plebiscite to affirm their support for a given idea. In his view, a nation shares not only common consciousness and morality, but also primordially a common heritage of values and a willingness to perpetuate this heritage. Renan's idea, also in the context of the defeat to Prussia, despises and opposes German ethnonationalism. This attempt to separate ethnic identity from citizenship can be seen for example in the legal code, as while most countries in Continental Europe have citizenship laws based on blood line, until recently France was the only one to provide citizenship by birth (Plender 1974, Ward 2007). Nonetheless, in practice, his views of ethnicity and nationality are still intimately linked and hardly fully dissociated even in his contractualist type of national identity (Zoïa 2013). The way in which French nationals identify today is often closer to ethnic identification than to partisanship based on citizenship or nationality (Keaton 2005).

The relationship between national identity and ethnicity remains ambivalent, meaning that both identities are usually simultaneously reclaimed and embraced by individuals (Calhoun 2003). Both words have different meanings and national identity has its own features and cannot be simply understood as a continuation of ethnicity, language, and common history. Despite consisting of different definitions, it is impossible to claim that the emergence of national identity, even in its contractualist form, was separate from pre-existing forms of ethnic identities (Calhoun 2003). Historically, both forms of identity were connected, and still today, although conceptually separate, there are clear links between them, especially in the way individuals constitute and present their identities.

Renan's ideas of a contractualist national belonging as a civic choice have strong implications in France's system of values beyond nationalism. In fact, his idea of nationality would have more room in today's concept of citizenship, which in turn is key to understanding the foundations of the educational system. France has a long tradition of presenting its nation as a collective of citizens with shared values, which entangle equality with a Universalist approach to morality and identity.

The republican school in France relies on a strong sentiment of belonging to the nation-state, which aims to decrease the weight given to smaller sub-parts of the state (Chanet 1996). The school in France has always intended to act as a strong integrating force to transform students from different parts of society into citizens. Indeed, the education system in the country is hence built on the idea of creating citizens, or "turning peasants into Frenchmen" (Weber 1976). The idea of fostering common citizenship aims at erasing regional and ethnic identities, which substitutes those seemingly

national identifications based on language and culture with a common new identity based on nothing but fundamental common values of citizens of a nation. In this sense, the idea of citizenship that one must earn, through merit and chosen values, rather than as a fundamental right acquired through blood or soil, dominates the public debate. Maintaining this idea of chosen and acquired citizenship, France's education system disproportionately focused on creating and reinforcing a common set of values beyond former national or regional identities.

This project of constructing citizenship through education was designed with the purpose of overcoming complex individual identities that could compete with that of being a citizen of the French state. For example, regional identities, such as local languages and culture, were categorically excluded from the national education system which was focused on the means of overcoming such identities to construct common citizenship (Chanet 1996). This vision of identity-building and citizenship as something separate from national identity can be dangerous given the persistent centrality of national identity in defining citizenship. Historically, despite the intention to separate citizenship from national identity, those two concepts have been continuously interconnected (Weber 1976). An example of this attempt to separate nationality and citizenship comes from electoral law, in which France was unique among European countries in connecting nationality law with election law (Plender 1974, Ward 2017).

Despite the intentions of the French system, this presumptive differentiation between citizenship and nationality in the theoretical field masks how very intimately connected the two concepts are in general and in the French context in particular. Although France's notion of civic citizenship attempts to restrain the role of blood and ethnicity in citizens' self-identification, it may lead to mixed results. The most flagrant shortcoming of a universalist identity is the looming exclusion and otherization of certain children (Henriot-van Zanten and Anderson-Levi 1992), an issue that will be explored in Chapter 4 of this work that analyses the qualitative interviews. Furthermore, the application of this universalist approach at schools of a multi-ethnic and multicultural society supposedly poses a dilemma between embracing diversity and promoting the universality of values: "the challenge is to consider diversity without giving up educating" (Zoïa 2013). Nonetheless, education does not necessarily oppose diversity, and valuing multicultural society can go hand-in-hand with educating. The risk of blatant exclusion of some layers of society from the educational system needs better understanding and more scholarship around it, which is discussed in Chapter 4.

Within the French education framework centred around the idea that a nation is constituted by the collective of citizens with a common set of values, the concept of *laïcité* arose (Weber 1976, Chanet 1996). Originally designed to accommodate secularism, its current implications unfold beyond

freedom of religion and conscience to also encompass notions of identity and citizenship. The education reform launched by Jules Ferry in the late 19th century promoted education that was free of charge, universal, compulsory, and also secular. By secular, this means that unlike most other education systems of the time, public basic education in France was provided separately from the Church or any other form of religious authority.

The purpose of secular education as it was originally designed is assimilationist, ensuring that all children regardless of their religious beliefs or lack of belief, would be sent to similar schools. Unlike in most countries, a particular impact of the French system of values in education is that, rather than uniting students through a common sense of belonging to a restrictive nation, religion, or ethnic group, the main presupposed unifying force at school has the universalist pretension of creating citizens, who despite their background have a common set of values.

In theory, French schools were envisioned as an instrument to promote social, cultural, and ethnic integration. However, in practice, the system was strongly criticized for reproducing the dominant structures when they should actually be empowering students with the tools to challenge those structures (Bourdieu and Passeron 1977).

Today, the main objectives of the system remain in place with very little change to its original design. The objective of the system is still that of building a "concept of citizenship, which can survive in a post-national context and legitimate a recycling of the old canon" (Tutiaux-Guillon 2007). However, there is a clear tension in this ambition. This project in search of a post-national or multicultural citizenship, which overcomes national (or sub-national) boundaries and identities, can be dangerous given the persistence of the "old canon" that still places nationality in a central position in defining citizenship.

There is an underlying idea of a French citizenship that one must deserve, through merit and chosen values, which would oppose a citizenship based on a fundamental right acquired through blood or soil. Although this dichotomy is not necessarily true, such discourse still dominates the public debate, as well as the school curriculum and practices. Analysing French textbooks, Hutchins (2016) gives a clear picture of how national identity is defined in France in a "voluntarist model" where citizens are those who adhere to certain "core universal and democratic values". According to her, the "voluntarist model" is more similar to the one found in the United States than to most other nation-states built onto ethnic lines, such as 19th century Germany as criticized by Renan (1887).

1.3.ii Silencing of the debate around ethnicity in France

Very little work has been done using ethnic categories in research exploring education in France. Bromberger (1993) argues that the rarity of studies surrounding identity issues in France, and particularly ethnographic studies, is due to the "contractual notion of citizenship" which is at reach to anyone adhering to a set of republican values, thus defeating the need to differentiate between citizens based on unchosen characteristics.

Nevertheless, the complexity and the contractions of a model concomitantly universal and presumably non-ethnocentric deserve careful examination. Some quantitative methods using immigrant background as a proxy for ethnic characteristics have been well documented. A previous study (OECD 2015) uses older PISA data to approximate the level of integration of children with a recent immigrant background within host societies by comparing their attitudes with those of non-immigrant children. The report reveals that in many countries, children with a recent immigrant background perform less well in mathematics and literacy. It also shows that immigrant children in some countries, including France, report lower levels of happiness and belonging at school. However, the statistics presented are descriptive and the significance of those differences was not tested.

Drawing largely on the Anglo-Saxon literature, Safi (2013) is a rare statistical study moving away from immigration and expanding the debate on "ethno-racial" inequality to France. The author refers to several areas of French society where ethnic minorities face challenges for their identity, including the labour market, housing, civic engagement, and education. However, despite the author's intentions to have a debate around ethnicity, given the data limitations, the quantitative analysis on educational performance across ethnic groups moves a step back in using immigration background of students as a proxy for immigration. The "ethnic" inequalities that the various chapters of the book identify are based on the place of birth of individuals or their parents, which is not systematically linked to those individuals' ethnic identity. Although the book identifies individuals who were born in Africa or whose parents were born there, it also points to the issue of White settlers who were born in Africa, particularly in Algeria, during colonisation and whose descendants now live in France (Safi 2013).

Moving away from solely discussing migration as an acceptable measure of diversity is crucial to understanding the school path of minority students, especially given the dissimilarity between the experiences of children whose parents hail from European and non-European countries. There is no evidence that European migrants and their children in France suffer from any sort of "ethnic penalty" in their school performance (Silberman and Fournier 2006, Ichou 2016). This is in sharp

contrast with the various issues, ranging from low performance to poor integration, facing immigrants overall, and particularly those whose roots are traced to the Maghreb region and Sub-Saharan Africa (Brinbaum and Kieffer 2009). Ichou and Hamilton (2013) provide an exhaustive and recently updated list of works illustrating inequality in education between children with an immigrant background and native children in France. They link lower academic achievement of immigrant children particularly to the country of origin and socioeconomic position of their parents. As a result, there are strong political implications of understanding education inequality beyond immigration background and considering the ethnic identity of students in order to ensure equitable access to education, learning, and wellbeing in school.

Aside from studies looking into immigrant background, very little quantitative work was done using ethnicity as a variable to understand how children live in the French education systems. One exceptional example comes from Debarbieux (1998), who proposes a link between ethnic designation and violence in France, which takes place in various areas of society including the media, the political life, and above all the school. Some of the areas where this type of interaction takes place at school include threats of expulsion from the national territory of "violent students", which underlines the idea that this violence is very likely connected to foreign-ness. The author sent questionnaires to 15 thousand students studying in a total of around 130 primary and secondary schools. She problematizes the link between the ethnic identity of students and violence by denouncing an "ethnicization" of the phenomenon of violence at school that connects it to ethnic belonging, where one's school experience is defined by the otherization of certain groups seen as enemies.

Some studies, however, do present ethnicity as a variable of interest in the French context using qualitative methods, such as interviews and participant observation. Vasquez (1992), for example, accompanies three primary school students in class, two of which are of foreign origin, and describes their difficulties, predominantly due to a language barrier. Beaud (2002) also uses participant observation, but again focuses on some selected students per year, over a period of ten years. Though there is a strong overrepresentation of children with a recent immigrant background among the students in his work, this is given considerably less importance than the contextual socioeconomic deprivation of the participants.

The fact that the rare examples of ethnic identity being explored as a crucial variable to understand who education experiences of students differ all come from qualitative evidence show that the distinction between quantitative data, primarily coming from survey data, and qualitative data coming from interviews and observation, is not simply methodological. There is a strong sense from

the literature that in a context like France where systematic survey data collection on ethnicity is difficult, qualitative works such as the one presented in Chapter 4 here, are of critical importance to elaborate on the ethnic dynamics in school systems.

Hutchins (2016) also applies ethnic categories in her textbook analysis providing evidence on the exclusion of ethnic minorities from school material. She compares the presence and the roles associated with ethnic minorities in French primary school history and civic education textbooks comparing it to American material. She also describes how sensitive topics of French colonial history are portrayed in the books and the implications it has for national identity building.

The relative scarcity of studies discussing ethnicity in France masks an outward-looking tradition that can arguably be traced back to Lévi-Strauss's early ethnographies, including *Structural Anthropology* (1958), which led the anthropologic research in the country for many years. His extensive list of publications strongly focuses on using ethnographic methods within an extra-European context, as well as structuralist analysis of texts. Oftentimes, French ethnographers work in exotified "remote societies" (Fassin 2006), which further decreases the number of inward-looking participant observation practices and does not leave room for studying heterogeneity within French society.

A rare exception to the lack of French ethnographic tradition that examines ethnicity as a variable of interest at school comes from Keaton (2005). The author observed three schools in the northern suburbs of Paris where the student population was almost entirely Muslim of North and West African descent. She discusses and criticizes the participants' perception that the French state gives a large focus to nationality when identifying people of different cultures and ethnicities. In fact, she argues that, among the girls participating in the ethnography, national identity plays second fiddle to other forms of identity, namely religion, ethnicity, and country of origin, which is a larger concept than country of nationality or citizenship, but closer to country of cultural attachment. Indeed, in her work, racialized students, or those seen as having a racial identity (Gabriel 1998, Ray 2019), build in a seemingly contradictory embrace and rejection of assimilationism. Most participants show great pride in the high values of French society and reclaim with conviction their Frenchness. Although those same participants hold hostile views towards this same Frenchness whenever it enters their neighbourhoods and schools in a perceived imposition of those values.

It is hence crucially important to revisit theories and methods developed in the Anglo-Saxon academia to comprehend how ethnicity plays out as a variable that explains education, including sense of belonging at school, in the French context. This is notably the case of research tools, like qualitative interviews, that have been unfortunately downplayed. As a result, Chapter 4 of this work

will use such ethnic classifications to discuss the ways in which sense of belonging at school is conceptualized and how it varies according to students' identities.

1.4 Theoretical framework for ethnic categorization

Some findings from this thesis are common to many of the main works studying how belonging at schools in France emerges and how students perceive their inclusion or exclusion from schools. One of those main common areas is the ethnic identity of students, which arises as an important variable to understand sense of belonging at school. Given its relative importance in the debate around sense of belonging at schools in France, ethnic categorization deserves further scrutiny and conceptualization. Furthermore, ethnicity is a crucial part of individual identity, which is largely discussed in this dissertation, particularly in its connection to sense of belonging at school. The previous sections presented several works that use a variety of theoretical frameworks to contextualize ethnicity, race, and origin. This section introduces the theoretical framework that was used in this thesis.

In France's universalist view of education, this debate suffers from the lack of openness in research circles and society as a whole (Gabriel 1998, Ray 2019). Some criticism of the use of ethnic categorization comes from the biological implausibility of race. A post-racial approach advocating for the eradication of race, or its erasure from the public discussion, has been proposed for example by Gilroy (1998, 2001). Gilroy's (2001) advocacy primarily consists of supporting the idea that a racial classification and the subsequent impact this has on public discourse does more harm than good to society and hence such labelling should be avoided at all costs. Such an approach could arguably be desirable given race's arbitrary and socially constructed nature. However, in addition to the emancipatory intentions of the post-racial theory, contemporary researchers still explore contexts where the impact of racialisation (Ray 2019) is strongly present and a tentative eradication of 'race' as an analytic category could lead to downplaying the consequence of enduring racial structures and to constructing undesirably blank, de-racialized accounts. Instead, they should "re-write race outside of its attendant categories by using an imaginative post-race vocabulary" (Nayak 2006). Nayak argues that ethnographers should favour a broader and more complex representation of race over oversimplified binaries.

Despite the pseudo-scientific origins of racialized labels, those labels do change one's experience in society structurally and discursively (Radhakrishnan 1996 and Gunaratnam 2003). Imposed categorizations create power structures in society, which affect individuals' lives. As a result, ignoring ethno-racial classifications with the intention of colour-blindness often silences the debate leading to colour muteness (Pollock 2005). Instead of addressing challenges particular to certain ethnic groups, ignoring the ethnic component of their struggles reinforces and perpetuates ethnic inequalities.

However problematic racialized identities are, they can be used to promote policies playing a transformative role in undermining the need for those labels in the future. Those definitions, despite being normative and deterministic, are necessary tools for comparative statistics and descriptive discussions that are part of this work (Spivak 1990, Noble et al. 1999, and Jenkins 2015).

In France, concepts like racialization, meaning the categorization of people on the basis of their 'race' or 'ethnicity' (Modood et al. 2002), and ethnic minority are very rarely addressed, particularly in the educational context. France forbids the collection of national data on race, ethnicity, or religion, shifting the debate on diversity from ethnicity to immigration, for which data is readily available (Simon 2008). Some researchers (starting with Ogbu 1982) have emphasized the need to understand how ethnicity and culture shape the lives of students in a complementary way to their immigration background (Felouzis and Fouquet-Chauprade 2015, provide an extensive list of authors). Nonetheless, immigration background is at best an incomplete metric of ethnicity and possibly a very inaccurate one. A family's migration past does not necessarily predict well how their children will be seen and will live in society and at school.

Despite the importance of investigating ethnicity to understand a student's school experience (Roche and Kuperminc 2012, Mok et al. 2016, Chiu et al. 2016, OECD 2017), many researchers in France have opposed such efforts. Some sociologists in the country, such as Althabe (1992) led arguments that accuse ethnologists of using fixed categories to describe people, which invariably end up creating and celebrating differences that do not necessarily exist. Oddly enough, other French sociologists also attacked the debate on ethnicity using diametrically opposite arguments. Ramongnino et al. (1997) argue that the use of ethnic notions in sociological research is actually reductive and erases the extreme plurality of ethnicities by confining them to fixed categories. In more extreme cases, researchers and academics refrain from debating ethnic categories for fear of being accused of racism (Payet 1995). In these cases, the rightful repression of racist proposals leads to an unfortunate repression of discussion of ethnicity as a subject of study.

To counter both those lines of work, ethnicity can also be understood as a transitional construct, which evolves in time following an individual's set of experiences within various social contexts, as well as changes in the way such identities are perceived externally by other members of society, more than a fixed category that remains the same throughout the entire duration of this individual's life (Radhakrishnan 1996 and Gunaratnam 2003). It is an incomplete, unstable but useful category for research purposes. It should not serve the purpose of confirming essentialized categories, but of understanding that they are essentialized and studying them as contingent identification (Gilroy

2001 and Nayak 2006). In fact, although identities can be discarded theoretically, their implications in history and politics are crucial and their necessity must be acknowledged (Ang 2000).

This work intends to contrast the educational experience of students based on their individual and school-level characteristics. An important dimension of a student's identity is their immigration background and their belonging to various ethnic communities. This type of analysis will be harder to carry out in the statistical analysis of PISA where questions around ethnicity were not asked to students in the survey. However, the phenomenography presented in Chapter 4 will discuss how students identified, especially contrasting, how different self-described ethnic affiliations play out to understand sense of belonging at school. Such categorization is grounded on persistent structural dimensions in the same way as metrics of social achievement or wellbeing, all of which have ethnicized or racialized dimensions.

The terminology chosen by this work focused on the word 'origin', combining migration background with ethnicity. The first reason for understanding students' origins is avoiding sensitive conversation about ethnicity or race, which are rarely explored concepts and very delicate words in the French context. Unlike in many English-speaking countries, entering a French school setting and discussing with teachers and students about their origin is much less sensitive than talking about ethnicity or race. Origin is a broader term that can be used to describe a regional origin (i.e. Alsace, Normandy, Martinique…), an ethnic origin (i.e. Arab, Berber…), or a religious origin (i.e. Jewish, Christian…). Such terminology may be criticized as inadequately precise or even *vague* yet it is precisely this imprecision that allows space for broader self-identification of individuals. The term 'origin' leaves space for the students to openly discuss their identity in the light of its complexity, instead of directing them towards a necessary ethnic, cultural, or national identity. Findings from the interviews carried out in this thesis showed that by asking one's origin students had much more freedom to openly identify themselves with whichever social group they feel the strongest links to. Some interviewed students identified in more ethnic lines, including "Arab" or "Black"[2], while others preferred national identifications such as "of Moroccan origin", "Turkish", "just French" or "Franco-French".

Another reason for organizing the discussion around origin in the qualitative interviews is refraining from using solely migration background, as in PISA data, given that the school experience of children whose parents migrated from different countries varies tremendously, and so does the experience of children of different ethnicities, but without a recent migration background (Safi 2013, Ichou and

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[2] Arab was often presented in French *'arabe'*, while Black was almost always put forward in English, which is understood as a slang rather than a formal word.

Hamilton 2013, Beauchemin et al. 2016). Furthermore, the qualitative interviews with students helped understand how immigration background and ethnicity play out in explaining how students construct their very idea of origin.

An example of a similar semantic choice is the TeO (Trajectories and Origins) survey, launched by the French government in 2016, which is the first national study to address the impact of one's origin in explaining integration, discrimination, and identity in France (Beauchemin et al. 2016). The survey clearly stresses the word "origin" to mark the differences between demographic and cultural groups in France rather than ethnicity or race, which are often preferred in the Anglo-Saxon literature. Although the survey does not directly conceptualize "origin", the term is used mostly to describe the immigration background of an individual and their families based on their place of birth. Nonetheless, some exceptions of sub-national identities that follow ethnic lines are also present in the survey. For example, individuals who were born in overseas French territories and departments, which are historically of African descent, are added to a separate category of "origins" from those whose background is from continental France.

In the case of the analyses of PISA in Chapter 3, detailed in the methodological section, the discussion takes place around migration background, which is the data that was collected in the questionnaires, without extrapolating findings to one's ethnic background. Unlike the nuanced and blurry nature of identity in qualitative studies, such as the one in Chapter 4, statistical analysis requires less fluid boundaries, and the data available is based on parental country of birth. Despite their shortcomings, those normative and deterministic categories are necessary tools for comparative statistical discussions based on survey data with limited options (Jenkins 2015).

In the results coming from the school interviews described in Chapter 4, students are identified based on the categories put forward by themselves during the interview, and the discussion is centred around students' identities and their perceived origins. The labels and categories observably constructed by students, teachers, and other actors are an object of study in itself and an instrument for answering other questions. The discussion also explores identifiers that are dually defined as individual and collective identities.

1.5 Conclusion

This chapter presented the main theories conceptualizing belonging as an object of study across time, from the psychological and medical to the political and cultural theory spheres. The initial theoretical framework discusses the different ways the concept of belongingness was used in education research and defines the stream of analysis that is employed by this thesis, which draws foremost from the social theoretical concept of belongingness. The chapter presented various definitions of belonging and then explained how this work committed to the idea of belonging as the feeling that someone can be themselves in a specific social context without having their wellbeing threatened. In the school context, this sense of belonging is the feeling of comfort within one's identity in relation to friends, teachers and other individuals participating in the school environment, which often occurs in the form of shared identity or shared values. Coming from this broader definition of belonging at school, the work in the third chapter draws on the framework developed by Goodenow (1993), while Chapter 4 more critically revisits the same framework contrasting it to other understandings of belonging both presented in the literature and as articulated by the students interviewed. Building on a common definition, one of the main objectives of this thesis is exactly to consolidate two different epistemological schools, each of which uses a separate method within the same framework to investigate sense of belonging at schools. Chapter 2 provides more details on how those two methodologies are consolidated.

Once the theoretical framework to study sense of belonging at schools is defined, this chapter moves on to discussing the importance of sense of belonging, presenting articles that conclude a defining impact of sense of belonging at school in several other areas of a student's life. The previous literature confirmed the importance of sense of belonging at school as a predictor of better academic outcomes, as students who feel like they belong at school also do perform better on school tests. Many past works also pointed to a strong link between a higher sense of belonging at school and improved health and wellbeing outcomes, including lower depression rates and higher self-esteem. Papers also present important links between sense of belonging and general life satisfaction reported by students.

Following the confirmed importance of studying sense of belonging that is shown in the literature, this chapter discussed other papers that aim to understand the main factors leading to some students feeling part of their schools, while others feel excluded. Those previous works asked questions that are similar to the ones asked in this thesis, particularly describing the main determinants of sense of belonging and how it varies in each national context. Some of the works approached PISA data in a manner analogous to the one discussed in Chapter 3. However, data used

in previous papers is from 2015 and does not contain multivariate analysis that allows for separation of school-level and individual-level effects as in this thesis.

The third part of the literature review, after the theorization and conceptualization of sense of belonging and the presentation of previous studies discussing the impact and determinants of belongingness, focuses on the specificities of education research in France. That part describes the French education system, in particular, the type of schools that were visited for the analyses in Chapter 4 and it also anticipates some previous works that enlighten the debate carried out in the same chapter, including the discussion around race and ethnicity in France, which is an important vector of belongingness as shown in the qualitative findings of this thesis.

Many of the research papers presented and discussed in the literature review, particularly in the part specifically focused on the French education system and the impact and determinants of sense of belonging in France, were published in French. This thesis also aims to bridge the discussion between French-speaking and English-speaking traditions of education research on sense of belonging at school and its main determinants.

For this identification to be completed, establishing a theoretical base for the research is crucial to ensure that the findings from the research are impactful. The thesis aims to identify students who are less likely to belong at school and should thus be prioritized in policy design and by their teachers in school. To aid that process of identification, within this thesis is important that any theorization of belonging accords not only with previous literature but also with the student perspectives discussed in Chapter 4. Chapter 1 therefore also reflects upon the manners in which the conceptions put forward by students confirm the social and psychological nature of sense of belonging.

The next chapter presents the methodology that was used in this thesis, while Chapter 3 shows the main findings from quantitative analysis of PISA data for France in 2018. Afterwards, Chapter 4 discusses the qualitative findings from three sets of qualitative interviews in three schools in the metropolitan area of Paris. Finally, Chapter 5 shows the main conclusions of this thesis, while giving space for future discussion.

Chapter 2 – Methodology

This chapter presents the methods used in the thesis, statistical analysis, and qualitative interviews, as well as the theoretical approaches giving grounding to those methods: regression analysis and phenomenography. The chapter considers a potential tension in attempting to combing two seemingly conflicting research traditions and makes explicit the moderately relativistic epistemology that runs through this thesis. As outlined in the chapter, the methodology of the thesis uses what Gilbert (2006) described as a "practical" type of mixed methods, in which there is no overarching methodological commitment and where the epistemological tension between methods is relaxed by proposing a complex strategy of concurrent data analysis.

The first section describes the use of a mixed-methods approach and the underlying assumptions to be considered when different methodological schools try to answer an overarching research question. The section explains the premises of using a mixed methodology and discusses the conditions needed to combine multiple research approaches, as well as the advantages of applying mixed methodology in research.

The second section discusses the regression analysis drawing from the econometric tradition that is used in Chapter 3 of this work, which applies statistical analysis to economic, but also sociological phenomena. It also discusses the positivistic tradition that gives theoretical grounding to the way knowledge is generated through statistical analysis based on sampled data collected through questionnaires, particularly in the use of regression analysis to treat such data. The section also explains the main theoretical assumptions used to draw conclusions from using statistically representative PISA microdata, which is presented further in-depth in Chapter 3.

The third part of this chapter presents the methodology of the qualitative interviews discussed in Chapter 4 in the light of phenomenography, a research tradition that typically uses qualitative interviews to understand phenomena in education research. In this thesis, the phenomenon conceptualized using a phenomenographic approach is sense of belonging at schools, which is a concept not often studied through phenomenographic lenses. This part explains the rationale for choosing phenomenography as the approach to give voices to students, while focusing on collective rather than individual understanding. It also highlights the importance of understanding sense of belonging within a national reality and how phenomenography is the right approach for such an exercise, by focusing on context-specific meaning-making processes. The section also describes the theoretical background of the chosen tradition of qualitative research and the processes and the ethical implications of school selection, student selection, and how the interview protocol was designed.

Finally, the last section discusses the limitations of each methodology separately, as well as in combining both methods. It presents the main assumptions that must be considered in a research framework where two epistemological traditions are used jointly.

2.1 Mixed Methodology and Mixed Methods

The use of mixed methodology in research is not only a methodological choice, but also a philosophical one (Plowright 2011). It assumes a multifaceted way of collecting information and producing knowledge that relies on otherwise separate epistemological schools. Mixed methodology consists of employing more than one methodology of investigation in a single research study, usually combining analyses of both qualitative and quantitative data. The use of more than one methodology often leads to embracing more than one method given that methodological approaches typically rely on specific tools for research. Although not necessarily opposing quantitative and qualitative traditions (Gilbert 2006), oftentimes, mixed methodology consists of qualitative methods providing hypotheses that are later tested by quantitative methods. For example, in action research, a tradition often used in education studies, practitioners sometimes use statistical techniques to validate theories that emerged from their teaching practices (Rose 2002).

Historically, mixed methodology research was developed with the intention of triangulating results, which consists of researching an object from different viewpoints using different methodologies (Blaikie and Priest 2019) or enhancing the external validity of the findings, which consist of describing ways in which generalization of findings can occur (Alasuutari et al. 2008). In this work, each of the two methodologies used responds to separate, though intertwined, research questions. In this sense, the approach to multimethodology is that of complementarity, in which one methodology helps illustrate findings of the other. In some sense, the approach is expansive, in which the breadth of the study is expanded with new components arising from each methodology (Alasuutari et al. 2008).

Using a mix of different methods is necessary for meeting the needs of complementing statistical data with the naturalistic approach of qualitative sociology (Anyon 1980, Luke 2010, Morais and Neves 2010). This work employs a mixed methodology encompassing complementary quantitative macro-sociological tools and qualitative techniques, primarily semi-structured participant interviews. In this sense, the quantitative data analysed statistically tries to achieve generalizations about the main determinants of sense of belonging at school, while the qualitative study aims at "singularity" by describing examples of the lived experiences of individual participants (Simons 1996).

Authors like Plowright (2011) have rejected the terms "quantitative" and "qualitative" methods in order to release the researcher from those established boundaries and to promote an integrated method of research. Nonetheless, his assumptions of integrated research are hampered by the difficulties in conciliating very distinct epistemological schools where philosophic boundaries defining their knowledge acquisition process are strong (Gilbert 2006). As a result, this research

relies on those categorizations due to the necessity of using those terms to explain the different methods of investigation and to contrast the different methodologies used across this work.

In this work, the mixed methodology followed a line of *elaboration*, as described by Brannen (2005), meaning that the qualitative analysis exemplifies how quantitative findings are corroborated or contradicted in the particular case of a few students in three schools. Also following Brannen's (2005) typology, in the *elaboration*, which is the case of this work, both methodologies are used on complementary fronts, meaning that findings from both lines of investigation can yield contradictory findings. For example, quantitative work can point in one direction generalizing statistics findings, while the qualitative data will delve into the complexities of some students that can be exceptions to the statistical generalization. Although complementary, both methodologies are used in parallel, and the methods are jointly designed, which constitutes a mixed methodology with a fully integrated design (Gilbert 2006).

Multi-methodology research does have some limitations especially in the case of a mixed methodology with a fully integrated design (Creswell et al. 2003, Scott and Morrison 2006), as is the case here. Philosophically, research designed using mixed methodology can be ambiguous or incoherent given that epistemological assumptions proposed to one area of work do not necessarily hold for the other (Creswell and Garrett 2008). To avoid such incoherence, a mixed methodology must embrace a moderately relativistic epistemology, in the sense that there has to be a justification for knowledge to be derived from many sources using various tools (Alasuutari et al. 2008). The following sections present in more detail the epistemological discussion around mixed methodology, the rationale for such choice in this work, and its application. In each of those steps, the limitations of using such methodology are also discussed.

Table 2 Schematic outline of the methodology

Chapter presenting the results	Method	Source of data	Research output	Examples of research questions
Chapter 3	Regression analysis	PISA questionnaires	Generalizable findings	What student characteristics lead to higher or lower sense of belonging? What part of the variation in sense of belonging is explained by school or student level characteristics?
Chapter 4	Phenomenography	Qualitative interviews	Identification of conceptions, illustration of	How do students make sense of sense of belonging to school? What dimension of a student's identity connects to

				students' perspectives	the way they feel like they belong in school?

2.1.i Epistemological discussion

The use of mixed methodology combines two seemingly conflicting epistemological schools, or two ways in which knowledge can be acquired in research (Mack 2010). This work is grounded on a positivistic tradition in its quantitative analysis and on an interpretivist tradition in the qualitative part. Although the positivistic epistemological tradition could also be used for qualitative works (Lin 1998) the interviews in this research are analysed through interpretivist lenses. This means that this research presents not only two methods, but also two methodologies, each of which is grounded in a different epistemological school.

The statistical analysis in this work relies on data collected through questionnaires based on closed question items with no room for open texts, which makes them positivistic in nature. Positivism is a sociological theory that relies on philosophic methods including empiricism to produce knowledge that can be inferred through sensory perception and logic. This school of thought proposes the acquisition of knowledge through the use of a scientific method of research, which aims at being objective and hence value-neutral. In this sense, many in the positivistic tradition believe in objective and achievable knowledge that is obtained through research (Ayer 1959, Seale 1999). According to this tradition, there is a claim of an independent reality that is external to the research and the understanding of it comes from the use of research methods (Alasuutari et al. 2008). Despite the original epistemological base of positivism, some contemporary researchers who are part of this tradition do dispute claims for value-freeness and full objectivity (Alasuutari et al. 2008).

Epistemologically, the qualitative data from the interviews follow the interpretivist tradition, which aims at achieving fuller understanding of a particular view of the world, rather than the absolute truth. Interpretivism focus on one understanding, rather than an intention to achieve an objective truth (Than & Than 2015). This school argues that claims of a singular, absolute truth that is acquired through scientific method are unfounded, although an account can be considered valid whenever it represents or describes a specific phenomenon accurately, where accuracy is derived from its supposedly true representation. In contrast with positivism, it preaches systems of belief which are case-specific (Lin 1998).

Despite the differences in the epistemological schools they draw from, each method investigates a research object on separate, although complementary, fronts. The statistical analysis provides nationally representative positivistic findings, explaining the main characteristics at the school and individual level that are connected to sense of belonging. In turn, the qualitative analysis provides

depth rather than broadness. The interviews do not aim at representativeness or external validity, but at a deeper illustration of the complexity and particularity of a small number of students in three separate schools and how they identify conceptions of sense of belonging to their schools. The value-added of the interviews, in addition to investigating students' conscious identification, is to exemplify or contradict the statistical findings, and also to answer questions that cannot be resolved statistically for lack of available data. For this, the analysis of the interviews explores the connection between sense of belonging at school, its determinants, as well as variables affected by it.

As a result, even though different methodologies discuss different perceptions of reality, they still strive to understand this reality in its complexity. Each method provides findings to the same research area, but through independent, yet interconnected, research questions. The interaction between the findings, which can contradict or reinforce each other, is another research question in itself. In this work, the statistical data reveals an issue that is to be explored in depth by the qualitative part. The statistical work precedes the qualitative interviews chronologically, meaning that when the researcher entered the classrooms to collect data, he was already aware of the main representative findings from the statistical analysis. Furthermore, while both approaches are jointly constructing an argument, by looking into the same matter from two angles, the statistical analysis is preparing a discussion by giving width to understanding the phenomenon, while the interviews serve to enhance the debate by providing depth.

2.1.ii Rationale for the use of mixed methodology

The use of mixed methods provides several advantages to research design. An important advantage of acquiring knowledge through the combination of methods is to ensure the triangulation of findings between two epistemological schools (Plowright 2011), in this case between the quantitative and qualitative parts. This means that the semi-structured interviews serve the purpose of providing a more flexible exploration of the participants' views which could not be captured by simple questionnaires. Although it cannot – and does not – claim to be fully representative of all French secondary school students' experiences, the qualitative inquiry has the advantage that the type of information acquired by qualitative interviews is more profound by providing more freedom to respondents.

However, triangulation often assumes that a single reality can be known objectively through different methods of research (Blaikie and Priest 2019). In a sense, triangulation only makes sense in a positivistic understanding of reality, as it emerges from the paradigm of reality (Seale 1999). Understanding a research object through different research methodologies is a way to scientifically verify findings. In this work, triangulation, although present, is not the main aim of a mixed

methodology as only the quantitative data rely on the positivistic acquisition of objective knowledge through the research methodology, while the qualitative interviews construct knowledge through a more interpretivist lens. However, as will be further developed in section 3 of this chapter, phenomenography does not entirely reject objectivism, nor embraces subjectivism, following somewhere into a non-dualistic ontology (Marton and Booth 1997).

The reasons for applying a mixed methodology in this work go beyond simply triangulating results to the same research question using a varied methodology. Here, employing a mixed methodology is a way of creating a dialogue between areas of research, moving away from "antagonistic stances within and between disciplines" (Gilbert 2006), more than simply between methods. For example, the quantitative work in this thesis relies heavily on literature from the economic tradition, especially econometrics. In contrast, the qualitative arguments build on previous evidence from other social sciences including education studies and sociology. As Benney and Hughes (1956) rightly point out, subject areas (e.g. economics, sociology, anthropology, education studies) often have preferences for certain methods or research. As a result, combining different methods also leads to conciliating different subject areas. Despite many exceptions, subject areas tend to have preferred, or more common, methodological approaches. Consequently, using quantitative methods that are often the preference of economists and qualitative interviews that are preferred by sociologists providing an interesting dialogue between more than only two methods, but also two adjacent subject areas (Gilbert 2006).

Furthermore, mixed methods allow for combining the advantages of both methods used within a unique research line. The main reason for using survey data in quantitative research is the idea that they are capable of inferring information from an entire population. Questionnaires applied to a representative sample of a given population should be able to provide a statistically significant representation of that population. On the other hand, interviews provide illustrative in-depth data about certain individual particularities, which is highlighted in some cases in Chapter 4. This type of analysis brings depth to the width of the quantitative findings by relying on a perception of reality and intention of authenticity. In this sense, qualitative research can be combined and supported by quantitative evidence (Yin 1981).

A mixed methodology also allows for the temporary use of categorizations in statistical analysis that are later deconstructed in the qualitative work. Determinist and reductive categorizations are in some way necessary in questionnaire design and are hence used for the analysis of data stemming from such questionnaires. However, such categories, although necessary for statistical analysis, are normative and deterministic (Spivak 1990, Noble et al. 1999, and Jenkins 2015). Supplementing the

generalizable statistical findings with qualitative research provides opportunities for students participating in the interviews to abandon the deterministic boundaries imposed by questionnaires and develop more open identifications. As a result, the simplification that takes place in the statistical analysis, as a necessary tool for inferring statistical significance of seemingly objective relationships, is then cast aside in the qualitative part where students put forward much more complex and less provisional identities. As shown in Chapter 1, the identities described in the quantitative findings are an incomplete, unstable but useful category for research purposes. Those temporary identities are impossible, but necessary, meaning that they can be discarded theoretically, although their implications in history and politics are crucial for research (Ang 2000). As a result, the mixed methodology uses categories in a temporary fashion for statistical analysis, but then deconstructs those categories into more complex ones in discussions with interview participants.

Despite its many advantages, there are several challenges around using mixed methodology. One of the points highlighted by critics of mixed methods is that oftentimes, by using two different epistemological schools, the research is actually happening in tandem instead of being combined, and the researcher is hence asking separate questions (Scott and Morrison 2006). The argument puts forward the accusation of philosophical incoherence given that different philosophic lines often do not produce combined findings. In this work, indeed, the lines of research are separate, and the research questions are associated with them are as well. The findings are clearly presented based on the epistemological tradition that gives grounding to the methods used to produce such findings.

In his typology of mixed methods and mixed methodologies, Gilbert (2006) argues that such approaches are often insufficiently clear about the iterative process in which deductive and inductive processes occur. In his critique, Gilbert (2006) argues that each vision has very distinct, and seldom reconcilable, ontological and epistemological traditions. This thesis uses what Gilbert (2006) described in his typology as a "practical" type of mixed methods, in which there is no overarching methodological commitment and triangulation is not the main objective of the research design. In this sense, practical mixed methods relax part of the epistemological tension by proposing a complex strategy of concurrent data analysis.

Some authors (Howe 2004, Giddings 2006, Hammersley 2008) have also criticized the use of mixed methods by arguing that the qualitative aspects of the joint work consistently play second fiddle to the quantitative ones. According to them, positivistic (or in some cases post-positivistic) epistemology also does play a more important role than subjectivist or constructionist approaches. In that line of argument, the qualitative work within a mixed-method approach simply becomes

"procedural variation". Giddings (2006) goes as far as calling mixed methods research "positivism dressed in drag". Following the "practical" type of mixed methods, this thesis does not depreciate the relative importance of the qualitative findings, which are developed, analysed, and presented following the phenomenographic tradition described in the third section of this Chapter.

2.1.iii Application of the methodology to this work

A large part of the mixed method tradition in education studies comes from action research, where teachers can engage in statistically evaluating theories that emerge from their experience (Rose 2002). These types of studies using mixed methodology often have one method dominating or at least guiding the research findings (in the case of action research the analysis of findings from the teaching practice), while the other method plays a complementary role (for example, a quantitative evaluation that tests theories developed by teachers during their practice).

In contrast, this work is what Johnson et al. (2007) referred to as "interactive" or "equal status" research design, which stresses dialogue and interaction between the two methodologies. As a result, this work uses qualitative methods to interpret, illustrate or refute findings from the quantitative side, as well as assess the validity of the findings, which is the faculty of generalizing such findings in other contexts (Alasuutari et al. 2008). The study starts with a statistical analysis providing nationally representative positivistic findings, which is followed by a discussion about data collected in qualitative interviews that illustrate the specificities of some students.

Furthermore, the qualitative interviews assess the validity of the questionnaire from where the quantitative data originates. The concept of validity, which is key in the design of research grounded on positivism, generally indicates how sound a piece of research is considering its design and the methods used to draw conclusions. Specifically, in the discussion around statistical data collection, the validity of data measures how much the findings put forward by that data actually represent the phenomenon they intend to measure (Alasuutari et al. 2008). The interviews help assess the validity of questionnaires by investigating how students understand the questions they responded to in the questionnaire and to which extent these questions actually measure their sense of belonging at school as they intend to. For this, as described in the interview design section, students were encouraged to explain the rationale behind filling out the questionnaire in a certain way. In the context of this work, as shown in the next sections, interviewees were asked to discuss how they understand the questions asked within the statistical analysis to a representative sample of students in the country. The interviewees were given the chance to clarify to which extent students actually understand a questionnaire in order to provide answers that allow for measurement of the phenomenon the questions describe.

Another area where qualitative and quantitative methods enter dialogue is in the deconstruction of concepts used for statistical analyses. In the evaluation of the impact of certain school-level and individual-level characteristics in a student's sense of belonging at school, the categories used for statistical purposes are fixed and determined. For example, a student's socioeconomic background is calculated based on their material conditions at home and compared to the average material condition of the student population in the country. This type of estimation of socioeconomic background, albeit seemingly objective, ignores the student's individual perception of their sense of wealth or deprivation. During the interviews, students could explain what they felt their socioeconomic position to be, as well as how they linked that perceived background to their sense of belonging at school. This more open self-identification is aligned with strategic essentialism described in Chapter 1. When the interviews take place, the labels ascribed to students in the surveys are substituted by the way the students themselves give meaning to their various identities (Spivak 1980). The inclusion of students' voices to describe the complexity of their identities is one of the main contributions of this thesis.

In addition to socioeconomic background, other characteristics were also discussed during interviews and reconstructed in order to better represent how students understand them. Immigration background, for example, is treated in the qualitative analysis as a simple construct based on the student's place of birth, as well as their parents' place of birth. As shown in the previous Chapter, such way of categorizing students based on their family migration history, although very common in France, is insufficiently precise, masking a large part of students' identities. To address this issue, in the qualitative part, students are invited to provide more elaborate descriptions of their family history and how it helped shape their identity. Another example of a characteristic that evolves from a seemingly objective category in the analysis of PISA data into a more complex and subjective description is academic performance. While in the analysis of quantitative data, students' academic performance is analysed in relation to their peers in a cross-national comparison based on standardized reading and mathematics tests, during the interviews, students freely express how they believe they perform at school both in absolute terms and in relation to their peers.

Such discussions happen within the conceptual realm of strategic essentialism (Spivak 1980), where minority or marginalized groups, which in this work includes for example students from immigrant communities, economically disadvantaged and those with poorer academic performance, are referred to as part of a broad category that temporarily erases the diversity within the group, essentializing their identity. This temporary erasure is a tactic to promote political change and progress. This simplification that takes place in the statistical analysis, as a necessary tool for

inferring statistical significance of seemingly objective relationships, is then cast aside in the qualitative part where students put forward much more complex and less provisional identities. The objective of such an approach in accepting temporary essentialization of minority groups promoting a simplified group identity was to empower the fight for equal rights and social justice for those groups (Spivak 1980, Gunaratnam 2003).

Finally, the qualitative interviews further investigate some of the findings from the statistical analysis. Students participating in the interview filled out the exact same questionnaires on sense of belonging that sampled students for the PISA 2018 study did. The researcher provided a paper sheet with a printed mini-questionnaire, in the same way as the original PISA study. However, the student was instructed to intervene and ask questions while they were filling out the form. The students could also think out loud about what they were considering while filling out the questionnaire (Eccles and Arsal 2017). They were not given a specific timeframe to provide all responses, so the researcher waited until each student confirmed that they had provided responses aligned with their feelings and previous experiences. Such an approach in the qualitative interviews allowed for assessing the validity of the framework for sense of belonging at school that is used by the PISA questionnaires. In this process, the responses provided by students to the open questions/discussion are used to contrast the way in which they responded to the PISA questionnaire with fixed categories. The phenomenographic interviews were then used to assess to which extent statements provided to students in PISA actually measure belongingness, and specifically the conceptions of belonging which are described more in detail in the third section of this Chapter.

After the students had filled out the questionnaire, the researcher discussed their answers, using prompt questions to discuss what motivated the way in which they responded to the questionnaire and trying to identify previous experiences from students that describe how they conceptualize the various dimensions of belongingness. Oftentimes the prompt questions would lead to independent stories from students describing their experiences, as well as their understanding of the questionnaire. The responses and their subsequent discussions exemplified the rationale behind filling out such information and the main factors affecting their perceived sense of inclusion or exclusion in a much more complex manner than the PISA questionnaire.

2.2 Statistical analysis

The first part of this thesis quantitatively evaluates the determinants of sense of belonging at school by pointing to school-level and individual characteristics that are connected to a student's perception of their role at schools. For this purpose, this work used regression analysis tools, typically used in econometrics and other social sciences, but in this case applied to the education context to analyse survey data that can be used to put forward generalizations about the student population in France. The statistical evaluation also quantifies how much of the variation in sense of belonging happens within schools (between students studying in the same school) and how much happens between schools (a student's sense of belonging being connected to school-level variables).

The purpose of the quantitative evaluation is to draw nationally representative findings that describe the most statistically significant factors connected with students' perception of themselves as belonging or not at school, as well as the degree of this perception of belongingness. In this work, the quantitative findings can be generalized to the entire population of the schools participating in PISA. Such data can also be used to understand the particularities of students in a given education system through cross-country comparisons.

The statistical method used in this work draws from regression analysis, which is originally part of the econometric tradition, but is also used by various other disciplines, and in particular quantitative sociology. Econometrics is the application of statistical methods to infer relationships between variables from a dataset. This application of statistical analysis takes its name, which was coined in the 30s and 40s, from the substantial use that was made of it to describe economic science (Spanos 2008). While econometric theory discusses the relationship between variables, applied econometrics uses the statistical theory behind those relationships to understand and analyse real-world data, especially around micro and macroeconomics. Nevertheless, the statistical tools developed within this tradition are also used to discuss relationships between variables coming from data pertaining to other domains, including psychological and sociological phenomena in the case of this work.

Indeed, one of the most important tools within the econometric tradition is regression models. Regression models are used to carry out regression analyses, which estimate how one variable, called the "dependent variable" is explained or predicted by one or more other variables, called "independent variables". The regression model analyses the significance of the relationship between each independent variable and the dependent variable that they try to explain. This means that the model is able to capture how much of the variation in the dependent variable is actually due to variation in each independent variable if the other independent variables are kept fixed (Angrist and Pischke 2008, Verbeek 2008, Wooldridge 2016).

The econometric analysis in this work includes linear and logistic regressions (also called logit) to assess what student characteristics have the strongest correlation with educational wellbeing and interpersonal relations (Wooldridge 2016). As with other regressions, logistic regression analysis consists of a set of statistical processes for estimating the relationships between a dependent variable, which is the phenomenon the regressions aim to explain, and a series of independent variables, which are the characteristics explaining such phenomenon. Regressions estimate such relationships by isolating the impact each explanatory variable has on the explained variable taking into consideration all the other explanatory variables. That means that regressions show how much one characteristic affects an outcome variable even when accounting for various other characteristics. Most of the regressions used in this work are logistic models, which are used to estimate the probability of an event occurring, for example, the likelihood of a student agreeing to a statement. The main practical difference between logistic models and other regressions analysis is that in logits the explained variable can only take two values, zero or one, where zero means that an event (or phenomenon) does not occur and one means that the event occurs (Wooldridge 2016). For example, when trying to explain sense of belonging at school using several explanatory variables in a logit, there would be only two possible values for sense of belonging at school: zero meaning a student does not feel they belong at school and one meaning that that student does feel they belong at school. As a result, such logistic regressions, unlike other types of regression, produce estimations of probabilities of an event occurring, which in this work is the probability of a student feeling they belong at school. The logistic regressions used in Chapter 3 explain what characteristics of a student, or their school, increase or decrease the likelihood that this student feels that they belong at school.

In this work, regressions are used to understand how much a higher academic performance score at school increases or decreases the sense of belonging of students. High school performance can be linked to other characteristics, such as studying at a better school or being of a certain socioeconomic background, both of which also affect sense of belonging. Regression analysis allows for the impact of high performance to be separated from the impact of other variables also included in the regression. As a result, the regression analysis can clarify how much of a higher sense of belonging is explained by, for example, socioeconomic background and how much is explained by a particular level of school performance.

A particular type of regression used in this work includes multilevel models, which analyse the data at various levels, for example, at the country-level and the school-level (Alasuutari et al. 2008, Goldstein 2011). This type of multilevel analysis aims to account for the fact that students are not randomly placed into schools (Michaelowa 2001). That means that students are often clustered in schools with other similar students. For example, well-performing students often end up at more

demanding schools with other more academic colleagues. The same reasoning applies to several student characteristics, such as ethnic and socioeconomic background. Multilevel models serve the purpose of disentangling variation present in one level (the school) from that of another level (the individual). By using sophisticated statistical techniques, such models allow for the decomposition of variation in a phenomenon, which leads to the identification of how much school-level and individual-level characteristics are connected to sense of belonging at school (Luke 2019). Furthermore, the use of such hierarchical models allows for the exclusion of certain biases that could be caused by confounding variables, which are variables affecting both the explained and explanatory variables, at the school level. For instance, take an example where a correlation is established between sense of belonging at school with education performance. In this case, it can be that the reason why sense of belonging increases when education performance increases is simply because students are in a safer, more welcoming, school. As a result, certain school characteristics (feeling safe in the example) affect both school belonging and education performance and create a spurious correlation between both variables. However, the correlation between such variables is not necessarily logical as it does not come from the interaction between belonging and performance, but from the school where a student studies. The use of multilevel models prevents such misleading correlations driven by school characteristics from occurring.

In this study, the data source used is the Programme for International Student Assessment (PISA), which is a cross-country study by the Organisation for Economic Co-operation and Development (OECD) that assesses the academic performance of 15-year-old students. It includes over 60 countries with a total of more than 500,000 students sitting the test every three years. In addition to the academic testing, PISA also collects data on several individual characteristics, as well as students' wellbeing and sense of belonging, which are key for this study. PISA data is freely available for download online and can be accessed from the OECD website.

The macro-sociological assessment of students' attitudes towards school, teachers, and other students provides nationally representative results and gives grounding for further analysis in the qualitative interviews. This initial step provides a quantitative picture of the French contexts onto which the qualitative interviews with students can build. As a result, the conclusions of Chapter 3 provide self-contained findings that can be generalized, but it also gives guidance to the discussion of qualitative research in Chapter 4.

2.3 Qualitative interviews

This thesis consists of a multimethod approach, meaning that the statistical analysis presented in the previous section is complemented by a qualitative one. The quantitative work provides a statistically coherent account of sense of belonging at school that can be generalized for all students in France. Nonetheless, human actions are seldom fully generalizable, and it is arguably hard to predict behaviour in social sciences. Findings that provide nationally representative evidence are key to understanding a general scenario, but they often mask the uniqueness of individual examples. As a result, it is important to conciliate generalizable truth with the richness of each individual student experience. This study aims to understand how the statistical findings can be explored in a school context and to what extent the claims of validity of the questionnaire hold. Moreover, this study aims to examine how nationally representative quantitative results apply to the local complexity of each of the three schools in this study, showing examples from the schools describing how some of the key statistical findings connect with students' past experiences.

In this context, a qualitative study is necessary to illustrate the individuality that is hidden in statistical generalizations. The qualitative interviews help develop new concepts by analysing and describing individual behaviours and characteristics. It also helps verify if and how findings from the quantitative part hold in individual cases. Unlike the statistical approach, the qualitative part does not intend to prove theories, but rather to explore individual perceptions. It further investigates the quantitative findings in the light of phenomenography, by delving into the complexity of students' behaviours and perceptions and by trying to understand the characteristics contributing to a higher or lower sense of belonging at school.

Another added value of the qualitative analyses is that, in contrast with the statistical investigation, it refrains from using categorical variables from questionnaires to describe the individuals participating in it. Categorizations certainly impose deterministic boundaries in a heterogeneous society, where identity is often fluid and context-specific (Spivak 1980, Sarup 1996 and Gunaratnam 2003). It is important to recognize that categorical definitions, despite being normative and deterministic, are necessary tools for comparative statistical discussions that are part of this work (Spivak 1990, Noble et al. 1999 and Jenkins 2015). Nonetheless, it is also important to decrease the relative importance of such labels when the research methods allow so, which is the case of the qualitative interviews presented in this section where students can more freely present their identities and experiences.

The qualitative interviews in this work aim to illustrate and to give examples of how belongingness is constructed in each of the schools for the groups of students interviewed. The way the meaning of

belongingness is created is contingent and context-specific, which reinforces the importance of one-to-one discussions with students who can clarify their meaning-making specificities. Being a comparative study across different schools, this work provides an in-depth analysis of various bounded systems that are analogous, as each one of them is composed of one school, yet very different in the particularities explored in the investigation given that they are inserted in different realities. The comparability of these three schools serves as grounding to affirm the contingency and context-specificity of the findings.

The comparative nature of this study, consisting of three separate school environments also allows for comparisons between the bounded systems being explored. The contrast between those realities reinforces the need for a qualitative evaluation by corroborating the uniqueness of lived experiences by individuals and also collectively by individuals at schools.

The method used for data collection is semi-structured interviews, a tool often deployed for qualitative approaches in education research (Stark and Torrance 2005). In this work, dozens of qualitative interviews took place in schools in the metropolitan area of Paris. The selection of multiple schools is an important way of enriching the case studies by providing more robust information than one single school (Yin 2014).

Within qualitative research traditions, interviews typically produce and report interpretations and opinions over 'facts'. In comparison to questionnaires, qualitative interviews are much less structured (Plowright 2011). In this work, the interviews are semi-structured, meaning that they follow certain guidelines, but allow for some flexibility. Wording or questions and their order can change, but all questions should be asked before the end of the interview. The choice of semi-structured interview was intended to strike a balance between comparability across students and schools, meaning that some common questions were asked to all students, and flexibility, meaning that the questions could adapt throughout the interview based on the way in which students and the researcher interacted.

The choice of qualitative interviews is very relevant in a context where a complex phenomenon has to be understood from various angles (Yin 1981), in this case the voices of different students. Such interviews allow for the understanding of a phenomenon in its own context and environment. As a result, the analysis of such interviews provides an in-depth but not a holistic analysis, focusing on a few particular students in a few particular schools. The study is constrained to a specific number of children rather than to the entire social group. It serves as a portrait that acknowledges the incapacity to generalize its findings and provides value in the understanding of particularities, rather than generalizations.

2.3.i Phenomenography

The specific tradition used to conduct the qualitative interviews in this work is phenomenography, a qualitative research approach that started in Sweden in the 1970s. At that time, Ference Marton and his colleagues at Gothenburg University were interested in understanding how students made sense and conceived the content and the process of learning (Tight 2016). The main assumption of this new approach to education research is that there are limited ways in which a group of individuals can understand, perceive, or experience a given phenomenon. As a result, a phenomenography does not aim at understanding the various conceptions of an individual within a group, but the variation in conceptions of a group of individuals (Akerlind, 2005). Although originally created to help educators identify learning approaches, phenomenographic research has been widely used to understand how students make sense of various other educational phenomena, as is the case in this thesis for sense of belonging at school.

The concept of sense of belonging in school used in this thesis was constructed based on the literature review, in an effort to condense most of the definitions used in previous work, and on the discussions with students, which outline their own conceptions of sense of belonging identified through phenomenography. The central definition of sense of belonging at school used and presented throughout this thesis is 'the feeling that students can be themselves within the social context of their school without threat to their wellbeing'. This definition not only builds on previous literature but most importantly, it is large enough to account for the three main conceptions of belonging identified by students as detailed in Chapter 4 (friendships, wellbeing and school identity) and considers the framework used by statistical analysis of PISA data in Chapter 3.

A phenomenographic approach is able to describe the meaning-making process collectively undertaken by participants in the identification of their conceptions of belonging, giving voices to students in a specific national context. Phenomenography, which falls under the interpretivist tradition, aims to identify complementary non-exhaustive ways in which participants assign meaning to a phenomenon (Marton 2015). In the phenomenographic tradition, the complementarity of these ways means that by being qualitatively different they provide a complementary understanding of conceptions. A phenomenography typically suggests a series of meaning-making processes, contrasting ways in which those processes vary. The way meaning is created and transformed by each student is described in light of the various characteristics of such students, as well as the learning environment around them and their social context. In the case of this thesis, phenomenography was the chosen approach to research as it helps identify qualitatively different

ways in which students give meaning to their sense of belonging at school. In this sense, more than the phenomenon of sense of belonging in itself, a phenomenographic approach develops the idea individuals have of a phenomenon, or their perception of it (Ballantyne et al. 1998, Durden 2019). The ways in which these meaning-making processes occur and vary across individuals, or the way in which a person understands the phenomenon, are called "conceptions" in phenomenography (Akerlind 2005, Marton 2015, Durben 2019). The main objective of a phenomenographic research is then to identify and describe qualitative differences in those conceptions (Durben 2019). This means that the various conceptions identified in the thesis are a collective product of the interviews with various students, more than the specific understanding of each student individually, as could be the case in other interpretivist approaches, such as ethnographies.

Phenomenography is part of a relatively recent research tradition, and the term "phenomenography" was only coined by Marton in 1981 as a way to describe his own research. Since then, this research orientation has been developed within the discipline of Education studies given the importance of considering all parts of a phenomenon within this discipline (Svensson 1997). At that point, several studies within education research were carried out through the lens of phenomenography to understand a wide range of education phenomena, including student performance, teacher's pedagogy, and sense of belonging (Marton 1986, Entwistle 1997, Trigwell 2000, Rands & Gansemer-Topf 2016, Bell 2016…). In this work, the phenomenon scrutinized is students' sense of belonging at school. Phenomenography has not widely been used in the context of French educational settings. As such, this thesis makes an important methodologic contribution by employing an approach to conceptualizing belonging in a national context that was not yet present in the literature.

Unlike the statistical analysis previously presented, which aims to identify objective findings, the ontological assumptions of phenomenography are closer to subjectivism, arguing that the personal experience is unique and capable of constructing and transforming meaning and perceptions (Marton 1986, Bell 2016). Nonetheless, phenomenography's ontology is also not entirely subjectivist as it goes beyond the internal construction of the subject (Marton and Booth 1997). In fact, the whole understanding of knowledge in phenomenography is that is it acquired through the description of phenomena. Knowledge exists as the meaning attached to the description of a phenomenon, which is empirically explored and, hence, contingent on cultural and social contexts of the exploration (Svensson 1997). Reality is described through people's descriptions of their experiences. Those descriptions are in between psychological and material attributes (Marton and Booth 1997). Furthermore, the theoretical framework of phenomenography assumes that

differences in the way people describe phenomena are visible in the structure of people's thinking that can then be understood by the researcher (Durben 2019).

Unlike the seemingly objective findings from statistical scrutiny, the results of a phenomenographic analysis are interpretations of phenomenon that occur as part of collective subjectivity. In this sense, phenomenography is a "second-order approach" (Marton and Booth 1997), meaning that it describes how a phenomenon is perceived by participants, instead of a first-order approach which would be the phenomenon as they really are. This means that a key assumption of phenomenography is that differences in the way individuals understand a phenomenon are visible and can be reached by the researcher (Marton 2015).

As an approach, phenomenography seeks only to describe a phenomenon and the qualitatively different ways in which the phenomenon is experienced, and not to explain, justify, understand or assign meaning to it (Bell 2016). This means that there is no moral or value judgment behind the identified conceptions. In this context, individualized accounts per se are less important, as the focus is on the commonalities and the differences encountered in the way participants understand phenomena, which here is their sense of belonging at school. As a result, although an individual student's account can be interesting and relevant to explain the phenomenon of sense of belonging at school, the richness of a phenomenography lies in the qualitatively different ways in which this student and another assign meaning to the phenomenon (Akerlind 2005). The aim of a phenomenography is, hence, not to understand the various conceptions of an individual within a group, but of the variation in conceptions of a group of individuals (Akerlind, 2005).

Phenomenography is a qualitative research tradition that investigates phenomena, through a rigorous coding process that leads to the identification of conceptions, which are qualitatively different ways in which people experience something or think about something. The main objective of phenomenography is to systematically describe phenomena, which are largely based on individual experience. As a result, the research design often relies on a purposely selected small sample of individuals for interviews. From the moment the researcher notices that the information collected from students does not lead to any more qualitatively different conceptualization, there is no need to substantially increase the number of participants. As a result, in the case of this work, between 9 and 13 students were chosen for each of the three schools participating in the analysis (11 in the first school, 9 in the second, and 13 in the third). The approach consists of understanding commonalities and divergences in students' conception of sense of belonging and how such conceptions are illustrated by their past experiences. The way in which commonalities present in the way students make sense of sense of belonging at school led to the identification of key conceptions

is described in the following section. The study also contrasted the conceptions identified with other frameworks used to investigate sense of belonging at school that came about from non-phenomenographic approaches.

Every individual interprets and transforms reality through their own filters, which invariably results in individualized accounts of reality (Bell 2016). In this sense, phenomenography tends to explain more the collective ideas individuals have of a phenomenon, rather than the phenomenon on its own (Ballantyne et al. 1998). In this work, sense of belonging at school is an intangible phenomenon that is only understood through the filter of each student's education experience and perception. Every student who participated in this research conceptualized their sense of belonging. According to the phenomenographic tradition, the way each student had of conceptualizing sense of belonging at school is unique, although the collective analysis of all those unique ways can lead to the identification of commonalities, or conceptions, of the phenomenon. The uniqueness of the conception is less important than how it is also confirmed or rejected by other students in the study. As a result, this research uses students' individual conceptualizations to determine the qualitative differences and similitudes in these perceptions of belongingness within the three schools that participated in the study.

Comparative nature

An important feature of phenomenography is the focus on comparison as a path towards the construction of knowledge. This research orientation stresses the power of contrasting individual experiences leading to independent descriptions of phenomena. In the concrete case of this research, phenomenography gives the tools to explore the different meanings belongingness has for students. Such tools are described more in detail in section 3.5 of this Chapter on "Treatment of the data".

The value of the study is indeed to compare how various phenomena, such as sense of belonging at school, are perceived and understood differently by each individual participating in the study (Marton 1994). Within this methodological tradition, the difference between the ways that a group or a single individual live and perceive a given phenomenon is called 'conceptions' (Marton 1981). The contrast between conceptions of students within and between schools guides the debate presented here on how and why perceived belongingness and exclusion of students differs from school to school and within the same school.

The richness of the study lies in understanding the similarities and the contrasts in each individual's lived experience and perception of the phenomenon studied, in this case, their sense of belonging at school. Despite being derived from individuals' perceptions of their experiences, conceptions are not

individualized psychological entities. Coming from an interpretivist approach, phenomenography embraces an exploratory analysis of data collected, which assigns subjective value to the knowledge constructed through research. This is in sharp contrast with the objective understanding of data preached by the positivist tradition that gives support to statistical analysis. Drawing from its comparative nature, the data collected from the interview with one participant has to be understood in combination with that from other participants (Akerlind 2005). As a result, conceptions are collective and collectively presented, rather than shown as personal accounts. There is no phenomenographic purpose in discussing individual psychological processes (Marton 1981). The interest of a phenomenography is exactly to understand the different conceptions of responses given by individuals, although not individual responses per se (Rands & Gansemer-Topf 2016). The richness of the approach is in understanding differences and commonalities in conceptions, instead of going deep into describing an individual's own experience of a phenomenon. In the practical example of this thesis, the principal objective of the phenomenography is not to discuss why some students belong at school, while others do not. This question is answered by the quantitative analysis of PISA data. The objective of the phenomenography is actually to understand how various students give meaning to belonging and how this meaning-making process is affected by their identities. In a phenomenography, the conceptions are presented as part of an outcome space (Marton 1994) which presents conceptions as a hierarchical set. The conceptions in the outcome space are considered hierarchically inclusive meaning that a higher layer within the outcome space contains not only the conceptions present in that layer, but also the conceptions in lower layers (Jarvinen 2004).

Phenomenography and sense of belonging

As described in the literature review, phenomenography has already been used to discuss how students understand belonging. Rands & Gansemer-Topf (2016) studied how students conceptualize sense of belonging on their college campuses identifying a number of situations and experiences where students felt like a legitimate member of, or alienated from, their student community. Pesonen et al. (2016) identified conceptions associated with sense of belonging of Finnish pupils with special education needs. They put forward, for example, the relationships pupils have with adults and the school climate as major themes facilitating the sense of belonging of pupils with special education needs in school. Phenomenography can also be used in other areas of education research ranging from illustrating a discussion on how principals perceive teacher competence to be constructed (Ballantyne et al. 1998) to how engineering students define their transition to college (Salzman 2014).

In order to balance comparability and flexibility, this work uses semi-structured interviews (Creswell et al. 2003) to conceptualize belongingness, explore the converging and diverging meanings attached to it by students, and understand how it is connected to several other variables. As a result, the main research question of this phenomenography is to understand how participants collectively attached meaning to the phenomenon of sense of belonging at school and what they connect it to (Bowden 2000). Furthermore, this approach aims to understand the variation of the concept of sense of belonging to each student (Limberg 2008).

The comparative dimension is key to understanding phenomenography as participants' interview transcripts cannot be understood in isolation from the others (Åkerlind 2005). The variation in descriptions presented by participants reflects the complexity of the various ways of perceiving the phenomenon of sense of belonging. As a result, the main purpose of choosing phenomenography is its power as a school of research to illustrate how conceptions vary from student to student and how a combination of this variation leads to the wholeness of the phenomenon (Limberg 2008).

Some limitations of phenomenography

There are some challenges with the use of phenomenography. Webb (1997), for example, has argued that it is impossible to dissociate the researcher from their previous knowledge in the way they interpret interviews, transcripts, and fieldnotes. Such a link between the researcher's original understanding of the phenomenon could lead to a confirmation bias in the way conceptions are identified (Webb 1997). Although the researcher does play a crucial role in the way conceptions are identified, this is a very vast issue present in most qualitative research (Walsh 2000, Brannen 2005). In general, the research design is subject to the biases from the research leading it and, particularly, drawing from the interpretivist tradition, the researcher is an integral part of the way findings were generated (Walsh 2000).

Some more criticism of phenomenography comes from the fact that the approach has an insufficiently precise methodology (Akerlind 2005). It is argued that phenomenographies do not follow a strict protocol of data collection and analysis, and that the researcher can very strongly influence the way the findings are produced. However, as Akelind (2005) himself counters the criticism, phenomenography emerged from empirical research more than philosophical discussion. This means that the methodological flexibility of the approach is indeed grounded on empirical evidence. The value of phenomenography is less on the discussion of the nature of conceptions than on the relevance of its findings to education progress (Marton and Booth 1997).

Another challenge of phenomenography is the commonly small number of individuals participating in the study (Bell 2016). Some studies have identified conceptions from less than ten individuals,

while this thesis relies on only 33 qualitative interviews. Despite the seemingly small sample size, the number of students selected for the research was defined as part of the research design during the data collection process. This means that phenomenographic research is not designed with a number of participants in mind, but that the number of participants is delimited by the researcher once there is a sense that no more variation in conceptions of the phenomenon is identified (Limberg 2008).

Finally, the data collected through phenomenography is also contingent on the setting and the time when it takes place, as individuals put forward different conceptions of the same phenomenon in a different context (Marton 1995). Participants in phenomenography can only fully discern certain aspects of a phenomenon at a time so their conceptions can be contingent on the time when the data collection takes place (Marton, Tsui, Chik, Ko & Lo., 2004).

2.3.ii Interview outline

The main reason for using interviews to acquire data for a phenomenography is that they constitute close access to an individual's personal accounts, lived experiences, and conceptions (Kakkori and Huttunen 2010). The interviews provide a valuable opportunity to illustrate how some of the findings of the quantitative part play out for individuals and how other findings are refuted by the individual experience of some students. Phenomenographic interviews are part of the larger family of qualitative interviews, which follow a given protocol even if open to spontaneity and adaptation.

In this work, the first part of the interview included some background questions that were asked to the teacher in order to have them select the students for this work. The teachers were informed about the interest in the work and what would be expected from the students participating in it. This initial discussion with teachers enhanced their engagement in the process and ensured that purposely selected students have a variety of characteristics that provide rich phenomenographic analysis.

The first part of the interviews is based on questionnaires similar to the ones applied by PISA. At this stage, participants were provided open-ended questions that allow them to freely share their experiences and their meaning-making process (Bowden 2000). The main objective of this part is to understand how participants define the phenomenon and what they connect it to, especially linking their experiences to the quantitative PISA data.

Between 9 and 13 students participated in exploratory interviews in each of the three schools. The number of students interviewed is within the range proposed by Trigwell (2000) for such phenomenographic studies. The number of interviews was sufficient to give substantial examples of how sense of belonging is constructed and transformed in their schools. The interviews do not

follow a sampling scheme as it does not aim at generalization, in contrast with the quantitative research.

The interviews were semi-structured, following Fielding's (2003) definition: a list of questions was prepared in advance[3], but there was room for improvising the order and the way in which the questions were asked. The idea behind it is to develop a conversational structure. For this, all the interviews took place in the school setting the students were familiar with and the teachers facilitated the interactions between the researcher and the participants. The second section of Chapter 4 describes how the interviews unfolded in each of the three schools.

The first part of the interview consists of having students respond to a series of background questions about themselves, their families, and their performance at school. These questions, which are largely similar to the background questions asked in the PISA questionnaire, were adapted together with the teachers to ensure that students would feel comfortable responding to them. The background questions are needed to understand how students participating in the interview would have identified had they been sampled for the PISA assessment, which in turn, allows for comparing the quantitative findings with the qualitative ones.

Following the background questions, the students respond to a questionnaire containing the exact same questions proposed by PISA following a Likert scale that goes from strongly disagreeing to strongly agreeing to various statements, as shown in Table 3 below. A small change from the original PISA questionnaire included the exclusion of the "Don't know" category to incentivize students to respond. However, students were informed that they could keep the question unanswered.

Table 3 Statements from the PISA questionnaire

Statement	Mostly agree	Agree	Disagree	Mostly disagree
1. I feel like an outsider at school				
2. I make friends easily at school				
3. I feel awkward and out of place in my school				
4. Other students seem to like me				
5. I feel lonely at school				
6. I feel like I belong at school				

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[3] The interview protocol is available in the appendix.

In phenomenographic research, exploratory data are generated using methods that aim to value openness and variation in responses (Ballantyne et al. 1998). As a result, after the student responded to the questions, they were asked to give examples of the reasons why they selected each alternative and explain their feelings. Questions were drafted in a way that they let participants show their own account of past events and feelings instead of having the researcher impose his preconceived ideas (Entwistle 1997, Rands & Gansemer-Topf 2016). Following Leech's (2002) research, many questions relied on facilitating descriptions from students of their past experiences and connecting them to the questions from the questionnaire. For example, instead of directly asking about characteristics of a student's friends, such as gender or ethnic background, the researcher asked: "Can you describe to me your group of friends at school?". Such questions allow the participants to prioritize the aspects of their answers that they find more relevant. Some students would describe their group of friends in terms of their common interests, while others would explain the way they met such friends.

To facilitate the discussion with students, some probing questions were asked to incentivize the students to further develop certain points (Rands & Gansemer-Topf 2016). Those questions were added after each main question to encourage students to discuss further in detail in case their first responses were not conclusive (Leech 2002). The importance of probing is often seen as a tool to move participants from theoretical actions into their past experiences (Entwistle 1997). In this sense, probing questions are key to enhancing participants' awareness and understanding of their sense of belonging. For example, in situations where the students have not fully developed the question on the description of their group of friends, the researcher tried to create further rapport by asking specific questions such as: "What are your friends' names?" or "Can you give me examples of activities you do together in and out of school?". By asking more questions about the same topic, the researcher was able to acquire more information from students who did not initially provide very thorough descriptions to illustrate situations when they felt like they belonged at school.

In each school, in order to maximize the probability of valid data arising from the data, the researcher presented the questionnaire to the support teacher and asked for feedback on how it could be adapted to the school contexts given the teacher's knowledge of their students. As a result, the questionnaires and the interview protocol administered to each school were customized based on the inputs of the researcher to match the specific context of their school.

The face-to-face interviews were recorded and were scheduled to last between 20 minutes and one hour. In reality, many of the interviews were shorter, lasting between 10 and 40 minutes. They were conducted in accordance with the ethical guidelines described by the British Educational Research

Association (BERA 2018). Informed opt-in consent was requested from students, while parents received an information sheet with an opt-out optional consent form. The initial treatment of the data collected from the interviews is described in section 3.5 of this chapter and the phenomenographic analysis of the interviews is more fully explained in Chapter 4, where the results are presented.

2.3.iii School selection

The researcher had access to schools through contact teachers who had participated in France's program *Le Choix de L'école* (formerly known as Teach for France). The programme selects high-performing college graduates and trains them to work as secondary school teachers in the country's public school system. This program was selected as an entry point for the identification of schools where the interviews could take place due to the researcher's previous work with teachers who participated in it and who could connect him with the programme manager. By approaching the programme's managers, the researcher had access to a list of highly motivated teachers who had participated in the programme and who were currently teaching in the Paris metropolitan area. The pool of former participants from *Le Choix de L'école* usually includes young and motivated teachers, many of whom would be interested in engaging in research activities at their school. Many teachers were contacted, and some decided to participate in the research by facilitating the connection between the researcher and the students.

After presenting the purpose of the research to both teachers and principals, the interviews were scheduled and took place during the academic year 2019/2020 between September 2019 and March 2020. The schools were purposively selected from those where teachers had responded positively in order to cover several established criteria, namely a diverse school body in terms of gender, immigration background, ethnic origin, and socioeconomic background. As the analysis focused on students around the age of 15-year-old, which is the same group analysed in PISA, the pre-selected schools included lower secondary (*collège*) students, which usually covers children aged 11 to 15. Although many 15-year-olds are also attending upper secondary education (*lycée*), at that level of education students can choose between general and vocational tracks, which further decreases the diversity of schools, which is one of the main requirements for phenomenographic examination. As richer and more academically performing students tend to choose the general track in higher numbers than students from poorer socioeconomic backgrounds and school performance, there is much less diversity in upper secondary education.

The principals of pre-selected schools were approached through the connection of teachers at the school. They were sent approach letters that included an outline of the proposed interviews, as well

as the consent forms that were approved following the guidelines of the British Educational Research Association (BERA 2018). Students were requested to formally opt into the research, while parents were informed of the research and given the option to return a form withholding their consent for their children to participate.

Three schools received support from the principal to initiate the research with the assistance from the teacher contacted through *Le Choix de L'école*. All three schools are located in the outskirts of Paris, in areas that are officially classified as suburbs (*banlieues*), which are considered to be different cities and are hence subject to a different local administration. However, it is important to clarify that the suburbs where the schools are located are very different from suburbs in the classic use of the term in Anglo-Saxon contexts. All schools are less than 45 minutes away by public transportation from the central stations of the city. As a result, although administratively separate from Paris, the areas are intimately connected to its city centre through public transportation. In most similarly-sized cities, this type of suburb is typically considered a neighbourhood of the city, rather than another city in its own right within a large metropolitan area.

All three schools visited were of lower secondary level (*collège*) and students were attending the last grade of lower secondary education, before they moved onto upper secondary schools, where students are tracked into general and vocational options. The first school was visited in September 2019 in a suburb in the Northeast of Paris. The second school is located in the North of Paris, about 30 minutes in public transportation from the first one. Finally, the third school where interviews took place is also located in another suburb to the West of Paris. The interviews for the second and third schools took place between February and March 2020.

2.3.iv Student selection

In each of the three schools where this study took place, students were selected differently for participation in the interviews, adapting the research to the local context, the experience of the principals and contact teachers, as well as ethical limitations.

In the first school (in the Northeast of Paris), the contact teacher pre-selected some students he believed would be interested in taking part in the study. As the school is in a more difficult neighbourhood with lower average academic performance, the teacher expected low engagement from most students and decided to focus his efforts on inviting those who would be more likely to participate. Of the pre-selected students, eleven responded positively and were invited for the interview.

The second school (in the North of Paris) followed a different approach where students were entirely self-selected. The contact teacher circulated the ethics form so children could opt into the research. Only nine students responded positively and with parental support. All the students who showed interest were invited to the interview. According to the contact teacher, the students who showed interest and demonstrated parental support were more "studious" and more "engaged in class" than the average.

The third school (in the West of Paris) was the one where most students had a higher socioeconomic background and academic performance. In this context, the teacher also circulated a participation sheet, as for the second school, but many more students showed interest in participating, which was beyond the capacity given time constraints. As a result, the teacher, together with the main researcher, decided on thirteen students who would be invited to the interview. The decision was primarily based on the students' background, trying to create a group of students whose profile and background had not been very present in the previous rounds of interviews. The idea is, following the phenomenographic tradition, that the interviews reveal a large diversity of perspectives on the phenomenon of study (Bowden 2000).

In the phenomenographic tradition, the number of students is considered sufficient for the research from the moment the researcher notices that no more relevant information is being collected from more interviews. In this case, data from the last school, despite coming from a purposively selected group of students, was already considered to be confirming more than complementing and contradicting the other two schools.[4]

2.3.v Treatment of the data

Following the phenomenographic tradition, the first step in the treatment of the data collected is the transcription of the interviews into a separate document for each participant (Lindberg 2008). Each document was identified by the participant's main characteristics (including anonymized name, school name, gender, grade, and age), followed by their responses to the mini-questionnaire similar to one that is part of the PISA surveys that introduced every interview. The transcriptions were printed out so that the researcher could manually insert non-verbal information that was collected during the interview, as well as their thoughts on areas that were given disproportionate importance

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[4] In addition to the researcher's perception that information collected during the latest interviews was similar to the that of previous ones, the data collection in the third school coincided with the beginning of the Covid-19 pandemic in France and the subsequent school closures starting in March 2020. The analysis of qualitative data started following the school closures and, for over one year, neither of the schools were open for external visitors, including researchers. As a result, the phenomenographic analysis took place in the months following the initial school closures.

by the students. New information added to the printed documents includes impressions the researcher had during the interview, unanswered questions, points that called the researcher's attention, and topics that should be listened to in detail (e.g. was the student talking very quickly or very slowly, was the student articulating their ideas clearly, was the student nervous when responding to the question, was the student making eye contact...). From this iterative process, the printed transcriptions were filled out with several notes that combined the researcher's impressions during the interview, from the field notes, as well as new impressions from the analysis process. After all the analyses from the interview were added to the printed transcription, the researcher listened to the interview again as many times as needed to extract more information and include it in the document. In this analytic process the entire material, including the noted transcripts, the audio recordings, and the field notes, was scrutinized simultaneously in order to codify conceptions of sense of belonging at school, as described below.

By the end of this first exercise, each participant had a document including as much data as the researcher could get from the interviews. The data took the form of a document listing several segments from transcripts associated with notes derived from the simultaneous analysis of both the transcripts and the recordings. For example, a student document would contain the entire transcribed interview, with the most impactful parts highlighted, as well as several side notes color-coded based on the time they were written (for example: (1) during the interview, (2) at the first time the researcher listened to the transcripts or (3) at a subsequent time the researcher listened to the interview again). The various highlighted statements present in these documents sorted out by each student were then contrasted so the researcher could scan for similarities and differences across students and schools. This means that if similar statements were identified across students, they would be highlighted and coded as similar. The data collected for each participant then had to be compared, first within schools and then between schools.

In this comparative exercise, the researcher identified specific words translating conceptions of belongingness that were common to various students, as well as those that highlighted particularities that made individual students stand out. As described in Chapter 2, the phenomenographic understanding of conceptions is that of qualitatively different ways in which students understand and define a phenomenon and, in this case, their sense of belonging at school. Those converging and corroborating ideas then led to the delimitation of conceptions that appeared repeatedly and strongly in various statements. For example, the conception of "friendships" which is more fully explained in Chapter 4, was identified in several interviews and each student document containing references to the tentative conception had the sentences that referred to it dully identified as being part of such conceptions.

Those tentative conceptions were carefully collected and transcribed into another document that identified the moment in each interview when a student described sense of belonging at school in that way. A few of the tentative conceptions were identified as crucial following Sjostrom and Dahlgren's (2002) phenomenographic framework for the selection of conceptions, which included three indicators: (1) Frequency in which an idea is articulated, (2) Position of the statement (giving more importance for example to elements repeatedly appearing in the introductory parts of an answer), and (3) Pregnancy, which is defined as the emphasis put by students in each aspect of their response.

Based on those three indicators, the researcher could identify tentative conceptions that were significantly relevant. For example, the conception of "wellbeing", which is more fully described in Chapter 4, followed the criteria established within those three indicators. The conception had strong frequency, meaning that during the interviews, multiple participants referred to their wellbeing (using various different forms to describe it) as a marker of sense of belonging at school. Furthermore, several participants responded instantly that sense of belonging at school, in their view, meant "feeling well" or "feeling at ease" or "being happy at school". As in all those examples the statements appeared at the beginning of their responses to the interviewer's questions, meaning that the criterium of position was also satisfied.

Finally, the researcher also had taken notes during the interview that were later included on the side of the transcripts that highlighted the importance of such statements in the way students pronounced them, for example repeating several synonyms of wellbeing to ensure that the interviewer would understand the security in their comprehension of sense of belonging at school being connected to such conception. In addition to "wellbeing", other examples and further details on the identification of tentative conceptions using phenomenography are present in the second section of Chapter 4. The third step consisted of returning to the transcripts to look for further presence of the identified tentative conceptions in each student's interview. This worked as a second verification that all phenomena that stood out in the phase of comparison were covered for each participant.

At this point, the analysis follows the process described by Ballantyne et al. (1998) where the researcher reduces the variation of responses from participants in order to create sets of categories carrying similar depictions of the phenomenon or contrasting ways in which a given phenomenon is constructed. For example, at this point, the categories "happiness" and "wellbeing" were seen as being used interchangeably by a few participants which led the researcher to include them within the same conception. The categories are reworked in a continuous cycle of analysis called reiteration

and by the end of this cycle more solid categories are defined (Rands & Gansemer-Topf 2016). The creation of these categories leads to the data being rearranged from a division based on the participants into an organization based on the phenomenon or the areas of analysis, each of which leads to a subsection of findings in the fourth Chapter of this work. The phenomenography should work to minimize the number of conceptions identified, while maintaining their qualitatively different nature (Marton and Booth 1997).

All steps of the analysis were conducted in French and the main concepts and categories that emerged from such work were first produced in French, which was the language of communication with the students. Afterwards, the concepts described were translated into English for the purpose of presenting the main findings and conclusions.

2.4 Limitations of the methodology

This study faces methodological limitations on the quantitative part, on the qualitative part, and also on the link made between both parts. Social research in general often suffers from insufficient reliability, meaning that results cannot be identically replicated as they take place in contingent conditions (Traub 1994, Dorst 2011). In the case of qualitative interviews, especially with a relatively small number of interviews (N=33), issues of reliability become even more prominent as the specificities of the selected group of students would be hardly found in another selected group of students. Although there is a clear lack of general reliability in the findings from the interviews, the results should be reliable of every student's individual experience, meaning that each student is a complete object of analysis on its own, rather than the collective experience of all students being a reliable experience of all students in the country.

An important limitation in the specific case of data retrieved from interviews is the fact that the researcher must assume that the participant knows how they feel and properly informs the researcher about it. It is impossible to uncover the real feeling of a student from a different source than their own disclosure of that information to the researcher during the interview. Moreover, the reliability of students' experiences is hard to ensure given that their responses are contingent on their general state of mind during the interview, which can be subjective.

The use of phenomenography, specifically, is also subject to some limitations. For example, issues of bias warrant close scrutiny of the approach (Rands & Gansemer-Topf 2016). It is important to take full consideration of the voices of participants as being contingent on the participants' characteristics and background. In this context, participants' identity including gender, race, or other social constructs plays an important role in the way they conceptualize their personal experience (Bowden 2000). Moreover, during the interviews, the very presence of the researcher may impact the way students express their emotions and discuss their lived experiences at school. It was necessary to create some form of mutual confidence between the researcher and the students, which required flexibility and self-awareness from the researcher to adapt to the contexts presented. For this, the researcher engaged with the support teachers who participated in the customization of the interview protocol considering sensitiveness in their schools, as well as the specific profile of their students. Furthermore, the support teachers participated in introducing the project and reassuring the students of any questions they could have. Such interactions are described more in detail in Chapter 4 where the context of the interviews is described.

Some criticism of phenomenography also includes the fact that the observation and acquisition of information through the perceptions of other individuals is "theory impregnated" and subject to

"anticipatory prejudice" in the way reality is interpreted (Webb 1997). Such criticism underlines the fact that the pretension of neutrality in the identification of conceptions that define the phenomenographic approach is not necessarily free of the researcher's preconceived ideas. In fact, the historical experience and previous concepts that the researcher has in mind do strongly influence conclusions from a phenomenographic analysis. Such criticism of phenomenography also applies to various other research approaches in social sciences that are subject to the biases from the research leading it and, particularly, drawing from the interpretivist tradition, the researcher is an integral part of the way findings were generated (Walsh 2000). Even the methodology applying econometric tools to education research can also be faced with criticism of lack of objectivity and results that are contingent to the researcher's a priori views (Keane 2010). In this work, the subjectivity of the researcher's views is an integral part of the analysis and the findings are presented in a critical manner with no intention to ignore the role of the researcher in the way the results came about.

Furthermore, it is important to avoid providing generalizations from the phenomenographic approach (Webb 1997). Although the theoretical background of the qualitative part of this thesis is fundamentally subjective, the way in which findings are presented can eventually be interpreted as generalizations, which should not be the case. Thus, it is important to present the phenomenographic framework of conceptions as a combination of lived experiences of a specific group of purposefully selected students rather than generalizable or objective truth.

From a theoretical perspective, this study uses one understanding of belonging based on the literature and on the phenomenographic interviews. However, sense of belonging is a fluid concept and Chapter 1 has shown the various definitions attached to it across time. As a result, it is important to consider that this study, as most research, commits to one definition of sense of belonging for methodological purposes, while various others could also be explored. This limitation is addressed while the construction of the definition and the theoretical choices behind it are presented throughout the thesis.

In the case of statistical data analysis, other limitations appear. Some are to the use of quantitative data in general, some are specific to the PISA dataset and some to the method chosen to analyse such data. In general, statistical analysis requires some standardisation of variables and some categorization, which reduces individual diversity and complexity. This is particularly true in the case of one's identity when it has to fit on a list of options in a questionnaire. It is hard to propose a sufficiently high number of categories that cover all ways in which a student identifies their ethnicity or their social class, for example. The PISA data has its own specific limitations in addition to those

present in all quantitative analyses. As data is collected only at one point in time, in a cross-sectional manner, it is impossible to compare students' learning or their feelings across time. Such impossibility prevents claims of causality from being made solely from the analysis of the cross-sectional data. There are specific limitations to the use of PISA data in France, which include the absence of important information such as the place of birth of students' grandparents (which could help better understand their immigration history) or a wellbeing questionnaire that would help further explore what will be shown on Chapter 4 to be a key conception of sense of belonging.

The way PISA data is analysed, in turn, poses its own limitations to the research. The statistical method used to describe sense of belonging at school, regressions, point to possible correlations between student background and their belongingness. However, proving causation between students' characteristics and school experience is trickier, as the identified relationships can in fact be spurious, meaning that explained and explanatory variables are associated simply because of a coincidence or because there is a hidden variable affecting both at the same time, which would imply a lack of causation and even unstained correlation (Angrist and Pischke 2010). Given the way PISA data was constructed, regressions only test correlation between variables, in the model used here, some of the correlations found can be hinted as being causal relations, in the absence of confounding factors (Wooldridge 2016). For example, causation between immigration background and sense of belonging at school could be inferred from correlation following a few caveats. First, there is no risk of reverse causation given that sense of belonging cannot retroactively impact the migration history of students. It could impact how students declare their place of birth or their parents' places of birth, but it is unlikely. Second, some omitted variables could bias the model if they are correlated with both the origin of the student and their wellbeing outcomes (Angrist and Pischke 2010). This would be the case for socioeconomic background and school characteristics, for example. To avoid spurious relationships, as well as the issue of omitted variables, this work uses multilevel analysis, with fixed effects for schools, described more fully in Chapter 3, which divides the impact student-level and school-level characteristics can have in a given phenomenon. By using such analysis an omitted variable that is present at the school level would not affect the result of the model leading to a spurious relationship (Goldstein 2010). Such techniques are very important to disentangle the variation in belonging that happens between schools and within schools, but also to prevent the confounding variables from affecting the outcome variable of belonging. Nonetheless, they are insufficient to rule out confounding factors at the student level (such as their personality or acceptance of change for example).

Furthermore, using fixed characteristics as explanatory variables of interest (such as place of birth) lead to other methods of testing experiments being out of hand given that there is no possible

exogenous variation besides misdeclaration. Although the limitations arising from fixed categorization cannot be addressed with the quantitative analysis of PISA surveys, those categories will be deconstructed in the qualitative analysis of phenomenographic interviews.

Finally, many other limitations emerge from putting together the statistical evidence with the phenomenographic one. Dialogue between those two traditions is scarce and the epistemological bridge between these schools is hard to build. This work discusses both findings separately and each discussion follows the assumptions from the research methodology used to produce the knowledge presented. Statistically significant findings are presented as being representative of the entire country, while acknowledging that they deny individualities and impose categorical definitions and questionable validity. In contrast, findings from the interviews admittedly fail to represent France's entire student population, although they do provide an important illustration of examples of how sense of belonging plays out in some students' education experience.

Chapter 3 – Characteristics connected with sense of belonging at school

This chapter provides an exploratory analysis showing what characteristics are more or less likely to be connected to sense of belonging at school in France, where the average level of sense of belonging is substantially lower than in most other OECD countries. The chapter investigates what are the main characteristics at the student and the school level influencing belongingness, as defined by an adapted version of Goodenow's (1993) framework that is used by PISA data. As presented in the literature review in Chapter 1, Goodnow's scale is based on his own experience, as well as grounded in the existing literature on the matter, which led him to identify some initial statements. Those preliminary statements were later tested with a small sub-sample of students, leading to a more restricted list of statements within a framework of belonging that was finally assessed for its reliability and validity. In fact, reliability scores in France were low and the chapter will discuss the main implications of such a result for the findings of the research.

This chapter scrutinizes the main factors that are related to sense of belonging at school, rather than how sense of belonging at school impacts those factors, given the lack of causation assessment. The purpose is to clarify who are the children who have a higher sense of belonging and what are the individual and school characteristics connected with it. Among the factors discussed, some of the most important ones for this work include immigration background, gender, individual wellbeing, socioeconomic background, and school performance. Those factors were identified in the literature review for their relevance to understanding sense of belonging at schools. The results also delimit how much of the variation in school belonging is related to school and individual characteristics.

Quantitative findings anticipate the strong link between sense of belonging at schools and wellbeing, which will be shown more in detail during the interviews presented in Chapter 4. The data presented in this chapter also shows that the best predictor of higher belonging in France is higher academic performance of students, even when controlling for student life satisfaction. This means that students with higher test scores have higher sense of belonging to school even if they have the same level of satisfaction with life and socioeconomic background. Other individual characteristics, such as gender and immigration background also influence some of the six dimensions of belonging analysed here.

Additionally, many other individual characteristics also do indirectly influence sense of belonging through academic performance. Although causation cannot be assessed, the regression model produced in this chapter demonstrates that the way some student characteristics correlated with

students' sense of belonging happens through mediators, or channels, such as academic performance. For example, both poorer children and those with an immigrant background tend to have lower academic performance, as well as lower sense of belonging at school than their peers. However, it is shown that the variation in sense of belonging is better explained not by immigration background or poverty per se, but rather through the fact that their academic performance is lower, which is a better predictor of an also lower sense of belonging. It is worth clarifying that prediction does not imply causal relation, but the correlation between the different variables, in the sense that the prediction can also be argued in the other direction, with lower sense of belonging being connected with lower academic performance. In fact, the correlation can even occur concomitantly with both sense of belonging and academic performance moving together in the same direction.

This chapter also concludes that school characteristics also play a strong role in determining student sense of belonging at school. Students have higher sense of belonging when they study at schools with higher average test scores and at schools with lower diversity, measured as the percentage of children with an immigrant background. In fact, the level of diversity at schools only has an impact on native students, whose sense of belonging is lower at schools with higher share of students with an immigrant background. On the other hand, the sense of belonging of immigrant students is unaffected by a variation in the share of their peers who also have an immigrant background. The relationship between school characteristics and student sense of belonging to school is more causally affirmed given that there is no reason to believe that the sense of belonging of students would influence the characteristics of a school.

Finally, the total variation in sense of belonging explained by the variables used in the statistical model is moderate, showing that the combined explanatory power of the individual and school-level characteristics used in the model, together with individual wellbeing, is insufficient to explain most of the variation in sense of belonging. There is much more that was not captured and that is discussed further in detail in the fourth chapter.

The first part of the chapter presents an introduction to the topic. The second section describes the dataset used, while the third section explores the method used and the statistical assumptions made, which further expand the discussion started in Chapter 2. The fourth part of this chapter presents the main results drawn from the quantitative data from PISA surveys. After the main findings are presented, the fifth and sixth sections provide respectively the robustness check and a discussion on the limitations of the results. The conclusion is presented in the seventh and last part of this chapter.

3.1 Introduction

As shown in the literature review, extensive research has been carried out to explain what constitutes sense of belonging and how it plays out in various educational contexts. This study aims to complement existing academic research by adding several methodological improvements to the current literature. First, it provides an in-depth country investigation, which includes multilevel analyses (Angrist and Pischke 2008, Goldstein 2011, Wooldridge 2016) distinguishing school-level and individual-level characteristics and allows for controlling for fixed effects at the school level. Second, this research uses the most recent version of PISA data for the year 2018, which has not been explored in the literature yet and provides results that update previous analyses using data from 2003 and 2015 (Duru-Bellat et al. 2008, Chiu et al. 2016). Third, the methodological specificity of using mixed methods where econometric methods serve as an exploratory step has not been found in the literature review.

As shown in the literature review, several individual and school characteristics help explain why certain children feel like they belong at school, while others do not. Very often sense of belonging at school is deemed an important subject of research because of its implications for children's school performance, health, and general welfare. Some studies point to better academic performance as being key to having students feel like they belong at school (Gonzalez and Padilla 1997, Ryan and Patrick 2001, Anderman 2002, and Faircloth and Hamm 2005). In other studies, girls are shown to have a lower sense of belonging than boys (Van Zanten 2011).

Despite the strong interest in understanding what determines sense of belonging at school and how it affects other student characteristics, the phenomenon of sense of belonging at school per se should be studied and considered as an outcome variable of student wellbeing on its own. Although sense of belonging at school is correlated with higher student wellbeing, school performance and life satisfaction (Anderman 2002, Faircloth and Hamm 2005, Fischer et al. 2015, Tian et al. 2015, Choi 2018) a higher sense of belonging is also a metric of stronger social cohesion in school (Tabane and Human-Vogel 2010). As a result, students should feel like they are part of the school, regardless of the implications that this feeling of belongingness has in their academic results or in other wellbeing variables.

In this work, the interest of the research is to show how certain characteristics *connect* to sense of belonging, which means that they explain belongingness to the same extent that they are explained by it. Using descriptive statistics and logistic regressions, one cannot assume that there is a causal link in one direction or the other, for example arguing that belongingness affects or is affected by a certain individual trait. For instance, in the hypothetical case where academic performance shows a

positive correlation with sense of belonging at school, it is hard to argue whether students with a better academic record feel that they belong more often or if students who feel that they belong tend to have better grades.

On the other hand, other student characteristics can yield a clearer causal relationship with sense of belonging. For example, if the research points to a correlation between immigration or socioeconomic background and school belonging, this relationship can more clearly be translated into causation because it is much more sensible to claim that a student's immigrant background is causing them to belong or not at school rather than that their immigration status was influenced by their level of belongingness. In this case, the direction of causation can be estimated, although its magnitude cannot, given that the correlation could be affected by confounders, which are hidden explanatory variables simultaneously affecting the explained variable. Immigration background can impact the way students are perceived by their teachers and peers in the classroom, as well as the way they see themselves at school, which will, in turn, change their sense of belonging. Nonetheless, the other way causation could occur (through sense of belonging suddenly changing the immigration background declared by children) seems much less plausible. As a result, the correlation between variables can be translated into causation with a strong degree of confidence if there is logical support for such inference.

An important strategy used for addressing the issue of unconfirmed causality and the presence of confounding factors is running a multilevel model that adds layers of analysis to the research (Goldstein 1997, Wooldridge 2016). In education research, multilevel or hierarchical models have often been used to disentangle the impact of school-level and student-level characteristics in understanding school effectiveness, academic performance, education quality, and wellbeing (Mortimore et al. 1988, Mortimore 2009, Goldstein 2011, Frempong et al. 2011, Lamote et al. 2013).

In addition to addressing the issue of unconfirmed causality, multilevel analysis using fixed effects help understand inherently complex school structures by analysing a phenomenon through characteristics of two or more levels of the individual that can explain the given phenomenon (Angrist and Pischke 2008, Wooldridge 2016). In education research, typically, the first level of analysis is the individual themselves, and the second level of analysis is a collective of individuals where the initial individual participates, for example, their area of residency, their workplace, or their school. Taking the example of a multilevel model with two or more layers (e.g. students, schools, school districts, counties…), such models have a specific feature of estimating how much of a phenomenon (e.g. learning, repetition, sense of belonging…) is explained by differences within and between schools (Goldstein 2011). In this example, the differences between schools are caused by

school characteristics, while the differences within schools are caused by student characteristics given that all students in a given school are subject to the exact same school characteristics. Such disaggregation of school-level and student-level characteristics is crucial in quantitative education research given the persistent importance of school context to understand academic performance and effectiveness, but also beyond (Mortimore et al. 1988, Goldstein 2011).

As a result, multilevel models have been used, for example, to disentangle the complexity of class, school, and student-level data in explaining education phenomena such as dropout (Lamote et al. 2013), cognitive engagement (Chiu et al. 2012), school effectiveness (Thomas 1997, Goldstein and Sammons 1998, Mortimore 2009) or even sense of belonging at school (Kartianom and Ndayizeye 2017), as is the case of this thesis. PISA data, which is collected at schools and also contains student information, was repeatedly used in the past for multilevel scrutiny that pointed to strong school-level effects (Mortimore 2009, Chiu et al. 2012, Sun et al. 2012, Karakolidis et al. 2016).

In this work, which uses PISA school-based data, the analysis included a layer for school characteristics, meaning that both student-level and school-level characteristics are included as potential factors explaining belongingness. For example, the model considers both a student's individual academic performance and a school's average academic performance (calculated as the collective results of all its students). As a result, by adding multilevel models, the findings can isolate the impact from individual characteristics when controlling for school ones (Goldstein 2011, Wooldridge 2016). This means that although causality is not fully inferred, the proposed model succeeds in separating how a school with given characteristics some students have a higher level of belongingness than others.

Given this lack of clear causality between belongingness and the student and school characteristics described here, this study focuses on addressing commonalities between students who have a higher sense of belonging at school and how they differ from students who show perceived exclusion from their schools. The main findings shown in the next sections are further explored by qualitative interviews where students responded to the same questions in the PISA questionnaire, but also explained further in detail the reasons for their answers and shared examples from their personal experiences at school.

3.2 Data

The Programme for International Student Assessment (PISA) is a cross-country study by the Organisation for Economic Co-operation and Development (OECD) that assesses the academic performance of 15-year-old students. Its dataset, which is freely available for download online on OECD's website, includes over 60 countries with a total of more than 500,000 students sitting the test every three years. In addition to the academic testing, PISA also collects data on several individual characteristics, as well as students' wellbeing and sense of belonging, which are key for this study. The data supplementing the test results are collected through the submission of a series of questionnaires to students, teachers, and principals where they respond to questions in a variety of matters.

During the questionnaire design phase, PISA questions on the student background questionnaire go through several layers of quality assurance. The initial proposals are discussed with countries in an iterative process called national review, where each country provides inputs and feedback on the original questions scanning for the sensitiveness of each national contexts. The questions are then updated and sent for cognitive testing (OECD 2019). The cognitive pre-testing is implemented with small groups of students to whom the questions are administered. The time students take to read and answer the questions is recorded and the respondents are then asked about the answering process including whether they understood the questions. Afterwards, all feedback is collected and the proposed questionnaire is reviewed and translated into various languages.

PISA surveys collect data on several variables on sense of belonging within question ST039, which stands for the 39th question present in the student background questionnaire. This question is largely based on Goodenow's (1993) framework that is discussed in the literature chapter. The framework disentangles sense of belonging at school into six dimensions, each of which constitutes one statement. In the survey, students are asked to reply to in Likert-type scale by strongly agreeing, agreeing, disagreeing, or strongly disagreeing with the list of statements:

- Q01 – I feel like an outsider at school.
- Q02 – I make friends easily at school.
- Q03 – I feel like I belong at school.
- Q04 – I feel awkward and out of place in my school.
- Q05 – Other students seem to like me.
- Q06 – I feel lonely at school.

Those six variables asked in the module are used to produce an indicator called "BELONG". The Index of Sense of Belonging (BELONG) was first calculated in the very first round of PISA in the year

2000 as a scale index (OECD 2020). The calculation of the index starts with a transformation of each item to ensure that positive values indicate more positive attitudes towards school and negative values indicate less positive attitudes towards school (OECD 2020). Afterwards, a generalised partial credit model[5] was applied to estimate the values of the index, which correspond to weighted likelihood estimates (WLE)[6] following the protocol established by Warm (1989).

In the first stage, parameters were estimated using Warm likelihood estimates based on all students from equally weighted countries and economies (excluding cases with invalid responses for more than three of the six questions above). As the sense of belonging index was present in other rounds of PISA, countries and economies that participated in both PISA 2009 and PISA 2018 contributed in both samples to the calibration of item parameters in each cycle and, within each cycle, each country and economy contributed equally to the estimation (OECD 2020).

After the parameters of the Warm likelihood used to weigh each of the six items were identified, the index is standardized to ensure that the mean of the index value for the OECD student population was zero and the standard deviation was one (OECD 2020).

As a result, the Index of Sense of Belonging (BELONG) is a combination of several dimensions, in this case the six independent questions, and provides a measurement of the combined information in the separate indicators. Consequentially, "BELONG" is constructed as a continuous variable that aims to quantify how much each student feels like they belong at school based on the six questions that they are asked on the matter. A continuous variable, unlike a discrete variable, can take any value within a range. The statements of belonging above were originally coded as discrete variables, in the Likert-type scale, where they can take four values for strongly agreeing, agreeing, disagreeing, or strongly disagreeing. However, their combined variable, "BELONG", is constructed as a scale that variates around zero on average for all participating countries and economies and where higher positive values indicate higher sense of belonging.

The OECD publishes the reliability indices for Index of Sense of Belonging in each country (see Appendix 4). The metric used by the OECD to assess internal consistency of their index of belonging is the Cronbach's Alpha coefficient. High levels of the Cronbach's Alpha indicate that the various items are measuring the same construct or produce similar scores (Warm 1989). In the case of

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[5] A generalised partial credit model (Muraki 1992) is a category in the family of item response theory, which is used when items can correspond to more than two possibilities. In the case of the items used in PISA to construct the Index of Sense of Belonging, there are four possible values to each item: strongly agree, agree, disagree and strongly disagree.
[6] Weighted likelihood estimation (WLE) is an application of item response theory, which is a way of analyzing examinee behaviour on multiple choice tests. WLE estimates parameters for items, which in the case of the Index of Sense of Belonging means each of the six statements that students respond to.

belonging, it means that high coefficients point to students responding to the six questions in similar ways, which indicate internal consistency.

Curiously, among all OECD countries participating in the PISA survey, France has the lowest Cronbach's Alpha coefficient (at 0.68) compared to an average of 0.81 across all countries (OECD 2020). Usually, the threshold for acceptability stands at 0.7, meaning that below that level the idea that all items are measuring the same construct becomes questionable. This makes it important for this research to look into each of the six items separately, rather than as a collective Index of Sense of Belonging, as, in the case of France, there is reason to believe that students' responses do not all point in one single direction. As a result, in parallel to the index of belonging, the statistical analyses presented here will look into each of the six items separately. While the Cronbach's Alpha measures for each country the consistency of the responses to items within the same dimension, the OECD also evaluates the consistency of items and indices across countries. The statistical property used to assess comparability across countries, which is called measurement invariance, indicates that the same index is being measured and that it can be interpreted in a similar manner across countries (OECD 2020). The results of the measurement of invariance for many indices are presented in the Annex 5 of the PISA technical report, but it does not include BELONG. An external assessment of the invariance of noncognitive constructs in PISA, which include sense of belonging, concluded that the indicator of sense of belonging does not reach metric invariance (He et al 2019). This finding indicates caution when comparing the indicator for sense of belonging across different countries.

As this study focuses on France, the lack of invariance across countries is less of an issue, but the contextual presentation of the results showing that French students have lower sense of belonging to their peers in other countries should be interpreted with caution. Cultural differences between countries, variations in translation and adaptations of the questionnaire can also be responsible for lower cross-country comparability (OECD 2020). Such differences can hamper cross-country comparability and endorse the need to complement statistical evidence with country-specific qualitative interviews.

Besides the variables of interest measuring sense of belonging at school, other variables are also analysed in this study and for this they had to be transformed and recoded. As informed by the literature (Roche and Kuperminc 2012, Chiu et al. 2016), immigrant background has an important link with sense of belonging at school and it was hence included in the analysis. Students participating in the PISA survey respond to questionnaires indicating their place of birth and their parents' places of birth. Based on this, students can be divided into three categories according to their immigration background:

- Native – born in the country with at least one parent born in the country

- First-generation immigrant – born abroad

- Second-generation immigrant – born in the country with both parents born abroad

Another variable of strong importance in the literature and further investigated in this chapter is a student's academic performance. PISA collects data on how 15-year-old students perform in mathematics and reading tests that are applied to them. The combined average across those two subjects was used as a metric of average student performance at school. Another characteristic shown in the literature to impact sense of belonging at school is streaming, or tracking (Duru-Bellat et al. 2008, Chiu et al. 2016). In this dataset, a variable was included to distinguish students pursuing a vocational track from those following the general stream.

As shown in the literature and confirmed by the phenomenographic interviews with students, wellbeing is a key component of sense of belonging at schools and of major importance to understand student experience in school. With the clear overlap between sense of belonging and wellbeing in mind, since 2018 PISA has started giving countries the option to also apply a wellbeing questionnaire to students based on the organization's wellbeing framework (OECD 2019). The new module on wellbeing includes many questions on students' perceptions of their health, friendships, material conditions of the family, relationship with parents and physical exercise routine. Unfortunately, France was not among the countries that opted for the administration of this additional questionnaire for data collection.

In the absence of a module specifically designed for measuring wellbeing, other variables from the main student questionnaire can be used for that process. Previous OECD publications (2019, 2020) have used two main ways of measuring wellbeing – overall life satisfaction and the index of positive feelings, both of which will be used in this work.

The item in the PISA questionnaire used to measure life satisfaction is more straightforward: question ST016Q01 asks students "Overall, how satisfied are you with your life as a whole these days?" (OECD 2019) and they have to respond on a scale going from 0 to 10. Students are considered to be satisfied with life if they reported over seven on the life satisfaction scale, which was established as a convention for the minimum threshold by the OECD (OECD 2019).

The second metric is the Index of Positive Feelings. Students are asked the question "Thinking about yourself and how you normally feel: how often do you feel as described below?" (OECD 2019) and then given various options of feelings (e.g. happy, scared, lively, miserable…). For each feeling, they have a Likert-type scale, similar to the one for belonging dimensions, where they must choose

between "never", "rarely", "sometimes" or "always". The Index of Positive Feelings is then calculated as a scale index in the exact same way as the Index of Sense of Belonging (BELONG): by estimating item parameters were estimated using Warm likelihood estimates based on all students from equally weighted countries. In the case of belonging, six items were taken, while for the Index of Positive Feelings, only three items were selected: students reporting being "happy", "joyful" or "cheerful" "sometimes" or "always". After the parameters of the Warm likelihood are estimated, in the same way as BELONG, the index is standardized to ensure that the mean of the index value for the OECD student population was zero and the standard deviation was one (OECD 2021).

In order to analyse school-level characteristics, a variable for school composition, or diversity, which was not originally present in the dataset was calculated in this work as the share of students with a recent immigrant background (including both first and second-generation immigrants). The school-level variables also include the average performance of students in the school in the combination of reading and mathematics, as well as the average socio-economic background of students from PISA's indicators on the matter.

3.3 Method

The methods used for data analysis of the variables of sense of belonging in this chapter include descriptive statistics, as well as inferential statistics such as multilinear and logistic regressions. Descriptive statistics are simple tabulations quantitatively describing or summarizing information on a dataset (Wooldridge 2016). A descriptive analysis leads to statements such as "22% of children in the poorest quintile of the wealth distribution report feeling awkward in school". Such statistics, which aim to summarize and describe basic information, are substantially different from inferential statistics, which rely on probability theory to estimate the likelihood of an event or a phenomenon.

The type of inferential analysis carried out in this work consist of regressions, which are originally part of the econometric tradition, but expanded to be used by various other fields of quantitative social sciences. As mentioned in Chapter 2, part of the statistical method used in this work draws from the econometric tradition, and, in particular, econometric tools applied to quantitative education research (Goldstein 2011). Econometrics consists of applying statistical methods to understand social or economic phenomena, by inferring relationships between variables from a dataset. Although originally designed to understand economics (Spanos 2008), the statistical theory and tools developed in the econometric tradition were also expanded and used to measure and understand various other phenomena, including social theory in the area of education, which is what is discussed in this work (Goldstein 2011, Wooldridge 2016).

Within econometrics applied to the education context, the tool used in this work consist of regression models, and in particular multilinear, logistic and multilevel regressions (Goldstein 2011, Wooldridge 2016). Regression models are used to carry out regression analyses, which estimate how one variable, called "dependent variable" is explained or predicted by one or more other variables, called "independent variables". Regressions consist of a statistical process for estimating the correlation variables by isolating the impact from a given explanatory variable into the explained variables taking into consideration all the other explanatory variables. That means that regressions show how much one characteristic affects an outcome variable even when accounting for various other characteristics. The regression model analyses the significance of the relationship between each independent variable and the dependent variable that they try to explain. This means that the model is able to capture how much of the variation in the dependent variable is actually due to variation in each independent variable if the other independent variables are kept fixed (Angrist and Pischke 2008, Verbeek 2008, Wooldridge 2016).

Regressions are a statistical method used to show how several variables jointly explain a given phenomenon by isolating the specific impact of each variable. Regression analyses are key to

disentangle the impact each explanatory variable has on the explained variable. For example, in a given school two students are of the same gender, socioeconomic background, and origin, although their academic performance is different. Regressions aim to answer questions such as "How much higher are the odds of girls feeling that they belong at school than boys?" or "How much higher are the odds of first-generation immigrants feeling liked by other students in comparison to non-immigrants?". Following the positivist tradition that gives philosophical grounding to the econometric analysis, the answers to those questions should lead to nationally representative findings that describe the most important factors connected which students' perception of themselves as belonging or not at school, as well as the degree of this perception of belongingness. Given that the dataset contains a represented sample of 15-year-old French students, the findings can be generalized to the country's entire school population of that age group.

In the case of this research, regressions help compare the likelihood of belongingness of two hypothetical students whose only difference is one particular characteristic. The regression analysis explains how much this difference in academic performance impacts the sense of belonging of those two students. The study presents regressions that discuss how much more/less likely certain individuals are of feeling a certain way given their characteristics.

The first type of regressions analysed in this work is multilinear regressions, which explain continuous variables, meaning those that can take any numerical value in an interval. The second one, logistic regressions, in contrast, requires the dependent variable (the variable that the model tries to explain, in this case, sense of belonging at school) to be coded as 0 or 1 (Wooldridge 2016). As a result, the six questions about sense of belonging that were originally designed as Likert, had to be recoded as binary variables (agree or strongly agree versus disagree or strongly disagree). To facilitate the interpretation of the results, 1 means lower belonging while 0 means higher belonging. For example, the number 1 on the recoded variables means agreeing or strongly agreeing to "I feel like an outsider at school.", but also disagreeing or strongly disagreeing with "I make friends easily at school.".[7]

The statistical evaluation also quantifies how much of the variation in sense of belonging happens within schools (from one student to the other studying in the same school) and how much happens between schools (a student sense of belonging being connected to school-level variables). For this, the third type of regressions presented in this work is part of multilevel models, which analyse the

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[7] The variables could have been used as they are, in four categories, as a multinomial regression. However, there is no non-linearity in the responses, which would have been the advantage of this method. As a result, logistic regressions were the preferred technique as it avoids adding unnecessary complexity.

data at various levels, for example, at the country-level and the school-level (Goldstein 2011). This type of multilevel analysis aims to account for the fact that students are not randomly placed into schools (Michaelowa 2001, Neel & Fuligni 2013). That means, for example, that students with better performance often end up at schools with similar peers. The same reasoning applies to several student characteristics, which prevent assumptions of random allocation across schools. Multilevel models serve the purpose of disentangling variation present in a higher level (school) from that of an individual (Angrist and Pischke 2008, Wooldridge 2016). In this case, the multilevel models offer responses to questions such as "How much of the variation in reported ease to make friends is due to school characteristics and how much is due to individual characteristics?" or "Is feeling like an outsider more explained by factors at the country level of the individual level?".

The idea of multilevel regressions at the school level is that students are "nested within schools" for data analysis (Bryk and Raudenbush 1992). This allows for the decomposition of variance and explanatory power within and between schools. The method separates how much of a given variable, in this case, school belonging, is explained by individual characteristics (gender, socioeconomic background, immigration history…) and how much is explained by school characteristics (location, average student socioeconomic background, share of immigrant population, pedagogy…).

These multilevel models also allow for studying effects that vary by entity or groups (in this case schools) and estimate group-level averages (school-level average sense of belonging). Moreover, while regular regressions ignore the average variation between entities, the multilevel model puts it into consideration and makes generalizing statements more reasonable.

Finally, there is another advantage in the use of multilevel models, which assume fixed effects at the school level, meaning that the way students are allocated at schools is non-random, or fixed. This strategy controls for unobserved variance caused by omitted variables because any omitted school-level characteristic is the same for every student belonging to the same school. As a result, the variation that the model explains actually already accounts for school characteristics and leaves room for the individual characteristics analysed to explain the phenomenon.

Despite the numerous advantages of using statistical tools applied to education research, including regressions, there has also been some criticism of such strategies. Some authors have argued that findings presented with such methods are based on spurious relationships, in which explained and explanatory variables are associated simply because of a coincidence or because there is a hidden variable affecting both at the same time (Angrist and Pischke 2010). Another important criticism of the way findings drawing on the econometric tradition are presented is the uncertainty of internal

validity, or the establishment of cause and effect (Angrist and Pischke 2010). Hendry (2000) has gone as far as pointing to econometrics not being very different from alchemy given such findings, which are recurrently spurious or with limited internal validity. To avoid spurious relationships, this work uses multilevel analysis using fixed effects described earlier, which ensures that the possible characteristics at school-level that could be contributing to misleading relationships are accounted for in the model (Goldstein 2010). The issue with internal validity is trickier given that the distinction between correlation and causation is harder to pin down. In this sense, the results presented where causation cannot be established are clearly presented as correlations.

Some more criticism of the application of regressions and other econometric tools to education research comes from its ideal of seeming objectivity, which is actually contingent on the researcher's views (Keane 2010). As it is argued, data cannot yield interesting relationships that are not already grounded on a researcher's a priori understanding of what the model should look like. Econometric tools can be insufficiently clear about their a priori theoretical assumptions, which are indeed fundamental to the identification of interesting assumptions in the data (Keane 2010). In this work, for example, the models proposed were constructed based on the researcher's understanding of what could possibly be connected to sense of belonging at schools. To address the issue of a priori research, the models used in this thesis were constructed in an iterative manner while the literature was being consulted and the qualitative interviews were taking place. As a result, the research design evolved during its construction. Nevertheless, this process does not completely eliminate the bias created by the researcher's a priori, so findings are presented in the critical understanding of the subjectivity behind them that is contingent on the researcher's views.

3.4 Results

An initial analysis in table 4 shows the differences in the way French students and their peers in other OECD countries responded to items on belonging. The main item to stand out is the statement "I feel like I belong at school". Only 38% of French students agreed with this statement, while 81% on average across participating countries from the OECD did. Such a difference reinforces the need for further investigating sense of belonging in French schools.[8]

When looking more in detail into the other statements, however, the differences between the OECD average and France are much lower and in most cases point to a higher sense of belonging among French students. Fifteen-year-olds in French schools more often claim that they make friends easily at school and that other students seem to like them. Furthermore, they more often disagree with feeling like an outsider in school.

Table 4 Percentage of students who agreed (or disagreed) to the belonging items in France and on average across the OECD

		OECD	France
Percentage of students who agreed or strongly agreed with the following statements:	I make friends easily at school	75	81
	I feel like I belong at school	71	38
	Other students seem to like me	81	88
Percentage of students who disagreed or strongly disagreed with the following statements:	I feel like an outsider (or left out of things) at school	80	70
	I feel awkward and out of place in my school	80	81
	I feel lonely at school	84	88

The table also shows that the main driver of lower reliability of the Index of Belonging in France comes from the statement "I feel like I belong at school", which has a much lower level than all the other statements and puts the country well below the OECD average on the Index.

To understand the profile of students who belong to school in France, it is important to discuss the main individual characteristics of such students. Previous research presented in the literature review shows how a large number of individual characteristics and contexts impact a student's sense of belonging at school across various countries. Initially, the analysis was carried out for all countries with available PISA data to scan for differences between France and other countries. This preliminary analysis confirmed that France stood out compared to other countries, primarily in the differences in levels of sense of belonging observed between first- and second-generation immigrants. The cross-country analysis showed for example that France was among only a handful of countries for which second-generation immigrants were less likely than first-generation ones to

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[8] As mentioned in the Data section (3.2), the index of sense of belonging and its sub-dimensions have low invariance across countries, which can be due to important cultural and linguistic differences in the way students respond to such items. This reinforces the need for country studies, such as this one.

agree with the item "I feel like I belong at school" (table 4). Such findings had already been observed in another analysis using older PISA data for 2015 (OECD, 2017) and confirm the interest in more strongly scrutinizing the link between sense of belonging and individual characteristics in France, particularly immigration background. It is important to note, however, that in the five other dimensions of belonging, second-generation immigrants do score higher levels of belongingness than their first-generation peers. This pattern further shows how French students have responded to the specific question "I feel like I belong at school" in a different way than to the other five items, which strongly decreases the internal reliability of the index constituted of the six questions, as shown in the Data section of this chapter.

The exploratory analysis below shows the share of French students with a given characteristic or studying at a given school who feel like they belong at school according to the six dimensions of belongingness. The six dimensions are based on the questions presented in the Data section of this chapter. Each dimension that described a negative feeling or reported mental state (for example, feeling like an outsider) was reversed to facilitate comparison. This means that table 5 below shows the share of students for each characteristic that feel like they belong by agreeing with a certain positive characteristic (making friends, feeling like they belong, and feeling that they are liked by others) or disagreeing with negative characteristics (feeling awkward, lonely or like an outsider).

Table 5 Percentage of French students who feel like they belong at school disaggregated by individual and school characteristics[9],[10]

		Awkward	Belong	Friends	Liked	Lonely	Outsider
Total		81	38	90	90	88	70
Gender	Male	81	37	88	88	89	67
	Female	82	39	92	93	87	72
Immigration status	Native	81	38	91	92	88	70
	Second generation	82	34	87	87	89	69
	First generation	76	41	78	76	84	60

[9] The short names refer to: I feel awkward and out of place in my school (awkward), I feel like I belong at school (belong), I make friends easily at school (friends), Other students seem to like me (liked), I feel lonely at school (lonely) and I feel like an outsider at school (outsider). All variables were re-coded in a way that higher numbers show higher belonging. As a result, negative statements are inverse. For example, a higher share of people in "outsider" means that fewer students agree with the sentence "I feel like an outsider at school".
[10] In all tables the sample size is based on all students in PISA France who responded to the questions on sense of belonging at school, which account for 6,308 individuals.

Student socioeconomic background	Poorest quintile	78	35	85	86	86	62
	Richest quintile	86	42	94	94	91	77
Student performance (quintile)	Worst performing	78	35	85	86	86	62
	Best performing	86	42	94	94	91	77
Life satisfaction	Satisfied (over 7/10)	69	29	87	89	77	58
	Dissatisfied (below 6/10)	86	43	93	93	93	75
School diversity	Least diverse quintile	82	40	92	93	89	70
	Most diverse quintile	78	35	84	86	86	65
School socioeconomic background	Poorest quintile	72	35	77	77	82	54
	Richest quintile	85	42	95	96	90	77
School average performance (quintile)	Worst performing	72	35	76	75	82	52
	Best performing	88	46	95	97	91	83

Some characteristics in table 5 show very defining features. For example, children in the bottom one-fifth of the socioeconomic scale (poorest quintile) have lower sense of belonging than those in the top one-fifth (richest quintile) for the six dimensions of belongingness analysed. Children who have lower school performance also have lower sense of belonging in the six dimensions studied as compared to children whose test results in mathematics and reading were higher. In contrast, other characteristics show less clear patterns. For example, children born abroad, first-generation immigrants, have lower sense of belonging than children born in the country in five out of six dimensions. However, second-generation immigrants seem to have sense of belonging closer to the

population without a recent immigrant background in most dimensions. Gender also does not have a defining impact on sense of belonging of students, as although girls do have a slightly higher sense of belonging than boys in five of the six dimensions, the difference is not substantial. Most of all, large gaps in all dimensions of belongingness appear between students who claimed to be satisfied with their lives and those who do not. As discussed, belongingness and wellbeing are very intimately connected and such relationship will be confirmed in the regressions shown ahead.

In terms of school characteristics that measure the collective characteristics of all students in a school, the data shows much clearer results. Students have a much lower average sense of belonging in all six dimensions if they go to schools with a high share of immigrant students or a school where most students perform poorly on standardized tests or have lower socioeconomic background. It is interesting to note that the collective explanatory power of school-level characteristics appears larger than individual characteristics in the descriptive analysis above.

3.4.i Student characteristics linked to sense of belonging at school

Descriptive statistics, however, are insufficient to capture the joint impact of many variables. For example, one could argue using descriptive statistics that richer schools often also have better average performance than other schools. Simply by looking into how many students feel like they belong in those schools, one cannot tell if the effect leading to higher levels of school belongingness is socioeconomic background of students or their performance in the standardized test. As a result, regression analyses described in the Method section of this chapter are capable of disentangling which of various characteristics has the most important impact on the phenomenon explained. Such analyses divide how variation in these characteristics contributes to the total variation in the explained phenomenon.

This section presents the results of the main student characteristics linked to sense of belonging at school. The results presented in table 6 below show three regressions explaining sense of belonging at schools in France using different variables: being a second-generation immigrant, being a first-generation immigrant, being a woman, the socioeconomic background of the family, whether the student is enrolled in a vocational programme and their average mathematics and reading score. It also includes two measures of belonging presented in the Data section: life satisfaction and index of positive feelings.

Updating similar analysis done with earlier PISA 2015 data (Chiu et al. 2016), the results below show three different regressions that try to explain sense of belonging using different sets of variables from PISA 2018. Similar to what was done in the descriptive analysis, the regressions were run for all countries in the dataset, updating with more recent data some of the findings highlighted by Chiu et

al. (2016). One of the ways in which France stood out from other countries in the cross-country analysis is that the explanatory power of test scores in explaining sense of belonging at school was significantly higher in the country.

Following the cross-national preliminary analysis, the model was further specified for France. In table 6 below, which shows the results for France, each vertical line is one regression model, while each horizontal line is one explanatory variable included in the model. The first regression, (1) Model 1, shown in the second vertical column, explains the index of sense of belonging at school using three explanatory variables in the horizontal lines (immigration background and gender) as well as a constant or intercept. The second regression, (2) Model 2, also includes socioeconomic background and the education track students attend, while the third regression, (3) Model 3, uses as explanatory variables all of the ones mentioned earlier, as well as a variable for the average score in the mathematics and reading tests. Models 4 and 5 also include the two metrics of wellbeing available on the France dataset: first life satisfaction and then, in addition to life satisfaction also the Index of positive feelings.

Table 6 Main variables determining sense of belonging at school in France using three regression models

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5
Second-generation immigrant	0.0557	0.121***	0.137***	0.134***	0.134***
	(1.56)	(3.33)	(3.77)	(3.76)	(3.76)
First-generation immigrant	-0.140**	-0.079	-0.0382	-0.3213	-0.3230
	(-2.78)	(-1.55)	(-0.74)	(-0.63)	(-0.63)
Female	-0.0313	-0.0363	-0.0353	-0.0001	-0.0001
	(-1.51)	(-1.74)	(-1.70)	(-0.01)	(0.00)
Socioeconomic background		0.0993***	0.0673***	0.4354***	0.4353***
		(-8.31)	(-5.14)	(3.37)	(3.37)
Vocational		-0.0228	0.0409	0.1846	0.1842
		(-0.82)	(-1.38)	(0.63)	(0.63)
Test score			0.00427***	0.00341***	0.00343***
			(-5.98)	(4.85)	(4.86)
Satisfied with life				0.4193***	0.4192***
				(18.87)	(18.86)
Index of positive feelings					0.00022
					(0.26)

Intercept	-0.0683***	-0.0638***	-0.505***	-0.7245***	-0.7262***
	(-4.47)	(-3.86)	(-6.68)	(-9.59)	(-9.57)
N	5606	5572	5572	5486	5486
R-squared	0.002	0.017	0.022	0.081	0.080
t statistics in parentheses					
* p<0.05, **p<0.01, *** p<0.001					

In those regressions, the phenomenon explained, or dependent variable, is the index of belonging at school (BELONG), which is the combined sense of belonging calculated using the six dimensions presented before. For each combination of a column and a line, the upper value shows the estimated coefficient, while the lower value in parenthesis is the estimated t-statistic. A coefficient shows the impact that an explanatory variable has in the phenomenon, or dependent variable, it is trying to explain, when also considering the impact of the other variables present in the model. For a given regression presented in the vertical lines, the larger the magnitude of the coefficient, the larger the impact of the variable associated with the coefficient in predicting belongingness. For example, in the first model, the impact of being a second-generation immigrant is larger than that of being first-generation because the number associated with it is larger. It is important to note that each variable's impact is assessed by contrasting it to the base category. For example, in the case of the two variables on first and second-generation immigrants, the base category is "native-born students". So that means that the impact of being a first-generation immigrant is assessed compared to being native-born. In the case of gender, the impact of being female is assessed in comparison to male students, and students in vocational training are compared to those in the general track. The variables on socioeconomic background and test scores are continuous so there is no base category. In their case, their impact on the explained, or dependent, variable is measured by an increase of one unit in their measurement. For example, if a student's average test score increases in one unit, model 3 predicts that the indicator for sense of belonging at schools increases in 0.00427 units.

The second value shown for each combination of a column and a line is the t-statistic. A t-statistic is calculated to test the significance of an explanatory variable in explaining the phenomenon, or dependent variable. The t-statistic provides the level of certitude with which we can assume that the impact is different from zero, or significant. For example, if the t-statistic is higher than 1.96, we can assume with a certitude of 95% that the coefficient is significantly different from zero.

T-statistics are also used to calculate the p-values, which are the percentage to assume that the explanatory variable is correlated with the explained phenomenon (Angrist and Pischke 2008, Wooldridge 2016). For example, a p-value of 0.05 means that in only 5% of the cases it would be

wrong to assume that the explanatory variable has an impact on the phenomenon. In turn, a p-value of 0.01 is even stronger as it shows that in only 1% of the cases it would be wrong to assume a significant impact of the explanatory variable on the phenomenon.

The stars close to the coefficients show the level of significance of the impact. Three stars mean that it can be assumed with a 99% of certitude that the variable is having an impact on the phenomenon it is trying to explain. One and two stars convey a certitude of respectively 90% and 95% that the variable in the line is impacting the explained variable (BELONG or the combined impact of sense of belonging). The figures that are followed by stars are the ones that can be considered as having a significant impact to predict sense of belonging and should hence be analysed as key determinants.

Line N indicates the total number of observations, or students, in the model. Students in the dataset are included in the model if they responded to all the questions leading to variables in the model, so the number of observations varies from model to model according to the number of missing responses. The following line, R-squared, is a statistical measure of the percentage of the total variation in the dependent variable that is explained by the variation in all the independent variables in the model. An R-squared of 1, for example, would mean that 100% of the variation in the dependent variable can be explained by the independent variables. Such models, however, are extremely rare, especially in quantitative social sciences (Angrist and Pischke 2008, Wooldridge 2016).

Table 6 shows that the main determinants of sense of belonging at school in the country are life satisfaction, socioeconomic background and test score, all of which collaborate to increase the likelihood of a student belonging at school. Gender differences were not large in the descriptive analysis and are not significant in the regression either, just like the Index of Positive Feelings. Interestingly, although descriptive statistics in table 5 showed that in some dimensions of belonging immigrant children had lower outcomes than native-born ones, when controlling for other variables, this correlation is reversed. In fact, for the same level of socioeconomic background, life satisfaction and academic performance, second-generation immigrants have higher sense of belonging in school.

As shown in the description of the data, the results shown in those first two regressions look into belongingness as a monolithic indicator constructed by combining the six dimensions previously described. However, it is important to understand the impact of belonging through the various statements proposed to construct the index of belonging (BELONG), especially in the case of France where the reliability of the constructed index is not excellent given that the six statements do not always point in the same direction – as shown in the discussion on the Data. As a result, the findings below in table 7 look into how each dimension is determined by the same student characteristics to

understand through which channels those characteristics are connected to sense of belonging at school. These channels are mediators that indirectly influence sense of belonging at school. Each column presents one of six regressions, each of which uses a series of student characteristics to explain one dimension of belongingness. For example, regression (1) outsider aims to explain the likelihood of a child responding by disagreeing to the statement "I feel like an outsider at school". To explain how likely students are to disagree with such a statement, the regression uses variables for immigration background, gender, socioeconomic background, education track, life satisfaction, and test scores.

Table 7 How each subdimension of belongingness is affected in France

	(1) Feel like an outsider	(2) Make friends	(3) Belong	(4) Feel awkward	(5) Liked by colleagues	(6) Feel lonely
Second-generation immigrant	0.206	0.0809	-0.0151	0.256*	-0.0332	0.267
	(-1.86)	(-0.52)	(-0.15)	(-2.01)	(-0.21)	(-1.730
First-generation immigrant	0.0797	-0.507**	0.296*	0.00146	-0.634***	-0.0337
	-0.53	(-2.99)	(-2.08)	(-0.01)	(-3.74)	(-0.17)
Female	0.316***	0.322***	0.106	0.164*	0.441***	-0.0316
	(-4.92)	(-3.39)	(-1.86)	(-2.27)	(-4.39)	(-0.37)
Socioeconomic background	-0.0357	0.0538	0.0341	-0.0339	-0.0508	0.000943
	(-0.91)	(-1.00)	(-0.94)	(-0.77)	(-0.91)	(-0.02)
Vocational	0.0992	-0.088	0.0512	-0.0142	-0.141	-0.143
	-1.14	(-0.78)	(-0.62)	(-0.15)	(-1.24)	(-1.27)
Test score	0.0314***	0.0287***	0.00660***	0.0215***	0.0437***	0.0120***
	(-14.04)	(-9.32)	(-3.34)	(-8.75)	(-13.32)	(-4.13)
Life satisfaction	0.704***	0.520***	0.549***	0.978***	0.491***	1.218***
	(-10.47)	(-5.44)	(-8.57)	(-13.4)	(-4.87)	(-14.15)
Intercept	-2.937***	-0.866**	-1.596***	-1.369***	-2.136***	0.0936
	(-12.38)	(-2.79)	(-7.46)	(-5.33)	(-6.66)	(-0.31)
N	5148	5732	5457	5452	5732	5451
Pseudo R-square[11]	436.9***	235.4***	109.3***	316.7***	380.0***	259.6***
t statistics in parentheses						
* p<0.05, **p<0.01, *** p<0.001						

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[11] Pseudo R-squares function in the same was as regular R-squares, but for logistical regressions.

The most defining consistent finding from the results in table 7 for the six dimensions of belongingness is that higher test results, as well as higher life satisfaction, boost the likelihood of students of all backgrounds declaring that they belong at school. In each dimension, only test scores and life satisfaction increase sense of belonging, and the other variables show very little significance. It is surprising to see that, despite the large gaps between wealthier and poorer students shown in the descriptive statistics, that is not visible in the regression analysis. The only exceptions are difficulty in making friends and the perception of being liked at school, where the data shows that first (not second) generation immigrants are significantly less likely to make friends easily than native children, when controlling for all the other variables. Gender is also a significant predictor when controlling for other variables in the feeling like an outsider, making friends or being liked by others. In these three dimensions, girls have higher sense of belonging than boys with similar test scores, level of satisfaction and family background.

The more detailed analysis of each of the six dimensions confirms the preponderance of academic performance and life satisfaction as the main explanatory variables of sense of belonging at school in France. It is important to clarify that being an explanatory variable does not necessarily infer causation, it only points to both variables varying together. In the case of academic performance and sense of belonging at school, it can be the case that students who perform better are led to feel like they belong at school more often, but it can also be that by having a stronger feeling of belongingness at school, a student's academic performance is enhanced. It is worth noting then, that school performance also varies strongly for each characteristic of students. Table 8 below shows, for example, that students in vocational schools perform much worse in mathematics and reading at the standard PISA test than those studying in the general track. First-generation immigrants perform worse than second-generation immigrants and both of them are well below students without a recent migration background. There are also very marked differences in performance between richer and poorer students and between those who claimed to be satisfied with their lives and those who disagreed with such statement.

Table 8 How test scores in France differ for various categories

		Average test score
Total		99.1
Gender	Male	98.3
	Female	99.9

Type of school	General	102.8
	Vocational	83.1
Life satisfaction	Dissatisfied	97.1
	Satisfied	100.1
Immigration background	Native	100.5
	Second-Generation	92.1
	First-Generation	86.1
Socioeconomic quintile	Poorest	87.6
	Second	94.0
	Middle	99.1
	Fourth	104.2
	Richest	111.1

The strong inequality in test performance means that, although test score is the main variable significantly predicting different levels of school belongingness across all dimensions, many other student characteristics can be sources of inequality in academic performance that in turn influences belongingness. For example, although a student's socioeconomic background per se does not contribute to a student feeling more excluded or included at school, the fact that poorer students have worse performance may be the actual explanation of their perceived exclusion. The same is true for immigrant students who more often declare not to belong at school than native students. In large part, the reason why those immigrant students have lower sense of belonging is because they also have lower academic results.

3.4.ii School characteristics correlated to sense of belonging at school

A student's personal background is important to understand their experience at school, but so is the school where they study (Van Zanten 2001, Ma 2003, Hughes et al. 2015). Most of the students' characteristics presented in the previous section can also be school characteristics when calculated as the collective average of the school. For example, school diversity is a metric of the percentage of students who come from an immigrant background, while school socioeconomic background represents the average indicator of socioeconomic welfare of students in that school. The average student's result in the standardized tests in the school is used to calculate the school test performance and the average student life satisfaction is used to calculate school life satisfaction.

As shown in table 9, school characteristics used in this work are the aggregated form of individual ones so oftentimes the results point in the same direction. For example, students who score well on tests are more likely to feel like they belong at school. Those students are very often at schools

where most other students also have higher performance, which means that schools also have many students with high sense of belonging given that there is a strong correlation between both aspects. The results confirm this pattern and show that average school performance is indeed a very good predictor of sense of belonging across all six sub-dimensions, as well as the combined indicator of belonging, even when controlling for average life satisfaction.

Table 9 Impact of school-level variables in sense of belonging in France

	(1) Belong (index)	(2) Feel like an outsider	(3) Make friends	(4) Belong (dimension)	(5) Feel awkward	(6) Liked by colleagues	(7) Feel lonely
School diversity	-0.0132	0.793	-1.192***	0.201	-0.522***	-0.413*	-0.073
	(-0.10)	(-1.54)	(-3.04)	(-0.54)	(-4.17)	(-1.99)	(-0.15)
Female	-0.0412*	0.210***	0.285***	0.0546	0.0338	0.411***	-0.167*
	(-1.99)	(-3.43)	(-3.32)	(-0.99)	(-0.49)	(-4.59)	(-2.03)
School average socioeconomic	-0.0155	-0.122	-0.313*	-0.00151	-0.234*	-0.337**	-0.138
	(-0.42)	(-1.16)	(-2.49)	(-0.02)	(-2.02)	(-2.63)	(-1.02)
School average test	0.00548***	0.0337***	0.0541***	0.00407	0.0287***	0.0631***	0.0235***
	(-3.78)	(-8.24)	(-10.9)	(-1.04)	(-6.37)	(-12.42)	(-4.45)
School average life satisfaction	0.459***	0.402	1.521***	0.866***	0.903**	1.486***	1.230***
	(-4.79)	(-1.46)	(-4.3)	(-3.33)	(-2.95)	(-4.1)	(-3.41)
Intercept	-0.923***	-2.929***	-4.196***	-1.520***	-2.016***	-4.984***	-1.101
	(-5.87)	(-6.57)	(-7.83)	(-3.55)	(-4.12)	(-9.10)	(-1.93)
N	5605	5254	5985	5574	5566	5985	5564
Pseudo R-squared	0.053	0.032	0.097	0.003	0.029	0.117	0.019
t statistics in parentheses							
* p<0.05, **p<0.01, *** p<0.001							

An interesting result shown in table 9 is that school diversity, meaning a high number of immigrant children at school is negatively correlated with three dimensions of sense of belonging at school. This shows that, although being an immigrant or child of an immigrant does not affect sense of belonging, being in a school with a large share of immigrants does. This is a linear relationship as models adding a non-linear explanation to the model did not find significance. Such interactions can be due to network and scale effects that translate into the level of belongingness of students with and without a recent immigrant background (Mok et al. 2016) or from different ethnic groups (Van

Ewijk and Sleegers 2010). Here, the data shows that students at schools where their colleagues are more often of an immigrant background have lower likelihood of declaring that they make friends easily or that they are liked by others and higher chances of feeling awkward or out of place.

The analysis below divides the student population into two categories: children with a recent immigrant background (in columns 2 and 4) and those with no recent immigrant background (columns 1 and 3). The results in table 10 show how variables impact those groups of students differently.

Table 10 How school-level variables affect students' belongingness differently

	(1) Make friends (native)	(2) Make friends (immigrant)	(3) Feel lonely (native)	(4) Feel lonely (immigrant)
School diversity	-2.701***	0.644	-1.174**	0.0699
	(-5.86)	-0.68	(-2.26)	-0.06
Female	0.282**	0.35	-0.190*	0.196
	-3.12	-1.26	(-2.24)	-0.56
School average socioeconomic	-0.306*	-0.425	-0.155	-0.0317
	(-2.22)	(-1.27)	(-1.08)	(-0.07)
School average test	0.0540***	0.0538***	0.0241***	0.0176
	-10.2	-3.29	-4.38	-0.86
School average life satisfaction	1.366***	2.692*	1.188**	1.605
	-3.63	-2.27	-3.17	-1.07
Intercept	-4.062***	-5.634**	-1.119	-0.991
	(-7.19)	(-3.08)	(-1.89)	(-0.41)
N	5676	309	5313	251
Pseudo R-squared	322.5***	27.33***	73.83***	4.609
t statistics in parentheses				
* p<0.05, **p<0.01, *** p<0.001				

Digging into those findings, Table 10 shows results for native and immigrant students in the two dimensions where school diversity had an important predictive power: making friends easily and feeling lonely at school. Some variables impact both groups similarly. For example, for both students with and without a recent immigrant background, higher school performance also leads to higher sense of belonging.

In contrast, the figure shows some areas where the sense of belonging of the two groups of students is impacted differently, even controlling for life satisfaction at the school. Among students with an immigrant background the share of immigrant students in their school does not affect how easily

they make friends and how lonely they feel. However, for native students the more immigrant students in their school, the harder it is for them to make friends and the lonelier they feel.

This effect is the opposite that was found in the literature for other countries. For example, Mok et al. (2016) found a small negative impact of the proportion of Turkish-origin students in the sense of belonging of students in Germany. They found that higher presence of Turkish-origin students boosted sense of belonging of those students, while not influencing on sense of belonging of non-Turkish German students. Although not directly looking into immigration, Van Ewijk and Sleegers (2010) found similar results linking school diversity and sense of belonging at school when studying American schools. School diversity in the paper is calculated as the percentage of students in a school who identify as African American. They point out that higher concentration of African Americans at schools negatively affects the performance of other African American students, while not influencing the academic scores of students of other ethnicities. Both studies show a collective negative impact of higher share of students of a particular community, in the latter measured by immigration background and the former measured by ethnicity, as being particularly driven by the negative impact in their community. The findings for France using PISA 2018 data presented here show the opposite result.

3.4.iii Individual and school-level characteristics linked to sense of belonging at school

As shown in the previous sections, both school-level and individual-level characteristics are important to explain how sense of belonging at school differs for each student. However, it is necessary to see how each of those two levels jointly affects belongingness. In this case, multilevel models are used to disentangle the impact of each level of the data (students and schools), and also to avoid confounding factors. Confounding factors are variables that influence both the dependent variable and independent variable, causing a spurious association (Angrist and Pischke 2008, Wooldridge 2016). For example, some findings show that immigrants are less likely to belong at school. However, if poorer students are less likely to feel like they belong at school and also more likely to be immigrants, a lower sense of belonging of immigrants could actually be caused by poverty and not immigrant status. By using multilevel models, the variation contained in the confounding factors is contained within the upper layer of analysis (in this case schools). As a result, the confounding factors coming from schools cease to impact the correlation, and the analysis delivered using such methods directly assesses the link between individual variables and the phenomenon it aims to explain. Despite the power of multilevel models in eliminating various sorts of confounding factors coming from higher layers, those that are present at the student level (for example personal resilience) cannot be accounted for in such models.

Another possible issue with inferring causation from regression analysis, as previously described, is reverse causation. This is a situation in which there is a significant correlation between the dependent and independent variables, but that correlation can be a product of the dependent variable affecting the dependent one, instead of the opposite, which is typically expected. To avoid the presence of reverse causation, school characteristics, which are essentially the collective form of student characteristics, can be added to the regression as another layer of the analysis (Alexander et al. 2001). As the school characteristics are fixed within students at the school, the student characteristics should be seen as the determining factors of the regression. In the previous example, the average poverty level of students would be included in the school-level variables, so it would be treated as a school characteristic to explain the variance of belongingness. Immigration status, however, can vary from student to student within the same school. As a result, all the confounding factors present at the school-level are accounted for in the multilevel model.

The first round of regressions uses multilevel models at the school level, but only individual characteristics to predict sense of belonging at school. This means that the school characteristics are jointly considered as part of the model, although they are not directly used as explanatory variables in the regression. Regressions in the second round, on the contrary, use school-level characteristics to understand the same phenomenon. The combination of all individual and school-level characteristics is presented in regressions below.

Table 11 Determinants of sense of belonging using fixed effects for school

	(1) Belong (index)	(2) Feel like an outsider	(3) Make friends	(4) Belong (dimension)	(5) Feel awkward	(6) Liked by colleagues	(7) Feel lonely
Female	-0.00249	0.0616***	0.0218**	0.0264*	0.0227*	0.0293***	-0.00575
	(-0.12)	(-4.94)	(-2.86)	(-2.00)	(-2.17)	(-4.02)	(-0.65)
Socioeconomic background	0.0470***	-0.00449	0.00414	0.0116	-0.0033	-0.00678	-0.00204
	(-3.37)	(-0.53)	(-0.81)	(-1.28)	(-0.46)	(-1.39)	(-0.34)
Vocational	0.0238	0.0274	-0.00574	0.0104	0.00238	-0.0132	-0.00883
	(-0.75)	(-1.43)	(-0.47)	(-0.50)	(-0.15)	(-1.11)	(-0.67)
Test score	0.00286***	0.00627***	0.00144***	0.00199***	0.00272***	0.00267***	0.00048
	(-3.26)	(-11.67)	(-4.43)	(-3.52)	(-6.03)	(-8.65)	(-1.26)
Life satisfaction	0.416***	0.151***	0.0402***	0.120***	0.161***	0.0344***	0.145***
	(-18.32)	(-10.82)	(-4.80)	(-8.19)	(-13.76)	(-4.31)	(-14.76)

Second-generation immigrant	0.132***	0.0357	0.0104	0.00237	0.0385*	-0.00451	0.027
	(-3.64)	(-1.62)	(-0.76)	(-0.10)	(-2.08)	(-0.35)	(-1.74)
First-generation immigrant	-0.0295	-0.00761	-0.0538**	0.0688	0.00746	-0.0824***	0.0034
	(-0.55)	(-0.23)	(-2.79)	(-1.95)	(-0.27)	(-4.49)	(-0.15)
School diversity	-0.00389	0.145	-0.0532	0.0263	-0.0852	0.0282	-0.0447
	(-0.02)	(-1.55)	(-0.83)	(-0.25)	(-1.10)	(-0.44)	(-0.69)
School average socioeconomic	-0.0456	-0.0197	-0.0387*	-0.0104	-0.0346	-0.022	-0.015
	(-1.08)	(-0.81)	(-2.22)	(-0.37)	(-1.73)	(-1.25)	(-0.88)
School average test	0.00248	0.00139	0.00282***	-0.0009	0.00193*	0.00210*	0.00201**
	(-1.36)	(-1.31)	(-3.82)	(-0.75)	(-2.19)	(-2.84)	(-2.71)
School average life satisfaction	0.0269	-0.0892	0.0991*	0.0702	-0.0297	0.0782	-0.00568
	(-0.25)	(-1.45)	(-2.21)	(-0.98)	(-0.58)	(-1.72)	(-0.13)
Intercept	-0.933***	-0.161	0.382***	0.123	0.242**	0.352***	0.535***
	(-5.21)	(-1.56)	(-5.22)	(-1.04)	(-2.84)	(-4.76)	(-7.45)
N	5487	5148	5732	5457	5452	5732	5451
Wald chi2[12]	477.0***	466.4***	216.8***	107.7***	351.0***	322.2***	303.4***
t statistics in parentheses							
* p<0.05, **p<0.01, *** p<0.001							

The previous sections showed the importance of both school and individual predictors of sense of belonging at school. This section provides results when school and individual characteristics are put together to compare their explanatory power. The line "Wald chi2" shows the total explanatory power of each model based on the Wald test (Papke and Wooldridge 1996). Larger values indicate that the regression is better at predicting the phenomenon. Similar to the other lines, the number of stars shows how significantly the model explains the phenomenon, or dependent variable, using the independent variables in it. All three models partially explain sense of belonging at school with a significance of 99%. As it can be seen in the third column, when both student-level and school-level characteristics are put together, individual characteristics yield higher significance, measured

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[12] Wald chi2 is a similar metrics as R-square and Pseud-R-square, but in this case for multilevel analysis.

through the number of stars associated with them. This means that individual characteristics, in particular, socioeconomic background, individual life satisfaction and test performance have higher explanatory power, than school-level characteristics. This is in line with previous findings in the literature. For example, Ma (2003) argued that discrepancies in school belonging are larger within schools (between students) than between schools. Similarly, Van Houtte and Stevens (2009) concluded that sense of belonging is poorly related to school features, such as school ethnic composition, once other student characteristics are taken into account.

Table 11 above also largely corroborates previous findings showing that, when controlling for school characteristics, socioeconomic background is not a good predictor of sense of belonging at school, given that most of the variation in socioeconomic background of students is often explained by the schools they attend. Furthermore, immigration background is not the main determinant of sense of belonging at school and school characteristics are more powerful than individual ones. In France, academic performance and life satisfaction are the key factors correlated with sense of belonging, although it is hard to infer causation from the correlation. It is clear that academic performance and sense of belonging go hand-in-hand, but it is impossible to infer a causal link from the data. It can be that higher academic performance leads to higher sense of belonging in school, or it can also be that, on the contrary, higher sense of belonging is what leads some students to perform better on standardized tests.

3.5 Some robustness checks

A useful strategy in research using regressions and other econometric tools applied to education research consist of running robustness checks (Mortimore 2009, Goldstein 2011, Clarke et al. 2015). Those checks examine how certain regression coefficients (the values measuring the impact of an explanatory variable on the phenomenon it aims to explain) vary when a regression model is slightly altered (Wooldridge 2016). The changes are assessed by adding or removing explanatory variables and observing the impact on the measured phenomenon.

Robustness checks are necessary to ensure that the correlations highlighted are not based on confounders, which are variables that influence both the phenomenon and the variables trying to explain that phenomenon. Confounders cause the association between the explanatory variables and the explained phenomenon to be spurious, meaning that they would not indicate a causal relationship. In this work, although the findings presented as conclusions are admittedly correlations, rather than causations, they deserve further scrutiny for validation. As a result, several robustness checks were prepared in the process of analysing the data.

The first robustness check of the model includes recategorizing the six variables of belonging used in the analysis. This process consists of transforming the way the phenomenon of belonging was coded into variables used in the regression analysis. By running the same models using transformed variables to measure the same phenomenon, it is possible to rule out that the results were influenced by the way the variables were coded. In PISA, students responded to a question on a Likert-scale with four options measuring their level of belonging to each of the six dimensions. However, logistic analyses such as the ones used in this chapter required explained variables to be coded in binaries, instead of categorical variables with four options. The six variables leading to sense of belonging were hence transformed into dummy/binary variables for the logistic analysis. In that transformation, the original recoding was "agree"/ "strongly agree" versus "disagree" / "strongly disagree".

During the robustness checks, the recoding of the originally designed Likert-style questions was altered. Other attempts included recoding the scale trying to get the closest possible to two halves of identical size. This means that, for instance, if the category "strongly agree" is too large, it would pair together "agree", "disagree" and "strongly disagree". This different coding of the dependent variables did not significantly change the results and the main findings remained the same.

Another check put forward relates to the use of the aggregate BELONG variable. In the data presented, the six variables of belonging were combined into an indicator called "BELONG", which is

a continuous variable. Some tests were run using BELONG as the independent variable, which led to a methodological move from logistic regressions into regular multivariate regressions.

The use of multilevel models was also subject to robustness checks. These types of models can be produced using fixed, mixed, or random effects, each of which relies on different statistical assumptions (Clarke et al. 2015). The default coding, which is used in this work and in most research where the levels of analysis are students and schools, includes mixed effects. However, alternative analyses were also prepared using random and fixed effects, although the main results and findings were not substantially altered.

Appendix 5 shows a few examples of the robustness checks that were made. In the first example, table 7 (How each subdimension of belongingness is affected in France) is replicated but instead of coding each dimension of belonging as positive if a student responds to the item as "strongly agrees" or "agrees", it considers belonging to only be assessed if the student responded that they "strongly agree". The second example replicates Table 11 (Determinants of sense of belonging using fixed effects for school) using the exact same hierarchical model, the only difference being that it uses random effects at the school level instead of fixed effects as in the table. These two examples show that the results and interpretations are robust to small variations in the specification of the model.

Finally, the models presented in the results section come from a large set of other models that produced different specifications prioritizing other variables. This means that not all models that were produced have been included in the results section, which presented only the most significant findings to construct the narrative of the research.

3.6 Limitations

One of the main limitations of this type of regression analysis is the risk of reverse causality, which occurs when two variables are correlated, but the causal links between them are hard to evaluate (Clarke et al. 2015, Wooldridge 2016). When analysing data with regressions, it is necessary to differentiate between correlation and causation. Reverse causation occurs when the phenomenon one is trying to explain using an explanatory variable is actually causing that explanatory variable.

In the case of immigration background, socioeconomic status, and school characteristics, reverse causality does not seem plausible as it is hard to argue that sense of belonging at school would affect them. Indeed, students cannot change their immigration background or their gender because they stopped belonging at school. In contrast, of the main variables put forward as determinants of sense of belonging at school, the ones that can most likely be subject to reverse causation are academic performance and life satisfaction. For example, having a higher sense of belonging can boost school performance to the same extent that higher performance can increase the likelihood of belonging at school. In the case of life satisfaction, previous literature has shown that general wellbeing is often framed as a component of sense of belonging or in other cases a result of such belonging (Branscombe et al. 1999, Ma 2003, Gilman and Anderman 2006, Millings et al. 2012, Tian et al. 2015, Choi 2018). Therefore, it is important to acknowledge the possibility of reverse causality in terms of performance and treat the findings linking academic performance and belongingness more as association than causation.

Another limitation of this work is that the R-squared is lower than expected, as all models explain a maximum of 10% of each dimension of sense of belonging in school using the variables available in the dataset. This means that the models proposed fail to explain a big part of the reasons why children belong or not at school. Although the determinants highlighted in the models do significantly explain belongingness, they seem to be insufficient to fully describe the phenomenon. It can be the case that the main determinants of sense of belonging remain within individual subjectivity or that the variables that could help explain it were not found.

Despite the limitations, the models helped identify some key elements defining sense of belonging at schools. For example, in addition to wellbeing, the models pointed to an intimate link between the academic performance of students and their sense of belonging at school. As academic performance varies greatly with students' background, those background characteristics also correlate with sense of belonging at school through the mediation of academic results. This is the case of students in vocational training or those who have a recent immigrant background, both of which have lower sense of belonging which is primarily explained by a lower academic performance.

The model hence helps disentangle how different aspects of a student's life correlate with the way they feel in school.

3.7 Conclusion

Across all the variables analysed, the academic performance and life satisfaction of students are the most relevant ones to explain each of the six dimensions of sense of belonging. As discussed in the theoretical framework, wellbeing is intimately linked to sense of belonging, which is confirmed in the quantitative analysis when measured by the average life satisfaction of students. Previous studies have also found an important link between academic performance and sense of belonging at school (Goodenow 1993, Ryan and Patrick 2001, Faircloth and Hamm 2005, Cueto et al. 2010). Test scores vary strongly for different social groups, which means that being part of those groups can affect belongingness through test scores. Such link between academic performance and sense of belonging further confirms that both things go hand-in-hand and that it is possible and desirable to act jointly on enhancing learning and wellbeing.

Students in vocational schools or who are immigrants or whose parents are immigrants all have worse test scores and are expected to have lower sense of belonging than their peers. The way in which academic performance mediates differences in sense of belonging at school across different groups of students, notably those with and without a recent immigration background, was also found in previous literature (Liu and Lu 2011, Ho et al. 2017). Understanding the type of school that leads to lower sense of belonging and the students who are the most vulnerable to exclusion is crucial in order to promote effective social policy, as it allows for identifying and targeting priority groups in government actions for example.

Although the descriptive statistics point to immigrant background as an important source of inequality in some dimensions of sense of belonging at school, a more in-depth regression analysis shows that immigration is not the factor more strongly associated with sense of belonging, especially when measured by the "I feel like I belong at school" item. Immigration background per se does lead to lower levels of belongingness, but it does happen through other channels, or mediators, chiefly through socioeconomic background. As most immigrants and children of immigrants have lower socioeconomic background, their sense of belonging is decreased, but it is not caused directly by their immigration status. These findings contradict analysis of earlier PISA data (OECD 2017), as well as country-level studies that had confirmed a link between immigration background and sense of belonging at school, even when controlling for other variables such as what was done in this work (Gonzales and Padilla 1997, DeNicolo et al. 2017). There are various reasons why the results presented here differ from what was found before in the literature. The PISA analysis in this thesis uses more recent data, which can lead to different results. Furthermore, the regressions presented use a larger number of controls and also include multilevel analysis, both of which enhance the preciseness of the results and their capacity to disentangle characteristics (e.g. immigration

background and academic record) that should have competing explanatory power on the outcome (i.e. sense of belonging at school).

Moreover, the thesis looked separately into the six items composing OECD's Sense of Belonging Index. In a context of low internal reliability of the constructed indicator, it is important to look into its different components to identify the most important patterns. In parallel, the analysis of the reliability of the index does raise questions about the way in which the item "I feel like I belong" stands out from the others in the results, which is further investigated in the validation of PISA results in the fourth section of Chapter 4. Such findings are important for future rounds of OECD data collection, especially in the process of validation of items for non-English speaking countries.

School-level characteristics also play a role in the understanding of sense of belonging, which confirms previous research on the cruciality of relationships between students and teachers and with other students to understand belonging (Allen et al. 2018). An interesting result is that school diversity is negatively correlated with three dimensions of sense of belonging at school. This shows that, although being an immigrant or child of an immigrant does not affect sense of belonging, being in a school with a large share of immigrants does. Students at schools where their colleagues are more often of an immigrant background experience a decrease in the likelihood of declaring that they make friends easily and an increase in the chance of feeling lonely at school. Such interactions are largely explained in the literature by ingroup and outgroup identities, as well as network effects (Van Ewijk and Sleegers 2010, Mok et al. 2016).

This point is further scrutinized by the interaction of school-level and student-level variables, which also yields interesting results. Among students with an immigrant background, the share of other immigrant students in their school does not affect how easily they make friends and how lonely they feel. However, for native students the more immigrant students in their school, the harder it is for them to make friends and the lonelier they feel.

The average performance of schools in the PISA test is also a key determinant of whether students will feel like they belong in each of the six items. The importance of schools also confirms the existing literature on belonging at French schools and vouches for impactful classroom-based interventions to boost belonging (Dunleavy and Burk 2019). It also confirms that successful students in better performing schools develop "a self-identity narrative that encompasses school success as part of who they are" (Sanders and Munford 2016). In this way the individual idea of success that students have also connects with the collective success of schools.

Although some of the findings, particularly connected to school performance still need to be investigated to infer causality, many interesting results emerged from the quantitative assessment and are further explored in the qualitative part of the following chapters. More importantly, the student and school-level characteristics present in the dataset were insufficient to explain most of the variation in sense of belonging of individuals and a large part of the explanatory power comes from life satisfaction. That means that most of the reasons why certain students respond in a certain way to each of the six statements related to sense of belonging at school remain unanswered. Similar studies in the past also found an insufficiently large part of the variation explained simply by student-level and school-level characteristics (Van Houtte and Stevens 2009, Chiu et al. 2016). Such low joint explanatory value of the dimensions of identity analysed here to explain sense of belonging at schools corroborate Yuval-Davis' (2010) thought in which "macro social categories, such as gender, class, race, ethnicity and so on" are not necessarily the most important part of people's identities. The next chapter explores more in detail the complexity of students' identities and how they help explain the way in which they construct their sense of belonging at school.

The conclusions of this chapter are important from a policy angle as they help identify which students feel like they belong and which ones feel ostracized and excluded from school. Given the context of low levels of sense of belonging at school in most countries including France, the findings help identify which students should be targeted for policies aiming at promoting a better school environment for children. It should also inform teachers and education practitioners and experts on the main student and individual characteristics related to sense of belonging. Furthermore, the findings related to the reliability and validity of PISA questionnaire which will be further discussed in the following chapter can be used to further inform the improvement of the framework.

The next chapter explores first how students give meaning to sense of belonging through the various statements they responded to. It describes students' experiences that contributed to their perception of belonging and illustrates the process they went through to give meaning to their sense of belonging in each of the dimensions used by the data analysed here to measure this phenomenon. The chapter will show how wellbeing was identified as a key conception of belonging, which is strongly linked to the significance of life satisfaction to explain belonging shown in the PISA data.

Chapter 4 – Qualitative interviews

This chapter discusses the main findings of a qualitative study inspired by the phenomenographic approach, which involved 33 interviews giving voice to students from three lower secondary schools (*collège*) in the metropolitan area of Paris, followed by a qualitative investigation on the validation of the PISA questionnaires showing the connection between student identity and sense of belonging and a discussion on how different student characteristics are connected to their sense of belonging. The interviews led to the identification of conceptions that, together with the literature review, delimited the definition of sense of belonging proposed by this thesis, which is the feeling that someone can be themselves in a specific social context without having their wellbeing threatened.

This chapter first introduces the main motivations for this analysis and then presents the method used for such work, which applies the phenomenographic methodology discussed in Chapter 2. Afterwards, the subsequent sections present the actual findings from the qualitative interviews, first the conceptions of sense of belonging identified through the phenomenographic approach, which are friendships, wellbeing, and school belonging.

The first section of results, inspired by phenomenography, consisted of proposing conceptions of belongingness based on how students themselves defined their sense of belonging at school. This first set of findings shows three major conceptions of sense of belonging at school, which are ways in which students make sense of their sense of belonging, emerging from the phenomenographic analysis of the interviews: friendships, wellbeing and belonging in contrast with another school. These findings are presented in parallel to some previous key evidence from the literature, as well as the results from Chapter 3. These first results are also presented in light of the outcome space, graphically explaining how these three dimensions are the main ways in which students made sense of their sense of belonging to schools.

The second set of results, based on qualitative research, proposes a discussion on the conceptualization of sense of belonging at school derived from phenomenography with the framework for sense of belonging at school developed by Goodenow (1993) and used in much of the previous literature, as well as in the PISA questionnaires to a certain extent. In this sense, the findings assess the validity of the conceptions versus the pre-establish PISA framework, discussing the extent to which the traditional framework and definition for sense of belonging at school can actually be understood by students and how they made sense of the sentences proposed by the survey to measure sense of belonging. This thesis findings suggest that three of the six statements proposed in PISA questionnaires generated quite consistent confusion among students, particularly

less academically performing ones and those studying at School 1, which is the most disadvantaged of the three.

Finally, the third set of findings dives into a deeper qualitative analysis of the main connections between sense of belonging at school and its interactions with other student-level characteristics previously discussed in Chapter 3, which were expanded from categories into identities. For example, the original category of immigration from Chapter 3, now also includes a broader definition of ethnic and national identity from students, which is still connected to immigration background, but in a less fixed and essentializing manner. This second section starts with a discussion on the use of categorization for statistical purposes in contrast with the larger freedom of self-identification in semi-structured interviews. Afterwards, the section triangulates statistical results from Chapter 3, responding to the same research question about the link between student characteristics and sense of belonging at school. For this, the section presents an illustration of examples from students of how certain characteristics connect with their sense of belonging at school through each of the three channels of belonging identified in the phenomenographic conceptualization. Those characteristics, albeit in a more restricted form, were already part of the analysis in Chapter 3, such as gender, school performance, and immigration background. However, in this set of results, the identification of students was not categorized, and they could more freely describe themselves, which also allowed for expanding the research into characteristics that are not captured by PISA data. This third set of findings points to ways in which students' identities help understand the process of creating sense of belonging at school.

Those three results sections are then followed by a conclusion that also includes a descriptive framework linking both sets of results.

4.1 Introduction

The quantitative analysis presented in the previous chapter put forward several findings from PISA data representative for all 15-year-old students in France. That chapter concluded that the academic performance of students is the most relevant student-level characteristic to explain each of the six dimensions of sense of belonging. Furthermore, as test scores vary strongly for different social groups, children studying in vocational schools, those who are immigrants, or those whose parents are immigrants all have worse test scores and are expected to have lower sense of belonging. As a result, test scores had a direct impact on depressing outcomes of belongingness, but other characteristics also have an indirect impact through their correlation with lower learning outcomes.

Chapter 3 also concluded that although the descriptive statistics point to immigrant background as an important source of inequality in sense of belonging at school, inferential analysis shows that immigration is not the factor more strongly associated with sense of belonging, as academic performance and socioeconomic background play a stronger role. Immigration background per se does lead to lower levels of belongingness, but it appears to happen indirectly, chiefly through socioeconomic background. As more immigrants and children of immigrants have lower socioeconomic backgrounds and children from lower socioeconomic background have, on average, lower sense of belonging at school, immigrants' sense of belonging is decreased in comparison to their peers without a recent immigration background. Nonetheless, this decrease is not caused directly by their immigration status in itself, but by other characteristics associated with immigration background. For example, lower academic performance is simultaneously correlated with immigration background and sense of belonging at school.

Statistical evidence from Chapter 3 also showed that school-level characteristics play an important role in understanding sense of belonging. An interesting result from the statistical analysis is that school diversity is negatively correlated with four of the six dimensions of sense of belonging at school. This shows that, although being an immigrant or child of an immigrant does not affect sense of belonging, being in a school with a large share of immigrants does. Such findings corroborate the importance for children to study in a school where they relate to their peers. Students at schools where their colleagues are more often of an immigrant background have higher likelihood of making friends and lower likelihood of feeling lonely.

This point is further scrutinized by the interaction of school-level and students-level variables, which also yields interesting results. Among students with an immigrant background the share of other immigrant students in their school does not affect how easily they make friends and how lonely they

feel at school. However, for native students the more immigrant students in their school, the harder it is for them to make friends and the lonelier they feel.

These main findings from the previous chapter deserve more careful discussion, which is presented here based on over thirty qualitative interviews collected in three schools. Although findings from the previous chapter are statistically generalizable for the entire student population of France, many important characteristics of those students were not present in the survey. Furthermore, the findings solely point to correlations between students' characteristics and their perceived sense of belonging at school, which warrants further investigation into how this correlation unfolds in actual discussions with students, such as the interviews analysed here.

While conducting these interviews, one interesting takeaway was that most students did not give the impression that sense of belonging at school is something they think about very often. It is unsurprising that students do not spend a lot of time thinking of technical terms such as "sense of belonging" and their concepts. However, it is more unexpected that even after some presentation of the topic and its importance, many still felt like it was not a phenomenon they had paid much attention to in the past.

In order to compare the results from the interviews with the PISA questionnaires, students were asked directly about their understanding of sense of belonging, similarly to what was done when they filled out the PISA forms. Furthermore, students were instructed to intervene and ask questions while they were filling out the form, so the researcher could understand what they were considering while filling out the mini-questionnaire. In many cases, during the presentation of the research at the beginning of the interview, various students questioned the meaning of sense of belonging at school. As it was part of the interview protocol, they were encouraged to provide their own understanding of it, rather than listening to a definition. There were various commonalities in the way students who were questioning the concept at first made sense of it. However, the fact that they often stopped and thought about the meaning means that the concept is not necessarily a recurrent one in their school experience.

Some other recurrent situations also surprised the researcher. Although some students very diligently responded to the initial PISA-inspired mini-questionnaire, taking their time and asking questions, many others filled out the form in a mechanical manner, "agreeing" or "strongly agreeing" to all questions. Overall, even among the more studious respondents, the vast majority of answers were positive and most students claimed both in the mini-questionnaire and in the practical examples that they felt like they belonged in school. Few students "disagreed" or "strongly disagreed" with most dimensions of belonging present in the mini-questionnaire and, when they did,

it was hard for them to further develop this lack of belongingness with the follow-up questions. Such strong support for sense of belonging, even if drawing from an unrepresentative set of students from purposely selected schools, is in sharp contrast with the quantitative analyses from Chapter 3, which showed that, on average, 62% of French students disagreed with the statement "I feel like I belong in school".

The discrepancy between the statistical findings and the experience of interviewing students can be partially explained by their comprehension of the term belonging. Many more students in the PISA dataset (between 81 and 90%) agreed with the other five dimensions of belonging. This can be due to the fact that when students understand what is being measured by the statement, they agree that they belong, while belongingness itself as a direct assessment can be an unclear concept or dimension to them. In particular, the dimension of friendships, which was present in the PISA data and to which the vast majority of students seemed to agree (90% said that they make friends easily), was also a recurrent idea put forward by students, which led to its identification as a key conception.

Given the challenges described, by the time data started being collected in the third school, the importance of starting the interview with the questionnaire came into reconsideration. During the follow-up questions linked to the information provided in the mini-questionnaire, some students did not explain why they marked something in the form, but rather contradicted their initial response, and some even asked to change their answer. These differences between the information provided through the questionnaire and the conversation that followed confirmed the importance of complementing quantitative analyses of data collected through standardized questionnaires with more subjective evidence coming from semi-structured interviews.

As a result, the findings derived from the analysis of the interviews explore how students make meaning out of sense of belonging through the various statements they responded to. Following a phenomenographic approach, the chapter describes students' experiences that contributed to their perception of belonging and illustrates the process they went through to give meaning to their sense of belonging in each of the dimensions used by the data analysed here to measure this phenomenon. The phenomenographic approach puts forward some individual quotations that aim to exemplify ways in which variations of the phenomenon were identified.

In the first part of the analysis, the chapter describes how students' interviews led to the identification of three main conceptions of sense of belonging at school: through friends, through wellbeing, or through comparison with other schools. Afterwards, the chapter contrasts those three conceptions to the statements used in the quantitative part to discuss to which extent these identified conceptions are different from the definitions that were presented to those sampled in

the PISA survey. This discussion also examines what questions from the standard PISA questionnaire triggered answers from students in their definition of sense of belonging, which provides a more careful look at the process of filling out survey questionnaires. Evidence from students' hesitation or questioning of statements proposed as descriptions of sense of belonging at school in the PISA questionnaire enlightens the debate on the necessity for a clear framework to assess sense of belonging at school that can be understood by all students, which does not seem to be the case of one currently used in PISA.

Following the delimitation of three conceptions of sense of belonging at school, the third set of findings in this chapter present several illustrations of the link between students' individual identities and characteristics with their perceived sense of belonging at school. On the one hand, the findings corroborate certain aspects from quantitative and generalizable PISA data, for example illustrating some student experiences where immigration background, in its interaction with socioeconomic background, plays out in decreasing sense of belonging. On the other hand, the chapter also contradicts some examples found in the quantitative data by giving counter-examples that illustrate situations in which the quantitatively verified correlations do not hold. For example, findings from PISA seem to give disproportionate importance to academic performance in its correlation to sense of belonging at school, which was not observed to the same extent among participating students.

One of the main purposes of using a mixed methodology in this work is exactly to verify certain assumptions with examples from actual interactions with students and also to illustrate with real examples how such interactions affect the way data is collected through questionnaires. This Chapter thus works as a phenomenographic complement to the statistical evidence proposed earlier.

4.2 Method

As outlined in Chapter 2, this thesis uses mixed methodology assuming a plural way of producing knowledge, complementing statistical data with the naturalistic approach of qualitative sociology. The statistical analysis in Chapter 3 relies on data collected through questionnaires, which are positivistic in nature, as described in the methodology chapter. Positivism relies on scientific methods in which objective and achievable knowledge can be inferred through sensory perception and empirical logic of enquiry. The positivist nature of the statistical findings is what gives grounding to their analysis as generalizable truth. Epistemologically, the qualitative data from the interviews presented in this chapter follow the interpretivist tradition, which focuses on various understandings of reality, rather than an intention to achieve an objective truth (Than & Than 2015).

Following the positivistic tradition, the statistical analysis described in Chapter 3 provided nationally representative positivistic findings, explaining the main characteristics at the school and individual level that are connected to sense of belonging. The chapter relies on fixed student characteristics included in the questionnaires they fill out. In turn, the qualitative analysis discussed here aims for depth rather than breadth, moving from self-reported student characteristics from a questionnaire into a broader discussion of the complexity of students' identities. The phenomenographic interviews do not aim at representativeness or external validity, but at a deeper illustration of the complexity and particularity of a small number of students in three separate schools. Those interviews aim to exemplify some of the statistical findings and question the way they play out in real-world interactions. This research also answers some questions that cannot be resolved statistically for lack of available data, for example, including self-identification of the ethnic origin of students, for which statistical data is not collected in France, nor through PISA datasets. Furthermore, the qualitative interviews were used to delimit conceptions (Marton 1981) of sense of belonging at school, which were identified as ways in which students made sense of their sense of belonging at schools.

The qualitative analysis presented in this chapter aims to enhance the investigation based on inferential statistics in various ways. First, it broadens the identification of participants and their conceptions of sense of belonging at school beyond the proposed fixed categories in the quantitative PISA questionnaire. Categorizations imposing deterministic boundaries in a heterogeneous society were used temporarily in the quantitative analysis, both to define sense of belonging at school and to delimit student characteristics that could be linked to it. However, those fixed categorizations were further scrutinized and reconstructed in the interviews analysed in this chapter. Unlike the statistical analysis presented in Chapter 3, the ontological assumptions of phenomenography are subjectivist, arguing that personal experience is unique and capable of

constructing and transforming meaning and perceptions. In the phenomenography tradition, as every individual interprets and transforms reality through filters, the approach consists of understanding the uniqueness of each student's conception of sense of belonging at school and how it connects to their past experiences. In this sense, phenomenography tends to explain more the idea individuals have of a phenomenon, rather than the phenomenon on its own (Ballantyne et al. 1998).

This research then identifies the qualitative differences and similarities in the ways students of three schools perceive and conceptualize their sense of belonging. The convergence of student perceptions, meaning that various students make sense of belongingness in a similar way, is what leads to the delimitation of conceptions of sense of belonging at school. These conceptions are presented as the first set of results. The variation in descriptions presented by participants reflects the complexity of the various ways of perceiving the phenomenon of sense of belonging at school. Thus, the main purpose of choosing phenomenography is its power as a school of research to illustrate how conceptions vary from student to student and how a combination of this variation leads to the wholeness of the phenomenon (Limberg 2008).

4.2.i Procedure

The interviews took place in three schools in the metropolitan area of Paris. All of the students in those schools are attending "*troisième*" which is the fourth grade of lower secondary education, when students are typically between 14 and 15 years old. As the phenomenographic analysis aims to focus on a similar age group as the quantitative analysis that uses PISA data collected for 15-year-olds, the two possible grades for this study were "*troisième*" (last grade of lower secondary) and "*seconde*" (first grade of upper secondary). The choice of "troisième" over "seconde" was largely motivated by tracking, which occurs at the end of lower secondary. At the end of "*collège*", students choose which type of education to pursue, and they are given the option of following general or vocational training. In France, tracking is strongly impacted by socioeconomic status, school performance, and cultural capital (Ichou 2016). Richer, better informed, and better-performing students often end up starting the general track of upper secondary education, which are tracks seldom chosen by poorer and less well-performing students. This clustering of similar students means that upper secondary schools are typically much more homogenous than lower secondary ones in terms of many of the student-level characteristics that this study investigates (parental occupation, ethnicity, cultural background…). As the study draws from the phenomenographic tradition, which aims for heterogeneity, a purposely selected sample of students with enough variation in their conceptualization of the phenomenon is crucial for the research design. Thus,

lower secondary schools were the preferred object of analysis, as lower secondary students have much more diverse background than upper secondary ones which were clustered after tracking.

As briefly described in Chapter 2, access to the schools was given to the researcher through his contact with an education organization named *Le Choix de L'école*. The initiative, which was formerly known as Teach for France and works under the Teach for All platform, is similar to Teach for America in the United States or Teach First in the United Kingdom. *Le Choix de L'école* aims to select college graduates or junior professionals with relevant academic qualifications to work as primary and secondary school teachers in France's public education system. The candidates selected by the organization are trained for between six months and one year and are then sent to schools, particularly in disadvantaged areas, where they are supported throughout the first years of their new careers. After explaining the main purpose and intention of the interviews, the researcher was given access to the list of current teachers serving in the program. The pool of teachers from *Le Choix de L'école* is usually highly motivated. The researcher sent an introductory email presenting the research to over a dozen teachers, many of whom responded and agreed to meet to learn more about the project. Among the teachers who were motivated and willing to participate after the meeting, the researcher selected three of them based on the schools they were working at and the need for a diverse pool of students. Each of the three teachers worked at very different schools situated in different suburbs of Paris, which satisfied the need for diversity in lived experiences of students, which is one of the main features of phenomenography.

After presenting the purpose of the research to both teachers and principals, the interviews were scheduled and took place during the academic year 2019/2020 in two rounds: the first one for the first school in September 2019 and the second one for the second and third schools in February and March 2020 before the lockdown following the Covid-19 pandemic. In each school, teachers connected the researcher to the principals, with whom the ethical implications of the research were discussed. Both principals and teachers were provided with the information sheets about the project and they were given the chance to review the main ethical documents, including interview outlines and consent forms following the norms of the British Educational Research Association (BERA 2018). Each teacher provided small amendments to the interview protocol to ensure that it would properly fit their school context. For example, in School 1, the teacher suggested replacing the background question "Where are you from" with "Where were you born?" to increase objectivity. In School 2, the teacher suggested that the question on parental occupation did not directly ask about parents' jobs, but first if they did work. The teacher suggested that such question would avoid sensitivities from children whose parents do not work. The process of student selection differed in each school, which is presented in the next section. Nonetheless, in all schools, students were requested to

formally opt into the research, while parents were informed of the research and given the option to return a form withholding their consent for their children to participate.

A first draft of the questions for the interview had already been prepared in advance, before the first meetings with the support teachers. However, the final questions were reworked with the teachers after the students were selected for the study in order to adapt to the interviewees. This led to an iterative process with the teachers where questions were reworked to ensure that sufficient data was collected considering the ethical implications of the research. The final interview protocol that was used in all schools is available in the Appendix of this thesis. In addition to the questions on their experiences and on the general topic of sense of belonging at school, students also filled out background information similar to the student characteristics analysed from PISA data in Chapter 3. To follow ethical guidelines, the amount of personal data collected was reduced to a minimum. Students were only asked to confirm some key information that had already been provided by the support teacher: name, age, grade, and place of birth at first. [13] Later during the interview, if needed, a few other identifying questions were asked in some cases, for example regarding their parental occupations and origin, as well as the students' perceived academic performance.

Students were given information sheets explaining the research and an opt-out consent form agreeing that their words could be used in my work. Any student was given the chance to drop out of the study, which would lead to the removal of all data they provided from the research outputs. As the students were purposely selected by the teachers in all three schools and fully briefed about how the study would take place, all of them remained in the interview, which was then used for the phenomenographic analysis. Moreover, no student or student's parent reached out to any supporting teacher requesting the withdrawal of their interviews after they had taken place, so all the interviewed students were included in the analysis.

After being contacted by the researcher, teachers presented the research design to their principals. In all three schools, the researcher and the supporting teacher received support from the principal to initiate the research with the agreement from the support teacher contacted through *Le Choix de L'école*. As discussed in the School Selection section of the Second Chapter, all three schools are located in banlieues of greater Paris, which are not far from the city centre and intimately connected with the rest of the city despite technically being administered as municipalities of their own.

The first school, which was visited in September 2019, is located in a suburb in the Northeast of Paris. The second school is located in the North of Paris. Finally, the third school where interviews

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[13] Questions included: "What is your name?", "How old are you?", "What grade are you in?" and "Where were you born? (City, Country)"

took place is located in the West of Paris. All three schools are anonymized, and they are referred to simply by the order of the visit (i.e. School 1, School 2 and School 3). The objective was to have around a dozen students participate in the semi-structured interviews for each school. However, the actual number of participating students was defined by the moment when data collection ceased to provide new information. At the end, eleven students participated at School 1, nine students at School 2, and thirteen at School 3. Throughout the last round of interviews in the third school, the level of diversity in the answers provided by students was already low, which did not justify a further increase in the sample of students.

In School 1, during the interviews, the researcher first introduced himself to students in the presence of the support teacher and the two had an informal discussion to create rapport. The teacher would then leave and let the researcher start the individual interview with the students. In the other two schools, the students had a scheduled time when they should show up for the interview, so the support teacher did not participate in directing the students to the room where the interviews took place.

The interviews started with the researcher asking the participating student to confirm the main background questions and to explain the purpose of the research, as well as what the interview would consist of, how student participation would take place, and the ethical implications of the research. The first step of each interview consisted of giving each student the exact same questionnaire as for PISA and asking them to respond to it. Afterwards, the researcher asked open-ended questions about experiences related to each answer and discussed them together with examples of situations that made them choose each of the answers to the questions on the questionnaire. To encourage students to discuss the topics of the questions in the interview protocol, a few probing questions were asked whenever needed (table 12). The discussion then evolved very informally, and the students were encouraged to present several situations in which they felt exclusion or inclusion at school and the main drivers of such feelings in their view. The discussions were recorded for further analysis and then transcribed.

Table 12 Example of probing questions

Can you give examples of situations where you feel like you belonged at school?
When you meet new people, how do you describe yourself to them?
What among your characteristics are you proudest of?
How many close friends do you have? What are your friends' names?
Can you give me examples of activities you do together in and out of school?

Are there any aspects that make you feel different from most of children in your school?

In each of the three schools where this study took place, students were selected on a different basis for participation in the interviews, adapting the research to the local context, as well as the experience of the principals and contact teachers. The number of students was considered sufficient for the research from the moment the researcher noticed that no more relevant information was being collected from more interviews.

At School 1, the contact teacher pre-selected some students he believed would be interested in taking part in the study. At Schools 2 and 3, the contact teacher circulated the ethics form so children could opt into the research. At School 3, as too many more students showed interest in participating, the teacher, together with the main researcher, decided on thirteen students who would be invited to the interview to maximize the diversity of perspectives, following the phenomenographic tradition. For example, as there were far more boys than girls in Schools 1 and 2, the researcher and supporting teacher jointly selected more girls in School 3 to participate among those who had provided the ethics form.

As a result, data collected from schools varied strongly based on the way in which students were selected. On the one hand, students selected by the teacher at School 1 were on average much more open and talkative than those at Schools 2 and 3. Although the profile of students and schools was very different and it is hard to affirm conclusively that the teacher's selection was a crucial point to define their openness, it is very likely that it played a role. The teacher at School 1 stayed right outside the room where the interviews took place during the entire process. He would accompany every student to the interview and individually present every student to the researcher. It is possible that the constant presence of the teacher, coming back and forth, and reintroducing students to the interviewer was one of the reasons why discussions were on average much longer and students displayed a stronger willingness to talk at School 1. Other aspects, such as the demographic background of School 1, where most of the participating students were boys and all of them had a recent immigrant background, might have also played a role, as previous studies have related masculinity to more talkativeness among students (Leaper and Smith 2004, Coplan et al. 2011). Furthermore, the researcher also being an immigrant and male can also increase the relatedness of children who belong to those same two groups, as the researcher's identity also affects the way the interviews play out.

On the other hand, reliance on the teacher selection of students led to an even more purposeful sampling of students. Although the supporting teacher at School 1 did not openly argue that more talkative or extrovert students were selected, the researcher did in fact have a much more open

conversation with students in that school than in the other two schools. This led to a much larger production and analysis of relevant data, but it also decreased the diversity of conceptions of belongingness across students, as they sometimes mentioned similar experiences and examples. The third conception identified, for example, which pertains to student's feeling of belonging at their school as a force of opposition to another school in the neighbourhood, was only identified at School 1 and primarily by those very extroverted and talkative students.

At School 3, the teacher also intervened in the selection of students, however, it did not lead to longer or more open interviews with students. There was a strong difference between teacher selection at School 1 and School 3. Following the phenomenographic tradition and its need for a purposely selected number of students from diverse backgrounds, the teacher at School 3 was instructed by the researcher to select students from backgrounds that differed from those already interviewed at Schools 1 and 2. The teacher then proceeded to invite a larger number of students who were female, White, and middle-class given that at Schools 1 and 2 most students were boys belonging to ethnic minorities and of a working-class background. The fact that in School 3 demographics, more than closeness with the teacher, was the crucial reason behind student selection may have played a role in the openness of selected students.

School 1
In the first school (in the Northeast of Paris), the contact teacher pre-selected some students he believed would be interested in taking part in the study. As the school is in a more difficult neighbourhood with lower average academic performance, the teacher expected low engagement from most students, so he decided to focus his efforts on inviting those who would be more likely to participate. Of the pre-selected students, eleven responded positively and were invited for the interview. The teacher claimed that there was no particularity or commonality among those students, but, as described earlier, they were disproportionately boys, while the school has a balanced population in terms of gender.

The first school was visited in September 2019 in a suburb in the Northeast of Paris. The school is the only one in its school district meaning that all children in the area studying in public schools are sent there. It is mostly homogeneous in terms of socioeconomic background and origin of students. The vast majority of students belong to the working class and all of them have parents or grandparents born abroad, the majority of which were from the Maghreb or Turkey. Most of the students were not very "academic" or "studious" as described by the supporting teacher, with the notable exception of two girls (Sami and Amira in School 1)[14]. However, in order to have a more diverse

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[14] All student's names are pseudonyms.

group of students participating in the qualitative interview, the supporting teacher invited some of the highest performing students in his class to participate in the interview.

School 2

The second school (in the North of Paris) followed a different approach where students were entirely self-selected. The support teacher circulated the ethics form so children could opt into the research. Only nine students responded positively and could provide proof of parental support for the research. All of the students who showed interest were invited to the interviews and the slots for students were allocated within two days. The second school visit also took place in September 2019 in a suburb just outside of Paris. The socioeconomic background of students in this school was higher than that of School 1, although many students also came from working-class families. In terms of academic background, the level was also higher than School 1, although many students later also ended up going into the vocational track of upper secondary education. Similar to the first school, most students had a recent immigrant background. However, in the case of the second school, there was no regional predominance of students' background. Many of the students in the class had roots in other European countries and some in other continents, including a sizeable South Asian minority. The principal described the diversity of the school as "including children from all over the world".

School 3

The third school (in the West of Paris) was the one where most students had a higher socioeconomic background and academic performance. The visits to the school, which is located in a Western suburb right outside Paris, occurred between February and March 2020. In this context, the teacher circulated a participation sheet, as for the second school, but this time willingness to participate was higher than expected. As a result, the teacher, together with the main researcher, decided on thirteen students who would be invited to the interview. The decision was primarily based on the students' background, trying to create a group of students whose profile and background had not been very present in the previous rounds of interviews at Schools 1 and 2. The idea being, following the phenomenographic tradition, that the interviews reveal a large diversity of perspectives on the phenomenon of study (Bowden 2000).

School 3 was located in a wealthier suburb and had a higher average academic performance and less ethnic diversity than School 2. The school also had a mix of White students, some of whom had recent immigrant backgrounds from other European countries, and students whose families came from North Africa. In terms of socioeconomic status, according to the supporting teacher, most students came from working-class background. He described that despite being located in a richer

area than the other two schools, many of the wealthier students enrolled at the Catholic Private school in the same school district, leaving more working-class students to attend the public school.

4.2.ii Analysis

In phenomenographic studies, interviews are used as data sources, which allow the researcher to create categories of description based on individuals' knowledge and their lived experiences (Marton 1988). In this work, following the phenomenographic tradition, the objects of analysis were: (1) the audio recordings of the interviews, (2) the transcripts identified by the students' main general characteristics, for example, pseudonym, age, grade, and (3) the sheet with the responses that were given to each of the six statements in the questionnaire identical to PISA. The entire interview data accounted for a total of 8 hours and 20 minutes of recordings with each interview lasting for between 10 and 40 minutes. All the recorded interviews were transcribed into Microsoft Word for the analysis.

The main findings presented here are a translation of the original analysis carried out in French. Once the analysis was concluded, participants were also anonymized and given pseudonyms that tried to reflect their origin, social class, and other dimensions that can be conveyed by one's first name. For example, a participant called Mohammed would be renamed Omar and a participant called Julie would be renamed Camille.

The analysis considered simultaneously the audio-recorded and transcripts in an iterative process in which the coding of conceptions came about. During this process, the researcher listened to each recorded interview multiple other times and went back repeatedly to the written transcripts at the same time annotating key impressions and scanning for codes through the identification of statements related to conceptions of belongingness at school. While relistening to the interviews in an iterative manner, the researcher added various notes on the non-verbal information captured during the interactions with students, which were used to complement the literal transcriptions and questionnaire students filled out on the six standard PISA statements for sense of belonging at school. This led to a document containing both verbal and non-verbal interpretations of each interview. Statements' relevance and significance were assessed during the rereading of transcripts based on Sjostrom and Dahlgren's (2002) framework, and the ones deemed more important were highlighted for further examination during the subsequent round of rereading. Afterwards, each highlighted statement was studied individually alongside the audio recording. Various highlighted statements were then contrasted so the researcher could scan for similarities and differences across students and schools. Those converging and corroborating ideas then led to the delimitation of conceptions that appeared repeatedly and strongly in various statements.

The joint analysis of all documents, including transcripts, recordings, and notes, for each student led to the identification of patterns of conceptions used by students to describe phenomena. Those conceptions are complementary (or qualitatively different, as they are called in the phenomenographic tradition) ways in which students understand and defined their sense of belonging at school. Following Sjostrom and Dahlgren (2002), which was presented in Chapter 2, the decision on selection of such conceptions should be based on three main indicators used to evaluate participants' described experiences: frequency, position, and pregnancy.

The confirmation of those three indicators around one idea leads the researcher to identify conceptions. The first indicator, frequency, measures how often a conception is invoked by the respondents. For example, multiple participants made similar statements related to their friends and friendships during the interview. That ensured that frequency was attained. Afterwards, the researcher looked for position and pregnancy across transcripts from participants.

The indicator of position means that the conception is more prominently positioned in the responses, often at the beginning of the sentences. For example, when asked "What does it mean to you to 'belong at school'?", Zoran from School 1 responded placing an immediate emphasis on friendships: "Have friends. You feel part of the school when you have friends. When you have people that you like, not just buddies with whom you hang out, but actual friends you like."[15] Another student in a different school, Natacha from School 2, also positions friendships at the beginning of the sentence and similarly stresses the need for solid friendships. Responding to the same question, she says: "For me belonging is having good friends, real friends, people you can count on. When you go to school and you get along well with the other students, you like the school a lot more." Both students mentioned their friends in the first sentence of the statement, which ensures the criterium of position, as proposed by Sjostrom and Dahlgren (2002). When relistening to the recordings at the moment when those two statements are said, the researcher can confirm that students emphasized the importance of friendships, especially strong/true/solid friendships in various ways.

The third indicator used to evaluate participants' experiences, pregnancy, indicates that a conception is stressed or reinforced in a sentence. For example, after responding to the question, Natacha asked to further clarify the importance of her friends, especially the type of friends she was referring to, which stresses that it is an aspect of the interview that she would be interested in having the researcher fully understand what she meant. Assessing a participant's intention to clarify their statement is particularly important in Sjostrom and Dahlgren's (2002) framework as it further

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[15] Here "friends" is a translation of "amis", while "buddies" is a translation of "pote", which is a weaker form of friendship.

emphasizes a participant's intention to convey certain ideas. Another useful resource to assess pregnancy is the side notes added by the researcher in the transcripts confirm a perceived strength when Zoran and Natacha mentioned their friends. In both cases, in the first round of reading the transcript, the researcher highlighted the statements from the students and added a note "important", to ensure that he would pay particular attention to those aspects when he would be listening over to the interview recordings. As the side notes were added at an earlier time than the identification of conceptions through repetitive relistening and rereading of available data, it further confirms the consistency in the researcher's perception of assertion from the student's statement.

Following the three criteria of frequency, position, and pregnancy, a few provisional conceptions were selected. Afterwards, the exercise of phenomenographic analysis continued and provisional conceptions were reworked in a continuous cycle of reanalysis called reiteration in order to consolidate the main conceptions from commonalities in the data (Rands & Gansemer-Topf 2016). The creation of these conceptions led to the data being rearranged from a division based on separate documents for participants into a new organization based on collective conceptions of phenomenon, which are the three main areas presented in the first set of findings of this research.

The overall aim of the thesis is understanding sense of belonging at school, but within this phenomenon, the analysis looked for two separate analyses to identify its conceptions. The first one was an analysis of the main conceptions used to define sense of belonging at school, which is presented in the third section of this chapter. The second analysis, which is presented in the fourth section of this chapter, led to a discussion of how individual identity is connected to different conceptualizations of belongingness through school, through the description of various lived experiences.

The first set of results uses a phenomenographic approach to delimit the main ways in which students experience belongingness at school. These conceptions of belongingness, derived from careful and repeated analysis of the transcripts and recordings, were also contrasted with the statements used in the PISA dataset to measure sense of belonging at school, which opens a debate on the validity of such questions. The results present three main conceptions, or ways in which students make sense, of belonging: friendships, wellbeing and school identity. Afterwards, those results show some points of congruency with the PISA framework, as well as some complementary fronts that are not present in the statistical analysis.

The analysis for the second set of results consisted of identifying connections between the three conceptions proposed in the first set of results (friendships, wellbeing and school identity) and the different student characteristics shaping their identity. This part of the analysis aims to partially

triangulate the findings from Chapter 3, which is an important advantage of using mixed methodology. For this, the drivers of sense of belonging at school analysed were the same as the student characteristics of Chapter 3, which include school performance, immigration, gender, socioeconomic background, and school profile. However, each of those characteristics was expanded from static seemingly objective characteristics into self-identification of students, as the phenomenographic interviews refrained from using the fixed categorizations available in the PISA datasets. Chapter 3 described immigration background as an example of a category that could be deconstructed. The analysis in the current chapter makes used of a broader definition of ethnic and national identity developed by students, which is connected to immigration background, but in a less essentializing and more flexible manner. To contextualize the expansion of fixed categories for statistical analysis into the students' self-presented identities, the second set of results presented in the fourth section also debates the theoretical background for the need for strategically essentializing categories in statistical works.

After the discussion on the theoretical background of the analysis, the second part of the results identifies ways in which identity and sense of belonging at school play out. The analysis proposes channels through which the student characteristics studied in Chapter 3 and now expanded into broader identities lead to higher or lower sense of belonging at schools. For example, this second set of results explores the connection between a student's gender and their friendships at school, which are a conception of sense of belonging. Some students, both boys, and girls, but especially in the first school, argued that they did not have many friends of the opposite gender. Hamza from School 1, in an unstructured part of the interview following a question on his group of friends, argued: "I don't hang out with girls, they don't laugh at my jokes… They don't laugh at anyone's jokes, they don't like *this* [laughing, jokes]". The researcher follows up asking whether there were any exceptions in the school, but Hamza confirms "No, not really… I don't want to say that they are all like that, but… yes, I don't know a lot of girls who make jokes".

Like many others, Hamza had linked sense of belonging at school to friendships, which led to the identification of friendship as one of the phenomenographic conceptions. After mentioning the conception as a possible meaning of sense of belonging at school, he moves on to describing his friendships and how they are connected to his identity as a boy and other colleagues' identities as girls. This constitutes an example of the analysis carried out in the second part of this chapter, which explores the connection between one's individual identity and their perceived sense of belonging at school. The section provides evidence that sometimes corroborates and sometimes conflicts with the similar exercise in Chapter 3, which presented statistical significance of certain student characteristics and student sense of belonging at school.

4.3 Results – Conceptions of sense of belonging

After interviewing 33 students and analysing the transcripts from the interviews, this first section of results discusses how students define conceptions of sense of belonging and assesses the relevance and validity of statements developed by PISA surveys to measure such phenomenon. The first part of this section proposes a framework of conceptions of belongingness based on the analysis of the interviews. The second part describes the referential and structural aspects of these conceptions, presenting them as part of an outcome space, which is a typical way to organize conceptions in the phenomenographic tradition (Maron 1984).

4.3.i Three main conceptions of sense of belonging

Following the phenomenographic tradition, three non-exhaustive conceptions were defined in the analysis that followed the interaction between participants and the researcher through the interview. The analysis of the recordings, their transcripts, and the notes taken during the interview resulted in the identification of a series of tentative conceptions that were common to many students in the way they describe the phenomenon of belonging at school. Unlike in the quantitative chapter, where this work tried to identify student characteristics that boost or decrease sense of belonging in schools, the conceptions identified here are not contributors to sense of belonging, but ways in which students make sense of or understand belongingness.

Following the approach developed by Rands and Gansemer-Topf (2016), this work suggests a number of non-exhaustive ways in which students identify their belongingness in the schools they attend. In the first step of the research, these various ways are identified, while in the second step they are combined into a set of conceptions. In this second step, the analysis of the data collected in the interview process and later transcribed led to commonalities in the description of conceptions of sense of belonging at school being combined within three major conceptions: friendship, wellbeing, and school identity. Those coincide with each sub-section below presenting one of these three conceptions, as well as the way the data collected led to their delimitation. Table 13 below illustrates the outcome space of the three identified conceptions of sense of belonging at school.

The outcome space of a phenomenographic study contains structured categories of description, or conceptions, of the phenomenon under study (Jarvinen 2004). As explained before, such conceptions are qualitatively different, or complementary, ways in which the phenomenon is experienced by participating students (Marton 1994).

Table 13 Outcome space showing conceptions identified in the phenomenography

1	Having friends at school

2	Perceiving high wellbeing when at school
3	Feeling proud of being from this school as opposed to another one

In reference to the theoretical framework of this thesis, it is worth noting that the first and third conceptions of belonging, friendship, and school identity, are based on a more sociological understanding of sense of belonging at school, in a tradition more strongly linked to Goodenow's (1993) framework as well as subsequent literature (Anthias 2002, Chin 2019). The second conception, wellbeing, is described in this work as part of a physical state of mind even though it is influenced by social phenomenon. This understanding draws similarities with other works studying sense of belonging at school (Anthias 2002, Yuval-Davis 2006, Allen and Bowles 2012).

It is worth noting that during these interviews, many students did not give the impression that sense of belonging at school is something they think about very often. Although a substantial discussion on sense of belonging did take place, it was strongly encouraged by probing questions and the short PISA questionnaire. When the interviews started, many students often seemed surprised to be asked questions about their sense of belonging, giving the impression that it was not an area they would have reflected on in the past.

Having friends at school

In all three schools, most students interviewed primarily linked belongingness to friendship building. When asked about what they understood by sense of belonging at school, students often referred to their friends and to being surrounded by peers. The conceptualization of belongingness as being part of a group of friends was directly or indirectly present in almost all interviews as shown in Table 14 (eight of eleven students at School 1, all nine students at School 2, and ten of thirteen students at School 3). Friend networks were consistently described as the main examples of how their sense of belonging at school unfolded. While describing their thoughts on sense of belonging at school, students referred in various direct ways to the importance of "having friends", "being surrounded by friends", "be close to friends" and so on, as an example below shows:

> *You belong at school when you have friends. Me, I do, I have my brothers here (…) When I say friends, I mean my friends, I don't mean all my colleagues. I have plenty of colleagues I like, but my friends are my real friends[16]. (…) Like who? I don't know, Hamza and Adel are my brothers[17]. (…) And you know if you don't have real friends then you don't want to go to*

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[16] Real friends here is counterposed with "just friends".
[17] Used here metaphorically to mean "friends" not "siblings".

school because school is annoying, classes are annoying, teachers are annoying, I mean, not all, but a lot are annoying. Yassine, School 1

A few students also put emphasis on the strength of the friendships they were describing. Natacha, for example, mentioned: "For me belonging is having good friends, real friends, people you can count on. When you go to school and you get along well with the other students, you like the school a lot more." In fact, many students stressed that the friendships they were referring to were not from any colleague, but those they had a really strong bond with. Yassine in the example above clearly distinguishes and opposes "real friends" from "just friends". When asked to clarify what made some colleagues his real friends, Yassine is quicker to point to who his friends are, citing Hamza who was interviewed right before him, and a few other boys who did not participate in the interview. For him, the strength of the friendship and the difference between "real friendships" and "buddies" were clearer than the way in which such friendships came up. Other students found other ways to distinguish between weaker and stronger friendships. Kevin at School 2, for example, mentions his "friends, friends" and "true friends" as opposed to "just friends". Mehdi, also at School 2, also refers to the "true ones" contrasted with "the others".

> *Yes, of course, the more guys you know the better. You're not lonely during the break, you don't go back home on your own… But the important to have friends, friends (…) well, the others are just friends, they are just there and that's all, you can't count on them for everything.* Kevin, School 2

Table 14 Conceptions of belonging 1 – Friendships

Conception	Expressions	Number of students			
		School 1	School 2	School 3	Total
Friendship	Having friends	8	9	10	27
	Having/being with people you can count on	7	6	6	19
	Having real friends/good friends	7	5	4	16
	Being surrounded by people you like	4	6	6	16
	Being friends with teachers	0	0	2	2
	Total	8	9	10	27

Friendship, as a conception of sense of belonging at school, is in line with several previous works. Delgado et al. (2016) highlight the importance of friendship in the building of sense of belonging at school in Latino communities in the United States. They found that being nominated as a friend by peers boosted school belonging in almost all sub-groups of Latino students. They also suggest that

friendships are an even more important concept of sense of belonging among the most marginalized Latino communities. Goodenow and Grady (1993) also link friendships to sense of belonging and show, in particular, that friendship building, especially whenever those friendships value school success, is one of the channels, or mediators, through which sense of belonging impacts academic outcomes. More broadly, friendships can also be a manifestation of how connected students feel to their environment and how large their social capital is. As shown in Chapter 1, both connectedness and social capital have been identified as lenses to understand belongingness (Libbey 2004, Juvonen 2007, Allen and Bowles 2012, Riley 2019).

Given the importance of developing a cohesive group of friends to sense of belonging at school, the way in which such friendships come about and are maintained was further scrutinized in the interviews. Students described various ways in which their friendships emerged. Some met their friends in extra-curricular activities, such as football and boxing (which was the case for five of the eleven students interviewed at School 3). Others have known their closest friends from being in the same class from a very early age and some argue that their friends are children of their parents' friends. For example, participants Natacha and Priscilla knew each other already because their mothers were already friends "in the 93"[18],[19]. These are clear examples of ways in which student experiences that enhance their feeling of connectedness and their social capital at school lead to the establishment of new friendships, which is a key conception of belonging.

An interesting common aspect around which friendships emerged is sense of humour, which is intimately connected to social capital and shared values (Nevo et al 2001, Sukor et al 2019, Pester and Kim 2021). Various students, all of whom were boys, pointed out to having friends with whom they can laugh together or have the same "interests" *(délires)*[20]. Mehdi argued that he's "not friends with people who don't get jokes" and that his friends "are not book smart, but have to make smart jokes". Among those common interests, several sports were cited, but also comic books, similar TV shows and, in the case of a few students, their relationships with girls. Students at School 1 were particularly open to mentioning sense of humour as a uniting force for them. Of the seven male participants of the study in the school, six mentioned directly or indirectly that they appreciated being surrounded by friends who make jokes or laugh at the right jokes.

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[18] Acronym for the department where the school is located. All French departments are numbered, the 93rd is Seine-Saint-Denis.
[19] The 93rd department has a population of over 1.6 million so there is no risk to anonymity here.
[20] The actual word in French is "délires", which literally translates to "delirium" or "hallucination", but it is also a slang to refer to one's interests.

The link between sense of humour and sense of belonging has been established by previous research, in particular through the creation of social networks and shared values. In an ethnographic case study of a secondary school in Southern England, Pettigrew (2007) argued that sense of humour was a way through which some students reflected their social, economic and cultural power. She also argued that navigating the line between humour and offense, and between jokes that are funny and defensible, and those that are not, was a mechanism for students in the school to maintain their grouped identities. Cruthirds (2006) provided a review of several observational studies connecting sense of humour with the creation of social capital through social relationships and a sense of community. In the specific case of university students in Malaysia, Sukor et al (2019) concluded that sense of humour, and specifically self-enhancing sense of humour, was one way through which sense of belonging to a group emerged. Corroborating Cruthirds' (2006) findings, Hester (2010) argued that a joint sense of humour can help a group, community, or, in the case of these interviews, a school become more cohesive and overcome a possible or imagined external threat. In School 1, the external threat described by students was the other school in the neighbourhood, which is explored as the third conception of belonging at school.

Very few students directly pointed out their ethnic community as being a source of friendships. One exception came from two students at School 1, who openly mentioned that they hang out with other "rebeu", which is slang for "Beur", which is a term often used by communities from North Africa to refer to themselves. Nonetheless, oftentimes when students name their closest friends, the given names they enumerate come from similar religious origins. For example, Zoran, who is of Kurdish heritage claimed that his friends come from "all over the place", although after naming a list of six among his closest friends all had Muslim names. Zoran claimed to have no "French" friends, which is an unfortunate way in which many students would describe their White colleagues, associating Frenchness and whiteness. As there are very few White students at School 1, it is not surprising that Zoran did not have many White friends.

Perceiving a high wellbeing when at school
Confirming several previous studies (Millings et al. 2012, Tian et al. 2015, Choi 2018), many students across the three schools pointed to a conception of belongingness at school as "feeling well/good" or "feeling at ease" at school. The students interviewed did not develop much about what their definition of wellbeing was beyond a general satisfactory state of mind. When asked to further describe what they understood by the "feeling good" that they put forward as a definition of sense of belonging, many students would say that "it is hard to explain" or alternate between synonyms such as "feel well", "feel at ease" or "feel comfortable". Despite the simplicity of such claims, the link between sense of belonging at school and general wellbeing while at school was very frequent

across interviews. Several students in the three schools pointed to just a positive state of mind as being what sense of belonging means to them (six students at School 1, six students at School 2 and ten students at School 3).

> *To belong (appartenir) and feel part of (se sentir partie) is the same thing… A-part-tenir, par-tie… When you belong somewhere you are part of that place. As of the school it is the same (…). And we feel part of it when we are happy being here, when we feel good. The days I am feeling good, I am happy to go to school and I belong (…) Yes, right, then the days I am not feeling good, I will not belong… At least not the same way, I won't feel like I am part of it.*
> Priscilla, School 2

Some students went beyond the seemingly simple understanding of wellness and tried to provide more thorough explanations. Priscilla, for example, when asked about how she defined belonging at school, quickly responded "it's to feel well when you are at school". When asked for further clarifications of what "feeling well" meant, she stops and then breaks the word "belonging", which is "appartenance" into "being part", by conclusively saying "feel well is when you feel like you are *part* of the school", stressing on the "part".

Various other expressions were used to describe this perceived wellbeing as a way in which students made sense of belongingness. Although the most common expressions to describe it were "feeling good" and "feeling at ease", some students also described wellbeing in other ways. For example, Imane, at School 1, immediately responds to her understanding of belonging as being "have no problems", "having no headache with anyone, colleagues, teachers, nobody".

> *To me when you belong you have no problems (…) It means that you have no headache with anyone, colleagues, teachers, nobody. (…) It means that school is easy, things go smoothly. And then when you don't belong is when you get annoyed all the time, colleagues annoy you all the time, you get into fights, you are not well. That means that there is something there, you're not well.* Inane, School 1

Table 15 Conceptions of belonging 2 – Wellbeing

Conception	Expressions	Number of students			
		School 1	School 2	School 3	Total
Wellbeing	Feel well/good	6	6	10	22
	Feel at ease	6	5	10	21
	Feel comfortable	4	6	9	19
	Have no problems when at school	2	0	1	3

	Motivated to go to school/want to go to school	0	1	2	3
	Total	6	6	10	22

Several papers have pointed out such a link between belongingness at school and life satisfaction or general wellbeing. As shown in Chapter 1, Allen and Bowles (2012) discuss several definitions of school belonging across time, including psychological and sociological standpoints. They conclude that student wellbeing, which in this thesis is understood as a psychological state of mind often influenced by social context, is often presented as one of the major overlying concepts around sense of belonging. Various other works have also linked life satisfaction as a defining concept of sense of belonging (Gilman and Anderman 2006, Millings et al. 2012, Tian et al. 2015). More empirical works relying on direct participant interviews also concluded that happiness is the strongest driver behind sense of belonging (Sharma and Malhotra 2010). Nonetheless, it is important to note that the direction of the relationship between happiness and sense of belonging is hard to assess as both things tend to go hand-in-hand.

More importantly, this conception is intimately connected with findings from Chapter 3 where life satisfaction appears, together with academic performance, as one of the variables most correlated with the six metrics of sense of belonging at school. This means that the way students make sense of their sense of belonging at school through this conception is aligned with the importance that wellbeing, measured as life satisfaction, has on quantitatively explaining sense of belonging in the PISA dataset.

Feeling proud of being from this school as opposed to another one
One conception of sense of belonging at school appeared among quite a few students at School 1, although not present in the other schools, is a strong sense of school identity, especially in contrast with another school or feeling proud of being from this school as opposed to another one. Table 16 shows that five boys in that school pointed to another, more surprising, conception of sense of belonging at school. For those students, the idea of belonging at School 1 was created in opposition to another school, referred to here as "the other school", located in the adjacent school district located in a nearby suburb. According to those students, their belonging at School 1 was strongly driven by their difference in relation to students at the other school. There was a strong sense of pride in belonging at School 1 and being different in various ways from those in the other school.

Although students from School 1 and the other school do not necessarily see each other often, the animosities between students in those two lower secondary schools are grounded on symbolic

differences carried out through generations and family links, given that students from both institutions end up attending the same upper secondary school. A few of the students had older siblings or other family members who were already attending upper secondary education and informed them about the irreconcilable differences they have with students who originated from the other lower secondary school.

> *No, I haven't met anybody from (other school). I don't hang out with them (…) Well, I know of them. My brother is now in school (lycée) with a bunch of those guys. (…) Yes, I know it from my brother, but I also know it from everyone, we all live very close, so we see them all the time. When I see them walk around, I know who they are, I recognize them (…) Yes, of course, they know me where I am from. And it suits me well, I like to be from School 1, I like to be from the cité. You know, it's their business if they don't like us, I'm fine with them (…) We don't hang out, no, but I'm fine with them, I don't mind them, I'm just not like them.*
> Farid, School 1

Yassine moves quickly into summarizing the dynamics with the other school:

> *"We are not like them. The kids from the other school are the children of the rich, while we are from the cité[21]. So, we see them weirdly and they see us weirdly. So, we stay amongst us and they stay amongst themselves. […] They don't have the same interests, they don't like football, they are hung up. Even the way they dress up… One would say they stayed behind in the 1800s."*

Table 16 Conceptions of belonging 3 – School identity

Conception	Expressions	Number of students			
		School 1	School 2	School 3	Total
School identity	(We are) unlike the other school	5	-	-	5
	Being part of the school is not being part of the other school	5	-	-	5
	Not being weird/hung up	5	-	-	5
	Having sense of humour	4	-	-	4
	Not being rich/spoiled	3	-	-	3
	Total	5	-	-	5

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[21] The term originally referred to slums, but it is now used to refer to most working-class neighbourhoods in the outskirts of larger cities.

Several of these differences were described simultaneously by some students. Some claimed that students in the other school are slightly richer than the ones at school 1, as described by Zoran "in relation to France they are normal, but in relation to the 93 [French department where both schools are located] they are rich". Interestingly, one participant argued that students from the other school were "too shy" (Zoran), while others (Hamza and Yassine) described the same students as being "too talkative", unlike themselves who would talk "when needed". Four of the five participants who described the disagreement with the other school also described students from the other school as lacking sense of humour, which was one of the main drivers of friendships, as described in the previous section. In this sense, the assertion of identity comes from a sense of othering, meaning that one's feeling of being part of a group is asserted through things they oppose or are not a part of in the outside group, for example, students without sense of humour or who are too shy. The idea of "getting the joke" was also explored in Pettigrew's (2007) ethnography where she shows that students developed their own hierarchy of how problematic or offensive some jokes are, and consequently to which extent jokes are seen as funny by the group. In that context, close friends are often those who can "take" or "appreciate" similar jokes.

Yassine also argued that part of their pride in belonging at School 1 is that they were perceived as "violent" by students from the other school when students from both schools would start upper secondary education together. Although the participant argues "we [students from School 1] are never violent" he was comfortable and proud of the idea that coming from School 1 would scare off students from other schools once he started upper secondary education with them. This is also interesting given the ethnic composition of both schools, as School 1 had an overwhelming majority of students with origins in North Africa, while the other school was mostly White, according to the supporting teacher. In this sense, there is a clear relationship between the perceptions of Yassine and the link Debarbieux (1998) saw between ethnic designation in France and the risk of violence. His research showed a clear link between a threat of violence and perceived foreign-ness. Debarbieux (1998) identified a connection in various areas of society including the media, political life, and schools where ethnic designation was associated with supposedly violent behaviour.

Although there were clear ethnic lines dividing students from School 1 and from the nearby other school, only one student (Farid) described students from their rival school as belonging to a different ethnic group. The student referred to children of the other school as "all Jewish", which is quite surprising. He argues that: "They are Jewish, they don't like the Arabs and the Black, and most of all they don't like the people from [his city's name]. It's a city of Jews, the teachers are also Jewish, that's why they are rich". Although France does not collect data on ethnic or religious background, there is no evidence of a sizeable Jewish community living in the suburb where the other school is

located and even less so of a high number of Jewish children attending the local public schools. The association of Jewish communities with wealth and anti-Semitic discourse by students in public schools are areas already covered by the literature (Dhume-Sonzogni and Lorcerie 2007, Fourquet and Manternach 2016). In the context of sense of belonging at school, this link between friendship with colleagues and hostility towards non-colleagues in other schools from other presumed ethnic backgrounds is in line with the findings of Delgado et al. (2016), who highlight the importance of friendships among Latinos as a driver of otherization of students from other communities in other schools.

Furthermore, such feeling of belonging to a given school is also connected to geographical belonging to a given neighbourhood, as although both schools are located in the same French department (county), each of them is in a different neighbourhood with different socioeconomic and demographic characteristics. In this sense, sense of belonging to school also has dimensions of sense of belonging to a community and a neighbourhood.

The idea of an enhanced sense of membership to one school as opposition to another school was already theorized in the construction of social networks and sense of community as one of the concepts around sense of belonging at school (Allen and Bowles 2012). In contrast, this thesis illustrates an empirical situation where students describe their sense of belonging based on their opposition to another school.

Similarly to the conception of friendships, school identity is also grounded on a sense of connectedness with the school environment and the other individuals that are part of it, which has been a common lens to understand belonging (Juvonen 2007, Allen and Bowles 2012, Riley 2019), as shown in Chapter 1. This conception of belonging shows an alignment between a student's individual identity and that of the school's collective identity. The feeling of being from a school with its own broader socio-ecological contexts emerges from the relationships students have with their peers at these schools, which confirms that the school environment, more than the school characteristics is what is driving their sense of belonging (Ma 2003).

Such findings also reinforce the notion that the social group students belong or do not belong to at school is not necessarily constituted of known individuals. The concept of imagined communities developed by Anderson (1983) and then applied to the school context by Stables (2003) finds strong grounding in these findings, in the sense that the refractory forces opposing students from School 1 with those from the other school are not grounded on actual knowledge students have of each other. In fact, those five boys at School 1 perceive their membership to the social groups and formed

their school sense of belonging as a social identity that is in sharp opposition with the membership of other schools formed by social subjects that in many cases they have not yet met.

School environment, more than school characteristics such as the socioeconomic background of students, has strong policy relevance as it is an area where teachers can act to reproduce conditions that work better to boost student sense of belonging. Although fostering inter-school hostility is not a conceivable way to enhance sense of belonging at school, teachers can act to help align students' individual identities with the perceived collective identity of their school as a way to foster sense of belonging.

4.3.ii Referential and structural aspects of the conceptions

Phenomenographic tradition typically organizes the conceptions within an outcome space, with respect to their inferential and structural composition (Marton 1984). Such organization is important in the presentation of the research as it helps the reader make sense of where the identified conceptions stand, in relation to one another. An outcome space is a graphic representation, such as the one below, which describes the hierarchically structured categories describing the phenomenon (Järvinen 2004), which in this case is the sense of belonging at school. Mapping the conceptions in such an outcome space facilitates their presentation and understanding.

Table 17 below describes how the three conceptions of belonging identified in this thesis fall into structural and referential terms. Structure refers to how the outcome is arranged, and reference refers to what the outcome is about (Marton 1988). The structural aspects of a category refer to features given the foreground where the conceptions were identified, while the referential aspects are delimited by students based on where the focus of their meaning-making process was (Marton and Pong 2005). Such outcome spaces are of crucial importance to phenomenographic analysis as they graphically express the ways in which a phenomenon can be experienced (Marton 1986).

Table 17 Structural and referential aspects of the conceptions

Structural	Referential	
	Student-focused	School-focused
Psychological foreground	Conception 2 (Wellbeing)	
Social foreground	Conception 1 (Friendships)	Conception 3 (School identity)

In this table, describing the outcome space in this thesis, there are two structural features: psychological and social. Psychological conceptions are those identified by students as states of mind felt by them, such as general wellbeing, which is a feeling, or an emotion described by students. In contrast, conceptions that emerge in a context of interaction with others, such as students and

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teachers, occur in a social foreground. Friendships and the concept of school identity necessarily occur outside a student's own personal feelings and need a social context to operate. In terms of referential aspects, some conceptions are student-focused, where the main features defining them are part of who students are, for instance, their personal wellbeing or their relationship with other students. In contrast, school identity is a conception with a school-focused referential, meaning that the school they attend is the main aspect explaining this conception.

The identification of conceptions that are both psychological and sociological builds on the main features of the definition of belonging conceptualized in the theoretical framework of this thesis in Chapter 1. The psychological understanding of belonging starts with Maslow (1954) and is often described through the lenses of safety (Ma 2003, Richmond and Smith 2012, Oscon et al 2017, Strayhorn 2018, Miles and Richards 2019) and linked to general wellbeing (Gilman and Anderman 2006, Millings et al. 2012, Tian et al. 2015, Choi 2018). In turn, the sociological nature of belonging echoes the theorization of belonging as connectedness and its link with social networks (Rosenberg and McCullough 1981, Baumeister and Leary 1995, Strayhorn 2008, Allen and Bowles 2012, Ahn and Davis 2020).

The first conception follows a sociological structure of belonging based on the student's interactions with each other. The third conception also occurs within human interactions and is hence placed as part of a social foreground structure. In contrast, the second conception, wellbeing, defines belonging as a positive psychological state and was then included as part of the psychological foreground. In regard to the referential, in both conceptions 1 and 2, the student themselves is where sense of belonging is perceived, while in conception 3, the focus is on belonging that is centred around the school.

The visual presentation of conceptions is an important way to present results in phenomenography (Marton and Pong 2005) as it helps understand the main features of conceptions and how they relate to each other in terms of their foci or foreground. In this sense, the phenomenographic identification of conceptions in this work offers a way to emphasize and present the interactions between psychological and sociological aspects of sense of belonging at school.

4.4 Results – Validation of the PISA questions

Following the proposition of three main conceptions of sense of belonging at school using phenomenographic analysis, this section qualitatively assesses the validity of the PISA questionnaire from where the quantitative data originates, which uses a pre-existing framework with six dimensions of sense of belonging at school. The concept of validity, in logic, generally indicates how sound a piece of research is, considering its design and the methods used to draw conclusions (Moskal et al. 2002). Specifically, in the discussion around statistical data collection, the validity of data measures how much the findings put forward actually represent the phenomenon they intend to measure. Here the interviews were assessing to which extent statements provided to students in PISA actually measure belongingness. For this, as described in the methodology and the interview protocol in the Appendix, at the beginning of the interview, students were presented with the part of the PISA questionnaire where six statements on sense of belonging at school were described. Students then filled out the questionnaire and then were asked whether they had any questions or any difficulties understanding each item.

As explained in Chapter 3, questions used to measure belonging at school in the PISA questionnaires were largely based on Goodenow's (1993) framework, which was discussed in Chapter 1. The framework for research developed by Goodenow (1993) was named Psychological Sense of School Membership and it consists of a series of statements provided to children, where they should agree or disagree with each of them. The responses to the statements provide guidance in understanding which children feel they belong at school and which ones do not. The framework proposes six dimensions of sense of belonging at school, each of which is measured by one statement to which students are asked to agree or disagree. During the questionnaire design phase, as shown in Chapter 3, PISA questions on the student background questionnaire go through several layers of quality assurance, including discussions with country-level experts for guidance in the adaptability of questions to the national context, cognitive testing and translation (OECD 2019). As a result, PISA questions in their design already contain preconceived definitions of what belonging at school is (or what it should be). The purpose of interviews is exactly to move this definition of belongingness from the researcher to the student, by identifying qualitatively different ways in which students make sense of the meaning of sense of belonging at school.

4.4.i How much students understand from the questions?

An important aspect to highlight in the validation of the questionnaire is that the framework proposed by PISA was conceived and tested in English, while it was actually applied to students in the different languages in which the test was available. As a result, all students sitting PISA tests in

France were given a French translation of the original English framework, which is shown in Table 18 below. Unlike all other national languages, the translated test also went through cognitive testing in Spanish and French, which should ensure comprehension of the questions asked. As the questions went through cognitive testing, the translations were not all literal, as they also took into consideration the iterative learning process of feedback on the first rounds of administration of the questionnaire. The table below shows the official translation of each statement from the PISA survey used in French schools where the test took place, as well as in the qualitative interviews analysed here.

Table 18 Translation of PISA statements on sense of belonging

Question	English	French
1	I feel like an outsider at school.	Je me sens comme un étranger (ou hors du coup) à l'école
2	I make friends easily at school.	Je me fais facilement des amis à l'école
3	I feel like I belong at school.	Je me sens chez moi à l'école
4	I feel awkward and out of place in my school.	Je me sens mal à l'aise, pas à ma place dans mon école
5	Other students seem to like me.	Les autres élèves ont l'air de m'apprécier
6	I feel lonely at school.	Je me sens seul à l'école

Of the six questions, three were translated literally (question 2, 5 and 6). The other three questions, in turn, were rephrased during the translation and have non-identical semantic value. Question 1 translates "outsider" as "étranger", which means "foreigner" more than "outsider". Furthermore, the translated question adds the expression "hors du coup", which translates to "off the pace" or "miss out", to clarify what is meant by "étranger". The translation of Question 3 is not very literal either. Although the whole section in the PISA survey on "belonging" is translated as "appartenance", which is a literal translation, the specific question about "feeling like one belongs" is translated as "se sentir chez soi", which is a literal translation of feeling at home, more than "feeling like one belongs". Finally, Question 4 translates "awkward" as "mal à l'aise", for which a more literal equivalent would be "uncomfortable".

As shown in fourth section of Chapter 3, the third statement "I feel like I belong in school" is the one driving a lower internal reliability across statements of belonging in France, which means that students respond more negatively to that statement when they respond positively to the remaining

five statements and vice versa. It is likely that although the translation seems problematic in three statements (I feel like an outsider at school, I feel like I belong at school, I feel awkward and out of place in my school), the impact on the responses received can be higher for the third one.

The interviews helped qualitatively assess how students understand the questions they responded to in the questionnaire and to which extent these questions actually measure their sense of belonging at school as they intend to. For this, as described in the interview design section, students were encouraged to explain the rationale behind filling out the questionnaire in a certain way. In the context of this work, interviewees were asked to discuss how they understand the questions asked within the statistical analysis to a representative sample of students in the country. The interviewees were given the chance to clarify to which point students actually understand a questionnaire in order to provide answers that allow for measurement of the phenomenon the questions describe.

In many cases, students could fill out most of the questionnaires easily. However, quite a few later inquired about two questions for which the translation was not literal. Several students had a hard time understanding question 1, particularly the expression "hors du coup", which quite a few at Schools 1 and 2 were unfamiliar with (only four students at School 1 and six students at School 2 did not ask what the meaning of the expression was). The expression would be translated in English to something in the lines of "out of sync" or "out of the loop" or "outsider", conveying the idea of oddness. Despite the uncommon use of such expression in daily language, and unlike School 2, only two of the thirteen students at School 3 asked about the meaning of such expression to understand the question.

Another contentious aspect of the official translation of question 1 in French was the use of the word "étranger", which means both "foreigner" and "outsider". A few students in all three schools who provided inputs on question 1 inquired about what "feeling foreign" meant, a few of which actually understood the question as "feeling like a foreigner". Priscilla at School 2, for example, argued "I don't feel like a foreigner, I'm French". Another, Kevin, also at School 2, was even more emphatic saying "I *cannot* feel like a foreigner". Even at School 3, where students generally asked fewer questions while they were filling out the questionnaire, four students asked about the meaning of "foreign" in such a question.

> *How come "feel like a foreigner"? I don't feel like a foreigner, I'm French (…) Yes, but even at school, somebody is a foreigner if they are not from here, there is no reason for anybody to feel like a foreigner at school if they are not a foreigner.* Priscilla, School 2

Question 3 also created unexpected confusion among a few students. Marie at School 3 for example questioned the nuance between feeling like you belong somewhere and being positioned somewhere. Although this was the only student to clearly make a connection to school and home as if the perceived belongingness in both spaces should be the same, other students stopped to ask why it meant to be "at home". Samia from School 1 also mentioned "I feel at home when I'm at home, why would I feel at home when I'm at school". Such confusion raises questions about how idiomatic the expression "feeling at home" in French is to describe sense of belonging at school.

> *Feeling at home at school? What does it mean feeling at home? Does it mean that if I don't feel good at home then I don't feel good at school and then if I do feel good at home then I do feel good at school? (…) Yes, but school isn't supposed to be home and home isn't supposed to be school… I mean, to me it makes sense to feel at school when you're at school because that's where one is. No? (laugh).* Marie, School 3

It is important to note that for the three questions (question 1, 3 and 4) where students presented difficulties understanding the meaning, more students at School 1 asked for clarifications than in the other two schools. At School 3, which is the one where students have a higher socioeconomic background, most students could fully understand all questions despite a few eventual comments and clarifications.

Another important aspect of the data collection that pertains more to the definitions and sentences used and to the nature of the test is how students filled out the form. Many students marked the same response (agreeing strongly to statements describing inclusion and disagreeing strongly with statements describing exclusion) for all six questions without really paying much attention. This was particularly the case at Schools 1 and 2, and less so at School 3, as shown in Table 19 below.

Table 19 Percentage and number of students by number of statements where they report belonging at school

	PISA dataset	School 1	School 2	School 3
Less than 4	35%	18% (2)	11% (1)	31% (4)
5 statements	39%	18% (2)	33% (3)	31% (4)
All 6 statements	26%	64% (7)	56% (5)	38% (5)
Total	100%	100% (11)	100% (9)	100% (13)

Interestingly, the descriptive statistics from the representative dataset show a different picture. The table above reports the percentage of students who agreed with each number of statements reporting belonging. For example, in the PISA dataset with representative data for the entire country, only 26% of students responded that they belonged at school in all the six statements they

were presented with. Another 39% showed that they belonged in five of the statements and the remaining 35% only confirmed belongingness through 4 or fewer statements. Data collected from the schools using the exact same questionnaire was very different. Table 19 shows the percentage as well as the number of students who agreed with each number of statements. Almost two out of three students at School 1, for example, marked that they belonged at school in every one of the six statements, a much higher rate than in the country's results.

As the schools selected for the phenomenography are not representative of the entire country, it is perfectly normal that the responses in such schools differ from the national average in the PISA questionnaire. However, it is reassuring for the quality of PISA data to see that the experience of the researcher in schools where students very quickly respond to questions often marking the same answer is not statistically observed in the PISA data collection, where students responded in a test-setting rather than an interview.

One of the main reasons for more consistently responding in the same way in the first school could have been that students there interpreted the questionnaire as being a test although it was clarified by the researcher that it was not the case. Another possibility could be that students were shy and reluctant to show areas where they did not feel like they belonged at school. Additionally, students can take more time to respond to a questionnaire when they sit in class waiting for a test than in a face-to-face interview with a researcher.

Finally, one more important situation could be that students who were less academic, such as those at School 1, also spent less time reading the questions and would mark them in a more consistent or less critical way. However, the quantitative analysis showed the opposite as students who scored better in PISA also had higher levels of reported sense of belonging at school.

4.4.ii How the conceptions of belonging from the interviews compare to PISA?

Of the three main conceptions of belonging inferred from the interviews, the one most strongly linked to the PISA framework is friendships. Three of the questions on the PISA framework refer directly to friends as a metric of belongingness at school, such as "I make friends easily at school" or indirectly like as in "Other students seem to like me" and "I feel lonely at school", to friends as a metric of belongingness at school.

The other two conceptions of sense of belonging at school put forward by students are not directly captured by the PISA framework. General wellbeing is not captured in that part of the questions on sense of belonging at school as there is already a module that collects data on perceived wellbeing using a similarly crafted framework based on statements students agree or disagree to. Although the

fourth statement in PISA, "I feel awkward and out of place in my school", could be understood as a negation of wellbeing at school, feeling of awkwardness or exclusion are not exactly a simple lack of wellbeing, which would be closer to "unhappy" or "dissatisfied".

The last conception identified by students is clearly much harder to capture as part of a standard questionnaire. It is difficult to imagine what kind of statements would one ask students in order to identify animosities with a different school that would push them into further feeling part of their home institution. Furthermore, it is not necessarily a beneficial driver of school belongingness to aim for students to contrast their school with another one, or to otherize students attending another institution, especially if they are presumed to belong to another ethnic group. Although this conception of belongingness identified in the interviews was an important component in understanding some students' own explanations of the strength of their sense of belonging to school, PISA surveys are policy-oriented and enhanced belongingness of students should not come through the otherization of other students or schools.

In this sense, the conceptions developed in this exercise are partially aligned with the ones proposed by the existing PISA framework. There are notable differences in the relative importance given to friendships, although they were already present in some sense in half of the statements proposed by PISA. The other two conceptions proposed are not aligned with PISA data, but there are quite a few examples in the qualitative literature on the issue that confirm students conceptualising belongingness at school in terms of wellbeing and school identity in other contexts. The identified conceptions suggest that there is room for reviewing and enhancing the PISA questionnaire in other ways to more fully capture sense of belonging, including for example wellbeing.

4.5 Results – Connecting student identity and their sense of belonging at school

Following the interview of 33 students in three schools in the metropolitan area of Paris, the previous section of this study proposed three qualitatively different conceptions of sense of belonging at school. This section discusses the connections between a student's individual identity and their sense of belonging at school. The investigation of those connections in some way triangulates the quantitative analysis of PISA data presented in Chapter 3, investigating the main characteristics connected to sense of belonging using statistical inference. For this reason, several student characteristics analysed here are the same as the ones drawing from quantitative evidence coming from the PISA dataset, namely school performance, gender, immigration, socioeconomic background, and school characteristics. Nonetheless, the student characteristics used for statistical analysis are enhanced into various ways in which students identify themselves within the areas previously defined as their characteristics. This second set of results further discusses the students' sense of belonging exploring students' own personal identities, which are expanded from the main student characteristics used in the quantitative analysis. While during the statistical exploration of PISA data students' characteristics were based on how they responded to a questionnaire with fixed options, the interviews allowed students to freely describe and identify themselves. These results show how certain aspects of one's identity are related to the way sense of belonging at school is formed, linking individual and collective identity with sense of belonging, and also how these traits enhance or decrease one's perceived sense of belonging.

This section presents how students' identities and their personal characteristics can play out in determining their sense of belonging at school or their perceived exclusion from school. In particular, this section investigates the links between the three qualitatively different conceptions of belongingness at school identified above and each student characteristic. It also considers the impact of each link on overall sense of belonging at school. In this sense, impact measures not only a certain characteristic increasing or decreasing sense of belonging at schools, as in Chapter 3, but also how those characteristics shape sense of belonging. For example, the findings show that although gender plays a constitutive role in the way sense of belonging is constructed through its conception of friendships, it does not lead to higher or lower overall belongingness.

To further investigate how these dimensions help shape, enhance or decrease sense of belonging at school, each of the drivers of sense of belonging at school presented in Chapter 3 is further evaluated and examples of experiences from students that further describe those generalizations are presented (Simons 1996). Part of this includes the process of triangulation of findings between two epistemological schools described by Plowright (2011) and explained more in detail in Chapter 2, while it is also expanded in the sense of increasing dialogue between the results. This means that

the analysis from the semi-structured phenomenographic interviews presented in this chapter further discusses similar questions as those presented in Chapter 3, while capturing the complexity of participants' views about sense of belonging, which would not be possible with objective questionnaires. This study, which started with a statistical analysis providing nationally representative positivistic findings, moves onto a discussion about data collected in qualitative interviews that illustrate the specificities of how some students feel in relation to their school.

The quantitative work provides a statistically coherent narrative of sense of belonging at school that can be generalized for all students in France. Nonetheless, as mentioned earlier, generalizations inevitably fail to fully describe the diversity of human behaviour, which is much better illustrated by qualitative investigation than statistical generalizations. As a result, qualitative interviews help develop new concepts, as well as analyse and describe individual behaviours and characteristics. It also helps verify to which extent statistical findings apply to individual cases. Despite working as a partial triangulation given that some research questions in both parts are similar, this section brings up different assumptions and objectives than the findings presented in Chapter 3. Unlike the statistical approach, the qualitative part does not intend to prove theories, but rather to explore individual and collective behaviours, as well as students' conceptions of sense of belonging at school and how they interlink with one's identity. For this, this section uses qualitative research to further investigate the findings from the phenomenography in section 4.3, by delving into the complexity of students' behaviours and perceptions and by trying to understand the characteristics contributing to some students feeling like they belong at school, while others feel excluded from it.

The five main areas of analysis in this section are the same that were used as explanatory variables in Chapter 3: school performance, gender, immigration, socioeconomic background and school characteristics. In this chapter, these categories were expanded to discuss new findings that could not be quantitatively evaluated with PISA data. In this expansion, student characteristics become a self-declared approach to students' identities rather than a categorisation. For example, the section on immigration also includes a debate on ethnicity, for which France does not collect data, but which was repeatedly present in the discussions with students. The debate on school characteristics was also expanded, for example, to also include a discussion on how students position their school identity and belonging to that identity in contrast to other schools, as discussed in the first set of results in this chapter. As discussed in the methodology, those five areas were confirmed in a coding process to identify categories of description, linking the pre-existing areas with reported experience from interview students that were understood as leading to ingroup and outgroup belonging.

4.5.i Categorization for statistical purposes and a discussion on strategic essentialism

An important discussion bridging the first set of results on the identification of conceptions of belonging and the second one on the main drivers of belonging is the tactic of strategically essentializing characteristics. In the evaluation of the relationship between certain school-level and individual-level characteristics and a student's sense of belonging at school in Chapter 3, the categories used for statistical purposes are fixed and determined. Such categorizations impose deterministic and fixed boundaries in a heterogeneous society (Gunaratnam 2003). Despite their shortcomings, those normative and deterministic categories are necessary tools for comparative statistical discussions, such as the one presented in Chapter 3 (Jenkins 2015). Moving beyond statistical analysis, such categories could be replaced by more fluid and complex identifications that emerged from students themselves during their participation in the qualitative interviews. In one sense, the categorization of belongingness was already dismantled into various conceptions emerging from students in the previous set of results. In this section, the student characteristics and identities correlated with belonging are also broken down into definitions that come from the interviewed students themselves.

As described in the methodology in Chapter 2, the use of temporarily fixed categories that can then be de-essentialized for political empowerment is informed by the tactic described as strategic essentialism (Spivak 1980). In this approach, minority or marginalized groups are preliminarily identified as part of a fixed category that temporarily erases the diversity within the group, essentializing and simplifying their identity. Afterwards, this temporary categorization is abandoned and replaced by more fluid self-declared identities.

Strategic essentialism implies accepting the pragmatic use of essentialism and essentialized labelling as a provisional tool of group representation and identity in the initial steps of this research, which consist of the statistical analysis (Spivak 1980, Gunaratnam 2003). It understands the political tactic of minority groups to temporarily admit essentialized labels in order to represent themselves and strive for political action. Strategic essentialism often informs studies on personal identities, more than states of mind, such as belongingness at school (Spivak 1980). However, as shown in the literature and in the previous section of results, identity and sense of belonging at school are intimately linked. As a result, such a strategy can also be explored in dealing with complex fixed constructs such as sense of belonging at school. As outlined in the methodology chapter, categorized identities and sentiments are a necessary tool for statistical analysis such as the statistical discussion in Chapter 3, which analyse well-defined and seemingly immutable groups whose identities are imposed rather than constructed. However, here the provisional categorizations could be replaced

by more complex identities, as well as a more complex understanding of sense of belonging at school.

The phenomenographic analysis of school interviews provides the indispensable interpretative element to understand belongingness and identity beyond the more simplistic categories needed for statistical analysis. Discussions with students in their school environment allows for greater complexity and more nuanced self-identification than an attempt at objective categorization. Drawing from the quantitative evidence put forward in Chapter 3, the qualitative interviews aim to move away from strategically essentialized student characteristics used in the statistical analysis. The outputs of the interviews also aim to employ a broader description of individual actors and groups in the school beyond previously used categories. A few examples of these more complex ways students use to describe themselves are shown in Table 20.

For example, the metric used by PISA to denote socioeconomic background is an indicator constructed from students' responses to the presence of a series of personal and family items in their households. Their material provisions are then compared to that of their country and students are classified on a relative socioeconomic scale going from poorest to richest. During the interviews, students could move away from a seemingly objective description of their material conditions in relative terms to explain more freely what they felt their socioeconomic position to be, as well as how they linked that perceived background to their sense of belonging at school, which include both relative and absolute metrics within the subjectivity of students. As shown in section 4.3.i, Zoran gives an interesting example of a description of relative wealth when explaining that he is "different" from students from another school. When asked by the researcher to detail the difference, he confirms "just different", which in the context of the school he was talking about (the other school) could have socioeconomic and ethnic motivations, given that these were the most recurrent ways in which students at School 1 differentiated themselves from the other school. As described by Zoran himself earlier in the conversation "in relation to France they [students at the other school] are normal, but in relation to the 93 [French department where both schools are located] they are rich".

Another example is immigration background, which in the analysis of Chapter 3 is developed based on the place of birth of students and their parents (France or abroad), as well as their citizenship at birth (foreign or French citizen, as French citizens born abroad are not considered immigrants). In contrast, the qualitative interviews opened a much more complex discussion of students' family histories. The debate on immigration was confirmed as being invariably linked to ethnic identity as well. In many countries, ethnicity is routinely collected as relevant information for policy analysis and quantitative sociological evaluation. Nonetheless, as mentioned in the theoretical framework,

France does not allow statistical data collection on ethnicity, which makes the quantitative analysis of such a phenomenon very complicated. Additionally, PISA data for France does not include information on grandparents' place of birth, as it does for other countries, which would have allowed a more complex discussion on migration. Such limitations in the specific context of PISA data for France reinforce the need for more qualitative investigation on the matter.

Confirming the complexity of their identities, many students illustrated situations of belongingness and exclusion that were linked to their personal identification with a national or ethnic group, which could not be understood simply as part of an immigration background. Giulia is an interesting example of how subjective immigration background or ethnic identity is hardly captured in quantitative data. Despite having both a first and last name that clearly point to Italian roots and culture and mentioning that her father "is really Italian", the participant referred to "immigrants" and "people with origins" during the interview in the third person, implying that she excluded herself from that category. Nonetheless, someone with a similar profile and family history would have been identified as a "second-generation" immigrant in the PISA dataset. Differently from Giulia, Mehdi identifies as of "Rebeu" origin. He claims to strongly identify with the codes and manners of the community, although his parents "were also born in the 93 like everyone in the family". As PISA data only captures the place of birth of parents, Mehdi would be excluded from the group of those having recent immigrant origin as his origin was not recent enough, as the PISA questionnaire in France was customized not to ask about the place of birth of grandparents.

Table 20 Comparison between categorization used in the PISA data and self-identification from the qualitative interviews

Category	Quantitative analysis	Examples from qualitative interviews
School performance	Based on the average score in the mathematics and reading tests	Several identifiers: "studious", "academic", "better than most", "average", "not very good", "good when I want to be good", "lazy", "vagabond"…
Immigration	Informed by parents based on their place of birth and the student's place of birth	Many, mostly ethnonational, identifiers: "Arab", "Moroccan origin", "really Italian", "Kurdish", "just French", "Franco-French", "people with origins"…
Gender	Self-declared as male or female	Very similar to the quantitative analysis: "boy", "girl"

Socioeconomic background	Index calculated based on the availability of several material goods at home	Although less present in the interviews than other identifiers, students used: "normal", "rich", "poor", "poorer than most in France"…
School characteristics	Calculated as the average of characteristics of students enrolled at the school	Several descriptions, particularly coming from support teachers: "homogeneous", "diverse", "good", "not demanding", "only choice"…

Academic performance is also part of students' subjectivity in this section, as students could describe their own perception of academic success or failure. Instead of relying on their grades in class, or in a standardized test like PISA, the interviews asked students about how they felt they performed, in absolute and relative terms. Several participants used forms of identifying their relative academic performance, as good, bad, or average students. When asked about her grades, Natacha explained her average performance by saying that she was "neither a nerd, nor a misfit *(cassos)*", while Ashvind described his average performance at School 2, as "like everyone else" by Ashvind.

4.5.ii School performance

School performance in PISA is quantified simply by the results that each student scored in their mathematics and reading tests. However, the phenomenographic interviews allowed for a much more complex identification of what school performance stands for, which also considers students' own perceptions of their success, as well as their own balance between absolute and relative metrics of academic performance. Furthermore, the connection between school performance and sense of belonging at school was identified through two channels among the three conceptions developed: friendships and wellbeing.

As St-Amand et al. (2017) pointed out, sense of belonging at school is mostly defined by synergies between a student and the groups they belong to. With school performance, a similar situation plays out where students who link their belongingness at school to their academic results also often point to having a large part of their friends who are also more academic. This is the case for both high-performing and more poorly performing students. Giulia, who describes herself as "rather academic" first responds that her friends are "They are like me, we like the same things", without specifying what their similarities were. However, in the follow-up question about her new friends she

mentioned another girl who has joined her class and who was not interviewed. She describes their encounter: "We didn't chat much before. I told you she was new. Then we did a classwork together for our SVT[22] class (sciences class)". The researcher then asks whether she had chosen to pair up with another student that she did not already know, and she responds: "No, the teacher put us together, because she was new and I am studious… and she also she was studious… I mean she still is still".

Such interactions show that students with higher academic performance tend to stick together and are sometimes actively placed together by teachers (as in the case of Giulia above), but other participants also described situations in which students who perform less well also become and remain friends with similarly performing students. For example, Mehdi, in School 2, argued that is mostly friends with people who "get their jokes" and "have the same interests (*délires*) as him". However, he also refers to other students who are not part of his group of friends as being "book smart", while he, like his friends, is "just smart" without being "good with school". For Mehdi and a few of his friends, as well as other boys in School 1, despite not being very well-performing students, they found their friends through other similarities in their smartness with jokes that they would oppose to other forms of more academic smartness.

Various studies have pointed in the direction of a strong correlation between school performance and sense of belonging at school measured by friendships (Gonzalez and Padilla 1997, Ryan and Patrick 2001, Faircloth and Hamm 2005). Confirming such studies, the findings in Chapter 3 showed that PISA test scores were the main characteristics directly correlated with sense of belonging at school and that most other characteristics included in the analysis only correlated with sense of belonging through test scores. This means for example that although a student's socioeconomic background does not directly correlate with a student feeling more excluded or included at school, the fact that poorer students have worse test scores may, in turn, lead to lower sense of belonging at school. The same dynamics play out in the case of immigrant background, as immigrant students have, on average, lower test scores than those of non-immigrant ones, which can explain differences in sense of belonging of those students.

Despite the strong link shown in the econometric evidence, academic performance was not directly used as an example of a feeling of belonging at school by most students. However, quite a few students did point out academic performance as a unifying force of their group of friends, which in turn showed up as a main conception of belongingness. In most cases, this referred to "good students" claiming to also have friends that are "good students". In this sense, academic

[22] "Sciences de la Vie et de la Terre", which is a generic sciences class.

performance functions as a unifying force for students to construct friendships, which are a major driver of sense of belonging through its conception of friendships. Nonetheless, students whose perceived performance was poor, also did feel surrounded by friends and did respond in a way that showed that they had a high sense of belonging at school. In this sense, academic performance works more as a clustering force that creates friendships among similar students, than a way to boost one's sense of belonging at school, as presented in Chapter 3.

The second channel, or mediator, through which academic behaviour indirectly influences sense of belonging is through general wellbeing. Unlike friendship, which is built around academic performance, but does not seem to univocally enhance or diminish sense of belonging, the findings show that wellbeing seems to have a clearer direction of correlation with students' academic results. Several previous works have pointed to the link between higher academic performance and higher perceived wellbeing (Anderman 2002, Lorcerie 2011, Warin 2010). Quite a few students who described wellbeing as a major conception behind sense of belonging also argued that it related to good academic performance. Isabelle in School 3, for example, first responded that for her, sense of belonging at school meant to "feel well at the school". Afterwards, when asked about what would make her feel good at school, she mentioned without hesitation "good grades, good results". When responding to the question asking her to illustrate situations in which she feels lonely at school she says: "I never feel lonely [pauses]. Sometimes I *want* to be alone because I am in a bad mood". When the researcher asks about what the reasons for the bad mood are, she giggles and says "Like, when I receive a bad grade from the teacher, then I *want* to be alone". Although she stresses her state of loneliness as being a choice, she also clarifies that one of the motivations for this state of mind is disappointing school performance. Agathe, at School 3, also links her wellbeing with her grades, describing the impact bad academic results have on her morale and consequently her sense of belonging at school. Such examples show that students with better test scores, do have higher sense of belonging at school through its conception of wellbeing, which is in line with the quantitative findings.

> When I get a test back from the teacher and I didn't do well. Then I know it will be a long day (laughs) (…) It doesn't happen all the time, okay? But yes, when I don't do well, then I don't want to talk to anyone. I don't blame anyone, it's just that it plays on my morale, I'm stressed out and it's over the ship has sailed, I will do better next time (…) No, I don't blame de school either, it's just that after that I will not feel good being there, I just want to home… Don't worry, the day after I'm fine (laughs). Agathe, School 3

In addition to the two channels of increased belonging through the conceptions highlighted, another interesting finding relating to the previous sets of results is that better-performing students had a better understanding of what questions entailed. This was especially the case of the three more contentious questions that were not literally translated from the original questionnaire designed. As shown in the validation of the PISA questionnaires, many students particularly in School 1, which had lower general socioeconomic and academic levels, did not understand at least one of the three non-literally translated statements ("I feel like an outsider at school", "I feel like I belong at school", and "I feel awkward and out of place in my school"). Such higher understanding could lead to higher confirmation of belongingness through agreement with the statements provided in such questionnaires, while more poorly performing students would fail to agree if they did not clearly understand the instructions.

Although the correlation between academic motivation and sense of belonging is clear both in the quantitative results and in the interviews, it is hard to disentangle the causal links between both, especially in the conception of wellbeing, which has a more direct link in enhancing sense of belonging at school. Better academic results can lead to students feeling more at ease at school to the same extent that their higher sense of belonging can boost their grades. Indeed, especially because of the impact learning outcomes have on the conception of wellbeing, there is a clear link between the two phenomena, and it is hard to define which one occurs first. In any case, evidence that both a generally satisfying state of mind and a stronger feeling of association with the school are connected and occur together is already a finding in itself.

4.5.iii Immigration and ethnicity

The second major defining student characteristic used in Chapter 3 to understand sense of belonging at school is immigration background. In PISA, the standard questionnaire measures immigration background using the place of birth of parents and grandparents, as well as their citizenship at birth. However, in France, the question about the place of birth of grandparents was excluded from the final questionnaire. To fill the gap in data and allow for a more complex identification, during the interviews, students were given space to openly describe their identity in terms of immigration background, especially around the word 'origine', which was often also linked to ethnic, cultural and religious identification. Previous work has pointed to immigration background as being a major variable explaining sense of belonging at school in France (Roche and Kuperminc 2012, OECD 2017). At the aggregate level, classroom diversity in terms of immigration background also plays a strong role in determining which children feel included or excluded at schools (Mok et al. 2016).

Findings from Chapter 3 have shown that children born abroad, first-generation immigrants, have lower sense of belonging than children born in the country in five out of six dimensions measured by the framework. However, second-generation immigrants seem to have sense of belonging closer to the population without a recent immigrant background in most dimensions, which points in the direction of acculturative stress, which is described as the penalty experience by students coming from a different culture when moving into a foreign country. The negative correlation between immigrant background and sense of belonging was clearer in one of the six dimensions, which was shown to be a major conception of sense of belonging at school following the phenomenographic interviews: making friends. First and second-generation immigrant students have a significantly worse likelihood of agreeing with the statement on how easily they make friends. Furthermore, the data has shown that students have a much lower average sense of belonging in all six dimensions if they go to schools with a high share of immigrant students. Interestingly, the statistical analysis also proposed that this second finding, on the collective impact of school-level characteristics, has higher explanatory power than individual characteristics.

Though PISA data was not collected on the ethnic background of children, discussion around ethnic identity came out often and in almost all interviews. In only one interview at School 2 and three interviews at School 3, the ethnic identity of the participant or their colleagues was not mentioned by students at any time during the interview. As immigration background and ethnic identity are intimately connected, it is important to expand the discussion on both issues together. The disentangling of ethnicity from immigration background in the context of school belonging is particularly important given previous scholarship has shown that when both factors are put together, ethnicity has a much more powerful explanatory power (Roche and Kuperminc 2012, Gonzales and Padilla 1997, Delgado et al. 2016).

The distinction between immigration background and ethnicity is particularly crucial for children from a postcolonial immigration history who developed a way of looking at themselves that is different from other students because of the way they are seen in society (Van Zanten 2001). Research has shown that children with recent immigration background from European countries do not significantly differ from those without an immigrant background in any dimension of wellbeing, belongingness, or school performance (Silberman and Fournier 2006 and Brinbaum and Kieffer 2009). There is arguably a disproportionate importance of ethnic identity in comparison to other forms of identity such as national, religious or class. Keaton (2005) observed several schools in northern Paris and showed that many of her participants had a stronger identification with their ethnic background than their country of origin or country of birth. Using national identity based on immigration background instead of ethnicity is an incomplete and imprecise measurement.

Despite its importance, the academic debate on ethnicity in France is scarce, and fear of racism prevents it from taking place in French society (Payet 1995). In fact, most of the public discourse and academic debate around ethnicity is often presented as a discussion on immigration. The discussion around ethnicity is particularly rare in the educational context (Modood et al. 2002) and there is no national data collection on race, ethnicity or religion, which further reinforces the analysis of such concepts through the lens of immigration, which is a poor proxy for such types of research (Simon 2008).

However, some authors have tried to initiate such debate. An important proponent of the discussion of ethnicity in France comes from Debarbieux (1998) who defends the study of ethnicity in France against two sets of researchers arguing against it. On one side some researchers propose that using ethnicity in research is a way of stressing individual singularities, instead of commonalities. On the other side, some researchers argue that analysing a few ethnicities will erase the vaster comprehension of a much higher number of unanalysed other ethnicities. To both those groups, the author reinforces the constructive nature of ethnicity as constantly moving and evolving, as a "way rather than a point of arrival". She proposes that ethnicity be understood as something transitional and provisional, which is an illusory construct, that despite being illusory deserves to be investigated, which is in line with the strategic essentialist approach used in this thesis.

As described in the theoretical framework and the methodology, the term used to capture ethnicity in the qualitative interview analysed in this work is "origine", which combines national identity from migration background with ethnic identity. This term, which is the same used in one of the few government surveys that ask such questions (Beauchemin et al. 2016), provided a less sensitive way to discuss ethnicity in a way that is appropriate to French school settings. Origin is a broader term that can be used to describe a regional, ethnic, or religious origin. Such terminology provides the necessary openness for the students to freely discuss their identity in the light of its complexity, instead of directing them towards a necessary ethnic identity. As a result, by asking one's origin the student has much more freedom to openly identify themselves with whichever community social group they feel the strongest links to.

An interesting aspect of the use of "origine" that was found during the interviews is the difficulty students had to describe Whiteness. Similarly, to what Keaton (2005) found, the term "French" seems to be the "racialized signifier of European ancestry" in most cases. During the interview, Giulia who has both a first and last name which clearly read as Italian, would actually describe herself as "just French" in the first question on how she identifies herself. Later in the conversion she went on to talk about other students and described those with extra-European origins on the basis

of the country of birth or their parents or a larger ethnic identity, for example as 'Black or Arab'. Many of the students who are French-born and did identify as being of non-European origin, also described their White peers as "French" or "just French", especially at schools 1 and 2. In those schools, another term that came out quite often is "true French". Interestingly, at School 3, which has a higher proportion of White students, the preferred term of many students was "Franco-français", which means "Franco-French".

Mehdi, who identifies as "rebeu", did use an interesting term to describe their White colleagues: "babtou". He was the only student whose first reference to White colleagues was based on actual ethnic and not national identity. The term "babtou", which was not known to the researcher during the interview comes from the word "toubab" which has an uncertain etymology, although some claim it was first used to refer to White Europeans in Wolof, the main language spoken in Senegal, as well as in other former French colonies in West Africa. Despite being the only student that employs an ethnic term to describe whiteness, when the researcher asked Mehdi to clarify what "babtou" means, his immediate explanation was "it just means the French". This gives the impression that the choice of an ethnic more than a national classification of his colleagues was more of an accident than a more thoughtful categorization.

Another identification category that emerged in the interviews is a joint identification of non-White students as "les noirs et les arabes" or "Blacks and Arabs". Although there are certainly many non-White students who do not identify with this joint categorization, it was frequently used as the opposite category in the dichotomy with the "French". Voisin (2017) carried out ethnographies in both Northern Paris and Newham in London and contrasted the way ethnic identities play about in those cities. In Northern Paris, she also observed a recurrent joint identification of "Blacks and Arabs" as the other possible category for those who did not fit into the majoritarian "French" one.

Following all those complex descriptions of identity proposed by students, a few channels through which ethnic, cultural, or national identity interact with sense of belonging at school were identified. The first channel through which ethnic identity or immigration background are shown to be linked to sense of belonging at school is through friendships. Those various identities that emerge from the discussion with students did play a major role in the way they built friendships. Many of the students, as described in the previous section, have friends who are from a similar ethnic background or community to them. There is a clear link between one's belonging to a certain group and being closer to others who also identified as members of that group. And yet, as shown in the previous set of results, very few students directly pointed out their ethnic community as being a source of friendships.

Nonetheless, there are quite a few indirect identifications, particularly when the researcher asks students to describe their closest friends and their first names hint that they all belong to the same community. For example, although Zoran at first argues that he has friends from "all over the place", the six boys he listed as his closest friends have Muslim names. In the other two schools, the descriptions made by students of their friends also pointed in the same direction, not arguing that ethnicity is a guiding reason for their friendships, although acknowledging that there is some sort of clustering around communities.

The link between immigration or ethnic background and the friendships conception of sense of belonging at school confirms findings from the quantitative analysis that students' sense of belonging at school is enhanced by the presence of other students in the school that come from similar backgrounds. In this sense, both students with and without a recent immigrant background are expected to make friends more easily and hence develop a higher sense of belonging if they attend a school environment where they can find similar students.

A second channel through which immigration background and ethnic identity help shape sense of belonging at school is based on the conception of school identity, which draws largely on the school's collective characteristics including the ethnic identity of students. The situation described at School 1 in relation to the other school in the neighbourhood had clear ethnic undertones where students more fully identified with their home school not only because they were surrounded by students of similar socioeconomic background, but also because those students had similar origins. Farid presented in the previous section describes some animosity between him and his colleagues who are "Black and Arab" and are "disliked" by students from the other school, which are presumed to be Jewish despite no actual evidence of a Jewish community in the city where the school is located. The creation of a sense of community in that school is, in a sense, a collective identity based on the combination of the identities of many of its students. In the description of Farid, there is clearly a collective school identity that comes from the combination of individual identities of students enrolled in that school. In a similar process as the one through which immigration and ethnicity interact with friendships, those traits also interact with school identity and othering of another school. A higher affiliation to the school and stronger opposition to other schools, both of which are strongly grounded on ethnic identity, can lead to an enhanced sense of belonging at school of students belonging to the community that school's collective identification is built on.

Finally, the third channel through which ethnic identity connects to sense of belonging at school is general wellbeing. Although there were no reported stories of open discrimination against students in the same school given their ethnic heritage per se, much of the literature has pointed to ethnic or

immigration background leading to some forms of discrimination in education (Van Zanten 2011, Ichou 2016 and Voisin 2017). In this study, an interesting form of discrimination pointed out by a student is glottophobia, or discrimination based on one's accent, which is one of the reasons why previous work has pointed to acculturative stress of immigrant students (Roche and Kuperminc 2012). Hamza, for example, while describing a new colleague who is "weird" made fun of the colleague's mother because she "had an accent", which means having a foreign accent, rather than a local or class accent. During the interview, the participant imitated the friend's mother when she came to the school for disciplinary reasons. Since then, Hamza argued that he and his friends "every now and then, we make fun of [new colleague's name], we call him doing his mum's accent". This sort of discrimination in schools is similar to what Vasquez (1992) found examining French primary schools. He pointed to language barrier as one of the major difficulties for foreign-born children to belong at school. However, prejudice based on a foreign accent is not the only sort of discrimination that can lead to lower wellbeing of minority students. The vast majority of students belonging to ethnic minorities in the three schools and all of those interviewed did not have a foreign accent. Nonetheless, students belonging to ethnic minorities face several other forms of stereotyping and discrimination (Ichou 2016 and Voisin 2017) that can lead to a lower sense of belonging at school through its conception of wellbeing. Several previous papers have made a link between lower perceived wellbeing and recent immigrant background (for example Van Houtte and Stevens 2009, Van Ewijk and Sleegers 2010, Mok et al. 2016, OECD 2017).

4.5.iv Gender

Information on gender in PISA and in the interviews was collected in the same way, through the direct identification of students participating in the survey or interview. Some previous research has pointed to gender as a major characteristic explaining sense of belonging at school (Sanchez et al. 2005, Ma 2003, Hughes et al. 2015). However, findings from Chapter 3 pointed to gender as not having a defining impact in sense of belonging of students, as although girls do have a slightly higher sense of belonging than boys in five of the six dimensions, the difference is not significant when other student characteristics are taken into consideration. Girls do have higher sense of belonging at school, but they also have higher education performance, and it is hence likely that their higher belongingness is actually boosted by higher test scores.

Despite the weak connection between sense of belonging and gender evidenced in the statistical analysis, qualitative interviews point in a different direction. Gender does play a role in one of the main conceptualizations of belongingness put forward in the previous section: friendship. Quite a few male students mentioned that "they do not have any girl friends" (Hamza in School 1) or "do not

feel at ease surrounded by girls" (Jonathan in School 2). Another more interesting finding is the argument that girls do not have the same sense of humour, which is particularly important in a situation where humour seems to be a unifying force for friendship among students and, hence, of belongingness. For example, Yassine argues that "girls are not funny, they don't understand jokes" and Hakim argues that "we don't have fun with girls" and "we can't say anything [to them]". Some of the girls also said that they don't have many male friends, although the reasons for it were less explicit. Mira for example just argues that "it's like this", the exact same sentence used by Sabrina and Marie, both in School 2.

> *"Yes, all girls, we don't hang out with boys much (…) They are usually in the court playing and we sit somewhere to chat or eat something. It's like this, that's just how it is."* Mira, School 2

Although gender plays a constitutive role in the way sense of belonging is constructed through its conception of friendships, it does not lead to a higher or lower overall sense of belongingness. The fact that girls are friends with girls and boys are friends with boys has no impact on the level of sense of belonging at school, despite helping to shape it. This finding is similar to the one connecting ethnic background to friendships, which shows that there is a pivotal role of such identities in the way friendships are defined, but not a clear impact on the magnitude of belongingness.

The second conception of sense of belonging at school that yields a clear connection with gender is wellbeing. A review of statistical research shows a clear link between gender and wellbeing at schools in France (Lorcerie 2011). Most papers reviewed show higher wellbeing outputs for girls, both with and without a recent immigrant background. This is partially confirmed by a series of ethnographies carried out on in the Parisian metropolitan area (Van Zanten 2011), although some diverging conclusions are also presented. For example, Van Zanten (2011) mentions that boys and girls have a very uneven occupancy of public spaces and that girls tend to be marginalized, occupy less space at school and hence have lower wellbeing.

Those are very similar situations to the ones described by girls in this study. Imane for example describes that during the break she walks around with her girlfriends, while the boys take over the main sports court. Agathe goes to School 3, where gendered friendships were much less frequently mentioned than at schools 1 and 2. Nonetheless, she also describes her usual break as occupying the peripheral space around which boys play sports: "I usually walk around the school with my friends[23] or sit down somewhere to talk…". When asked about the use of the sports facilities or the central playground, Agathe responds that she never goes to those places. This unequal use of the school

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[23] Friends here is female "copines" rather than male or neutral "copains".

space did not seem to lead to any admitted decrease in wellbeing in the girls interviewed. Nonetheless, sometimes depressed wellbeing is not immediately visible or identifiable, but an uneven space use based on gender can lead to feelings of exclusion among girls (Van Zanten 2011). The phenomenographic interviews did confirm several aspects of girls' education experience that are connected to lower wellbeing, such as marginalization in the school space. As a result, the link between gender and sense of belonging at school through the conception of wellbeing does point in a clear direction, which is also confirmed statistically in which girls have lower average levels of belongingness.

Interestingly, gender identity, together with ethnicity, does play a defining role in how the opposition to the other school, the third conception, occurred. In the same way as what was seen in another qualitative study (Van Zanten 2011), boys with a recent immigration background tend to stick together more often than girls from similar origins. At School 1, the descriptions of school collective identity came exclusively from boys, although four girls were also interviewed in the research. Nonetheless, gender identity was not the major feature that created the sense of collective school identity that some students used to conceptualize belongingness. The collective identity of schools and the otherization of the neighbour school came primarily from ethnic and socioeconomic individual and collectivized identities.

4.5.v Socioeconomic background

Socioeconomic background in the PISA datasets used for the statistical analysis was defined based on relative wealth in relation to the total wealth distribution of the country. Students were given a socioeconomic score based on the material conditions available in their households as measured by their family's possessions. In the interviews, however, the socioeconomic background was not directly asked. While some students did mention socioeconomic condition, it was primarily described in contrast to other students or schools, in metrics of relative wealth.

Chapter 3 had shown that the second main determinant of sense of belonging at school in France following test scores is socioeconomic background, which is positively correlated with an increase in the likelihood of a student belonging to their school. The statistical evidence in the chapter also proposed that most of the impact of socioeconomic welfare on belongingness happens through academic performance. It also indicated, surprisingly, that, despite the large gaps between wealthier and poorer students shown in the descriptive statistics, there was no significant difference in sense of belonging at school across socioeconomic groups when other characteristics were taken into consideration. This is in line with some qualitative (Beaud 2002) and quantitative (Willims 2003) evidence from previous works.

Those findings are also similar to those of a previous paper on academic performance and sense of belonging at school. As shown earlier, Cueto et al. (2010) discuss the transition of Peruvian students from lower to upper secondary education. The study argues that, although socioeconomic status did not directly affect sense of belonging at school, it had an indirect effect on belongingness through academic achievement. The relationship would then happen in two steps: students who are more well-off have higher grades and students with higher grades are more likely to belong at school and to transition to high school. Despite this seemingly logical relationship, as expected by the researcher, no student spontaneously highlighted their socioeconomic background as a direct driver of academic performance. Furthermore, in the various conversations with the supporting teachers, they did not mention individual socioeconomic background as such a determinant factor, especially given that most schools had students with similar socioeconomic status. This means that socioeconomic background was more of a collective condition of schools, than an individual characteristic differentiating students within the same institution. Zoran, at School 1, demonstrates how he differentiated himself and his colleagues from students in the other school based on their relative wealth disparity, as well as other characteristics signalling their higher socioeconomic status such as their clothes or the way they express themselves.

> *They are different in everything: they talk in a weird way, they dress up weirdly. And when we see them, we know they are right away, there are not a lot of rich kids in the neighbourhood. (…). No, they are not like super wealthy. In relation to France they are normal, but in relation to the 93 [French department where both schools are] they are rich. So me and my mates when we see them we say they are rich, they are rich to us.* Zoran, School 1

During the interview, socioeconomic background does show up as a channel through which the third conception of sense of belonging at school, opposition to another school, plays out. As mentioned in the previous sets of results, the creation of a sense of community in opposition to the other school is passed over generations and one of the stated differences with children from the neighbouring school was that they were slightly richer. The words "rich" or "wealthy" regularly showed up in the descriptions made by each of the five participants illustrating the rivalry with the other school, showing that it was a crucial driver of collective identity. This dynamic shows that socioeconomic background does not affect sense of belonging in a direct and linear way that could be captured by statistical analyses, which opens room for qualitative analysis to further investigate the matter. The interviews do not point to an extra amount of wealth boosting one's perceived inclusion at school. On the other hand, feeling like one belongs to a specific social class and having that social class be represented in the school that they attend does appear a stronger reason to boost sense of

belonging to that school. As a result, although social class does foster a sense of belonging together for students of the same social class, poorer or wealthier students did not show a higher or lower level of belonging as an impact of their socioeconomic background.

The discussion around school identity, especially in contrast with another school, seeks precisely to explain how these identities are affected and shaped by class and socioeconomic background. Students, as individuals in general, tend to identify with others of similar identities such as gender and ethnicity, but also including social class (Darvin and Norton 2014). As a result, although socioeconomic background in isolation does not affect sense of belonging at school, a perception of common social class among students in a school does boost their perception of participating in that school through their material commonalities with their colleagues. In this sense social class works as a vector and a component of identity building, which in turn influences sense of belonging at school (Darvin and Norton 2014).

A second channel through which socioeconomic background can decisively impact sense of belonging at school, is through general wellbeing. Improved material conditions are undoubtedly connected to higher wellbeing, which was identified as a conception of belongingness at school. During the phenomenographic interviews, students did not point out directly the importance of material goods, as it was not the purpose of the interview protocol given that it can lead to student sensitivity. However, both in objective metrics such as the ones used for statistical analysis and in the subjective perception of students, there is an established link between improved socioeconomic conditions and wellbeing. The link between material welfare and wellbeing is very well established and they do work as a channel impacting sense of belonging at school through the conception of wellbeing.

4.5.vi School characteristics

Although student-level characteristics are important to understand sense of belonging at school, so are school-level features. In the quantitative model, school characteristics were defined as a simple average of the student characteristics of all those enrolled in the school. Using this definition, the hierarchical models presented in Chapter 3 disentangle the impact of student and school level characteristics concluding that a large part of the variation in sense of belonging comes from the school students attend. Those findings that give higher importance to student-level characteristics, but also a significant impact of school-level features was also present, have also been previously quantitatively assessed in the literature (Duru-Bellat et al. 2008, Chiu et al. 2016).

Through the interviews, school characteristics appear to affect sense of belonging at school through two channels, friendship and opposition to other school, in very similar ways. Corroborating the

quantitative findings and the academic literature (Akers et al. 1998, Linden-Andersen et al. 2009), previous sections showed statements from students in which they illustrate how their friendships are built with those similar to them in various ways including gender, ethnicity and school performance. Furthermore, students seem to feel prouder or more connected to schools that have a student population that are similar to themselves, as strongly discussed in the process in which the conception of sense of belonging through contrast with another school emerges.

A major driver of enhanced homogeneity of schools is through education tracking into vocational or general tracks, which happens between lower and upper secondary levels. Students of higher socioeconomic status or those with better grades, for example, are more likely to attend general tracks, while those from a lower socioeconomic background or a more complicated academic record tend to go to vocational upper secondary. As a result, upper secondary schools are much more homogenous than lower secondary ones. Tracking in France starts in upper secondary school, when students are around fifteen-year-olds, which means that some of them are captured by PISA. However, evaluating the impact of tracking on sense of belonging at school in Chapter 3 showed that there was an insignificant relationship explained by type of school. The picture described by the interviews is a little bit different. Although the three schools are of lower secondary level, which is before tracking occurs, most of the students interviewed were attending the last grade and were already thinking of options for their future education.

Vocational and general schools are not only delimited by their content, but also by the level of students that enrol in their programs, as students in the general tracking tend to have much higher academic performance. Some of the students who argued that they had already decided on which track they would pursue, refer to the student population in their future school. Many of the students at School 1 who had shown rivalry with the other school, also argued that they would choose to attend the same school that their cousins and brothers do, maintaining the relative association to their home school in contrast with the lower secondary school of their future peers. During the conversation about the upper secondary school most students attend and the feeling of otherness created in relation to the neighbour school, Zoran explains his motivations for choosing where to go at the end of lower secondary education: "It is not really a choice, you can choose to go somewhere else, but nobody does it. Me, my friends[24], people from the neighbourhood[25], everyone goes there, everyone." In this way, tracking, or simply attending a school where most colleagues have a similar

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[24] Here using the term "amis" not the weakest one "potes".
[25] Here he uses "cité" which is ambiguous meaning both neighborhood or social housing.

background does seem to be a driver of sense of belonging to that school through school pride within the conception of opposition to another school.

The second channel through which school characteristics impact sense of belonging is through friendships. In all three schools, quite a few students showed, primarily indirectly, that most of their friends carried a similar ethnic origin, as shown in the previous sections. This is in line with findings from Mok et al. (2016) in Germany and Van Ewijk and Sleegers (2010) in the United States. Students at schools where most of their colleagues are of similar ethnic origin would then be in a situation where they would more easily find friends. Quantitative findings from Chapter 3 showed a similar picture: schools with a large number of children with an immigrant background tend to have their students report lower sense of belonging to them, especially in regards to friends and feeling awkward or out of place. However, what the interviews help nuance is that oftentimes students make friends with peers who are similar to them in terms of origin, academic performance and gender, confirming previous research, as well as quantitative evidence from Chapter 3.

The relationship between school characteristics and individual sense of belonging at school is built through two of the three major phenomenographic conceptions identified in the previous section: friendships and school otherness. Furthermore, the channels through which school characteristics are connected to sense of belonging not only help explain how it is built, but also how it can be enhanced. In this sense, studying in a school with more homogenous colleagues does have the capacity to boost sense of belonging through the translation of individual identities into collective ones.

4.6 Conclusion

Further understanding how sense of belonging plays out in specific contexts is a powerful tool for positive school transformation (Riley 2019). For this, it is crucial to understand how students make sense of their concept of belonging, how they understand the phenomenon and what are the main experiences capable of boosting these feelings of wellbeing, safety and respect. Given the contingent and context-specific way in which students assign meaning to sense of belonging, it is important to give a voice to these students to explain their meaning-making process, which was elucidated through the phenomenography presented in this work.

This chapter presented the results of a phenomenographic analysis of 33 interviews carried out in three French schools in the academic year 2019-2020. The analysis of the interview recordings, transcripts, and notes through the lens of phenomenography led to the identification of three main conceptions of sense of belonging at school: friendship, wellbeing, and school identity, which is created through the perceived opposition to another school. Each of those conceptions derives from the qualitatively different ways in which a large number of students made sense of their sense of belonging at school.

The first conception, friendships, comes from the link students made between having friends or being close to their colleagues with a general feeling of belonging to the school where they study. The second conception, wellbeing, also arises from students' description of their perceived belongingness at school as a state of wellness, of feeling at ease, or simply feeling well as most of them described. Finally, the third conception is school otherness or the opposition to another school. Although this conception is grounded in experiences exclusively from the first school, students quite often pointed to their pride in pertaining to School 1 by describing how different they were from students at a different school in an adjacent district.

These three conceptions from the phenomenographic analysis have some similarities to the PISA framework based on Goodenow (1993) from which the statistical models of Chapter 3 are drawn. There is a clear importance of friendship as a concept through which students understand belonging. Although wellbeing is administered as a separate questionnaire in PISA and France did not take part in it, there is data available on life satisfaction and, as shown in Chapter 3, this is a key predictor of sense of belonging at schools in France. The results of the analysis in Chapter 3 argue that life satisfaction is the variable most strongly correlated with sense of belonging at school, ahead of academic performance and several student characteristics. The qualitative interviews in this chapter showed that many students also saw those elements as strongly connected. School identity, in turn, was unsurprisingly not part of PISA, nor is it a conception of belonging that should be explored for

policy-oriented research as students should not feel like they belong at school simply for their arguable differences with students from other schools.

The three identified conceptions were then analysed through the lens of their variation across student and school-level characteristics to understand how they operate to enhance and decrease sense of belonging at school, in a similar manner as in Chapter 3. For example, higher academic performance was connected by many students to higher wellbeing, which in turn is one of the main conceptions of sense of belonging. However, updating the findings from the previous chapter, the phenomenographic analysis interpreted students' self-presented identities as driving forces of belongingness more than fixed student and school categories. As a result, the second set of results from the qualitative analysis showed how students who identified differently also presented different conceptions of sense of belonging at school, digging deeper into the interaction between identity and belongingness. For example, students describe friendships as being built through common interests and common identities and how it leads to a higher feeling of belonging at school. It also showed some of the main characteristics that students connected with higher wellbeing also presumably led to higher sense of belonging. The analysis also showed how collective identities formed around a school were also intimately linked to a feeling of collective belongingness to that school. Finally, students' identities, both individual and collective, operate as channels or mediators through which sense of belonging at school is shaped and conceptualized. The conceptions presented through the phenomenographic investigation constitute ways in which students make sense of their sense of belonging in school. Additionally, the qualitative analysis explored how student identity contributes to boosting or decreasing their sense of belonging at school.

The diagram below proposes an outcome space that maps variation in areas of individual identity and how they operate as channels affecting certain dimensions of sense of belonging at school, based on the interviews (Marton 1988). This visual representation of conceptions and categories of description of student identity organizes the researcher's understanding of qualitatively different ways in which participants experienced and made sense of the phenomenon. For example, student identity in terms of their socioeconomic background was illustrated by various students as connected to two conceptions of sense of belonging at school: wellbeing and school identity.

Figure 1 Channels, or mediators, connecting student identity and belongingness
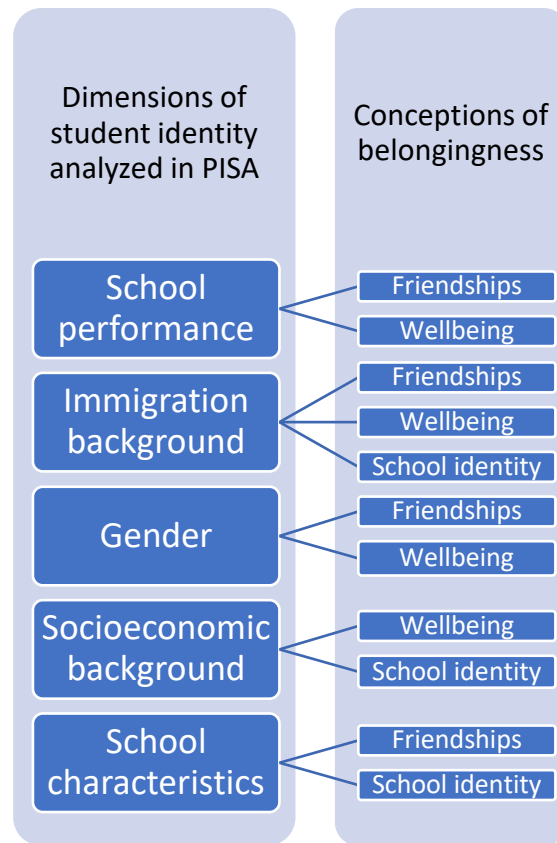
The channels highlighting the connection between conceptions of belongingness and individual and collective identity, show ways in which sense of belonging at school is built and what characteristics are important to understand its construction. Some of the channels, or mediators, also help understand how certain identities and characteristics lead to a higher or lower sense of belonging at school. Although the findings on how sense of belonging at school is built are purely qualitatively grounded on the phenomenography, the findings on the impact of individual and collective identity in enhancing or diminishing one's sense of belonging at school partially triangulate the quantitative findings presented in Chapter 3. For example, the second conception of wellbeing is closely related to life satisfaction, which was shown in the statistical analysis to be significantly correlated with sense of belonging at school. In this sense, some of those results were on par with previous findings of the literature in other national contexts, as well as the quantitative evidence from the previous chapter. However, this study innovates in the provision of a phenomenographic framework describing the precise channels through which individual and collective identities operate in enhancing the conceptions of belonging identified from the interviews with students. Furthermore, this study is a rare analysis of qualitative interviews in French schools, particularly considering all elements of students' identities, including ethnicity and national origin, which are seldom studied in the country context.

This chapter also discusses generalizable statistical findings provided in Chapter 3, in parallel with the phenomenographic analysis that illustrates how the main student characteristics identified as being connected to sense of belonging at school play out in a real school context. The quantitative results were further confirmed in some areas, such as the strong relationship between school performance and sense of belonging. Statistical evidence shows that the sense of belonging at school in France is boosted by higher student performance in standardized tests and qualitative interviews confirmed that the ways in which students will make friends or have higher wellbeing are two crucial conceptions of belongingness. These relationships were further explored in the presentation of the channels through which sense of belonging operates as described by students. Understanding the links between academic performance, belonging and wellbeing and how all these outcomes vary for students of different backgrounds is key to designing policies that target more vulnerable groups.

The next chapter presents the consolidation of findings from both Chapters 3 and 4 in a conclusive discussion of the results of this research, presenting the areas in which it innovates both in terms of methodology and content. The final chapter also opens the way for further investigation of the subject, pointing to limitations in the research and areas where more work is needed.

Conclusion

This thesis was developed at a point in time when sense of belonging in school was low across many countries and, in particular, in France where only 38% of students taking the PISA exam agreed with the statement "I feel like I belong at school", the lowest across the OECD. Such low levels of sense of belonging are particularly concerning given that sense of belonging is strongly connected with both student wellbeing and learning (as described in Chapter 1, confirming previous literature). And yet, to date, very few empirical studies have been conducted examining students' sense of school belonging specifically in France. Therefore, the novel findings of this thesis have important implications for those concerned to develop policy responses or otherwise support those students least likely to feel they belong at school.

In this work, sense of belonging at school was understood through a psychosocial lens, in particular in the context of education studies (Miller 2003, Yuval-Davis 2006, May 2011, Halse 2018). Considering both previous literature and the phenomenographic analysis of the interviews, the study contributes to the theorization of belonging by proposing a definition that combines theoretical analysis with empirical research. In this work, belonging is defined as the feeling that someone can be themselves in a specific social context without having their wellbeing threatened. As discussed, the definition builds on the literature and includes the three conceptions identified in discussions with students – friendships, wellbeing and identity. At school, this sense of belonging is the feeling of comfort within one's identity in relation to friends, teachers and other individuals participating in the school environment, which often occurs in the form of shared identity or shared values. In particular, the link between an individual's identity and that of the group they participate in is what leads to feelings of belongingness or exclusion and ostracization. This idea of schools as a collective unit where students can belong follows both an internal and external dynamic where situations and other students affect the way individuals feel and thus their sense of belonging (Stables 2003). The term belongingness and its attached meaning are constructed in an interconnected social manner, both in general and, especially, in school contexts. This means that the feeling of belonging or not belonging to a given social group is delimited through interaction with other individuals of the group (Hagerty et al. 1992, Yuval-Davis 2006).

More specifically than focusing on students' belonging at school, the findings presented in this work examine students' *sense* of belonging at school, stressing the necessity to understand belongingness as a perception and a feeling, rather than an absolute and objective state of mind (Goodenow 1993, St-Amand 2017). A key aspect to understanding such sense of belonging at schools is identity and how students' individual and collective identities interact with those of other students and of the

school. The dynamic search of sameness and otherness between one's individual identity and the collective identity of the school where that student participates leads to perceived feelings of inclusion and exclusion, which in turn creates the notion of belonging to such schools (St-Amand 2017).

The quantitative findings in this thesis draw on PISA's framework for sense of belonging at schools, which is largely based on Goodenow (1993), who identifies to which extent children feel they belong in school based on a series of statements they agree or disagree with. The responses to the statements should provide guidance to understanding which children feel that they belong at school and which ones do not. Adding to the existing definitions of sense of belonging, the qualitative findings of the research offered an additional framework created through phenomenographic analysis of 33 student interviews. This framework complimented previous approaches found within the literature by placing central focus on students' own perspectives on the phenomena of 'sense of belonging at school'.

This thesis used a mixed methodology to infer conclusions about how sense of belonging at schools is built and what are the main student and school characteristics that are linked to it. The mixed methodology consisted of employing more than one method of investigation in a single research study (Alasuutari et al. 2008, Blaikie and Priest 2019), in this work statistical inference using econometric methods applied to education research and qualitative interviews analysed through a phenomenographic approach. While the quantitative data provided generalizable truths from a positivistic philosophic standpoint, the semi-structured interviews led to the identification of qualitatively different conceptions of how students describe the phenomenon of sense of belonging at schools. By employing both methods, this thesis helped create dialogue not only between methodologies, but also between areas of research, namely sociologic and education which often employ respectively qualitative interviews and econometric analysis of datasets (Alasuutari et al. 2008, Blaikie and Priest 2019). Findings from the quantitative and qualitative analyses were contrasted side by side and compared to previous literature from various subject areas. In several cases, there were connections in findings from the two methodologies. For example, wellbeing is one the three conceptions identified by students and also, in the form of life satisfaction, one of the most powerful explanatory variables in the statistical analysis.

The statistical analysis used a very recent dataset from PISA 2018 that was published in 2019. In this sense the findings update a few investigations that had been carried out using older PISA data (Duru-Bellat et al. 2008 Chiu et al. 2016). Analysing such data for French schools, the thesis pointed to the main student characteristics that are connected with a higher or lower sense of belonging at schools.

Using applied econometric tools such as multilinear, logistic, and multilevel regressions, this work concluded that the academic performance of students, as well as life satisfaction, are the most significant variables to explain each of the six dimensions of sense of belonging at schools. As discussed in the theoretical framework and confirmed during the phenomenographic interviews, wellbeing is intimately linked to sense of belonging, which is statistically confirmed when wellbeing is measured by the average life satisfaction of students.

The critical impact of academic performance in explaining belongingness had already been proposed in the literature (Goodenow 1993, Roeser et al. 1996, Christenson and Thurlow 2004, Eccles and Roeser 2009, OECD 2017), but this is the first study assessing the correlation in the French context, where sense of belonging at school is significantly low (OECD 2019). Given that test scores vary strongly for different students and schools, other individual and collective characteristics are also connected to sense of belonging at school through their link with academic performance. For example, children in vocational schools or who are immigrants or whose parents are immigrants all have worse test scores and are expected to have lower sense of belonging. This link between immigration background and sense of belonging at school that is mediated by academic performance had already been found in two examples for the United States (Delgado et al. 2016, DeNicolo et al. 2017).

The econometric models also concluded that school-level characteristics play an important role in understanding sense of belonging. An interesting result is that school diversity is negatively correlated with three of the six dimensions of sense of belonging at school. This shows that, although being an immigrant or child of an immigrant does not affect sense of belonging, being in a school with a large share of immigrants does. Being at a school with a larger number of students with an immigrant background leads to lower likelihood of making friends and higher likelihood of feeling lonely. Furthermore, among students with an immigrant background, the share of other immigrant students in their school does not affect how easy they make friends and how lonely they feel. However, for native students the more immigrant students in their school, the harder it is for them to make friends and the lonelier they feel. Such interactions are largely explained in the literature by ingroup and outgroup identities, as well as network effects (Van Ewijk and Sleegers 2010, Mok et al. 2016).

The quantitative investigation also found that the student and school-level characteristics present in the dataset were insufficient to explain most of the variation in sense of belonging of individuals. That means that most of the reasons why certain students respond in a certain way to each of the six statements related to sense of belonging at school remain unanswered within the data collected

from students, meaning that a more thorough understanding of what drives sense of belonging at school would require better questions being asked to students, including their ethnic background and the composition of their groups of friends. Given the insufficiently precise questions in the PISA questionnaire, the qualitative interviews serve the purpose of asking those more precise questions, for example discussing ethnic background and friendships.

The statistical analysis of PISA data relied on their own framework for sense of belonging at school, based on Goodenow (1993), which had its validity assessed in the initial stage of the interviews. The qualitative analysis helped assess the validity of the PISA framework. Of the six questions in the framework, only three were translated literally, while the other three questions were rephrased during the translation and have non-identical semantic value. This mismatch could explain the lower internal reliability of the composite indicator for belonging in France. Confirming the assumption from the statistical analysis, although many interviewed students could fill out most of the questionnaire easily, quite a few later inquired about two questions for which the translation was not literal. More interestingly, students who were less academic and studying in schools with lower academic performance were most likely to inquire about the precise meaning of each statement. Qualitative validation of such questionnaires in their translated version, as done in this thesis, is very important to identify areas for revision and enhancement. Such insights can be useful for a future round of revision of PISA data, especially in the areas of validity of the measurement tools, which were also discussed in the phenomenography.

In addition to the assessment of the validity of the questionnaire, on the qualitative end, phenomenography was chosen as it is the appropriate tradition to give voices to students as it favours the understanding of a whole, in this case, a school, more than of parts of a whole, or students, to identify conceptions, which here are the qualitatively different ways in which students make sense of their sense of belonging at school (Akerlind 2005, Marton 2015, Durben 2019). Being a relatively recent research tradition, phenomenography was an innovative approach in the national context, as it has not been fully explored to study French schools yet. In fact, even qualitative interviews, particularly touching on sensitive topics such as ethnic and cultural identity, are very rare in France (Keaton 2005, Van Zanten 2011, Ichou 2016). This thesis addressed the gap in existing literature by using phenomenographic analysis of qualitative interviews to explore how student identities – both collective and individual – relate to sense of belonging at school. Moreover, although few previous works used the same, qualitative methodologies, this thesis did include a large theoretical review of French education studies, particularly in relation to sense of belonging, identity, and wellbeing. Many of these works have never been published in English and so the thesis also enhances the access of anglophone academia to the discussion around education in France.

The phenomenographic analysis of the recordings, transcripts, and notes of 33 semi-structured interviews in 3 schools in the Paris metropolitan area produced several findings. Drawing on the commonalities presented by students in the interviews, this thesis identified three main conceptions in which students articulate their belongingness at the schools they attend (Akerlind 2005, Marton 2015, Durben 2019). The first and third conceptions of belonging, friendship, and school otherness, are based on a more social theoretical understanding of sense of belonging at school, which is closer to the PISA one. In contrast, the second conception, wellbeing, is part of a physical state of mind more than a social phenomenon, which draws similarities with other works studying sense of belonging at school. More importantly, it is closely connected to life satisfaction, which was a key explanatory variable in the statistical model and proved to be strongly correlated with sense of belonging at school.

In all three schools, most students interviewed primarily linked belongingness to friendship building. When asked about what they understood by sense of belonging at school, students often referred to their friends and to being surrounded by peers. The conceptualization of belongingness as being part of a group of friends was directly or indirectly present in almost all interviews. Friend networks were consistently described as the main examples of how their sense of belonging at school unfolds. The phenomenography explored how students defined their friendships and how they described the process of making new friends and what commonalities were part of it, including extra-curricular activities, sense of humour and shared identity of ethnic community. These findings echo the work of Riley (2019): if teachers are concerned to promote sense of belonging among students, it is crucial to understand the importance of the environments where students can build friendships. Schools that build on connections and foster trust, seeking to grow young people's sense of agency, and drawing on the strengths of communities, can boost sense of belonging (Riley 2019).

Confirming several previous studies (Branscombe et al. 1999, Gilman and Anderman 2006, Millings et al. 2012, Fisher et al. 2015, Tian et al. 2015, Choi 2018), many students across the three schools pointed to a conception of belongingness at school as a general sense of wellness. Although some students interviewed did not develop much about their definition of wellbeing, there was a clear sense of it being a general satisfactory state of mind or life satisfaction, which was intimately connected to their sense of belonging at school.

The third major conception identified was that of school identity, which is the creation of a collective identity for the school differentiating it from other schools, in particular in the same neighbourhood. Five students in the first school described how their belonging to that school was built in opposition to another school located in the adjacent school district in a nearby suburb. According to those

students, their belonging at school was strongly driven by their difference in relation to students from the other school. There was a strong sense of pride in belonging to their school specifically and not to the other school where students had very different characteristics and interests. Although students from both lower secondary schools do not necessarily see each other often, the differences between the two groups are carried out through generations as students from both institutions end up attending the same upper secondary school. A few of the students had older siblings or other family members who were already attending upper secondary education and informed them about the irreconcilable differences they have with students who originated from the other lower secondary school. The idea of an enhanced sense of membership to one school as opposition to another school was already theorized in the construction of social networks and sense of community as main concepts around sense of belonging at school. As a result, this thesis gave further evidence to such a process in the case of another school in a country context where such qualitative research is rarely undertaken.

To strengthen the dialogue between phenomenography and applied statistics, this thesis contrasted the conceptions of belonging found in the qualitative interviews with those from the PISA data. Of the three main conceptions of belonging inferred from the interviews, the one most strongly linked to the PISA framework is friendships (Goodenow 1993). Three of the questions on the PISA framework refer directly to friends as a metric of belongingness at school. Another conception, wellbeing, is not captured in the framework on sense of belonging at school as there is already a module that collects data on perceived wellbeing using a similarly crafted framework based on statements students agree or disagree with. However, the conception is measured by life satisfaction which was used as one of the explanatory variables of the regressions analysis. The third conception, on school otherness, is not part of the framework, as it is not necessarily a desirable driver of school belongingness to aim for students to contrast their school with another one, or to otherize students attending another institution, especially if they belong to another ethnic group. In this sense, the conceptions developed in this exercise are partially aligned with the ones proposed by the existing framework. There are notable differences in the relative importance given to friendships, although they were already present in half of the statements proposed by PISA.

In addition to identifying conceptions of sense of belonging at school, the phenomenography also described ways in which a student's identity helps build sense of belonging. To understand those individual and collective identities in the dialogue between qualitative and quantitative methodologies, this thesis strategically essentialized categories that were temporarily used in statistical analysis and later expanded into self-described identities in the qualitative work (Spivak 1980, Gunaratnam 2003). Despite their shortcomings, those normative and deterministic categories

are necessary tools for comparative statistical discussions. Moving beyond statistical analysis, such categories could be replaced by more fluid and complex identifications that emerged from students themselves during their participation in the qualitative interviews. As an example, the variable on immigration background used in the PISA data to capture diversity in class was clearly seen as insufficient to describe the complexity of students' family history, which in addition to immigration background, also included ethnic, national, and regional origin or identity. As a result, an important implication of this thesis to future rounds of PISA data would be to include more elaborate questions on students' background and family history, including ethnicity.

Adopting this position, of strategically used essentialism, such a tradition allowed this work to provide both statistically generalizable findings based on insufficiently precise identities, such as immigration background measured by one's place of birth, as well as openly defined markers of ethnic and cultural identity that are not available in quantitative datasets due to restrictive legislation in France (Safi 2013). The thesis showed the limitations of the way questionnaires are designed to collect information on students' background by presenting several examples of students whose individual self-described identities would not fit in the categories proposed by existing data collection strategies in France that exclude all forms of ethnic identification. Several students in the qualitative interviews built their subjectivities in ways that were very far from immigration background, which is the closest, albeit very insufficient, approximation of ethnic origin. In this sense, the phenomenographic analysis of school interviews provides the indispensable interpretative element to understand belongingness and identity beyond the more simplistic categories needed for statistical analysis. Discussion with students in their school environment allows for greater complexity and more nuanced self-identification than an attempt of objective categorization.

In restructuring the fixed categories imposed by the quantitative analysis into more broadly self-defined identities, the phenomenography explored how five dimensions of a student's identity helped explain the way they build their sense of belonging at school, namely: school performance, immigration and ethnicity, gender, socioeconomic background, and school identity. These results show how certain characteristics related to the way sense of belonging at school is formed, linking individual and collective identity with sense of belonging, and also how certain characteristics enhance or decrease one's perceived sense of belonging.

Various studies have pointed in the direction of a strong correlation between school performance and sense of belonging at school measured by friendships (Duru-Bellat et al. 2008 Chiu et al. 2016, OECD 2017, Choi 2018). Confirming such studies, the statistical analysis showed that PISA test scores

were the main characteristics directly correlated with sense of belonging at school and that most other characteristics included in the analysis only correlated with sense of belonging through test scores. Despite the strong link shown in the statistical evidence, academic performance was not directly used as an example of feeling of belonging at school by most students interviewed in the phenomenography. However, quite a few students did point out academic performance as being a unifying force of their group of friends, which in turn showed up as a main conception of belongingness. In most cases, this referred to those who self-identify as "good students" claiming to also have friends that are "good students", and the same was true for more poorly performing students. In this sense, academic performance functions as a unifying force for students to construct friendships, which is one of the identified conceptions of sense of belonging. Nonetheless, students whose perceived performance was poor, also did feel surrounded by friends and did respond in a way that showed that they had a high sense of belonging at school. In this sense, academic performance works more as a clustering force that creates friendships among similar students, than a way to boost one's sense of belonging at school.

The second channel through which academic behaviour influences sense of belonging is through general wellbeing. Unlike friendships, which are built around academic performance, but do not univocally enhance or diminish sense of belonging, wellbeing seems to have a clearer direction of correlation with students' academic results. Quite a few students who described wellbeing as a major conception behind sense of belonging also argued that it was related to good academic performance. Unlike the conception of friendships, the conception of wellbeing shows that students with better tests scores, do have higher sense of belonging at schools through its conception of wellbeing, which is in line with the quantitative findings. This means that the link between academic performance and sense of belonging at school is not only on the explanation of how the latter is built, but also on the magnitude of it, meaning that a higher academic performance is connected to a higher sense of belonging at school.

The second most important student characteristic identified by the statistical analysis to understand sense of belonging at school is immigration background. Quantitative findings showed a negative correlation between immigrant background and sense of belonging was clearer in one of the six dimensions, which was shown to be a major conception of sense of belonging at school following the phenomenographic interviews: making friends. First and second-generation immigrant students have significantly worse likelihood of agreeing with the statement on how easily they make friends. Furthermore, the data has shown that students have a much lower than average sense of belonging in all the six dimensions if they go to schools with a high share of immigrant students. Interestingly,

the statistical analysis also proposed that this second finding, on the collective impact of school-level characteristics, has higher explanatory power than individual characteristics.

Though PISA data for France was not collected on the ethnic background of children, as it was the case for a few participating countries, discussion around ethnic identity came out often and in almost all interviews, which confirmed the importance of this thesis in addressing such dimension of students' identities. As immigration background and ethnic identity are intimately connected, it was important to expand the discussion on both issues together. Despite its importance, the academic debate on ethnicity in France is scarce (Keaton 2005, Van Zanten 2011, Safi 2013, Ichou 2016). In this thesis, however, ethnicity, origin, and cultural communities were openly discussed with students, which is uncommon in French scholarship. For this, the interviews used the term "origine" to capture ethnicity, which, as described in the theoretical framework, combines national identity from migration background with ethnic identity. Such terminology provided the necessary openness for the students to freely discuss their identity in the light of its complexity, instead of directing them towards a necessary ethnic identity. As a result, by asking one's origin the student has much more freedom to openly identify themselves with whichever community social group they feel the strongest links to.

In an open debate around one's "origine", students proposed very complex identities, as well as a few channels through which ethnic, cultural, or national identity interacts with sense of belonging at school. The first channel through which ethnic identity or immigration background are shown to be linked to sense of belonging at school is through friendships. Many of the students, as described in the previous section, have friends who are from a similar ethnic background or community to them. There is a clear link between one's belonging to a certain group and being closer to other members of that group. Although very few students directly pointed out their ethnic community as being a source of friendships, there are quite a few indirect identifications, particularly when students named their close friends. The link between immigration or ethnic background and the 'friendships' conception of sense of belonging at school confirms findings from the quantitative analysis that students' sense of belonging at school is enhanced by the presence of other students in the school that come from similar backgrounds.

A second channel through which immigration background and ethnic identity help shape sense of belonging at school is based on the conception of school otherness, which draws largely on the school's collective characteristics including the ethnic identity of students. The situation described at School 1 in relation to the other school in the neighbourhood had clear ethnic undertones where students more fully identified with their home school not only because they were surrounded by

students of similar socioeconomic background, but also because those students had similar origins. In a similar process as the one through which immigration and ethnicity interact with friendships, those traits also interact with school otherness. A higher affiliation to the school and stronger opposition to other schools, both of which are firmly grounded on ethnic identity, can lead to an enhanced sense of belonging at school of students belonging to the community the school's collective identification is built on. Nonetheless, as discussed in section 4.3.i, it is important to consider the risk of othering and exclusion in homogenous schools where sense of belonging is driven by a common ethnic identity.

The third student characteristic analysed in the phenomenography as a force behind the construction of student belonging at school is gender. The statistical findings pointed to gender as not having a defining impact in sense of belonging of students, as although girls do have a slightly higher sense of belonging than boys in five of the six dimensions, the difference is not significant when other student characteristics are taken into consideration. Nonetheless, the phenomenography pointed in a different direction, as gender is in fact connected to one of the main conceptualizations of belongingness put forward in the previous section: friendship. Most students firmly reported considering gender as a defining characteristic linked to the way they select their friends, most of which identify as the same gender as themselves. Although gender plays a constitutive role in the way sense of belonging is constructed through its conception of friendships, it does not lead to a higher or lower overall belongingness. The fact that girls are friends with girls and boys are friends with boys has no impact in enhancing or decreasing the level of sense of belonging at school, despite helping to shape it. This finding is similar to the one connecting ethnic background to friendships, which shows that there is a pivotal role of such identities in the way friendships are defined, but not a clear impact on the magnitude of belongingness.

The second conception of sense of belonging at school that yields a clear connection with gender is wellbeing. Following part of the literature, the phenomenography confirmed that boys and girls have a very uneven occupancy of public spaces and that girls tend to be marginalized, occupy less space at the school, and hence have lower wellbeing. Although depressed wellbeing is not immediately visible or identifiable, an uneven space use based on gender can lead to feelings of exclusion among girls. Indeed, several aspects of girls' education experience are connected to lower wellbeing, such as marginalization in the school space. As a result, the link between gender and sense of belonging at school through the conception of wellbeing does point in a clear direction, which is also confirmed statistically in which girls have lower average levels of belongingness.

The findings in Chapter 3 point out that socioeconomic background is the second main determinant of sense of belonging at school in France following test scores, which is positively correlated with an increase in the likelihood of a student belonging to their school. Irrespective of the large gaps between wealthier and poorer students shown in the descriptive statistics, there was no significant difference in sense of belonging at school across socioeconomic groups when other characteristics were taken into consideration. During the qualitative interviews, socioeconomic background does show up as a channel through which the third conception of sense of belonging at school, opposition to another school, plays out. One of the main ways in which students in School 1 felt different from those in another school was due to their different socioeconomic background. However, this dynamic shows that socioeconomic background does not affect sense of belonging in a direct and linear way that could be captured by statistical analyses. The interviews do not point to an extra amount of wealth boosting one's perceived inclusion at school. On the other hand, feeling like one belongs to a specific social class and having that social class be represented in the school that they attend does appear a stronger reason to boost sense of belonging to that school. In this sense social class works as both a vector and a component of identity building, which in turn helps understand how sense of belonging at school is built.

Finally, school characteristics appear to affect sense of belonging at school through two channels, friendship, and opposition to other schools, in very similar ways. Corroborating the quantitative findings and the academic literature, Chapter 4 shared accounts from students in which they illustrate how their friendships are built with people who are similar to them in various ways including gender, ethnicity, and school performance. Furthermore, students seem to feel prouder or more connected to schools that have a student population that is similar to themselves, as strongly discussed in the process in which the conception of sense of belonging through contrast with another school emerges. The importance of the school ecosystem in creating the conditions for students to feel like they belong also reinforces the need for teachers and school principals to be aware of the main determinants of sense of belonging at school and how to boost them.

The second channel through which school characteristics impact sense of belonging is through friendships. In all three schools, quite a few students showed, primarily indirectly, that most of their friends carried a similar ethnic origin, as shown in the previous sections. The quantitative findings also pointed to students at schools where most of their colleagues are of similar ethnic origin are in a situation where they would more easily find friends. In the phenomenography, the relationship between school characteristics and individual sense of belonging at school is built through two of the three major conceptions identified in the previous section: friendships and school otherness. Furthermore, the channels through which school characteristics are connected to sense of belonging

not only help explain how it is built, but also how it can be enhanced. In this sense, studying in a school with more homogenous colleagues is connected to a higher sense of belonging through the translation of individual identities into collective ones. Nonetheless, this should be interpreted with caution, as ethnically homogenous schools are problematic and limiting in various ways. As concluded in Chapter 4, although sense of belonging can be driven by a common ethnic or cultural identity, developing homogenous school settings should by no means be a way of boosting sense of belonging of students.

The channels highlighting the connection between conceptions of belongingness and individual and collective identities show ways in which sense of belonging at school is built and what characteristics are important to understand its construction. Some of the channels also help understand how certain identities and characteristics lead to a higher or lower sense of belonging at school. Although the findings on how sense of belonging at school is built are purely qualitatively grounded on the phenomenography, the findings on the impact of individual and collective identity in enhancing or diminishing one's sense of belonging at school partially triangulate the quantitative findings. In this sense, some of those results were on par with previous findings of the literature in other national contexts presented earlier in the conclusion, as well as the quantitative evidence from the previous chapter. However, this study innovates in the provision of a phenomenographic framework describing the precise channels through which individual and collective identity operate by boosting certain conceptions of belongingness that emerge from students themselves. Furthermore, this study is a rare analysis of qualitative interviews in French schools, particularly considering all elements of students' identities, including ethnicity and national origin, which are seldom studied in the country context.

By combining phenomenography and econometrics, this thesis promotes dialogue between those two different traditions and helps bridge the epistemological divide between these schools. This work discusses both findings separately and each discussion follows the assumptions from the research methodology used to produce the knowledge presented. Statistically significant findings are presented as being representative of the entire country, while acknowledging that they deny individualities and impose categorical definitions and questionable validity. In contrast, findings from the interviews admittedly fail to represent France's entire student population, although they do provide an important illustration of examples of how sense of belonging plays out in some students' education experience. Jointly, those two areas of analysis pave the way for further quantitative research using more complex categorization, including ethnicity, as well as more qualitative and phenomenographic research to investigate sense of belonging at school, which is otherwise scarce in French schools.

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Appendix 1 – Interview Protocol for School 1

Opening Statement

You accepted to participate in this research project, which is entirely voluntary and from which you can withdraw at any moment. The objective of this research is to explore students' sense of belonging to the school. There are no right or wrong questions in this interview and the objective is for you to freely explain your feelings and describe your previous experiences.

You will be able to tell me a little bit more about yourself in the first few questions, which refer to your personal background. In the second part of the interview I will ask you questions about your experience at school.

All information in this interview is confidential and anonymous, meaning that your name will not be mentioned in any part of the research. The interview should last for between 30 and 45 minutes. Please feel free to interrupt me at any time if you do not understand or do not wish to respond to any of the questions. Also, please keep in mind that the interview can be stopped at any time and the information provided can be withdrawn at your request. Now I will go over the information sheet you received a few days ago.

Interviewer shares the information sheet with participant and reads it out loud

Interviewer presents the consent form, collects signature and starts recording

INTERVIEWER STARTS RECORDING HERE

Background questions

I am Diogo Amaro, PhD candidate at the UCL Institute of Education, University of London. It is the [date]. Just to repeat the points outlined before recording began: the purpose of this interview is to help understand what makes some children feel like they belong at school, while others feel excluded. The interview is completely confidential and voluntary, and you are free to withdraw from this research at any time. Are you happy to proceed on this basis?

[If yes]

First, I will ask a few questions about yourself, followed by some questions about your family and finally two questions on how you are as a student.

1. What is your name?
2. How old are you?
3. What grade are you in?

4. Where were you born? (City, Country)

Questionnaire

I would you think about your school environment and the experiences you generally have at school to answer the questions below. For each question, I would like to know to what extent do you agree or disagree with the following statements using a scale of four options from mostly agree to mostly disagree. If you do not understand, it is fine, we will go over it in detail afterwards.

Interviewer hands out the table below for the student to fill out.

Statement	Mostly agree	Agree	Disagree	Mostly disagree
1. I feel like an outsider at school				
2. I make friends easily at school				
3. I feel awkward and out of place in my school				
4. Other students seem to like me				
5. I feel lonely at school				
6. I feel like I belong at school				

Interview

After you have responded to the question with one of the four options, I would like to know more about your experiences by asking you to give examples from your school experiences.

The interviewer will ask for examples of each of the statements above. Some follow-up questions may be asked to stimulate students to talk.

Definitions

1. I'm interested in the idea of 'belonging'. Can you explain what you understand 'belonging somewhere' to mean?

2. In the case of school specifically, what does it mean to you to 'belong at school'?
   - *Can you give examples of situations where you feel like you belonged at school?*
   - *Can you think of situations where you felt like you did not belong at school?*

3. Another interesting issue in this research is the notion of 'identity'. When someone asks you about your identity, what do you understand by this question?
   - *When you meet new people, how do you describe yourself to them?*
   - *What among your characteristics are you proudest of?*

Stories/experiences

4. Can you describe to me your group of friends at school? The students you are usually surrounded by?
   - *How many close friends do you have? What are your friends' names? Can you give me examples of activities you do together in and out of school?*

5. Did you make any new friends at school last year?

   - *How many new friends do you have? Can you describe them a little bit?*

   - *Do you recall how you became friends with them?*

6. How do you usually feel in relation to your classmates?

   - *Can you given me examples of things you have in common with them?*

   - *Are there any aspects that make you feel different from most of children in your school? Anyone in particular? Why?*

7. How do you usually feel in relation to your teachers?

   - *Who is your favourite teacher and why?*

8. Can you describe a typical school break?

   - *Who do you spend time with? Why?*

   - *Who do you have lunch with?*

9. Can you recall any moment when you felt lonely at school? If yes, can you describe that moment?

   - *What would make you feel less lonely?*

   - *What kind of activities do you do when you are lonely?*

10. Can you give an example of a group activity you participated in recently at school?

    - *Which classmates were in your group? Why did you choose those classmates? What do you have in common with them?*

    - *Did you pick your group or someone in the group picked you?*

11. Do you ever feel awkward or out of place at school? In which situations?

    - *Can you describe the moments when you felt out of place at school? What triggered it?*

    - *Do those moments happen more often in class or during break?*

Further background questions (if not answered previously during the conversation)

1. Do your parents have jobs? If yes, what do they do?

2. Where were your parents born?

3. Do you identify with an ethnic background? If yes, how would you describe it?

4. What kind of student do you consider yourself to be? What would you say your average grade was?

Closing statements and thanks

Many thanks for giving up the time to answer these questions. Your views are very valuable to us and will greatly inform our research.

Please do contact us at the email address or phone number given if you have any later questions or concerns.

Many thanks.

Appendix 2 – Examples of extraits of transcripts (translated)

Hakim (School 1)

Researcher: So, as you already know the purpose of the research is to chat with you in a rather informal way to find out a little more about how you feel at school. I'm going to ask you a few questions, but it will mostly be an informal discussion, which means you can interrupt me whenever you want to ask me questions.

Student: What type of questions?

Researcher: It's pretty generic, knowing a little more about your experiences, your friends at school, how you feel, your school life. This is not a test, it is more to discuss and help me with research. We will start with this list of short statements that you have to mark if you agree or disagree with. [hands in the questionnaire]. Let me know if you have any questions

Student: OK that works. [hands back the questionnaire]

Researcher: Thanks a lot for this! Let's start the conversation then. I am interested in the idea of belonging to the school. Can you explain to me a bit about what you understand by belonging somewhere? And in particular belonging in school?

Student: For me belonging is when you are good somewhere, when you are happy, when you are peace.

Researcher: I see… I saw that you marked that you really feel at home at school. How do you feel at home at school?

Student: Yes, the same. For me it's not having a problem, it's doing what you want. Having friends … My friends

Researcher: So describe your friends to me a bit, who do you hang out with in college?

Student: The friends? For example, do I describe what I do with them?

Researcher: Yes, it can be that, or else tell a little about who they are, how you met them. Where are they from, what do you do?

Student: Well, we have a connection to football, for example. We laugh sometimes. In fact, there are plenty of days we are not laughing. We have the same ravings[26]

Researcher: Football?

Student: Yes, football, boxing, we have things in common… I'm not too good friends with .. I am friends with people who are open, people who come to talk, not reserved people… If we have the same points in common, the same ravings, we understand each other ...

Researcher: Are there other things in common with them?

---

[26] "Délieres" in the original.

Student: No, not really that's it ... All the boys in my class I'm close with them

Researcher: You say "boys" does not mean girls too much?

Student: Yes, we don't have fun with girls ... They don't have the same ravings, and also we can't say anything. Some don't like anything we say they are unhappy

Researcher: Are there other things that connect you with the boys you're talking about? What unites you with these people?

Student: Sometimes it's the family, my mother she knew someone else's mother and we started hanging out

Researcher: Ah, okay, interesting. Do you hang out a lot with friends and family?

Student: Yes, that's us, we're like that

Researcher: When you tell us who are you talking about? From your family? People from your neighbourhood?

Student: Oh no, especially the people of the bled[27] and also the neighbourhood, here everyone is almost from the bled

Research: Is that so? Everybody?

Student: Well, there are people from the other school, the guys have already told you about it, haven't they?

Researcher: Yes, yes, I found it very interesting indeed. Do you want to tell me a bit?

Student: They all said what, we don't get al.ong very well, we are not like them, we are blédards[28] us.

Researcher: What do you mean not like them?

Student: We're just not the same, we don't like the same things. They are shy, reserved, we are talkative, we are blédards. When we meet we don't talk to each other

Researcher: OK I understand. So you said, your parents they come from the bled? Or is that you?

Student: My grandparents are from the bled

Researcher: So these are your grandparents? Your parents were born here. It has been a long time

Student: No, my grandparents and my parents were born there, in Morocco. I was born here

Researcher: Ah ok, I get it, it's very interesting. What are you talking about at home? Arab, or Berber?

Student: Yes yes, Amazigh myself.

Researcher: Very cool! So when you describe yourself to people how do you identify yourself?

Student: What do you mean?

Researcher: In general, when you introduce yourself do you have a specific identity that you claim?

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[27] "Bled" was kept in as in the original as there is no direct translation. The word comes from Arabic "balad" which means "country". It is typically used to refer to one's motherland, especially in the case of the Maghreb.
[28] "Blédard" is someone who comes from the "bled".

Student: I do not know. Happy? How to say? [...] Like.. communicative, athletic [...] I think that's it

Researcher: So how do you see yourself at school in terms of your performance? Are you a pretty good student, average or not very scholar?

Student: I'm a pretty good student, afterwards if I don't get involved in the work I am, I don't know, I'm average. But if I get involved, I can do good things

Researcher: How often do you get involved or not?

Student: [laughs] Not really... After that there are classes that I like.

Researcher: Which ones?

Student: I don't like SVT[29]... Sport is going up the average. After that I have some difficulties in maths and physics, because it is difficult

Researcher: Ok, and do you have teachers that you love more than others? For example, [the student names the support teacher, who at the time was not very far from where the interview was going]

Student: [laughs] yes he's cool. He treats us well, he is not a bastard

Researcher: And what is an uncool teacher?

Student: A teacher who screams every time, who doesn't bother to explain things to us. Who screams, who treats us like we're nothing

Researcher: Ok, and there are a few questions that I didn't ask. What do your parents work with?

Student: My mother is in training to become a childcare assistant, to take care of the children

Researcher: And your father?

Student: My father works with machines, he works far

Researcher: Ah ok, and why did they come to [city name]

Student: They have always been there, they have been here for a long time, they were born here[30]

Researcher: Ah ok, your grandparents came.

Student: Yes that's it, they came I dunno to look for work.

Researcher: Ok. Going back to some school questions. Are there times when you don't feel well in school?

Student: Yes, when there are long days, from 8 am to 6 pm it hurts the morale... when you have several lessons. I'm tired ... Or afterwards when we are given too much homework because it takes too long

Researcher: And apart from the workload, are there times when you don't get al.ong well with your colleagues or with the teachers?

Student: Not really

---

[29] Sciences class
[30] This statement contradicts an earlier one

Researcher: No headaches? Moment of embarrassment?

Student: Yes, once I got into a fight with Basil[31]

Researcher: Oh really why?

Student: He wanted to fight! He was provoking me. So we fought, but a few hits, afterwards we were separated

Researcher: But why was he provoking you? What was the trigger?

Student: There weren't any, he just wanted to fight

Researcher: Did he pick you up at random?

Student: Yes, that's it, he wanted to fight that's all, he found me and voila

Researcher: And during the break what you do?

Student: The break? [Laughs] it's 20 minutes, there's nothing we can do. Sometimes when we have empty hours we play football

Researcher: Even at noon?

Student: At noon I go to the canteen and I eat, it's disgusting [he laughs]

Researcher: You should eat at home [laughs]

Student: Yes, but it's far, and I eat with the friends

Researcher: And these are the friends you told me about?

Student: Yes that's it, my friends who else

Researcher: Ah, ok, and in the canteen, are there people you see eating on their own?

Student: You see the two people I told you about earlier[32] ... The reserved ones. They eat all alone

(…)

Hamza (School 1)

Researcher: Hi Hamza, my name is Diogo and, as I said, this is part of my doctoral research. The idea is know more about how you feel in school and try to learn a bit more of your experiences. Do you remember the purpose of the interview and of my research? Do you have any questions?

Student: Ok, no problem.

Researcher: Alright, I will start with short questionnaire for you to fill out and then a few questions, it will be a very relaxed discussion, if you want to stop it at any moment or if you do not want to talk about something, just let me know.

Student: Let's go.

Researcher: Ok, so here is the questionnaire, please take your time to fill it out [hands in the questionnaire].

Researcher: Do you have any questions?

---

[31] Pseudonym of a student who was not interviewed
[32] The student refers to those people, but they had not been part of the conversation before

Student: No, no it's ready. [the student hands back the questionnaire].

Researcher: Ok, perfect. I will keep the questionnaire and start with a few questions.

Student: Ok.

Researcher: The main topic of this research is about sense of belonging to school and I would like to know more about what you understand as being this sense of belonging. On the sheet you marked that you belong strongly to school. What does it mean to you? What makes someone belong at school?

Student: Having friends? I don't know, you are a part of the school when you are with other students, when you hang out with people. Otherwise if you just study, it's not great.

Researcher: Interesting… So what do your friends look like? Who do you hang out with?

Student: A bunch of people. You met Yassine and Adel, but I also have plenty of other friends. Our group is pretty solid, Mo, Khaled, Ous… Believe me we have a lot of friends, and these are the real friends.

Research: Do you also have some girl friends?

Student: Huum, I don't hang out with girls much, they don't laugh at my jokes… They don't laugh at anyone's jokes [laughs], they don't like this…

Researcher: No girls at all?

Student: No, not really… I don't want to say that they are all like that, but… yes, I don't know a lot of girls who make jokes.

Researcher: Oh ok, so no exceptions?

Student: No, not really… I don't want to say that they are all like that, but… yes, I don't know a lot of girls who make jokes.

(…)

Researcher: Yes, Adel did mention the students from "the other school". So what's going on with them? Why do you all not get along?

Student: (laughs) they talk too much… All they do is talk talk talk, it's tiring! And I mean, it's not only this, they are just different, nothing to do with us.

Researcher: Different in what sense?

Student: Everything, they are just different, they don't talk like us, they don't like the thinks we like.

(…)

Researcher: And despite these differences there is no form of discrimination in the school?

Student: No not really, everyone gets along at the end.

Researcher: Even if it is in a mocking form, to make fun of someone haven't you heard anything recently that could be similar to discrimination?

Student: Hum… last week we made a little fun of [student's name] because of his mum. It's not discrimination but just funny because when she came to pick him up, she was yelling and she had a

huge accent… She walked in yelling "*[student's name], [student's name], come, you come here, you will see it*" (the student imitates her). We all laughed a lot. But it's just to laugh, because she talks like that and she was super angry.

Researcher: So why was she angry at [student's name]?

Student: I don't know, I think the teacher called her to pick him up because he was causing trouble.

Researcher: I see. Do you have other examples of similar situations like this?

Student: I don't know, but since then we made fun of [student's name] every now and then, we call him doing his mum's accent… (laughs) I know it's not funny, but it is still funny…

(…)

Appendix 3 – Examples of extracts of transcripts (original)

Hakim (School 1)

Researcher: Alors, comme tu sais déjà le but de la recherche c'est de discuter un peu avec toi de façon plutôt informelle pour savoir un peu plus sur comment tu te sens à l'école. Je vais te poser quelques questions, mais ça sera surtout une discussion informelle, ce qui veut dire que tu peux m'interrompre quand tu veux pour me poser des questions.

Student : Quel type de questions ?

Researcher: C'est assez générique, savoir un peu plus sur tes expériences, tes amis à l'école, comment tu te sens, ta vie à l'école. Ce n'est pas un test, c'est plus pour discuter et m'aider dans la recherche.

Student : Ok, ça marche.

Researcher: Je suis intéressé par l'idée d'appartenance à l'école. Est-ce que tu peux m'expliquer un peu sur ce que tu comprends par appartenir quelque part ?

Researcher: J'ai vu que tu as marqué que tu te sens vraiment chez toi à l'école. C'est quoi pour toi se sentir chez soi à l'école ?

Student : Pour moi ce n'est pas avoir de problème, c'est faire ce que tu veux. Avoir nos amis… Nos amis

Researcher: Donc décris moi un peu tes amis, tu traînes avec qui au collège ?

Student : Les amis ? Par exemple, je décris ce que je fais avec eux ?

Researcher: Oui, ça peut être ça, ou sinon raconter un peu qui ils sont, comment tu les as rencontrés. Ils viennent d'où, vous faites quoi ?

Student :Bah, on a un rapport au foot, par exemple. On rigole des fois. En fait il y a plein de jours on ne rigole pas. On a les mêmes délires

Researcher: Le foot ?

Student :Oui, le foot, la boxe, on a des points communs… Je suis pas trop ami avec.. Je suis ami avec les gens qui sont ouverts, les gens qui viennent parlers, pas les gens réservés… Si on a les mêmes points commun, les mêmes délires, on se comprends…

Researcher: Il y a d'autres choses en commun avec eux ?

Non, pas vraiment c'est que ça… Tous les garçons de ma classe je suis proche avec eux

Researcher: Tu dis « les garçons » ça veut dire pas trop les filles ?

Student : Oui, on s'amuse pas avec les filles… Ils n'ont pas les mêmes délires que nous, et on ne peut rien dire. Il y en a qui tout ce qu'on dit elles ne sont pas contentes

Researcher: Est-ce qu'il y a d'autres choses qui vous connecte avec les garçons dont tu parles ? Qu'est-ce que t'unis avec ces gens-là ?

Student : Des fois c'est la famille, la mère elle connaissait la mère d'un autre et on a commencé à accrocher

Researcher: Ah, ok, intéressant. Tu traînes beaucoup avec les amis la famille ?

Student : Oui, c'est nous on est comme ça

Researcher: Quand tu dis nous tu parles de qui ? De ta famille ? Des gens de ton quartier ?

Student : Ah non, surtout les gens du bled et aussi le quartier, ici tout le monde est du bled presque

Researcher: Ah bon ? Tout le monde ?

Student : Bah, il y a des gens de l'autre école les gars t'en ont déjà parlé non ?

Researcher: Oui, oui, j'ai trouvé ça très intéressant, en effet. Tu veux m'en raconté un peu ?

Student : Ils ont tous dit quoi, on s'entend pas très bien, on est pas comme eux, on est des blédards nous.

Researcher: Comment ça pas comme eux ?

Student : On est juste pas pareil, on aime pas les mêmes choses. Eux c'est des timides, des reservés, nous on est bavard, on est des blédards. Quand on se croise on se parle pas

Researcher: Ok, je comprends. Du coup tu disais, tes parents ils viennent du bled ? Ou c'est toi ?

Student : Mes grands-parents sont du bled

Researcher: Donc c'est tes grands-parents ? Tes parents sont nés ici. Ça fait longtemps

Student : Non, mes grands-parents et mes parents sont nés là-bas, au Maroc. C'est moi qui suis né ici

Researcher: Ah ok, je comprends, c'est très intéressant. Tu parles quoi à la maison ? Arabe, ou berbère ?

Student : Oui oui, amazigh moi.

Researcher: Trop cool ! Et du coup quand tu te décris au gens comment tu t'identifies ?

Student : Comment ça ?

Researcher: En générale, quand tu te présentes tu as une identité en particulier que tu revendiques ?

Student : Je ne sais pas. Joyeux ? Comment dire ? […] genre, communicatif, sportif […] je crois que c'est tout

Researcher: Et du coup à l'école tu te considères comment au niveau de ta performance ? Tu es plutôt bon élève, moyen ou pas très scolaire ?

Student : Moi je suis plutôt bon élève, après si je m'implique pas dans le travaille je suis, je ne sais pas, je suis moyen. Mais si je m'implique je peux faire des bons trucs

Researcher: Et souvent tu t'impliques ou pas ?

Student : [il rigole] Pas vraiment… Après il y a des cours que j'aime bien.

Researcher: Lesquels ?

Student : J'aime pas la SVT… Le sport, ça remonte la moyenne. Après j'ai quelques difficultés en maths et en physique, parce que c'est difficile

Researcher: Ok, et tu as des profs que tu aimes plus que d'autres ? Par exemple support teacher [qui a ce moment était pas très loin de là où l'entretien se passait]

Student : [il rit] oui lui il est cool. Il nous traite bien, il fait pas le bâtard

Researcher: Et un prof pas cool c'est quoi ?

Student : Un prof qui cri à chaque fois, qui ne prend pas la peine de nous expliquer les choses. Qui cri, qui nous traite comme si on était rien

Researcher: Ok, et du coup il y a quelques questions qui je n'ai pas posées. Tes parents ils bossent dans quoi ?

Student : Ma mère est en formation pour devenir auxiliaire de puériculture, pour s'occuper des enfants

Researcher: Et ton père ?

Student : Mon père travaille avec des machines, il bosse loin

Researcher: Ah ok, et ils sont venus pourquoi à [city name]

Student : Eux ils ont toujours été là, ils sont la depuis longtemps, ils sont nés ici

Researcher: Ah ok, ce sont tes grands-parents qui sont venus.

Student : Oui c'est ça, ils sont venus je sais pas pour chercher du travail.

Researcher: Ok. Pour revenir à quelques questions sur l'école. Est-ce qu'il y a des moments où tu ne te sens pas bien à l'école ?

Student : Oui, quand il y a des longues journées, du 8 heures 18 heures ça fait mal au morale… quand on a plusieurs cours. La je suis fatigué … Ou après quand on nous donne trop de devoirs car ça prend trop de temps

Researcher: Et en dehors de la charge de travail, est-ce qu'il y a des moments où tu t'entends pas bien avec tes collègues ou avec les profs ?

Student : Non, pas vraiment

Researcher: Aucune prise de tête ? Moment de gêne ?

Student : Si, une fois que je me suis battu avec Baserro.

Researcher: Ah bon pourquoi ?

Student : Il voulait se battre ! Il me provoquait. Du coup on s'est battus, mais quelques coups, après on nous a séparés

Researcher: Mais il te provoquait pourquoi ? C'était quoi l'élément déclencheur ?

Student : Il y en avait pas, il voulait juste se battre

Researcher: Il t'a pris comme ça au hasard ?

Student : Oui c'est ça, il avait envie de se battre c'est tout, il m'a trouvé et voilà

Researcher: Et du coup pendant la récrée tu fais ?

Student : La récrée ? [Il rit] ça dure 20 minutes, on peut rien faire. Parfois quand on a des heures de trou on fait du foot

Researcher: Même à midi ?

Student : A midi je vais à la cantine et je mange, c'est dégueulasse [il rit]

Researcher: Tu devrais manger à la maison [il rit]

Student : Oui, mais c'est loin, et je mange avec les potes

Researcher: Et ça c'est les potes dont tu m'avais parlé ?

Student : Oui c'est ça, mes potes quoi

Researcher: Ah, ok, et à la cantine, est-ce qu'il y a des gens que tu vois qu'ils mangent tous seuls ?

Student : Tu vois les deux personnes dont je t'avais parlé tout à l'heure… Les réservés. Ils mangent tous seuls

(…)

Hamza (School 1)

Researcher: Bonjour Hamza, je m'appelle Diogo et, comme je l'ai dit, cela fait partie de ma recherche doctorale. L'idée est d'en savoir plus sur ce que tu ressens par rapport à l'école et d'essayer d'en apprendre un peu plus sur tes expériences. Est-ce que tu te souviens du but de l'entretien et de mes recherches ? Est-ce que tu as des questions?

Student: Ok, pas de problème.

Researcher: D'accord, je vais commencer par un court questionnaire à remplir et ensuite quelques questions, ce sera une discussion très détendue, si tu veux l'arrêter à tout moment ou si tu ne veux pas parler d'un sujet, juste fais-moi savoir.

Student: C'est parti.

Researcher: Ok, alors voici le questionnaire, tu peux prendre ton temps pour le remplir [le chercheur donne le questionnaire].

Researcher: Est-ce que tu as des questions ?

Student: Non, non, c'est bon. [l'élève rend le questionnaire].

Researcher: Ok, parfait. Je vais garder le questionnaire et commencer avec quelques questions.

Student: D'accord.

Researcher: Le sujet principal de cette recherche fait référence au sentiment d'appartenance à l'école et j'aimerais en savoir plus sur ce que tu comprends par ce sentiment d'appartenance. Sur la feuille tu as indiqué avoir un fort sentiment d'appartenance à l'école. Ça veut dire quoi pour toi ? Qu'est-ce qui fait qu'une personne appartient à l'école ?

Student: Avoir des amis ? Je sais pas, tu fais partie de l'école quand tu es avec d'autres élèves, quand tu traînes avec des gens. Sinon, si tu viens juste pour étudier, c'est pas génial.

Researcher: Intéressant… Alors tu peux me parler de tes amis ? Tu traînes avec qui au collège ?

Student: J'ai ma bande de pote. Tu as rencontré Yassine et Adel, mais j'ai aussi plein d'autres amis. Notre groupe est assez solide, Mo, Khaled, Ous… Crois-moi, on a beaucoup d'amis, et ils sont des vrais amis.

Recherche : Tu as aussi des amies filles ?

Student: Huum, je ne traîne pas trop avec les filles, elles rigolent pas trop de mes blagues… Elles ne rigolent des blagues de personne en fait [rires], elles n'aiment pas ça…

Researcher: Pas du tout des filles ?

Student: Non, pas vraiment… Je ne veux pas dire qu'elles sont toutes comme ça, mais… oui, je connais pas beaucoup de filles qui font des blagues.

Researcher: Oh ok, donc pas d'exceptions ?

Student : Non, pas vraiment… Je veux pas dire qu'elles sont toutes comme ça, mais… oui, je connais pas trop de filles qui font des blagues.

(…)

Researcher: Oui, Adel a mentionné les élèves de « l'autre école ». Alors, c'est quoi l'affaire avec eux? Pourquoi ne vous vous entendez par avec eux ?

Student: (rires) ils parlent trop… Ils ne font que papoter papoter papoter, c'est fatiguant ! Et je veux dire, il n'y a pas que ça, ils sont juste différents, rien à voir avec nous.

Researcher: Différent dans quel sens ?

Student: Sur tout, en fait, ils sont juste différents, ils ne parlent pas comme nous, ils ont pas les mêmes kiffes que nous.

(…)

Researcher: Et malgré ces différences il n'y a aucune forme de discrimination à l'école ?

Etudiant : Non pas vraiment, tout le monde s'entend bien au final.

Researcher: Même si c'est sous forme de moquerie, pour vous moquer de quelqu'un, tu n'as rien entendu récemment qui puisse ressembler un peu à de la discrimination ?

Student: Hum… la semaine dernière, on s'est un peu moqués de [nom de l'élève] à cause de sa maman. C'est pas de la discrimination mais c'était juste drôle quand elle est venue le chercher au collègue, elle criait et elle avait un gros accent… (l'élève l'imite). On a beaucoup rigolé, mais c'est juste pour rire, tu sais, juste parce qu'elle parle comme ça et qu'elle était super en colère.

Researcher: Alors pourquoi est-ce qu'elle était en colère contre [nom de l'élève] ?

Student: Je ne sais pas, je pense que la prof avait appelé sa maman pour venir le chercher parce qu'il foutait le bordel en cours.

Researcher: Je vois. Est-ce que tu as d'autres exemples de situations similaires comme celle-là?

Student: Je ne sais pas, mais depuis on se moque de [nom de l'élève] de temps en temps, on l'appelle faisant l'accent de sa mère… (il rigole) Je sais que c'est pas drôle, mais c'est quand même drôle…

(…)

Appendix 4 – Reliability index

The table below is extracted from the PISA 2018 technical background (OECD 2020) and presents the Cronbach's Alpha coefficients for each country or economy.

Country/Economy	BELONG
Australia	0.839
Austria	0.853
Belgium	0.786
Canada	0.835
Chile	0.796
Czech Republic	0.776
Denmark	0.833
Estonia	0.815
Finland	0.852
France	0.678
Germany	0.804
Greece	0.799
Hungary	0.829
Iceland	0.872
Ireland	0.830
Italy	0.794
Japan	0.803
Korea	0.816
Latvia	0.823
Lithuania	0.770
Luxembourg	0.777
Mexico	0.824
Netherlands	0.803
New Zealand	0.822
Norway	0.839
Poland	0.791
Portugal	0.810
Slovak Republic	0.784
Slovenia	0.798
Spain	0.851
Sweden	0.865
Switzerland	0.785
Turkey	0.796
United Kingdom	0.834
United States	0.843
OECD Average	0.812

Appendix 5 – Examples of robustness checks

The table below replicates Table 7 (How each subdimension of belongingness is affected in France), but instead of coding each dimension of belonging as positive if a student responds to the item as "strongly agrees" or "agrees", it considers belonging to only be assessed if the student responded that they "strongly agree".

Table 21 Robustness check of Table 7

	(1) Feel like an outsider	(2) Make friends	(3) Belong	(4) Feel awkward	(5) Liked by colleagues	(6) Feel lonely
Second-generation immigrant	0.174	0.528*	0.327*	0.252*	-0.119	0.254
	-1.64	-2.15	-2.05	-2	(-0.73)	-1.66
First-generation immigrant	0.132	0.0194	0.406	0.136	-0.619***	0.0447
	-0.93	-0.07	-1.81	-0.84	(-3.51)	-0.24
Female	0.294***	0.0152	-0.0215	0.109	0.497***	-0.0738
	-4.76	-0.12	(-0.21)	-1.54	-4.85	(-0.87)
Socioeconomic background	-0.0136	0.182*	0.107	-0.0207	-0.0686	0.00948
	(-0.36)	-2.41	-1.71	(-0.48)	(-1.20)	-0.18
Vocational	0.157	0.194	-0.0387	0.00229	-0.102	-0.122
	-1.91	-1.14	(-0.28)	-0.02	(-0.87)	(-1.09)
Test score	0.0236***	0.0112**	-0.0102**	0.0164***	0.0480***	0.00787**
	-11.34	-2.62	(-2.97)	-6.93	-14.08	-2.77
Life satisfaction	0.621***	0.757***	0.548***	0.935***	0.413***	1.189***
	-9.69	-5.89	-4.7	-13	-4.01	-13.91
Intercept	-1.930***	1.345**	-1.408***	-0.754**	-2.754***	0.597*
	(-8.85)	-3.02	(-3.87)	(-3.06)	(-8.23)	-2.02
N	5732	5463	3823	5732	4716	5732
Pseudo R-square	307.6***	67.94***	40.32***	260.3***	411.4***	234.2***
t statistics in parentheses						
* p<0.05, **p<0.01, *** p<0.001						

The table below replicates Table 11 (Determinants of sense of belonging using fixed effects for school) using the exact same hierarchical model, the only difference being that it uses random effects at the school level instead of fixed effects as in the table.

Table 22 Robustness check of Table 11

	(1) Belong (index)	(2) Feel like an outsider	(3) Make friends	(4) Belong (dimension)	(5) Feel awkward	(6) Liked by colleagues	(7) Feel lonely
Female	-0.0147	0.0563***	0.0208**	0.0352*	0.017	0.0281***	-0.00938
	(-0.75)	-4.44	-2.63	-2.44	-1.65	-4.15	(-1.08)
Socioeconomic background	0.0501***	-0.00572	0.00531	0.0108	-0.00472	-0.0103*	-0.00138
	-3.58	(-0.64)	-0.92	-1.19	(-0.61)	(-2.00)	(-0.23)
Vocational	0.00625	0.0168	-0.00272	0.0145	-0.00605	-0.0119	-0.0143
	-0.18	-0.93	(-0.20)	-0.57	(-0.33)	(-0.82)	(-1.01)
Test score	0.00243**	0.00612***	0.00112**	0.00222**	0.00247**	0.00229**	0.000341
	-2.6	-10.99	-2.98	-3.48	-5.18	-6.98	-0.79
Life satisfaction	0.427***	0.158***	0.0427***	0.129***	0.166***	0.0359***	0.144***
	-18.76	-10.33	-4.64	-9.15	-13.4	-4.44	-12.25
Second-generation immigrant	0.108**	0.0332	0.00387	-0.011	0.0262	-0.0101	0.0182
	-3.11	-1.33	-0.26	(-0.42)	-1.46	(-0.81)	-1.14
First-generation immigrant	-0.0559	-0.0153	-0.0472	0.0782	-0.00289	-0.0873**	-0.00745
	(-1.06)	(-0.43)	(-1.82)	-1.83	(-0.09)	(-3.20)	(-0.29)
School diversity	0.00981	0.113	-0.103	-0.0599	-0.067	0.00979	-0.0476
	-0.06	-1.13	(-1.25)	(-0.52)	(-0.85)	-0.11	(-0.72)
School average socioeconomic	-0.0773	-0.0121	-0.0426	0.0111	-0.0429	-0.0382	-0.0249
	(-1.61)	(-0.43)	(-1.63)	-0.35	(-1.80)	(-1.65)	(-1.28)
School average test	0.00263	0.000774	0.00284*	-0.00108	0.00195*	0.00253*	0.00212*
	-1.38	-0.65	-2.51	(-0.84)	-2.01	-2.35	-2.28

School average life satisfaction	0.104	-0.0301	0.0757	0.114	-0.0278	0.0651	-0.00885
	-0.92	(-0.50)	-1.7	-1.44	(-0.60)	-1.45	(-0.19)
Intercept	-0.951***	-0.122	0.431***	0.0752	0.267*	0.360**	0.546***
	(-4.77)	(-1.04)	-3.74	-0.61	-2.57	-3.2	-6.29
N	5487	5148	5732	5457	5452	5732	5451
Wald chi2	465.7***	489.3***	135.2***	145.3***	323.9***	199.1***	210.5***
t statistics in parentheses							
* p<0.05, **p<0.01, *** p<0.001							