



School of Social and Human Sciences

Department of Social and Organizational Psychology

Effect of ethnic composition of primary schools on academic
achievement, cross-ethnic friendships, discrimination and school
well-being

Érica Carolina Gonçalves Andrade

Dissertation submitted as partial requirement for the conferral of

Master in Community Psychology and Child Protection

Supervisor:

Doctor Maria Benedicta Monteiro, Senior Full Professor,

ISCTE - Lisbon Institute University

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Resumo

O presente estudo teve como objetivo investigar os efeitos da composição étnica de escolas públicas de 1º ciclo com crianças Brancas e Negras no desempenho académico, no bem-estar na escola, nas amizades interétnicas e na discriminação intergrupar, de modo a contribuir com mais conhecimento nesta área controversa e com reduzido número de estudos nacionais. Os participantes foram 102 alunos de 4º ano (M idade = 9.82, 49% do género masculino), incluindo crianças Brancas ($n = 48$) e Negras de Países Africanos de Língua Oficial Portuguesa ($n = 54$). As composições étnicas das escolas foram de 10% a 30%, 31% a 59% e 60% ou mais de crianças da minoria.

Verificou-se que, em geral, as crianças Brancas têm melhor sucesso académico em todas as disciplinas, mas tanto Brancas como Negras têm pior sucesso em Matemática e no Estudo do Meio quando a composição é de 60% ou mais, em comparação com os seus pares nas restantes condições. Apenas quando a composição étnica da escola é equilibrada (31% a 59%) as crianças Brancas e Negras têm o mesmo número de amizades interétnicas. As crianças Negras avaliam as crianças Brancas mais negativamente do que as Brancas, quando a composição étnica é de 60% ou mais. O bem-estar na escola é mais alto em crianças Brancas do que em crianças Negras, independentemente da composição étnica da escola.

Os resultados são discutidos no âmbito das políticas públicas de Educação para as escolas de primeiro ciclo em Portugal, de forma a proporcionar uma maior igualdade de oportunidades de sucesso e de bem-estar entre a minoria e a maioria.

Palavras-Chave: composição étnica de escolas, desempenho escolar, amizades interétnicas, discriminação, bem-estar na escola

3020 Group & Interpersonal Processes

3550 Academic Learning & Achievement

Abstract

The aim of this study was to investigate the effects of primary schools' ethnic composition on academic achievement, school well-being, cross-ethnic friendships and discrimination, with the purpose of adding knowledge to this controversial research area in which national research is limited. Participants were students from the 4th grade (*M age* = 9.82, 49%), White natives (*n* = 48) and Black immigrants from Portuguese-speaking African countries (*n* = 54). The school ethnic compositions were of 10% to 30%, 31% to 59% and 60% or more of children from minority groups.

Results found that White students performed better in all subjects, but both White and Black students performed worse in Mathematics and Social Environmental studies when in the 60% or more minority condition, in comparison to their peers in the other conditions. When the school ethnic composition was more balanced (31% to 59%) both native and immigrant children have the same number of cross-ethnic friendships. For discriminative behaviours, Black children rated White children more negatively than Black children when in the school ethnic composition of 60% or more. School well-being was higher for White native students than for Black immigrants, regardless of the schools' ethnic composition.

Results were discussed as a potential contribute to the design of public policies of Education for Portuguese primary schools, in order to provide greater equality of opportunities for success and well being between minority and the majority students.

Keywords: school ethnic composition, academic achievement, cross-ethnic friendships, discrimination, school well-being

3020 Group & Interpersonal Processes

3550 Academic Learning & Achievement

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Introduction

The European Union (EU) has now an estimated population of 508.2 million (Eurostat, 2015a) of which 33.5 million were born outside of the EU and 17.9 million were living in a different EU Member state than the one where they were born (Eurostat, 2015b)¹. In 2014 Black Africans living in Portugal from Portuguese-speaking African countries (namely Angola, Cape Verde, Guinea-Bissau, Mozambique, Sao Tome and Principe and Equatorial Guinea) represented almost 24% of the 395 195 immigrant population in Portugal (SEF, 2015).

In Portugal during the academic year of 2012/2013, 2,025,462 people were registered in the educational system (pre-school, primary, secondary and higher education), ages ranging from three to over 50. Ninety five thousand and seventeen were students with foreign Nationalities, where 33% (31,007) were Black Africans from Portuguese-speaking African countries. In relation to primary education, in Portuguese, *Ensino Básico*², there were 1,031,026 enrolments, of which 42,239 were of foreign Nationalities, of which 28% were Black Africans from Portuguese-speaking African countries (DGEEC & DSEE, 2014). It's important to note however, that not all of Black Africans in education in Portugal are represented among these figures, as the younger generations now have Portuguese Nationalities. Nonetheless, in Portugal no public official figures are available regarding the ethnicity of students in the education system.

The ethnicity problem in Education was first formally addressed in the USA when the Supreme Court decided on the *Brown vs. Board of Education* (1954), which stated illegal the laws that separated Black and White students in public schools. This was first proposed to the Supreme Court in 1952, as people from the Black community asked for desegregation so they could have the right of entry to public schools in their communities. Yet it was only in 1954 that the division by race was acknowledged as unfair and desegregation of public schools began in 1955 (LII, n.d). A few years later the Civil Rights Act (1964) again prohibited in USA racial discrimination in voting, in public accommodation, in public facilities and education and in employment, among other purposes. Nevertheless, decades after those legal decisions, it seems there is still no consensus among Social Sciences researchers on the benefits of desegregation (Baysu, Phalet & Brown, 2014). Additionally, research 40 years

¹ Figures obtained on the 1/01/2014.

² *Ensino Básico* corresponds to year 1 to year 9.

later suggests that schools in the USA remain very much segregated: White students are in schools where students are mostly White too and Black students are in schools with 50% or more of minority groups students (Gamoran & Long, 2006). In Europe, according to Baysu et al. (2014, p. 328), immigrants' integration, as well as "the alleged benefits or risks of ethnic diversity in today's classes and schools continue to cause controversy".

The integration of all citizens has been promoted by the European Commission. One strategy has been the development of Multiannual Programmes, modified and revised every five years. The programme now in operation is the Strategic Guidelines for the area of Freedom, Security and Justice, which will run from 2014 to 2019 (European Commission, 2015). The European Commission's Communication in 2014 stated the following:

"Europe is a diverse society where integration remains a challenge. To enhance social cohesion and to reap the full benefits of migration, commitment to effective integration of migrants in the labour market and receiving societies should be strengthened. (...) Vulnerable migrants, in particular women, young migrants and unaccompanied minors should receive targeted support and a 'best interest of the child' approach should be practically applied in accordance with the UN Convention on the Rights of the Child. Building on previous work in the field of integration, successful policies could be identified and best practices disseminated. Further work will be necessary on capacity building and on engaging with local and regional authorities, which are at the forefront of integration policies." (European Commission, 2014, p. 4)

The legislation in Portugal is currently on its second plan of integration of Immigrants, *II Plano de Integração para imigrantes* (Resolução do Conselho de Ministros n°74/2010). The plan contains several measures in order to ensure immigrants in Portugal have opportunities to develop their abilities (e.g., Portuguese language), and programmes to decrease racial discrimination and improve the integration of immigrants in employment, in education, in social services, in health system, in habitation among other areas. One important measure to highlight is in education, as the creation of balanced ethnic classes needs to be guaranteed and monitored, as recommended by the Ministry of Education, assuring the balance in ethnic composition (measure 24, p. 4100). Still regarding this measure the first plan in 2007 stated that the criteria of admissions in schools needed reviewing, as students were distributed among the schools closest geographically and suggested to head teachers the necessity of ethnically balanced classes (Resolução do Conselho de Ministros n.º 63-A/2007, measure 32,

p. 2964-(6)). The Constitutional law in Portugal has stated that everyone has the right to an education which guarantees the right to equal opportunities in admittance and educational success (Lei Constitucional n° 1/2005, article n°74, p. 4654).

Although the law prohibits discrimination and enforces schools to guarantee equal opportunities to all children, natives and immigrants, there are still indications that students from immigrant origins and low socioeconomic status continue to be treated unequally in multiple areas of social life, especially in the education area. The recent edition of the report from the *Programme for International Student Assessment 2012 (PISA)* assessed around 510,000 students aged 15 years in 65 countries, in Mathematics, Reading and Science³. In general 15 year old immigrant or from immigrant descent students' scored much lower on Mathematics than non-immigrants, even when taking into account their social-economic status. In addition, the programme found that the gap between immigrant and non-immigrant students' Mathematics achievement displayed a narrowing effect between 2002 to 2012, but the difference was still very significant (OECD, 2013a). Moreover, on average across OECD countries⁴, 14% of the differences in student Reading performance within each country were associated with differences in students' socio-economic background.

In relation to Portugal⁵ (ProjAVI, 2013), the PISA report found that students were at the global average for Mathematics for the first time since the beginning of the programme in 2000. However they were unable to reach the OECD countries average (494 points), as they scored 487 points. Reading scores were also below OECD average (496 points), as students scored 488 points; and regarding Science, students scored 489 points (OECD average is 501 points). The tendency of Portuguese students from 2000-2012 showed results have improved in all three areas of assessment, but scores from 2009-2012 do not differ greatly, suggesting a stability and congruency.

³ The PISA consists of evaluating students' ability in order to compare the evaluation of 15 year old students over time and to assess the impact education policies and practices across the globe. Tests normally lasted 2 hours, questions were open-ended and multiple choice (OCED, 2014).

⁴ OCED countries are: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States.

⁵ Portugal participated in all PISA cycles to date - 2000, 2003, 2006, 2009 and 2012. In 2015 were sampled, to represent Portugal, 7,151 students from 195 school clusters / non-grouped schools distributed throughout the country (ProjAVI, 2013).

The Ministry of Education in Portugal does not provide information regarding academic achievement of native and immigrant students separately; therefore it is not possible to evaluate the differences among students in public school, namely in primary schools.

This study aims to contribute to further explore this educational area by analysing the academic achievement of a sample of native and immigrant children in Lisbon, specifically immigrants of African origin. It also aims to expand our knowledge on the effect of the primary schools' ethnic composition on children's academic achievement, cross-ethnic friendships, intergroup discrimination and school well-being. This research is relevant to extend our knowledge about education in Portugal, as only minimal research exists in social and educational psychology addressing the issues of the role of schools' ethnic composition on important dimensions of children's school life. It is also of great importance to address education policies regarding equality rights of native and immigrant Portuguese students are being guaranteed in order to foster equal opportunities for educational success.

The structure of the dissertation is as follows. Chapter I explores some of the existing literature on the dependent variable and what has been found regarding the effect of the school ethnic composition. Chapter II describes the method of the study, namely the design, participants, procedure, instrument and measure. Followed by chapter III which explores the results and lastly, chapter IV, which describes the findings of the study, the implications to public policies and the limitations.

I. State of the art

1.1 School ethnic composition

The ethnicity of students in a school or classroom has been measured in two forms: ethnic diversity and ethnic composition. The numbers of different ethnic groups in a school and/or classroom were referred to as the ethnic diversity of the school, while the percentage of students from the minority and majority ethnic groups in classes and/or schools were referred to as the ethnic composition. Different terms were used across research to characterise the composition of schools/classrooms: homogeneous vs. heterogeneous (e.g., McGlothlin and colleagues, 2005; 2006), school racial composition (e.g., Brown-Jeffy, 2009); school ethnic composition (e.g., Jugert, Noack & Rutland, 2011); school ethnic diversity (e.g., Thijs & Verkuyten, 2014).

For the purpose of this study the term used was ‘school ethnic composition’ and the school composition was defined, according to most studies, with three groups: 10%-30%, 31%-59% and more than 60% of ethnic minorities (e.g., McGlothlin, Killen & Edmonds, 2005; Bagci, Kumashiro, Smith, Blumberg & Rutland, 2014).

As early as the 1930’s research studied the effects of the school’s ethnic composition on racial attitudes of white children (Horowitz, 1936 cited by Dovidio, Gaertner & Kawakami, 2003). Until today school ethnic composition has been studied worldwide, exploring the different effects it has on children in majority and minority across numerous areas. Research has shown it is an important factor to consider. For example, Belgium immigrant children have higher aspirations to finish school when the school ethnic composition of immigrant students was 50.6%-88.2%, and this same ethnic composition also resulted in higher aspirations to pursue higher education for both immigrant and native children (Van Houtte & Stevens, 2010). Also in the Netherlands, a longitudinal study (Hornstra, van der Veen, Peetsma & Volman, 2015) with students from 3rd to 6th grade (9 to 12 years) found task orientation and sense of classroom belonging increased when students were in classes with more than 50% of ethnic minorities, but only for minority students (Turkish, Moroccan and western backgrounds).

This study will explore the effects of school ethnic composition on academic achievement, cross-ethnic friendships, discrimination and well-being in school.

1.2 School ethnic composition and academic achievement

Achievement means doing something successfully with skill, effort, or courage, while academic is related to education (Oxford Dictionaries, n.d), therefore academic achievement is being successful in education. Academic Achievement can be measured as completion of compulsory education and/or higher education and as an ongoing process during the academic years. Academic achievement is important as high mathematics achievers forecast positive outcomes for young adults, such as continuing into further education and better salaries (OECD, 2013b).

As explained previously by the PISA 2012, the academic achievement gap between native and immigrant students remains very significant. Brown-Jeffy (2009) researched the achievement gap among adolescents in America, finding that Black and Hispanics had lower grades than Whites and Asians. Furthermore, the gap between Black and Hispanic students was significantly smaller in schools' where these ethnic groups make 30%-49% of the ethnic composition.

Various factors can affect academic achievement. Up until the Coleman Report (Coleman et al., 1966, cited by Gamoran et al., 2006) the common belief was that children of minority groups had worse academic achievement due to poor school resources. However Coleman and colleagues found that academic achievement was strongly affected by the SES of the families of the students and not so much school characteristics. Recent research (Brown-Jeffy, 2009; Ryabov, 2011) suggested that the strongest influence on achievement was SES, minority/low SES adolescents had lower mathematics achievement. On the other hand, Hornstra et al., (2015) found the SES to not have an effect, as achievement did not decrease when students of the majority or middle and high SES were in classrooms with students from minority or of low SES. Furthermore the PISA 2012 found no difference in student's academic achievement whether they attend a homogeneous or heterogeneous school after taking into account the SES of the student and school (OECD, 2013a).

Academic achievement has been affected by other factors, i.e. students with single-parent or guardian families had worse academic achievement than those with households with two parents (OECD, 2013a, Ryabov, 2011) and the geographical location of the school, as students whom attended schools in towns had better academic achievement than those whom studied in rural areas (OECD, 2013a). In addition, Baysu et al., (2014), found the school ethnic composition had an effect on academic success for Turkish minorities (from Austria

and Belgium, aged 18-35). However, after taking into account experienced discrimination and cross-ethnic friendships there was no longer an effect. School ethnic composition, SES of the school and peer networks also affected academic achievement significantly (Goza & Ryabov, 2009).

The effect of the ethnic composition of the school or classroom on academic achievement has been studied for many years, results were diverse and benefits for students of majority and minority groups varied. A meta-regression analysis of schools from kinder garden to 12th grade showed that Mathematics achievement was lower in homogeneous schools (Mickelson, Bottia & Lambert, 2013).

Longitudinal research studied the difference between students' achievement from 3rd to 6th grade (9 to 12 years old), they found that for minority students (Turkish, Moroccan and western background) being in classes of 50% or more of minority meant lower mathematics grades in 3rd and 6th grade. Nevertheless, reading comprehension was higher for minorities in classes with 50% or more of minority students (Hornstra et al., 2015). Another longitudinal study in primary schools (aged 6 to 12 years) in Belgium found in general Mathematics achievement was lower in classrooms where there were more minority students (Turkish, Maghreb, Western and Eastern European, among others), yet Reading achievement was better in classes which were composed by more minority students. Minority children's achievement for Reading Comprehension, Reading fluency and Spelling was lower than the majority group, the Dutch. It's important to note that at the first measurement of Language achievement, being in a school with more minority students meant worse Language achievement. However, the ethnic composition of the school did not have an effect on the improvement of Language achievement. In the final measurement, grades did not differ significantly (Belfi, Goos, Pinxten, Verhaeghe, Gielen, de Fraine & Van Damme, 2014).

In the Netherlands, Driessen (2002) also found that when the minority (Turkish, Moroccan, Surinamese, Antillean or other) represented 50% of the composition and parents had low education level, Language and Mathematics achievement was lower. For students of 4th grade (aged 9 to 10 years) more diversity in schools meant lower language and maths achievement for 4th grades, however when the composition of the school was taken into account the effect disappeared. In general, this study found that regardless of the ethnic background, all students had a worse performance in schools with other 50% of minorities.

In summary, previous research suggested the school ethnic composition had an effect on academic achievement. However research results are controversial and thus it is important to understand which compositions can generate children's best achievement in order to enable equal opportunities for all students.

1.3 School ethnic composition and cross-ethnic friendships

Friendships between two people from different ethnic backgrounds have been named differently among research: interethnic friendships (e.g., Van Houtte & Stevens, 2009); cross-race friendships (e.g., Aboud, Mendelson & Purdy, 2003; Killen et al., 2010; Rude & Herda, 2010); cross-ethnic friendship (e. g., Feddes, Noack & Rutland, 2009; Jugert et al., 2011); out-group friendship (Schroeder & Risen, 2014).

Over the years research has focused on the effects of contact/interaction between children from different ethnic backgrounds and the effects of cross-ethnic friendships. Cross-ethnic friendships are important for the formation of positive attitudes towards members of other groups (Pettigrew, 1998). Consequently, this results in less negative attitudes towards other groups (Pettigrew, & Tropp, 2006; Tropp & Prenovost, 2008). Pettigrew's (1998) findings have been found in camps among rival Israeli and Palestinian teenagers, as those whom had a cross-ethnic friendship had more positive feelings towards members of the other group (Schroeder et al., 2014).

Cross-ethnic friendships have been considered to be less common than same-ethnic friendships (Aboud et al., 2003), however the opposite has been found among children in London (Bagci, Kumashiro, Smith, Blumberg & Rutland, 2014). In this study, White European, Middle Eastern, Black and South Asian students (aged 11 years) reported more cross-ethnic friendships than same-ethnic friendships. However, research in the Netherlands (Vervoort, Scholte & Scheepers, 2011) suggested cross-ethnic friendships are more common for the minority group members (non-western, from Turkey, Morocco, Suriname, the Netherlands Antilles or Aruba) than for majority group (from the Netherlands, Dutch). Yet, in Germany cross-ethnic friendships of children were as common for the majority (Germans) as for minority (Turkish) groups (Feddes et al., 2009). In addition, longitudinal research in Germany between the same groups found children at the beginning of the academic year preferred same-ethnic friendships, but this preference decreased by the end of the year (Jugert et al., 2011).

Longitudinal research during the academic year (in Canada and Germany) suggested children's cross-ethnic friendships were less stable over time, as at the end of the academic year they reported less cross-ethnic friendships (Aboud et al., 2003; Feddes et al., 2009). Research with American adolescents also reported cross-ethnic friendships were less stable regardless of the school ethnic composition and similarity between peers (Rude et al., 2010).

School is an important place for cross-ethnic relationships as in the USA they were more frequent in schools than in neighbourhood (Killen et al., 2010). But in order for cross-ethnic friendships to last longer, there needs to be a relationship outside the school building for American adolescents (Rude et al., 2010). Longitudinal research has shown that positive intergroup attitudes at the beginning of the academic year predicted more cross ethnic friendships at the end of the year (Jugert et al., 2011). However, Thijs et al., (2014) argued in their annual review that the school ethnic composition is not enough, having named the following factors to be also important: multicultural education, student-teacher relationships, role of parents and peers outside school, peer norms and networks and inclusive school identities.

Cross-ethnic friendships among pupils have been researched among the different school ethnic compositions around the world. A study in London, among 11 year olds found children of the majority (White European) had more cross-ethnic friends than minority groups (Middle Eastern, Black and South Asian) when classroom ethnic diversity was lower. It was also found that students of the majority reported more cross-ethnic friendships than same-ethnic friendships (Bagci et al., 2014). Research in Germany studied friendships between majority (German) and minority (Turkish) children (mean age of 10.4 years) longitudinally, during the academic year in an ethnic diverse school, they found that initially children preferred same ethnic friendships, but by the end of the year this preference had decreased. The decrease occurred as children eventually began to choose friendships with children whom participated in the same activities, regardless of ethnicity (Jugert et al., 2011).

For this particular study, the children studied will be fourth grade pupils, where the children are mostly nine years old, as this age is crucial to the formation of interpersonal friendships (Aboud, 1988; Aboud & Amato, 2001). Research by McGlothlin and colleagues in the USA has investigated friendship potential in childhood. One study found European-American children (in 1st and 4th grade, $M = 6.8$ and 9.9 years) did not rate potential friendship between a black and white children differently regardless of the school ethnic composition; one school has 65% of European-American and the other 30%. However, the

fourth graders viewed cross-ethnic friendships as less likely (McGlothlin et al., 2005). A similar study, but in homogeneous schools (European-Americans represented 86.1% and 91.2% of the school population) found once more that fourth graders considered cross-ethnic friendships as less possible (McGlothlin et al., 2006). Another study investigated the cross-ethnic friendship potential of first and fourth graders of African-American's and Non-African minorities (Latin-American, Asian-American and others) in schools with an ethnic composition of 20-71% of European-Americans. To find that minority groups did not evaluate cross-ethnic friendships differently (Margie et al., 2005).

While other studies have obtained information regarding how many cross-ethnic friendships children have, Killen et al. (2010) found that European-American children (4th, 7th and 10th grades) in schools with 25% to 52% of minority groups (in this case, Black and Hispanics) reported more cross-ethnic friendships than those in schools with 15% or less. Wilson et al., (2011) found African-American children (third and fourth graders) had more same-ethnic friendships and peer groups than European-American children, having found segregation stronger in classrooms with less African-American students (classroom ethnic composition of African-American students varied from 8% to 78.6%).

In summary cross-group friendships have been found to play an important role in favouring positive intergroup contact and attitudes toward minority group members, both in adults (Pettigrew, 1997) and in children and youngsters (e. g., Aboud et al., 2003; Feddes et al., 2009) in multi-ethnic school contexts (e. g., Vervoort et al., 2011). However, few studies have explored both majority and minority children friendships within variable school ethnic compositions. In this study, we also address that issue.

1.4 School ethnic composition and intergroup prejudice/discrimination

Prejudice has been described by Allport (1954) as: "Ethnic prejudice is an antipathy based upon faulty and inflexible generalization. It may be felt or expressed. It may be directed toward a group as a whole, or toward an individual because he is a member of that group" (p.9). A more recent definition stated prejudice as "the holding of derogatory social attitudes or cognitive beliefs, the expression of negative affect, or the display of hostile or discriminatory behaviour towards members of a group on account of their membership of that group" (Brown, 1999, p.8). While discrimination is defined as a behaviour: "Treating some people favourably or unfavourably on the basis of arbitrary criteria, such as ethnicity, gender, "race", political ideology, religion" (Corsini, 1999, p.284).

In relation to the development of prejudice in children, children aged six to ten showed a preference for their ingroup (Anglo-Australian) than the outgroup (Pacific Islander) (Nesdale, Durkin, Maas & Griffiths, 2005). A meta-analytic review (Raabe and Beelmann, 2011) revealed that prejudice towards Black and other ethnic outgroups (or lower class status outgroups) increased between the ages of 2 to 4 to 5 to 7 years. Subsequently there seemed to be a decline in prejudice towards these outgroups between the ages of 5 to 7 and 8 to 10 years, however, prejudice for Whites (or higher class status outgroups) increased during this age period. In addition, they also found that opportunities of contact, whether small or large, decreased prejudice between children aged 2 to 4 vs. 5 to 7 and the outcome is even stronger between children aged 5 to 7 vs. 8 to 10.

Research into how bias could be reduced by intergroup contact began as early as in the 1930's (Zeligs & Hendrickson, 1933 cited by Dovidio et al., 2003) however it was in 1954 that Allport published his prominent version of the Contact Hypothesis. Allport (1954) proposed that having more intergroup contact reduced prejudice, developing a series of conditions, which would create an optimal intergroup contact: equal status within the situation; intergroup cooperation; common goals and support of authorities, law, or customs. However, recent research suggested a fifth condition: friendship potential (Pettigrew, 1997/1998). Over the past years research has strengthen this hypothesis, intergroup prejudice was declined by intergroup contact (Dovidio, Gaertner & Kawakami, 2003; Pettigrew, 1998; Pettigrew & Tropp, 2000).

It's important to gain knowledge on how to decrease/avoid prejudice/discrimination at an early age as prejudice obtained during childhood continues onto adulthood, which is then harder to change (Killen, 2008, Rutland & Killen, 2015). And as discrimination is associated to illness/health risk, being that the more discrimination the more illness (Williams, Neighbors & Jackson, 2003).

Research has looked into inter-ethnic prejudice/discrimination of students in school, and into the differences among schools' ethnic composition. European-American children in a school ethnic composition of 15% or less of African-Americans and Latinos used more stereotypes to describe racial discomfort in different contexts and stereotypes were used more by fourth ($M = 9.82$ years) and seventh graders ($M = 12.90$ years) in comparison to tenth graders (M age: 15.90 years) (Killen, Kelly, Richardson, Crystal & Ruck, 2010). Another study among European-American Children in first ($M = 6.8$ years) and fourth ($M = 9.9$ years) grade whom attended homogeneous schools (86.1-91.2% of the students are European-

American) displayed implicit biases (McGlothlin & Killen, 2006). However, when European American children attended schools with a more heterogeneous ethnic composition (35%-65% of the students are European-American) these biases were no longer found (Margie, Killen, Sinno & McGlothlin, 2005; McGlothlin et al., 2005), but implicit biases were found for African American children (Margie et al., 2005).

More recent research in the USA has shown African-American and European-American children in third and fourth grade show mutual dislike regardless of the classroom ethnic composition (varied from 8%-78.6% of African-American students), moreover dislike increased for European-Americans when they were the majority group (Wilson & Rodkin, 2011).

Research in Portugal (Pereira & Monteiro, 2006), found that native Portuguese children (White) aged 5 to 7 discriminated against Black children when having to distribute coins among a white and a black child of similar SES when the school ethnic composition was of 10-39% or higher than 60% of Black students. However, in schools where the ethnic composition was of 60% or more of Black students and if children were aged 8 to 10 there was no discrimination against the black child. Furthermore, they found that native Portuguese children attributed more positive traits to children of their own ethnic group (in-group) when they were in minority, but did not discriminate when they were in majority. Yet, in large they attributed more negative traits to Black children regardless of their age and of the ethnic composition of the school.

In summary, it's important to further investigate how far schools' ethnic composition can foster positive or negative intergroup attitudes and racial stereotypes among young students, in order to decrease intergroup discrimination and its negative consequences.

1.5 School ethnic composition and school well-being

In psychology, well-being means “a subjective state of being well. It includes happiness, self-esteem, and life satisfaction” (Corsini, 1999, p. 1068). School well-being is hard to define, as definitions vary from author to author (e. g., Belfi, Goos, de Fraine & Van Damme, 2012); however Hofman, Hofman and Guldmond (1999) defined school well-being as the attitudes students hold towards their school, i.e. attitudes towards general school life; towards peers; towards teachers and towards the school organization and building. Social support seems to be strongly associated to well-being, as those whom reported a need for social support in school, also reported low self-confidence and were less motivated in school

(Vedder, Boekaerts, & Seegers, 2005). Social support has been described as social resources or networks people can rely on in situations of needing support, help, protection, guidance or comfort (Vedder et al., 2005).

In Portugal studies have looked to well-being in general with adolescents and adults but no studies were available which evaluate school well-being in primary school children. Research with adolescents has mainly found that: adolescent students' perception of self-wellbeing was related to a positive school environment (Matos & Carvalhosa, 2001) and well-being was related to leisure activities and friendships (Gaspar, 2008). In addition, Fernandes, Vasconcelos-Raposo, Bertelli and Almeida (2011) found academic satisfaction to be positively correlated to psychological well-being among students aged 12 to 18 years. In Spain, high well-being was associated to good academic performance among university students (Soria, Martínez, Esteve, Gumbau & Gumbau, 2005). In Australia, Tomyn and Cummins (2011) found female students to have higher subjective well-being than males (aged 12 to 20 years) and that well-being tended to decrease from early to mid adolescence. According to Katja, Päivi, Marja-Terttu and Pekka (2002), school satisfaction, among other factors predicted subjective well-being in students of Finland (aged 12 to 17 years).

School well-being research in inter-ethnic settings is limited. One example is research that has investigated the differences of school well-being in majority and minority students. Vedder et al., (2005) found immigrant students in the Netherlands (Turkish/Moroccan) perceived teachers as providers of social support in school, while native children (Dutch) considered their parents to be more providers of social support. In regard to school well-being, (which was assessed by: self confidence, motivation and school adjustment) there was only a significant difference between motivation, meaning that immigrant students were more motivated. It's important to note students were aged 10 to 13 and were in schools that were participating in a programme for disadvantaged children.

Studies on the effects of school composition on topics other than academic achievement are limited (Belfi et al., 2012). A review on school well-being found more well-being in single sex schools, however this effect was only found for females, while class composition by ability found mixed results: well-being was higher in classes with high ability students, yet no consensus was found across studies (Belfi et al., 2012). However it is important to consider the review consisted of only a few studies.

To our knowledge no national or international studies has investigated school well-being in children taking into account the differences between majority and minority groups in different school ethnic composition contexts. Thus this research aims to expand this under-researched topic.

1.6 Objectives and hypotheses

The present study aims to investigate the effect of the schools' ethnic composition on academic achievement, cross-ethnic friendships, discrimination and school well-being, as international research results in this area are controversial and national research is limited. The study has the following objectives:

To comprehend the existing relations among academic achievement, cross-ethnic friendships, intergroup discrimination and school well being among native (White, Portuguese) and immigrant (Black, African) children in primary school;

More specifically, to understand the specific role of school's ethnic composition, as a structured form of interethnic contact, on White vs. Black children's academic achievement, cross-ethnic friendships, intergroup discrimination and school well being;

To contribute with research knowledge to the design of public policies in the Educational area, in particular to the importance of ethnic composition of primary schools and classrooms, in order to give both native and immigrant children greater opportunities for success and well being.

This study has the following hypotheses:

At large, academic achievement of Black children will be lower than White children's (H1). Academic achievement of Black children will be highest when the school ethnic composition is more equally distributed, 31% to 59% (H2), while academic achievement of White children will not vary with school's ethnic composition (H3). Cross-ethnic friendships are more likely to occur for Black than for White children, and namely in more equally than unequally school's ethnic composition settings (H4). More cross-ethnic friendships should be related to less intergroup discrimination (H5). Interethnic discrimination is less likely to occur, both for Black and White children when the school ethnic composition is more balanced, 31% to 59% (H6). At large, well being at school will be higher among White than among Black children (H7). It should however be higher for both groups when the school ethnic composition is more equally distributed, 31% to 59% (H8).

II. Method

2.1 Design

This study was conducted under a quasi-experimental design. There were six conditions. Independent variables were participant's ethnicity (Black-African and White- Portuguese) and school ethnic composition (SEC) with three levels: 10 to 30%, 31 to 59% and 60% or more of students from ethnic minority groups. The dependent variables were academic achievement, cross-ethnic friends, attribution of negative and positive traits, implicit bias and school well-being.

2.2 Participants

One hundred and fifty children participated in the study. However 48 could not be included.⁶ Thus, there were 102 participants, 4th grade children from eight public primary schools in the metropolitan area of Lisbon (48 White children and 54 Black children), with ages ranging between nine to thirteen years ($M = 9.82$ years, $SD = 1.09$), 50 boys (49%) and 52 girls (51%). According to schools reports, the majority of students had a medium/low socio economic status (SES). The ethnic status of each child was obtained by visual observation, by asking the child his/her nationality and place of birth and confirming with the teacher their origin: White Portuguese or descendants from Portuguese-speaking African countries. Participants were only included in this study if both their parents were White Portuguese or Black African.

Table 2.1

Descriptive statistics of participants according to school ethnic composition (SEC)

SEC	<i>n</i>	Ethnicity		Gender		Age		
		White	Black	Male	Female	Range	M	SD
10-30%	47	27	20	23	24	9-11	9.62	.68
31-59%	30	13	17	17	13	9-11	9.47	.63
60% or more	25	8	17	10	15	9-13	10.64	1.63
Total	102	48	54	50	52	9-13	9.82	1.09

⁶ Due to incomplete data or non-eligibility due to criteria of the study, 41 participants were removed from the database. Moreover, in order to create balance in the 60% or more SEC condition, seven Black participants were removed.

Table 2.2

Descriptive statistics of participants according to school, ethnicity and gender

Exact SEC	School ID	N	Participant's Ethnicity		Gender		Age
			White	Black	Male	Female	Range
12,50%	1	24	17	7	14	10	9-11
21.11%	2	7	0	7	2	5	9-10
23.48%	3	5	2	3	2	3	9-11
18.60%	4	11	8	3	5	6	9-10
51,60%	5	30	13	17	17	13	9-11
>60%	6	3	2	1	2	1	9-12
>60%	7	11	6	5	4	7	9-13
100%	8	11	0	11	4	7	9-11

2.3 Procedure

Schools' Head teachers were contacted either by a letter (appendix A) or a telephone call. When a positive response was given a meeting was scheduled with the Director and the teachers of 4th grade to present the study. Once given approval, head teachers were given a document to complete on the characterization of the school (appendix B) and consent forms to be sent to parents/carers (appendix C) and a date to begin the study was arranged.

The study was carried out with groups of three to four children at a time, in a quiet room in one of the following spaces: library, computer room or teacher's office. As participants arrived they were sat at the table, were introduced to the experimenter and were given verbal instructions about the task they were asked to perform. They were told that we wanted to understand how pupils felt at school with their classmates. In addition, they were asked to give their honest opinions as this was not a school task and there were no right or wrong answers. Finally, they were told to feel free to ask any questions if in doubt regarding the questionnaire. Participants were also requested to remain in silence during the application of the questionnaire and the experimenter was invigilating the room and available to answer any questions. After the questionnaire was completed, the investigator verified all questions were answered. Participants were asked how they found the questionnaire regarding its level of difficulty, they were also asked not to tell their classmates about the questionnaire and were given a bookmark as a gift for participating in the study.

2.4 Instrument and variables

The instrument used was a questionnaire, which was matched by gender (appendix D, appendix E and appendix F, questionnaire in Portuguese). The questionnaire addressed the following issues: academic achievement; cross-ethnic friendships; intergroup discrimination; school wellbeing; family and demographic information.

Regarding information about the family context, participants were asked how many siblings they had, whom they lived with and their parents' nationality and country of birth.

There was a different task for the children who were not eligible to participate due to their ethnicity. That task consisted of activities (appendix G), it was created in order to avoid picking out only some children from the classroom and thus to avoid unhappiness for not participating.

2.4.1 Academic achievement

Participants were requested to report their grades in Mathematics, Portuguese and Social Environmental studies,⁷ regarding the 1st period of the academic year (September -December 2014).⁸ However, as data collection lasted until June, the grades for the 2nd period of the academic year (January – April 2015) were then obtained from the teachers. In addition, at the end of the academic year children's final grades (both school and national grades of the three disciplines were made public and inserted in the database). For analysis, seven different variables were created: internal grades (school's Portuguese grade and school's Mathematics grade); external grades (national exam Portuguese grade and national exam Mathematics grade) and final grades (final Portuguese grade, final Mathematics grade and final Social Environmental studies grade).⁹

2.4.2 Cross-ethnic friendships

Participants were asked to name their closest friends among their classmates, (maximum of three friends) and to indicate which country they were from (Feddes et al., 2009). It was common for children to be unable to identify the country; therefore the origin of those children was requested to the teachers. For analysis, a new variable was created by summing up the number of friends the participant had from a different origin to their own, 'number of

⁷ Social Environmental studies, *Estudo do meio* (in Portuguese), is the study of various scientific disciplines, e.g. History, Geography, Natural Sciences and Ethnography.

⁸ Grades in Portuguese primary schools range from one to five (1 insufficient, 2 weak, 3 satisfactory, 4 good and 5 very good).

⁹ Final Portuguese and Mathematics grades are a weighed mean of the school and national exams grades.

friends from a different origin', coded as: 1 = no friends from a different origin, 2 = one friend, 3 = two friends and 4 = three friends.

2.4.3 Intergroup discrimination

Two tasks were used, a trait attribution (Pereira & Monteiro, 2006) and the Ambiguous Situation task (McGlothlin et al, 2006; McGlothlin et al, 2005; McGlothlin, 2004).

In the first task, four pre-tested photos of White and Black girls and boys represented the ethnic and gender groups. Children rated a White girl/boy and a Black girl/boy (target pictures were participants gender matched) according to how much they thought children were similar to the one on the photo ("How do you think girls/boys like this one are?"). A 5 point Likert scale (1 = *not at all like that*; 5 = *exactly like that*) on 10 adjectives, 5 positive (good people, sincere, honest, intelligent, studious) and 5 negative, (rude, aggressive, dumb, dirty and lazy) was used. For analysis, two dependent variables were created: positive traits and negative traits. In order to analyse these variables two indexes were created. The positive traits consist of an index of the difference between positive traits attributed to the White child and to the Black child, varying between 5 (more positive traits to the in-group than the out-group) and -5 (more positive traits to the out-group than the in-group). The negative traits consist of an index of the difference between negative traits attributed to the White child and to the Black child, varying between 5 (more negative traits to the out-group than the in-group) and -5 (more negative traits to the in-group than the out-group). In both variables positive values indicate an in-group favouritism while negative values indicate an out-group favouritism. If the index was zero, it indicated participants rated both White and Black children identically. The consistency of the variables was high, Cronbach's alpha of .758.

In the second task - the Ambiguous Situation task –Killen's scenario of the 'swing situation' was used. This task involved showing the participant a sequence of two pictures depicting interactions between a White and a Black child: one where the White child was the potential victim (lying on the floor) and the Black child the potential transgressor (standing by the swing, behind the White boy) and the other where the Black child was the potential victim and the White child the potential transgressor. Besides their skin colour, children presented typical White (Maria/John) or Black (Malika/Anouar) first names. Participants then had to answer the following questions: (e.g.) "Here is John and here is Anouar. What do you think that happened and why?" Space was given for a written response (answers were then coded into: 1 = negative, e.g. 'John pushed Anouar', and 2 = positive/neutral, e. g. 'they are playing'); "Do you think (name of potential transgressor) was good or bad?" on a 5-point Likert scale 1 = *very bad* and 5 = *very good*; "How much do you think they are friends?" on a

5-point Likert scale (1 = *not at all* and 5 = *very much*) and, “Which of these two boys would you like to be friends with?” where participants marked the name of the child they preferred (e.g. John or Anouar).

Participants were always given the trait attribution task before the ‘ambiguous situation’ task. The presentation of White and Black target children was counterbalanced across four tasks for each gender. A distracter task was then presented (a maze) before the remaining two tasks were performed.

2.3.4 School well-being

For the assessment of participants’ school well-being, five items were used which measured school well-being from the Pais (2010) Questionnaire, which was developed from the *KIDSCREEN-52* (Gaspar & Matos, 2008).¹⁰ Participants were asked to think about a general issue “How do you feel at school?”, followed by 5 specific questions: “Do you have friends that can help you?”; “Do you like being in this school?”; “Would you like to get more help at school?”; “Have you been a weak student?” and “If you had a problem in school could you count on someone’s help?” Answers were given on a 5-point Likert scale, (1 = *no, not at all* and 5 = *yes, a lot*). For analysis, a Factor Analysis was conducted; generating two factors under the rotation method of Varimax with Kaiser Normalization, rotation converged in 3 iterations. Factor 1, Social Support: “Do you have friends that can help you?”; “Do you like being in this school?”; “If you had a problem in school could you count on someone’s help?” and Cronbach’s alpha = .41. Factor 2, Performance and School Support: “Would you like to get more help at school?”; “Have you been a weak student?” and Cronbach’s alpha = .55.¹¹

2.5 Data analysis

In order to analyse the data the IBM SPSS software was used (version 22). Firstly a descriptive analysis was performed on all the dependent variables, followed by an analysis of correlations, Chi-square, Factor Analysis, ANOVAs and repeated measures ANOVAs, according to those used in similar studies (McGlothlin et al, 2006; McGlothlin et al, 2005; McGlothlin, 2004; Pereira & Monteiro, 2006).

¹⁰ These scales have been validated for the Portuguese population: *KIDSCREEN-52* (Gaspar et al., 2008).

¹¹ Consistency of the Cronbach’s alphas are low, however analyses were conducted due to the interest of the variable to the study.

III. Results

3.1 Descriptive statistics and bivariate correlations

The descriptive statistics of the dependent variables of this study are presented on table 3.1, and the bivariate correlations on table 3.2.

3.1.1 Descriptive statistics

As shown on table 3.1, most of the variables vary between the minimum and maximum value of their scales and their distribution is not far from normality. Exceptions are: *goodness/badness of potential transgressor (White)*, *goodness/badness of potential transgressor (Black)*. These exceptions are shown in skewness and kurtosis, the values of which vary between 2.0 and 7.0, which suggests they may be problematic (Curran, West & Finch, 1996).

Table 3.1

Descriptive statistics of the dependent variables in the study

Dependent variable	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Cross-ethnic Friendships	102	1.00	4.00	1.96	1.03	.574	-1.019
School's Portuguese grade	101	2.00	5.00	3.55	.83	.465	-.649
School's Mathematics grade	101	2.00	5.00	3.41	.93	.319	-.726
National Exam Portuguese grade	98	1.00	5.00	3.0	.81	.000	-.878
National Exam Mathematics grade	98	1.00	5.00	2.65	1.10	.588	-.322
Final Portuguese grade	101	2.00	5.00	3.49	.78	.561	-.322
Final Mathematics grade	101	2.00	5.00	3.30	.84	.204	-.501
Final Social Environmental studies grade	101	2.00	5.00	3.69	.81	.274	-.850
Positive Attributions	102	-2.00	3.20	.12	.98	.345	1.101
Negative Attributions	102	-1.40	4.00	.18	.92	1.07	2.454
School well-being – Social Support	102	1.00	5.00	4.62	.58	-1.766	2.790
School well-being – Performance & School Support	101	1.00	5.00	2.90	1.17	-.062	-.911
Interpretation of situation (VB)	102	1.00	2.00	-	-	-	-
Interpretation of situation (VW)	102	1.00	2.00	-	-	-	-
Goodness/badness of potential transgressor (VW)	102	1.00	5.00	1.25	.74	3.509	13.156
Goodness/badness of potential transgressor (VB)	102	1.00	5.00	1.38	1.00	2.836	7.310
Likelihood of interethnic friendship (VB)	102	1.00	5.00	1.73	1.15	1.570	1.681
Likelihood of interethnic friendship (VW)	102	1.00	5.00	1.77	1.17	1.441	1.208
Friend preference (VB)	102	1.00	2.00	-	-	-	-
Friend preference (VW)	102	1.00	2.00	-	-	-	-

Note. (VB) = victim is Black and (VW) = victim is White.

3.1.2 Bivariate correlations

Bivariate correlations (table 3.2) show academic achievement (school, national and final grades), correlations show that all are positively inter-correlated (correlations range from .290

to .936); however there are some relevant differences: both Portuguese and Mathematics school - national grades have much lower correlations (Port $r = .548$, $p < .01$; Math $r = .347$, $p < .01$) than Portuguese and Mathematics school - final grades (Port $r = .936$, $p < .001$; Math $r = .827$, $p < .01$). Cross-ethnic friendships was positively and weakly correlated with the goodness/badness of potential transgressor, when he/she was Black (.219, $p < .05$) and negatively and weakly correlated with friendship potential when the victim was Black (-.223, $p < .05$). In regard to trait attributions, positive attributions were weakly and positively correlated with the national exam Portuguese grade ($r = .210$, $p < .05$) and negative and positive attributions were moderately and positively correlated ($r = .361$, $p < .01$). Wellbeing in school, performance and school support is negatively and weakly/moderately correlated with school, as well as with final Portuguese, Mathematics and Social Environmental studies grades, correlations ranging from -.208 to -.482, meaning that if students report they would like more help at school and that they have been a weak student, academic achievement decreases. In relation to the 'ambiguous situation' task, many of the variables are correlated to each other, positively with the relationship being weak, moderate or strong (ranging from .203 to .649), with an exception of some being negatively correlated (ranging from -.119 to -.248).

Table 3.2

Bivariate correlations between the variables in the study

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	-																		
2	-.073	-																	
3	-.010	.768**	-																
4	-.024	.548**	.464**	-															
5	-.114	.290**	.347**	.552**	-														
6	-.106	.936**	.730**	.682**	.339**	-													
7	-.029	.662**	.827**	.586**	.738**	.674**	-												
8	-.006	.806**	.792**	.531**	.383**	.743**	.707**	-											
9	-.180	.141	.011	.210*	.130	.133	.109	.034	-										
10	.068	-.008	-.015	-.016	-.050	-.004	-.034	-.061	.361**	-									
11	.136	-.005	-.017	-.051	.043	-.042	-.021	-.036	-.285**	-.014	-								
12	.017	-.482**	-.449**	-.208*	-.118	-.460**	-.364**	-.425**	-.021	-.097	-.166	-							
13	-.037	.024	-.004	-.018	.011	.050	-.013	-.061	-.095	-.137	.049	-.027	-						
14	-.080	-.023	-.085	.061	-.082	-.001	-.072	-.080	.083	-.064	-.126	0.16	.364**	-					
15	.052	.019	.012	-.085	-.054	.032	-.007	.028	-.183	-.177	.054	-.018	.521**	.146	-				
16	.219*	-.032	-.009	.051	-.125	.027	-.031	.025	-.079	-.022	-.008	-.126	.074	.365**	.224*	-			
17	.066	-.168	-.134	-.110	.013	-.156	-.046	-.053	-.079	-.161	-.041	.148	.385**	.194	.468**	.147	-		
18	.140	-.029	-.074	.054	-.063	-.004	-.045	.013	-.017	-.065	-.106	.057	.175	.434**	.203*	.428**	.649**	-	
19	-.223*	-.073	.005	.000	.106	-.023	.048	.009	.047	.094	-.100	.083	-.199*	-.067	-.598**	-.016	-.050	-.137	-
20	-.119	.069	.074	-.057	.094	.045	.060	.177	-.045	.009	-.085	.047	-.056	-.364**	-.132	-.428**	-.023	-.212*	.199*

Note. 1 = Cross-ethnic friendships; 2 = School's Portuguese grade; 3 = School's Mathematics grade; 4 = National Exam Portuguese grade; 5 = National Exam Mathematics grade; 6 = Final Portuguese grade; 7 = Final Mathematics grade; 8 = Final Social Environmental studies grade; 9 = Positive Attributions; 10 = Negative Attributions; 11 = School well-being – Social Support; 12 = School well-being – Performance and School Support; 13 = Interpretation of situation (VB); 14 = Interpretation of situation (VW); 15 = Goodness/badness of PT (VB); 16 = Goodness/badness of PT (VW); 17 = Likelihood of friendship (VB); 18 = Likelihood of friendship (VW); 19 = Friend preference (VB); 20 = Friend preference (VW). Correlations number 12, 14, 19 and 20 are Spearman's correlations, the remaining correlations are Pearson's.

* $p < .05$ ** $p < .01$.

3.2 Control of participant's gender variable

In this study we aimed to analyse the school's ethnic composition, ethnicity and gender effect on cross ethnic friendships, academic achievement, well-being in school and on discrimination (trait attribution and ambiguous situation task). However, considering the sample size, combining the three independent variables (school ethnic composition, ethnicity and gender) made the groups too unbalanced for analysis, thus gender was analysed separately from the other variables. As can be seen on tables 3.3 and 3.4, there are no significant differences among the dependent variables according to the participants' gender.

Table 3.3

T-Tests on the effect of gender on the dependent variables

Dependant variable	T	df	Sig. (2-tailed)
Cross-ethnic friendships	-.198	100	.843
School's Portuguese grade	-.758	99	.450
School's Mathematics grade	.879	99	.381
National Exam Portuguese grade	-1.760	96	.082
National Exam Mathematics grade	.119	96	.906
Final Portuguese grade	-1.217	99	.226
Final Mathematics grade	.812	99	.419
Final Social Environmental studies grade	.255	99	.800
Positive Attributions (White – Black targets)	.935	100	.352
Negative Attributions (White – Black targets)	1.057	100	.293
School well-being – Social Support	.328	100	.743
School well-being – Performance and School Support	-1.375	99	.172
Goodness/badness of potential transgressor (VW)	-.604	100	.547
Goodness/badness of potential transgressor (VB)	-.826	100	.411
Likelihood of friendship (VB)	.125	100	.901
Likelihood of friendship (VW)	-.630	100	.530

Note. (VB) = victim is Black and (VW) = victim is White.

Table 3.4

Chi-square tests on the effect of gender on the dependent variables

Dependant variable	Chi-Square	df	Sig
Interpretation of situation (VB)	.035	1	.851
Interpretation of situation (VW)	.009	1	.925
Friend Preference (VB)	.045	1	.832
Friend Preference (VW)	.021	1	.885

Note. (VB) = victim is Black and (VW) = victim is White.

3.3 Effects of school ethnic composition and the ethnicity of the participants

Before conducting statistical tests the normality and homogeneity of variance assumptions were tested. The variables were not always normally distributed and there are some violations of the homogeneity of variances. Thus it is important to consider and analyse these results with precaution. However, parametric tests were still conducted as the Skewness and Kurtosis values are not critical, indicating that the distribution is not far from normality in most cases, as shown on table 3.1.

3.3.1 Academic achievement

The analysis of the effect of school ethnic composition and participant's ethnicity on academic achievement in Portuguese, Mathematics and Social Environmental studies will be conducted with seven dependent variables: internal grades (school's Portuguese and Mathematics grades); external grades (national exam Portuguese and Mathematics grades) and final grades (for Portuguese, Mathematics and Social Environmental studies). However, results will be described in more detail only for the final grades, as these grades correlate moderately/strongly and positively with the internal and external grades and because these are the grades that define students' formal school achievement. Internal and External grades will then be explored briefly. The following analyses were conducted in order to test hypotheses: 1, 2 and 3.

3.3.1.1 Final Portuguese grades. To test for the effect of school ethnic composition and participant's ethnicity on the final Portuguese grade, a 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) x 2 (participant's ethnicity: White, Black) univariate ANOVA was conducted. Globally, this model explained 10.2% ($\eta^2 = .102$) of the variability of the final Portuguese grade. The results showed a main effect for the participants ethnicity, $F(1, 95) = 4.718, p = .032, \eta^2 = .047$, meaning that White participants had higher grades than Black participants (means and SD on table 3.5). However, no main effect was found for the

school's ethnic composition, $F(2, 95) = 2.238, p = .112, \eta^2 = .045$. Results also showed no interaction between the school's ethnic composition and participant's ethnicity $F(2, 95) = 1.796, p = .172, \eta^2 = .036$.

Table 3.5

Means and SD of the final Portuguese grades according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
10% - 30%	27	3.85	.77	19	3.26	.65	46	3.61	.77
31% - 59%	13	3.85	.80	17	3.29	.85	30	3.53	.86
60% or more	8	3.13	.83	17	3.24	.56	25	3.20	.65
							101	3.49	.78
Total by ethnicity	48	3.73	.82	53	3.26	.68			

3.3.1.2 Final Mathematics grades. A 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) x 2 (participant's ethnicity: White, Black) univariate ANOVA was conducted. Globally, this model explained 13.3% ($\eta^2 = .133$) of the variability of the final Mathematics grade. The results showed a main effect for the school's ethnic composition, $F(2, 95) = 5.300, p = .007, \eta^2 = .100$, and a marginally significant main effect for participant's ethnicity, $F(1,95) = 3.723, p = .057, \eta^2 = .038$. Pairwise comparisons¹² showed that there was a significant difference between the grades of participants in schools of the following ethnic compositions: in the 10% to 30% condition grades were higher than in 60% or more ($p = .014$), and between 31% to 59% condition, were grades were also higher than in the 60% or more ($p = .012$) condition. Yet no significant difference was found between grades in schools with an ethnic composition of 10% to 30% and 31% to 59% ($p = 1.00$). (Mean and SD scores are presented on table 3.6). In relation to the marginally significant effect of ethnicity, White participants had higher scores than Black participants ($M = 3.54, SD = .90$ compared to $M = 3.10, SD = .73$).

Still regarding the final Mathematics grade there was no interaction between the school's ethnic composition and participant's ethnicity $F(2, 95) = 1.577, p = .212, \eta^2 = .032$.

¹² All the pairwise comparisons in this analysis were Bonferroni adjusted.

Table 3.6

Means and SD of the final Mathematics grades according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity								
	White			Black			Total by SEC		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
10% - 30%	27	3.67	.73	19	3.16	.60	46	3.46	.72
31% - 59%	13	3.77	.93	17	3.18	.81	30	3.43	.90
60% or more	8	2.75	1.04	17	2.88	.78	25	2.84	.85
							101	3.30	.84
Total by ethnicity	48	3.54	.90	53	3.10	.73			

3.3.1.3 Final Social Environmental studies grades. A 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) x 2 (participant's ethnicity: White, Black) univariate ANOVA was conducted. Globally, this model explained 13.5% ($\eta^2 = .102$) of the variability of the final Social Environmental studies grade. The results showed a main effect for the school's ethnic composition, $F(2, 95) = 4.474, p = .014, \eta^2 = .086$, and for participant's ethnicity, $F(1, 95) = 7.577, p = .007, \eta^2 = .074$. Pairwise comparisons showed that there was a significant difference between the grades of participants in schools with an ethnic composition of 31% to 59%, that were higher than grades in the 60% or more condition ($p = .012$); however no significant difference has been found between grades in schools with an ethnic composition of 10% to 30% and 31% to 59% ($p = .199$) and of 10% to 30% and 60% or more ($p = .400$). In relation to participant's ethnicity, White participants had higher scores than Black participants (means and SD are on table 3.7). Results showed no interaction between the school's ethnic composition and participant's ethnicity $F(2, 95) = .353, p = .703, \eta^2 = .007$.

Table 3.7

Means and SD of the Final Social Environmental studies grades according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	White			Black			<i>n</i>	<i>M</i>	<i>SD</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
10% - 30%	27	4.00	.76	19	3.37	.68	46	3.72	.78
31% - 59%	13	4.23	.83	17	3.76	.75	30	4.00	.81
60% or more	8	3.50	.76	17	3.24	.75	25	3.32	.75
							101	3.69	.81
Total by ethnicity	48	4.00	.80	53	3.45	.75			

Although no explicit hypotheses exist for internal and external grades, analyses were conducted in order to examine the importance of each type of grade to the final grades.

3.3.1.4 Internal (school) grades:

The effect size, $\eta^2 = .130$, indicates that 13% of the variability of the school's Portuguese grade can be accounted for by the school's ethnic composition and the participant's ethnicity. A full factorial ANOVA was conducted with the independent variables of school ethnic composition and participant's ethnicity and the dependent variable of the school's Portuguese grade. The results showed only a main effect for participant's ethnicity, $F(1, 95) = 8.074$, $p = .005$, $\eta^2 = .078$, meaning that White children have got higher grades than Black children (Means and SD on Appendix F).

The effect size, $\eta^2 = .188$, indicates that 18.8% of the variability of the school's Mathematics grade can be accounted for by the school's ethnic composition and the participant's ethnicity. A full factorial ANOVA was conducted with the independent variables of school ethnic composition and participant's ethnicity and the dependent variable of the school's Mathematics grade. The results showed only a main effect for participant's ethnicity, $F(1, 95) = 16.625$, $p < .001$, $\eta^2 = .149$ meaning that White children have got higher grades than Black children (Means and SD on Appendix F).

3.3.1.5 External (National) grades:

The effect size, $\eta^2 = .074$, indicates that 7.4% of the variability of the national Portuguese grade can be accounted for by the school's ethnic composition and the participant's ethnicity. A full factorial ANOVA was conducted with the independent variables of school ethnic composition and participant's ethnicity and the dependent variable of the national exam

Portuguese grade. The results showed only a main effect for the school's ethnic composition $F(2, 92) = 4.801, p = .010, \eta^2 = .095$, meaning that there was a significant difference between the grades of participants in schools of the following ethnic compositions: in the 10% to 30% condition grades were higher than in 60% or more ($p = .040$), and between 31% to 59% condition, as grades were also higher than in the 60% or more ($p = .012$) condition. Yet no significant difference was found between grades in schools with an ethnic composition of 10% to 30% and 31% to 59% ($p = 1.00$). (Means and SD on Appendix G).

The effect size, $\eta^2 = .058$, indicates that 5.8% of the variability of the national exam of Mathematics grade can be accounted for by the school's ethnic composition and the participant's ethnicity. A full factorial ANOVA was conducted with the independent variables of school ethnic composition and participant's ethnicity and the dependent variable of the national exam of Mathematics grade. The results showed only a main effect for the school's ethnic composition $F(2, 92) = 4.336, p = .016, \eta^2 = .086$, meaning that there was a significant difference between the grades of participants in schools where the ethnic composition was 31% to 59% and 60% or more, as participants in the 31%-59% obtained higher grades. No significant difference was found between grades in schools with an ethnic composition of 10% to 30% and 31% to 59% ($p = .251$) nor with an ethnic composition of 10% to 30% and 60% or more ($p = .356$). (Means and SD on Appendix G).

Outliers were detected for the national exam Mathematics grade, however analyses were conducted with and without the outliers and the results were not significantly different therefore this analysis was conducted with the outliers.

These results suggest that both independent variables are important to children school performance, as the internal grades differ significantly by ethnicity while the external grades differ significantly only by the school ethnic composition.

3.3.2 Cross-ethnic friendships

To test hypothesis 4, regarding the effect of school ethnic composition and participants' ethnicity on cross-ethnic friendships, a 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) x 2 (ethnicity: White, Black) univariate ANOVA was conducted. Globally, this model explained 39.2% ($\eta^2 = .392$) of the variability of cross-ethnic friendships. The results showed no main effect for the school ethnic composition, $F(2, 96) = 1.144, p = .323, \eta^2 = .023$, nor for ethnicity, $F(1, 96) = 1.197, p = .277, \eta^2 = .012$. However, results showed an interaction between the school ethnic composition and ethnicity, $F(2, 96) = 30.109, p < .001, \eta^2 = .392$. In order to explore this interaction, pairwise comparisons were performed which indicated that there was a significant difference in the number of friends

from a different origin for White and Black children when the school ethnic composition was of 10%-30% ($p < .001$) and 60% or more ($p < .001$). (Means and SD are presented on table 3.8). These results showed that when the school ethnic composition is of 10% to 30% of children from minority groups, White participants had no friends from a different ethnic background while Black participants had one to two. Yet, when the ethnic composition is of 60% or more of children from minority groups, White participants had one to two friends from a different origin while the Black participants had none. The opposite effect is observed. However, when the school ethnic composition is more balanced (31%-59%), both groups had one friend from a different ethnic background (figure 3.1).

Table 3.8

Means and SD of cross-ethnic friendships by school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	White			Black			<i>N</i>	<i>M</i>	<i>SD</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
10-30%	27	1.48	.58	20	2.90	.55	47	2.09	.90
31-59%	13	2.23	1.17	17	2.00	1.00	30	2.10	1.06
60% or more	8	2.75	1.49	17	1.00	.00	25	1.56	1.16
							102	1.96	1.03
Total by ethnicity	48	1.90	1.06	54	2.02	1.02			

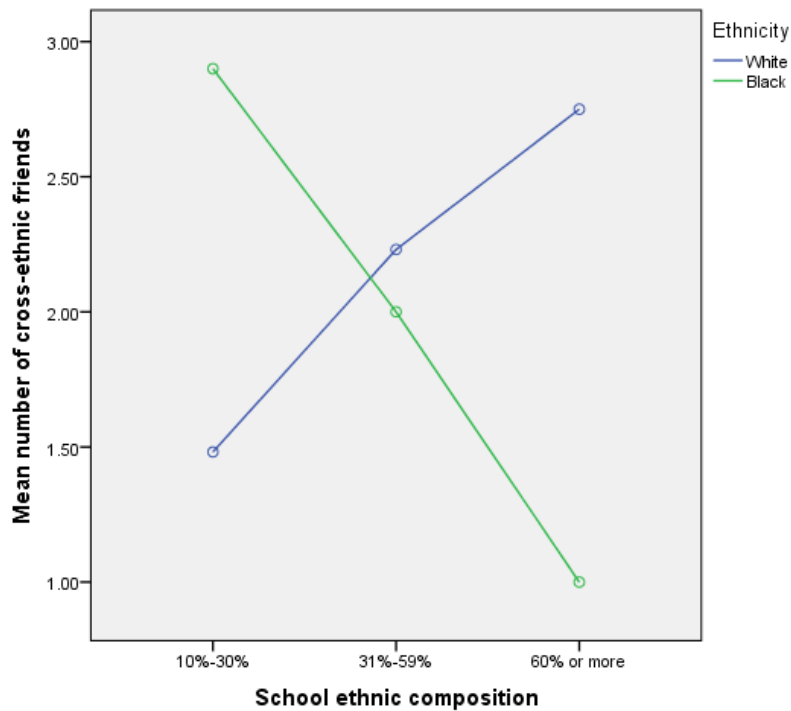


Figure 3.1. Interaction between the school ethnic composition and participant's ethnicity on the cross-ethnic friendships.

In order to test hypothesis 5, Pearson's r correlations were carried out in order to see if cross-ethnic friendships were associated with the two indexes of intergroup discrimination: the rating of trait attributions and the ambiguous situation task. Regarding trait attributions no correlations were found, neither for positive, $r = -.180$ nor for negative attributions, $r = .068$. While for the ambiguous situation task, cross-ethnic friendships were correlated with goodness/badness of potential transgressor (when potential victim was White) and friend preference (when potential victim was Black). Further correlations including participant's ethnicity for the goodness/badness of potential transgressor (when victim was White) no longer revealed an association between number of cross-ethnic friendships and potential transgressor. A negative correlation was revealed ($r = -.229$, $p < .05$) with friend preference (when potential victim was Black), however further correlations including participant's ethnicity showed only an association for White participants, ($r = -.298$, $p < .01$)¹³. These results do not confirm the hypothesis.

3.3.3 Intergroup discrimination

The following analyses were conducted in order to test for hypothesis 6.

¹³ Spearman's correlation.

3.3.3.1 Positive traits attribution. To test for the effect of school ethnic composition and participant's ethnicity on positive traits, a 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) x 2 (participant's ethnicity: White, Black) univariate ANOVA was conducted. Globally, this model explained 3.2% ($\eta^2 = .032$) of the variability of the positive trait attribution. Results showed no main effect for the school's ethnic composition, $F(2, 96) = .096$, $p = .909$, $\eta^2 = .002$, nor for participant's ethnicity, $F(1, 96) = 2.433$, $p = .112$, $\eta^2 = .025$. However, an interaction has been found between the two factors $F(2, 96) = 3.405$, $p = .037$, $\eta^2 = .066$. Pairwise comparisons showed that positive traits (the difference between White target and Black target ratings) differed significantly between White and Black participants when the school ethnic composition was of 60% or more of minority children ($p = .008$). This difference means that White participants rated the Black target more positively than the White target and that, conversely, Black participants rated the Black target more positively than the White target (figure 3.2) when the school's ethnic composition was of 60% or more (means and SD are presented on table 3.9).

Table 3.9

Means and SD of positive traits according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	White			Black			<i>n</i>	M	SD
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
10% - 30%	27	.05	.87	20	.15	.73	47	.09	.81
31% - 59%	13	.25	1.13	17	-.02	1.24	30	.10	1.18
60% or more	8	-.56	.72	17	.56	.99	25	.21	1.04
							102	.12	.98
Total by ethnicity	48	.00	.94	54	.23	1.00			

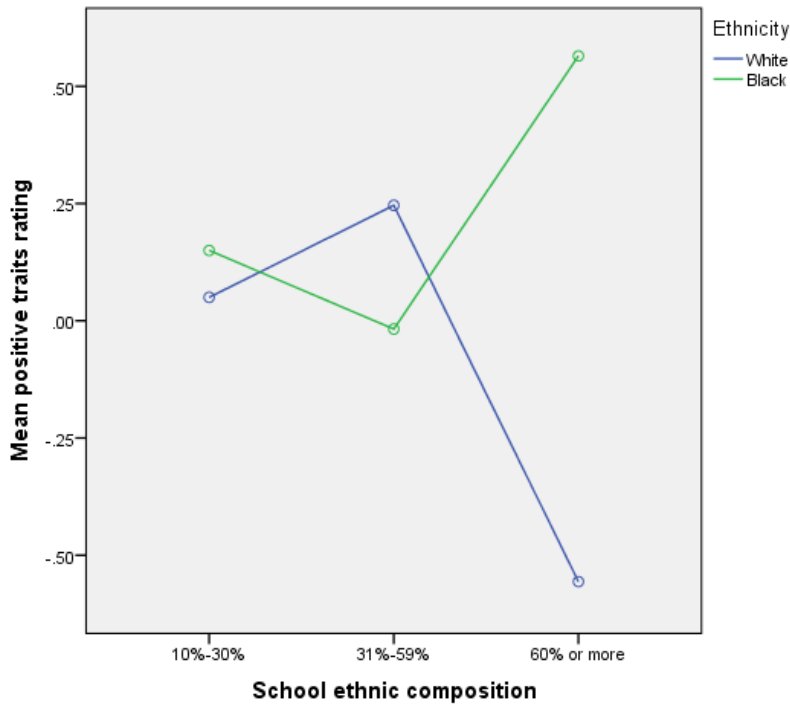


Figure 3.2. Interaction between the school's ethnic composition and participant's ethnicity on positive traits attribution

3.3.3.2 Negative traits attribution. Similarly, a 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) by 2 (participant's ethnicity: White, Black) univariate ANOVA was conducted on negative traits. Results showed no main effect for the school ethnic composition, $F(2, 96) = .043, p = .958, \eta^2 = .001$, nor for participant's ethnicity, $F(1, 96) = 2.201, p = .141, \eta^2 = .022$ and no interaction between those variables $F(2, 96) = .829, p = .440, \eta^2 = .017$ has been found (means and SD are presented on appendix J).

3.3.3.3 Ambiguous Situation Task: Interpretation of situation. A Chi-square¹⁴ test for association between school ethnic composition and participant's ethnicity was conducted for interpretation of the situation when the victim was Black. There was a non statistically significant association between school ethnic composition and participant's ethnicity for interpretation of the situation when the victim was Black, $\chi^2(2) = 4.478, p = .107$.

Similarly, a Chi-square test for association between school ethnic composition and participant's ethnicity was conducted for interpretation of the situation when the victim was White. There was a non statistically significant association between school ethnic

¹⁴ Chi-square tests need to be interpreted with precaution as some cell expected frequencies were less than 5.

composition and participant's ethnicity for interpretation of the situation when the victim was White, $\chi^2(2) = 4.478, p = .107$. (Frequencies and expected frequency tables in appendix K)

3.3.3.4 Ambiguous Situation Task: Evaluation of goodness/badness of potential transgressors. To test whether participants evaluated differently the goodness/badness of the potential transgressor's action ("Do you think - name of possible transgressor - was good or bad?") if the potential transgressor was White or Black, a 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) x 2 (participant's ethnicity: White, Black) x 2 (victim's ethnicity: White, Black) repeated measures ANOVA with repeated measures on the last factor was conducted. Results of tests of between and within subjects are presented on table 3.10, no significant differences were obtained. (Means and SD are presented on table 3.11).

Table 3.10

ANOVA for the evaluation of the goodness/badness of the potential transgressor's action

Test	Variable	Df	F	p
Within-Subjects Effects	Victim ethnicity (VE)	1, 96	1.010	.317
	VE*Ethnicity	1, 96	.267	.606
	VE*SEC	2, 96	.992	.375
	VE*Ethnicity*SEC	2, 96	.352	.704
Between-Subjects Effects	Ethnicity	1, 96	1.117	.293
	SEC	2, 96	.817	.445
	Ethnicity*SEC	2, 96	2.528	.085

Table 3.11

Means and SD of goodness/badness of the potential transgressor's action according to school ethnic composition and participant's ethnicity

	SEC	Participant's ethnicity						Total By SEC		
		White			Black			<i>n</i>	<i>M</i>	<i>SD</i>
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>			
Goodness/badness of PT (VB)	10%-30%	27	1.30	.61	20	1.30	.98	47	1.30	.78
	31%-59%	13	1.00	.00	17	1.12	.49	30	1.07	.37
	>60%	8	1.88	1.46	17	1.12	.49	25	1.36	.95
								102	1.25	.74
Total by ethnicity		48	1.31	.78	54	1.19	.70			
Goodness/badness of PT (VW)	10%-30%	27	1.33	.96	20	1.60	1.27	47	1.45	1.10
	31%-59%	13	1.38	1.12	17	1.35	.70	30	1.37	.90
	>60%	8	1.63	1.41	17	1.12	.49	25	1.28	.89
								102	1.38	.99
Total by ethnicity		48	1.40	1.07	54	1.37	.92			

Note. PT = potential transgressor; (VB) = victim is Black; (VW) = victim is White.

3.3.3.5 Ambiguous Situation Task: Potential friendships. To test how much participants considered the two children to be friends (“How much do you think they are friends?”) when the potential transgressor was a White or a Black peer, a 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) x 2 (participant's ethnicity: White, Black) x 2 (victim's ethnicity: White, Black), a repeated measures ANOVA (with repeated measures on the last factor) was conducted. Results of tests of between and within subjects are presented on table 3.12. Only the interaction between participant's ethnicity and the school ethnic composition was significant. Pairwise comparisons showed a marginal significant difference between White and Black children when the school's ethnic composition is of 10%-30% ($p = .054$), where White children rated the likelihood of friendship to be less likely ($M = 1.61$, $SD = .20$) than Black children ($M = 2.20$, $SD = .23$). (Means and SD are presented on table 3.13).

Table 3.12

ANOVA for whether participants considered the two children perceived interethnic friendship

Test	Variable	df	<i>F</i>	p
Within-Subjects Effects	Victim ethnicity (VE)	1, 96	.145	.704
	VE*Ethnicity	1, 96	.208	.649
	VE*SEC	2, 96	.185	.831
	VE*Ethnicity*SEC	2, 96	.630	.535
Between-Subjects Effects	Ethnicity	1, 96	.779	.380
	SEC	2, 96	.850	.431
	Ethnicity*SEC	2, 96	3.216	.044

Table 3.13

Means and SD of perceived cross-ethnic friendship according to school ethnic composition and participant's ethnicity

	SEC	Participant's ethnicity						Total By SEC		
		White			Black			N	M	SD
		n	M	SD	n	M	SD			
Perceived cross-ethnic friendship (VB)	10%-30%	27	1.52	.85	20	2.30	1.30	47	1.85	1.22
	31%-59%	13	1.23	.44	17	1.82	1.38	30	1.57	1.10
	>60%	8	2.13	1.46	17	1.47	1.12	25	1.68	1.25
								102	1.73	1.14
Total by ethnicity		48	1.54	.92	54	1.89	1.30			
Perceived cross-ethnic friendship (VW)	10%-30%	27	1.70	1.10	20	2.10	1.37	47	1.87	1.23
	31%-59%	13	1.31	.63	17	2.00	1.37	30	1.70	1.15
	>60%	8	2.13	1.46	17	1.47	.87	25	1.68	1.11
								102	1.77	1.17
Total by ethnicity		48	1.67	1.08	54	1.87	1.24			

Note. PT = potential transgressor; (VB) = victim is Black; (VW) = victim is White.

3.3.3.6 Ambiguous Situation Task: Friend Preference. A Chi-square¹⁵ test for association was conducted between school ethnic composition and participant's ethnicity for friend preference when the victim was Black. All expected cell frequencies were greater than five. There was a non statistically significant association between school ethnic composition and participant's ethnicity for friend preference when the victim was Black, $\chi^2(2) = 4.478$, $p = .107$.

A Chi-square test for association was conducted between school ethnic composition and participant's ethnicity for friend preference when the victim was White. All expected cell frequencies were greater than five. There was a non statistically significant association between school ethnic composition and participant's ethnicity for friend preference when the victim was White, $\chi^2(2) = 4.478$, $p = .107$.¹⁶ (Frequencies and expected frequencies tables on appendix L).

¹⁵ Chi-square tests need to be interpreted with precaution as some cell expected frequencies were less than 5.

¹⁶ Chi-square results are identical for analyses of 3.3.3.3 and 3.3.3.6, as these variables were linked, generating similar answers and effects. Frequencies are available in appendices K and L.

3.3.4 School well-being

Analyses were conducted on the well-being variable in order to test hypotheses 7 and 8. The PCA factorial structure of the indicators of school well-being is presented on table 3.14.

Table 3.14

Factorial Structure of the indicators of school well-being

<i>Item</i>	<i>School well-being</i>	Factor 1	Factor 2
<i>Social Support</i>			
<i>Item 2</i>	Do you have friends that can help you	.67	
<i>Item 1</i>	Do you like being in this school	.60	
<i>Item 5</i>	If you had a problem in school could you count on someone's help	.77	
<i>Performance and School Support</i>			
<i>Item 3</i>	Would you like to get more help at school		.77
<i>Item 4</i>	Have you been a weak student		.85
	<i>M (SD)</i>	4.63 (.58)	2.90 (1.17)
	Total Variance (57.66%)	29.01	28.65
	Cronbach's alpha	$\alpha = .41$	$\alpha = .55$

3.8.1 School well-being – Social Support

To test for the effect of school ethnic composition and participant's ethnicity on children's school well-being – social support, a 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) x 2 (participant's ethnicity: White, Black) univariate ANOVA was conducted. Globally, this model explained 9.2% ($\eta^2 = .092$) of the variability of school well-being – social support. The results showed a marginally significant main effect for participant's ethnicity, $F(1, 96) = 3.731, p < .056, \eta^2 = .037$, meaning that White children displayed a higher school well-being ($M = 4.72$) than their Black classmates ($M = 4.54$). No main effect was found for the school's ethnic composition, $F(2, 96) = 1.387, p = .255, \eta^2 = .028$, however there was an interaction between the two factors $F(2, 96) = 3.954, p = .022, \eta^2 = .076$. Pairwise comparisons showed that Black and White participants differed significantly when the school ethnic composition was of 60% or more of children from minority groups ($p = .005$), Black children had less well-being (means and SD on table 3.15).

Table 3.15

Means and Standard deviations of school well-being – social support, according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	White			Black			<i>n</i>	<i>M</i>	<i>SD</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
10% - 30%	27	4.67	.57	20	4.48	.63	47	4.59	.59
31% - 59%	13	4.69	.57	17	4.88	.23	30	4.80	.42
60% or more	8	4.96	.12	17	4.27	.72	25	4.49	.67
							102	4.63	.58
Total by ethnicity	48	4.72	.53	54	4.54	.61			

3.8.2 School well-being – Performance and School Support

To test for the effect of school ethnic composition and participant's ethnicity on children's school well-being – performance and school support - a 3 (school ethnic composition: 10% to 30%, 31% to 59%, 60% or more) x 2 (participant's ethnicity: White, Black) univariate ANOVA was conducted. Globally, this model explained 21.5% ($\eta^2 = .215$) of the variability of school well-being – performance and school support. The results showed a main effect for participant's ethnicity, $F(1, 95) = 22.338, p < .001, \eta^2 = .190$, meaning that White children displayed higher school well-being ($M = 2.30$) than their Black classmates ($M = 3.43$).¹⁷ No main effect was found for the school's ethnic composition, $F(2, 95) = .980, p = .379, \eta^2 = .020$, nor for the interaction between the two factors $F(2, 95) = .717, p = .491, \eta^2 = .015$.

¹⁷ The two items had a scale of 1-5 (1 meaning not at all and 5 meaning yes a lot) therefore a lower score reflects a positive answer, i.e. participants not wanting more help at school and not considering themselves to be a weak student.

IV. Discussion and conclusion

The aim of this study was to expand on the literature of the effects of the school ethnic composition on academic achievement, cross-ethnic friendships, intergroup discrimination and school well-being. The study also aimed to investigate these research areas in Portugal among native and Black primary school students and to examine whether schools' ethnic composition contributed to create equal opportunities for their students. This discussion will address its findings as well as its implications for public policies of Education.

4. 1 Study findings

Concerning academic achievement, H1 was accepted as White children obtained significantly higher grades than Black children for final Portuguese, Mathematics (marginal) and Social Environmental studies. These results reinforce findings of an achievement gap between natives and immigrants, both in Europe and in the USA (Belfi et al., 2014; Brown-Jeffy, 2009; OCED, 2013a) and confirm that also in Portugal this gap can exist. Regarding H2, it was rejected, as there was no interaction between the school ethnic composition and the ethnicity of the participants for any final grades: Black children did not perform significantly better in any school ethnic composition and in any discipline. This finding adds to the controversy in this area as research has stated that for minorities Reading achievement was higher and Mathematics achievement was lower in an ethnic composition of more than 50% of minorities (e.g., Hornstra et al., 2015).

Still regarding academic achievement, H3 was rejected, as academic achievement of White students did vary with the school's ethnic composition. What was found was that in general children performed significantly better in school ethnic compositions of 10% to 30% and 31% to 59% when compared to children in schools of 60% or more of minority children for Mathematics and Environmental Studies final grades, regardless their ethnic background. These results support previous findings that a more balanced ethnic composition equals better grades (Brown-Jeffy, 2009) and that when minority groups are in majority grades decrease for all students (Driessen, 2002). These findings also support research by Belfi et al., (2014), as they found all students had lower Mathematics achievement in compositions of 50% or more of children from minority groups. However, they found Reading achievement to be higher when the composition was of 50% or more, but in this study, this was not found.

What is extremely interesting to point out is when analysing internal and external grades separately, internal (school) grades differ by ethnicity (Black students have lower grades) and

external grades (national) differ by school ethnic composition (with worse grades being obtained when the school ethnic composition is of 60% or more). It's hard to say what causes this difference but it raises the hypothesis of the existence of a biased evaluation performed by school teachers targeting Black children, compared to the ethnic blind evaluation performed in national exams.

For the effect of school ethnic composition and of participant's ethnicity on cross-ethnic friendships no main effects were obtained. These results add to the controversy, as recent research suggested that in general White European children have more cross-ethnic friendships than students from minority groups (Bagci, et al., 2014). Yet the results obtained in this study supported findings by Feddes et al., (2009), as they have shown that cross-ethnic friendships between Dutch and Turkish students were as common for majority and minority children. Thus, H4 was rejected as cross-ethnic friendships were just as likely for Black as for White children and as a more equal school ethnic composition children did not mean more ethnic friendships according to school's ethnic composition; instead, both Black and White children had the same number of cross-ethnic friendships. What was observed was an interaction between school ethnic composition and participant's ethnic group: both Black and White children had more cross-ethnic friendships when their ethnic group was in minority; conversely, when they were in majority they had no cross-ethnic friendships. Therefore it seems that a more equal ethnic composition means a higher probability of equal numbers of cross-ethnic friendships and less segregated peer groups. These findings differ again from research by Bagci, et al., (2014) as they found White European children had more cross-ethnic friendships than children from minority groups when ethnic diversity was low.

Additionally, H5 was also rejected as more cross-ethnic friendships were not associated to the discrimination variables, as correlations that were found did not confirm the hypothesis.

In relation to the discrimination indicators, H6 was accepted, as interethnic discrimination was less likely when the school ethnic composition was more balanced, 31% to 59% of minority students. In the traits attribution task it was found that when the school ethnic composition was of 60% or more of minority students, Black children discriminated against White targets, as they rated the Black target more positively than the White target, while White participants rated the Black target more positively than the White target. These findings are in agreement with previous findings (Margie et al., 2005; McGlothlin et al., 2006; Pereira et al., 2006) as Whites in school ethnic compositions of 35% to 65% and over 60% of

minority groups did not discriminate against Blacks. For negative attributions no significant results were found.

Still regarding discrimination indicators, for the ‘Ambiguous Situation Task’ (McGlothlin and colleagues. 2005/2006), Black and White children did not discriminate in the interpretation of the situation and on the evaluation of the goodness/badness of the potential transgressor. However, White children rated cross-ethnic friendship to be less likely when they were in schools of 10% to 30% of ethnic minorities, which has been found previously among White-American 4th graders (McGlothlin et al., 2006; McGlothlin et al., 2005).

Considering school well-being, H6 was accepted, as well-being (social support and performance/school support) was higher among White than among Black children; however, H7 has not been confirmed, as wellbeing was not highest for both groups when the school ethnic composition was of 31% to 59%. It was also found that well-being (performance and school support) was negatively and weakly/moderately correlated with academic grades, meaning that academic achievement decreases when the children considered themselves as a weak student and would like more help at school. Moreover, when the school ethnic composition was of 60% or more of ethnic minorities, Black children reported significantly less well-being (social support) than White children. Due to the limitations of research in this area, it is only possible to relate to Vedder et al., (2005), who found opposite findings; but it is important to note school well-being was measured by these authors with different items, what does not allow an adequate comparison between the two studies.

These results add to the controversy of the benefits and/or risks of ethnic diversity in schools and classrooms in European countries (e.g., Baysu et al. 2014). Furthermore, they showed that in Portugal segregation in schools still exists.

4.2 Public Policies in Portugal

The results presented have important implications for the public policies of education in Portugal, because, as stated in the PISA 2009 Executive Summary (OCED, 2010, p.10), “Across OECD countries, first-generation students – those who were born outside the country of assessment and who also have foreign-born parents – score, on average, 52 score points below students without an immigrant background.” These implications particularly regard the government plans to integrate immigrants in public schools, which need to strongly endorse more ethnically balanced classrooms and to review admission of students exclusively by geographical proximity criteria. This seems, in fact, seems not to be occurring, as the law

states priority for admission to primary schools to the students closest geographically, either to residence or employment (Despacho 5048-B/2013, article 12). This is controversial and seems to be unfair on both native and immigrants, as this study found academic performance at the primary level, to be best in the school ethnic composition of 10% to 30% (for Mathematics) and 31% to 59% (for Mathematics and Social Environmental studies), when compared to the academic achievement of children with 60% or more of ethnic minorities. These results can be extremely useful to enforce equality policies in order to reinforce the idea that schools need to be more ethnically balanced.

This balance seems to be required, not only for educational outcomes, but also for more opportunities for cross-ethnic friendships and less discrimination. Although in this study strong evidence has not been found regarding relationships between cross-ethnic friendships and inter-ethnic discrimination, as shown by Pettigrew and Troup (2006) in their meta-analytic study on prejudice, the negative correlation between ‘friend preference when victim was a Black peer’ (Killen’s vignettes) and ‘cross-ethnic friendships’ seems to indicate that perceived Black victimisation does not foster more inter-ethnic friendships. In fact, these are more likely to occur in ethnically balanced schools, at least in primary school environments. Moreover children’s wellbeing also seems to be at stake, given the negative low/moderate correlations between ‘school performance’ in all the three subjects and children’s self-defining as ‘a weak student’ and ‘in need of more school support. Nevertheless, Black children are reporting less well-being than White children when the ethnic composition is of 60% or more.

4.3 Limitations and future directions

This study has some limitations which need to be considered. Firstly, the analysis of the results should be read with precaution, as some variables were not normally distributed, there were violations of the homogeneity of variances and although the consistency of school-wellbeing factors was low, analyses were conducted due to the importance of this variable to the study. Also as a limitation is the modest number of White participants ($N = 8$) in the condition of the school ethnic composition of 60% or more ethnic minorities. Although the statistical tests make up for this difference, White children were not equally represented in the category. Lastly, the school well-being measure should have covered more areas of school well being, as described on the ‘School well-being model’ (Konu & Rimpelä, 2002). Those areas are: school conditions (e.g. environment, services, punishments, schedules); social

relationships (e.g. teacher-student relationship, bullying, group dynamics); means for self-fulfilment (e.g. value of student's work, guidance, encouragement) and health status.

As a future direction it would be relevant to replicate this study, not only on the same primary education sample, but also on older students in Portugal, in order to further explore the importance of the school ethnic composition on school performance and inter-ethnic relationships in that life period. An extensive and sound knowledge of the effects of schools' ethnic composition on students' life is of extreme importance for amendments to Portuguese school policies, in order to provide a learning environment which allows for more equal opportunities between native and immigrant/refugee students.

References

- Aboud, F. E. (1988). *Child and prejudice*. Oxford: Blackwell.
- Aboud, F. E., & Amato, M. (2001). Developmental and socialization influences on intergroup bias. In R. Brown & L. Gaertner (Eds.), *Blackwell Handbook of Social Psychology: Intergroup Processes* (pp. 65-85). Malden: Blackwell.
- Aboud, F. E., Mendelson, M. J., & Purdy, K. T. (2003). Cross-race peer relations and friendship quality. *International Journal of Behavioural Development, 27*(2), 165-173. doi: 10.1080/01650250244000164
- Allport, G. W. (1954). *The Nature of Prejudice*. Reading: Addison-Wesley.
- Bagci, S. C., Kumashiro, M., Smith, P. K., Blumberg, H., & Rutland, A. (2014). Cross-ethnic friendships: Are they really rare? Evidence from secondary schools around London. *International Journal of Intercultural Relations, 41*, 125-137. doi 10.1016/j.ijintrel.2014.04.001
- Barth, J. M., McDonald, K. L., Lochman, J. E., Boxmeyer, C., Powell, N., Dillon, C., & Salle, M. (2013). Racially Diverse Classrooms: Effects of Classroom Racial Composition on Interracial Peer Relationships. *American Journal of Orthopsychiatry, 83*(2-3), 231-243. doi: 10.1111/ajop.12026
- Baysu, G., Phalet, K. & Brown, R. (2014). Relative group size and minority school success: The role of intergroup friendship and discrimination experiences. *British Journal of Social Psychology, 53*(2), 328-349. doi: 10.1111/bjso.12035
- Belfi, B., Goos, M., De Fraine, B., & Van Damme, J. (2012). The effect of class composition by gender and ability on secondary school students' school well-being and academic self-concept: A literature review. *Educational Research Review, 7*(1), 62-74. doi: 10.1016/j.edurev.2011.09.002
- Belfi, B., Goos, M., Pinxten, M., Verhaeghe, J. P., Gielen, S., De Fraine, B., & Van Damme, J. (2014). Inequality in language achievement growth? An investigation into the impact of pupil socio-ethnic background and school socio-ethnic composition. *British Educational Research Journal, 40*(5), 820-846. doi: 10.1002/berj.3115
- Brown, R. (1999). *Prejudice: Its Social Psychology*. Oxford: Blackwell.
- Brown-Jeffy, S. (2009). School Effects: Examining the Race Gap in Mathematics Achievement. *Journal of African American Studies, 13*(4), 388-405. doi: 10.1007/s12111-008-9056-3
- Civil Rights Act of 1964, Pub.L. 88-352, 78 Stat. 241 (1964).

- Corsini, R. J. (1999). *The dictionary of Psychology*. Philadelphia: Brunner/Mazel.
- Curran, P. J., West, S. G., & Finch, J. (1996). The robustness of test statistics to non normality and specification error in confirmatory factor analysis. *Psychological Methods*, 1(1), 16-29.
- Direção-Geral de Estatísticas da Educação e Ciência (DGEEC) & Direção de Serviços de Estatísticas da Educação (DSEE). (2014). *Perfil do Aluno 2012/2013* [Student Profile 2012/2013]. Lisboa: Direção-Geral de Estatísticas da Educação e Ciência (DGEEC).
- Dovidio, J. F., Gaertner, S. L., & Kawakami, K. (2003). Intergroup Contact: The Past, Present and the Future. *Group Processes and Intergroup Relations*, 6(1), 5-21. doi: 10.1177/1368430203006001009
- Driessen, G. (2002). School Composition and Achievement in Primary Education: A large scale multilevel approach. *Studies in Educational Evaluation*, 28(4), 347-368. doi: 10.1016/S0191-491X(02)00043-3
- European Commission. (2014). Communication from the Commission of the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - An open and secure Europe: making it happen (Council document 7844/14). Retrieved from http://ec.europa.eu/dgs/home-affairs/e-library/documents/basic-documents/docs/an_open_and_secure_europe_-_making_it_happen_en.pdf
- European Commission. (2015). *The mandate to promote integration at EU level*. Retrieved from <https://ec.europa.eu/migrant-integration/index.cfm?action=furl.go&go=/the-eu-and-integration/the-mandate-to-promote-integration>
- Eurostat (2015a). *Population and population change statistics*. Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/Population_and_population_change_statistics#Main_statistical_findings
- Eurostat (2015b). *Migration and migrant population statistics*. Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/Migration_and_migrant_population_statistics#Main_statistical_findings
- Feddes, A. R., Noack, P., & Rutland, A. (2009). Direct and Extended Friendship Effect on Minority and Majority Children's Interethnic Attitudes: A Longitudinal Study. *Child Development*, 80(2), 377-390. doi: 10.1111/j.1467-8624.2009.01266.x.
- Fernandes, H. M., Vasconcelos-Raposo, J., Bertelli, R., & Almeida, L. (2011). Satisfação

- escolar e bem-estar psicológico em adolescentes portuguesas [Educational satisfaction and psychological well-being in Portuguese adolescents]. *Revista Lusófona de Educação*, 18, 155-172.
- Gamoran, A., & Long, D. A. (2006, December). *Equality of Educational Opportunity: A 40 Year Retrospective* (WCER Working Paper No. 2006-9). Madison: University of Wisconsin–Madison, Wisconsin Center for Education Research.
- Gaspar, T. (2008). Promoção do bem-estar na adolescência: Impacto do estatuto socio económico e do estatuto migrante [Promoting well-being in Adolescence: The impact of socio-economic status and migrant status]. *Análise Psicológica*, 2(26), 265-279.
- Gaspar, T., & Matos, M. G. (2008). *Qualidade de Vida em Crianças e Adolescentes: Versão Portuguesa dos Instrumentos Kidscreen-52* [Quality of life in Children and Adolescents: Portuguese Version of the Kidscreen-52 Instrument]. Cruz Quebrada: Aventura Social e Saúde.
- Goza, F., & Ryabov, I. (2009). Adolescents' Educational Outcomes: Racial and Ethnical variations in Peer Network Importance. *Journal of Youth and Adolescence*, 38(9), 1264-1279. doi: 10.1007/s10964-009-9418-8
- Hofman, R. H., Hofman, W. H. A., & Guldemon, H. (1999). Social and cognitive outcomes: A comparison of contexts of learning. *School Effectiveness and School Improvement*, 10(3), 352–366. doi: 10.1076/sesi.10.3.352.3499
- Hornstra, L., van der Veen, I., Peetsma, T., & Volman, M. (2015). Does classroom composition make a difference: effects on developments in motivation, sense of classroom belonging, and achievement in upper primary school. *School Effectiveness and School Improvement*, 26(2), 125-152. doi: 10.1080/09243453.2014.887024
- Jugert, P., Noack, P., & Rutland, A. (2011). Friendship Preferences Among German and Turkish Preadolescents. *Child Development*, 82(3), 812-829. doi: 10.1111/j.1467-8624.2010.01528.x
- Katja, R., Päivi, A.K., Marja-Terttu, T., & Pekka, L. (2002). Relationships Among Adolescent Subjective Well-Being, Health Behaviour, and School Satisfaction. *Journal of School Health*, 72(6), 243-249.
- Killen, M. (2008). Children's Social and Moral Reasoning about Exclusion. *Current Directions in Psychological Science*, 16(1), 32-36. doi: 10.1111/j.1467-8721.2007.00470.x
- Killen, M., Kelly, M. C., Richardson, C., Crystal, D., & Ruck, M. (2010). European

- American children's and adolescents' evaluations of interracial exclusion. *Group processes & Intergroup Relations*, 13(3), 283-300. doi: 10.1177/1368430209346700
- Konu, A., & Rimpelä, M. (2002). Well-being in schools: a conceptual model. *Health Promotion International*, 17(1), 79-87. doi: 10.1093/heapro/17.1.79
- Legal Information Institute (LII). (n.d). *Brown v. Board of Education*. Retrieved from <https://www.law.cornell.edu/supremecourt/text/347/483>
- Lei n.º 85/2009. (2009, 27 de Agosto). Diário da República, I série, nº 166.
- Lei Constitucional n.º 1/2005. (2005, 12 de Agosto). Diário da República, I série-A, nº 155.
- Margie, N. G., Killen, M., Sinno, S., & McGlothlin, H. (2005). Minority children's intergroup attitudes about peer relationships. *British Journal of Developmental Psychology*, 23(2), 251-269. doi: 10.1348/026151005X26075
- Matos, M. G., & Carvalhosa, S. F. (2001). A Saúde dos Adolescentes: Ambiente Escolar e Bem-estar [Adolescents' Health: School Environment and Well-being]. *Psicologia, Saúde & Doenças*, 2(2), 43-53.
- McGlothlin, H. (2004). *Children's decision-making about social relationships: The impact of similarity, racial attitudes, and intergroup contact*. (Unpublished Doctoral dissertation). University of Maryland, Maryland, United States of America.
- McGlothlin, H., & Killen, M. (2006). Intergroup attitudes of European American Children Attending Ethnically Homogeneous Schools. *Child Development*, 77(5), 1375-1386. doi: 10.1111/j.1467-8624.2006.00941.x
- McGlothlin, H., Killen, M., & Edmonds, C. (2005). European-American children's intergroup attitudes about peer relationships. *British Journal of Developmental Psychology*, 23(2), 227-249. doi: 10.1348/026151005x26101
- Mickelson, R. A., Bottia, M. C., & Lambert, R. (2013). Effects of School Racial Composition on K-12 Mathematics Outcomes: A Metaregression Analysis. *Review of Educational Research*, 83(1), 121-158. doi: 10.3102/0034654312475322
- Nesdale, D., Durkin, K., Maas, A., & Griffiths, J. (2005). Threat, Group Identification, and Children's Ethnic Prejudice. *Social Development*, 14(2), 189-205. doi: 10.1111/j.1467-9507.2005.00298.x
- OECD. (2010). *PISA 2009 Results: Executive Summary*. Paris: OECD Publishing.
- OECD. (2013a). *PISA 2012 Results: Excellence Through Equity: Giving Every Student the Chance to Succeed (Volume II)*. Paris: OECD Publishing. doi: 10.1787/9789264201132-en

- OECD. (2013b). *PISA 2012 Results: Ready to Learn – Students' Engagement, Drive and Self Beliefs (Volume III)*. Paris: OECD Publishing. doi: 10.1787/9789264201170-en
- OECD. (2014). *PISA 2012 Results: What Students Know and Can Do – Student Performance in Mathematics, Reading and Science (Volume I, Revised edition, February 2014)*. Paris: OECD Publishing. doi:10.1787/9789264201118-en
- Oxford Dictionaries (n.d). *English Dictionary*. Retrieved from <http://www.oxforddictionaries.com/definition/english/>
- Pais, S. (2010). *Estratégias de Gestão da Identidade de Adolescentes em Situação Bi-Cultural: Impacto no Bem-Estar e no Sucesso Escolar* [Strategies of Identity Management of Adolescents in Bi-cultural Situations: Impact on Well-being and Academic Achievement] (Unpublished master's thesis). ISCTE-IUL: Lisboa.
- Pereira, J. S., & Monteiro, M. B. (2006). Expressão do Racismo na Infância – O efeito da Composição Étnica da Escola [Expressing racism in childhood – the effect of the school's ethnic composition]. In *Actas do VI Simpósio Nacional de Investigação em Psicologia*. Lisboa: Associação Portuguesa de Psicologia e Universidade de Évora.
- Pettigrew, T. F. (1997). Generalized intergroup contact effects on prejudice. *Personality and Social Psychology Bulletin*, 23, 173–185. doi: 10.1177/0146167297232006
- Pettigrew, T. F. (1998). Intergroup Contact Theory. *Annual Review of Psychology*, 49, 65-85. doi: 10.1146/annurev.psych.49.1.65
- Pettigrew, T. F., & Tropp, L. R. (2000). Does intergroup contact reduce prejudice? Recent meta-analytic findings. In S. Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 93–114). Hillsdale, NJ: Erlbaum.
- Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, 90(5), 751-783. doi: 10.1037/0022-3514.90.5.751
- Projeto para a Avaliação Internacional de Alunos (ProjAVI). (2013). *PISA 2012, Portugal – Primeiros Resultados* [PISA 2012 First Results in Portugal]. Portugal: ProjAVI.
- Raabe, T., & Beelmann, A. (2011). Development of Ethnic, Racial, and National Prejudice in Childhood and Adolescence: A multinational Meta-Analysis of Age Differences. *Child Development*, 82(6), 1715-1737. doi: 10.1111/j.1467-8624.2011.01668.x
- Resolução do Conselho de Ministros n.º 63-A/2007. (2007, 3 de Maio). Diário da República, I série, No 85.
- Resolução do Conselho de Ministros nº74/2010. (2010,17 de Setembro). Diário da República: I série, No 182.

- Rude, J., & Herda, D. (2010). Best Friends Forever? Race and the Stability of Adolescent Friendships. *Social Forces*, 89(2), 585-608. doi: 10.1353/sof.2010.0059
- Rutland, A., & Killen, M. (2015). Developmental Science Approach to Reducing Prejudice and Social Exclusion: Intergroup Processes, Social-Cognitive Development, and Moral Reasoning. *Social Issues and Policy Review*, 9(1), 121-154. doi: 10.1111/sipr.12012
- Ryabov, I. (2011). Adolescent academic outcomes in school context: Network effects Reexamined. *Journal of Adolescence*, 34(5), 915-927. doi: 10.1016/j.adolescence.2010.12.004
- Schroeder, J., & Risen, J. L. (2014). Befriending the enemy: Outgroup friendship longitudinally predicts intergroup attitudes in a coexistence program for Israelis and Palestinians. Retrived from <http://gpi.sagepub.com/content/early/2014/07/25/1368430214542257>
- Serviço de Estrangeiros e Fronteiras (SEF). (2015). *Relatório de Imigração, Fronteiras e Asilo 2014* [Report on immigration, borders and asylum in 2014]. Oeiras, Lisboa: SEF.
- Soria, M. S., Martínez, I. M. M., Esteve, E. B., Gumbau, S. L., & Gumbau, R. G. (2005). Bienestar psicológico en estudiantes universitarios: facilitadores y obstaculizadores del desempeño académico [Psychological well-being in university students: facilitators and obstacles of academic performance]. *Anales de psicología*, 25(1), 170-180.
- Thijs, J., & Verkuyten, M. (2014). School ethnic diversity and students' interethnic relations. *British Journal of Educational Psychology*, 84(1), 1-21. doi: 10.1111/bjep.12032
- Tomyn, A. J., & Cummins, R. A. (2011). The Subjective Wellbeing of High-School Students: Validating the Personal Wellbeing Index—School Children. *Social Indicators Research*, 101(3), 405-418. doi: 10.1007/s11205-010-9668-6
- Tropp, L. R., & Prenovost, M. A. (2008). The role of intergroup contact in predicting children's inter-ethnic attitudes: Evidence from meta-analytic and field studies. In S. Levy & M. Killen (Eds.), *Intergroup attitudes and relations in childhood through adulthood* (pp. 236-248). New York: Oxford University Press.
- Vedder, P., Boekaerts, M., & Seegers, G. (2005). Perceived Social Support and Well Being in School; The Role of Students' Ethnicity. *Journal of Youth and Adolescence*, 34(3), 269-278. doi: 10.1007/s10964-005-4313-4
- Vervoort, M. H. M., Scholte, R. H. J., & Scheepers, P. L. H. (2011). Ethnic composition of

school classes, majority-minority friendships, and adolescents' intergroup attitudes in the Netherlands. *Journal of Adolescence*, 34(2), 257-267. doi:

10.1016/j.adolescence.2010.05.005

Van Houtte, M., & Stevens, P. A. J. (2009). School Ethnic Composition and Students' Integration Outside and Inside Schools in Belgium. *Sociology of Education*, 82(3), 217-239. doi: 10.1177/003804070908200302

Van Houtte, M., & Stevens P. A. J. (2010). School ethnic composition and aspirations of immigrant students in Belgium. *British Educational Research Journal*, 36(2), 209-237. doi: 10.1080/01411920902802180

Williams, D.R., Neighbors, H. W., & Jackson, J. S. (2003). Racial/Ethnic Discrimination and Health: Findings From Community Studies. *American Journal of Public Health*, 93(2), 200-208. doi: 10.2105/AJPH.93.2.200

Wilson, T., & Rodkin, P. C. (2011). African American and European American Children in Diverse Elementary Classrooms: Social Integration, Social Status, and Social Behavior. *Child development*, 82(5), 1454-1469. doi: 10.1111/j.1467-8624.2011.01634.x.

Appendices

Appendix A: Letter for schools requesting collaboration



(Location), (month) of (year)

Subject: Request to collaborate with the Centre of Research and Social Intervention of ISCTE-IUL in an investigation in the Education area

Dear Mr/Ms Head teacher of (name of school)_____

The department of Social and Organizational Psychology of ISCTE – Lisbon University Institute, in collaboration with the Centre of Research and Social Intervention is developing a series of studies which calls on the collaboration of this primary school.

The present study, carried out by Érica Andrade, student of the Masters in Social Community Psychology, under my supervision aims to characterize the attitudes of students from public schools in the area of Lisbon, depending on their ethnic composition, in order to promote inclusive education policies towards different social groups.

In this phase, the studies involve, filling out questionnaires with groups of 3 to 4, with the students from the 4th year of this school, with a maximum duration of 15 minutes. The questionnaire is about their network of friends, their well-being in school and their academic success.

If you have interest in your primary school collaborating with this study, it will be our pleasure to present the details of the study, as well as the specific objectives. The collection and the analysis of the data will take place in strict compliance with the rules and procedures set by the National Commission for Data Protection and will be only be carried out once authorization is obtained.

Thanking you in advance for your willingness to take on this initiative, sending my best regards

Project coordinator

A handwritten signature in black ink, appearing to read 'Maria Benedicta Monteiro', is written over a horizontal line.

(Teacher Doctor Maria Benedicta Monteiro)

Cathedractic Teacher from ISCTE-IUL

mbbm@iscte.pt

Appendix B: Document of characterization of school

**Questionário de Caracterização de Agrupamentos/Escolas
2014-2015**

1 Nome da Escola: _____
Endereço: _____
Agrupamento de Escolas: _____
Contacto: _____ Selo de Educação Multicultural? _____

.1 Ciclo lecionado na Escola:

1º
2º
3º

 2.2. Nº total de turmas: _____

2.1. Número total de alunos que frequentam a escola no presente ano letivo:

2.2. Número total de alunos cuja família não tem o português como língua materna:

2.3. Número total de alunos que abandonou a escola durante o ano letivo transato:

2.4. Desses, quantos fazem parte de famílias que não têm o português como língua materna?

2.5. Qual a composição étnica da escola? (ORIGEM DAS FAMÍLIAS)

< 10 %	10 % a < 30%	30% a 60 %	> 60 %
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Angolanos:	<input type="text"/>	EL_Ucranianos:	<input type="text"/>
Moçambicanos:	<input type="text"/>	ELE Moldavos:	<input type="text"/>
Cabo-verdianos:	<input type="text"/>	EL_Romenos:	<input type="text"/>
Guineenses:	<input type="text"/>	EL_Russos:	<input type="text"/>
São Tomenses:	<input type="text"/>	Chineses:	<input type="text"/>
Brasileiros:	<input type="text"/>	Europa OC_:	<input type="text"/>
Outros:	<input type="text"/>	Outros	<input type="text"/>

3 Recursos

Assinale os recursos que existem na escola:

3.1. Informação sobre as línguas maternas dos alunos inscritos na escola	Sim	Não
3.2. Intérpretes na facilitação da comunicação Docente/Aluno/Família	Sim	Não
3.3. Mediadores na facilitação da comunicação Alunos/Família/Escola	Sim	Não
3.4. Reuniões de pais direcionados para as famílias imigrantes	Sim	Não
3.5. Informação para as famílias nas línguas maternas?	Sim	Não

4 Políticas de Imigração

4.1. Modelo adotado

Integração em aulas regulares (quem?)	Sim	Não
Integração em aulas regulares + apoio essencialmente linguístico (quem?)	Sim	Não
Períodos de permanência em aulas separadas com <u>aprendizagem curricular na língua de origem (quem?)</u>	Sim	Não

Outro: _____

4.2. Adoção de medidas adicionais de apoio à integração dos alunos:

	Sim	Não
4.2.1. Tutorias individuais por docentes ou por pares (ex: grupos)		
4.2.2. Adaptação do currículo escolar		
4.2.3. Alteração dos métodos de ensino-aprendizagem		
4.2.4. Turmas de reduzida dimensão (18 alunos ou menos)		

5 Políticas de Reconhecimento da Cultura de grupos Imigrantes

	Sim	Não
5.1. Reconhecimento/celebração de festas/feriados religiosos/políticos...		
5.2. Decisão, por parte dos pais, quanto à frequência em atividades educacionais como desporto, música, educação religiosa, línguas, entre outras.		
5.3. Utilização de vestuário/adereços próprios das comunidades de origem		
5.4. Menus escolares alternativos para alunos com restrições alimentares (restrições médicas, religiosas, culturais)		
5.5. Valorização das nacionalidades estrangeiras (ex: bandeiras, mapas, livros, personagens importantes, língua materna)		

Appendix C: Letter of consent for parents/carers



(Location), (month) of (year)

Subject: Request to collaborate with ISCTE-IUL in an investigation in the Education area

Dear Parent/Carers,

The department of Social and Organizational Psychology of ISCTE – Lisbon University Institute, in collaboration with the Centre of Research and Social Intervention is developing a series of studies which calls on the collaboration of the child under your responsibility.

The present study, carried out by Érica Andrade, student of the Masters in Social Community Psychology, under my supervision aims to characterize the attitudes of students from public schools in the area of Lisbon, depending on their ethnic composition, in order to promote inclusive education policies towards different social groups.

In this phase, the studies involve, filling out questionnaires with groups of 3 to 4, with the students from the 4th year of this school, with a maximum duration of 15 minutes. The questionnaire is about their network of friends, their well-being in school and their academic success.

Thanking you in advance for your willingness to take on this initiative, sending my best regards

Project coordinator

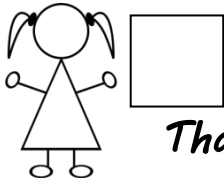
A handwritten signature in black ink, appearing to read 'Maria Benedicta Monteiro', written over a horizontal line.

(Teacher Doctor Maria Benedicta Monteiro)
Cathedractic Teacher from ISCTE-IUL
mbbm@iscte.pt

Please fill in the slip and return to the teacher:

I give/do not give authorization for _____ from form ____ to participate in the investigation of ISCTE_IUL in the area of Education.

Appendix D: Girls' questionnaire



Hello!

Thank you for coming! :)

We are seeing how children your age live and feel in PORTUGAL. Can you help me?



Can we start by knowing a bit about you:

Name of your School: _____

Form: _____

Date of Birth: ____ / ____ / ____

Age: ____ years

Country where you were born: _____

Nationality: _____



How are lessons going?

Write here your grades for the 1st term:

Mathematics: _____

Portuguese: _____

Social Environmental studies: _____



Can you tell me who your best friends in the classroom are? And which country are they from?

Name: _____ Country?

Name: _____ Country?

Name: _____ Country?



I see you have chosen your friends... 😊

How do you think the girls who look like this girl are? Give your opinion!



I think they are:	Indicate with an X your opinion ...	
	Not at all like that	Exactly like that
Good people (help others)	Not at all like that	Exactly like that
Bad mannered (behave badly)	Not at all like that	Exactly like that
Sincere (say the truth)	Not at all like that	Exactly like that
Aggressive (are violent with others)	Not at all like that	Exactly like that
Honest (do not steal)	Not at all like that	Exactly like that
Dumb	Not at all like that	Exactly like that
Intelligent	Not at all like that	Exactly like that
Dirty	Not at all like that	Exactly like that
Studious (spend a lot of time studying)	Not at all like that	Exactly like that
Lazy (do not like to study)	Not at all like that	Exactly like that

Now look carefully at this picture and give your opinion:



a. Here is Maria and here is Malika. What do you think happened?

b. Why?

c. Do you think Malika good or bad?

👊 Very bad _____ Very good 👍

d. How much do you think they are friends?

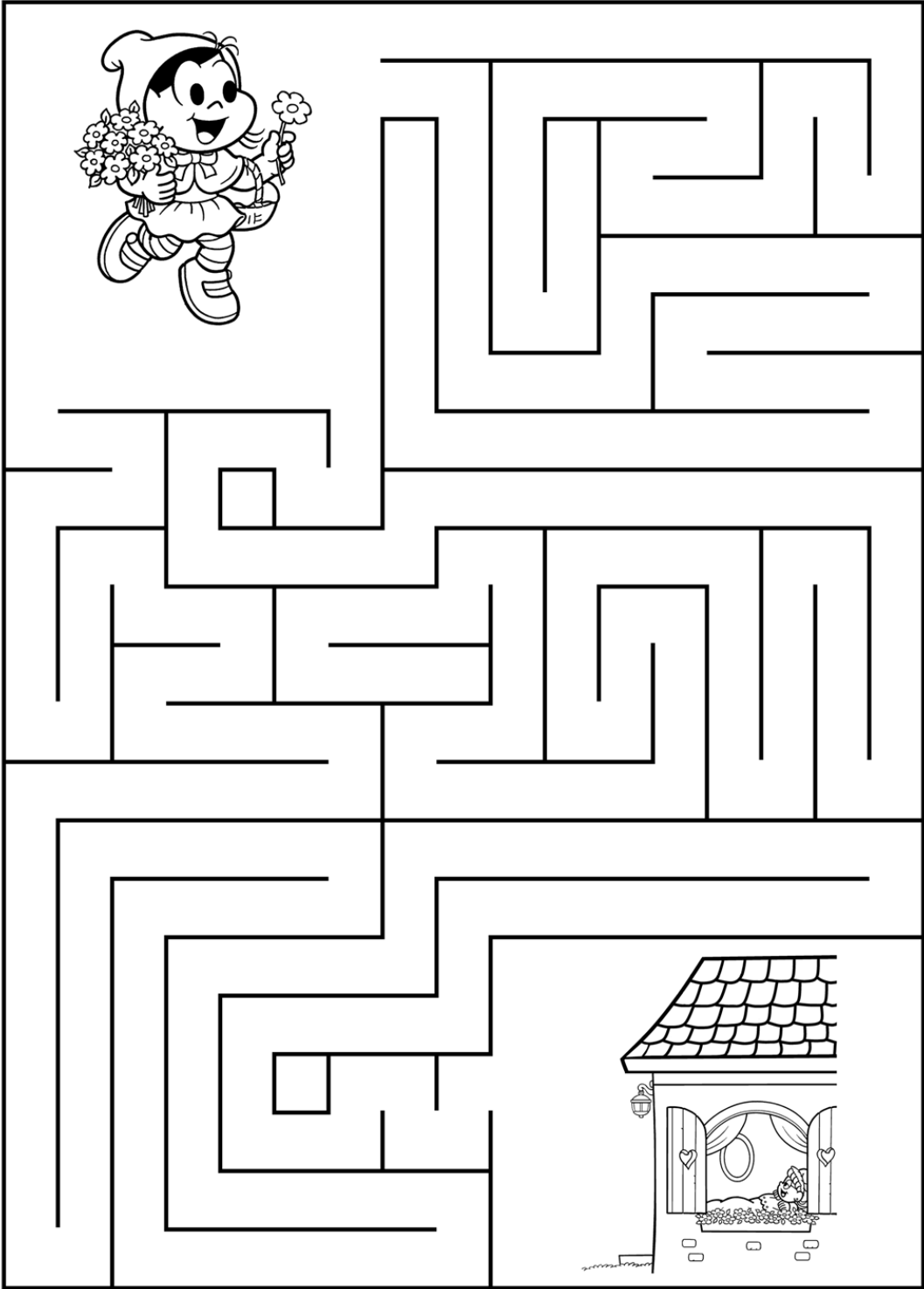
👊 Not at all _____ Very much 👍

e. Which of these two girls would you like to be friends with? (put an X on the name of the girl you prefer)

Maria _____ Malika _____

Now let's do something fun, here is a game you all know well. You have 2 minutes to complete it!

LET'S TAKE LITTLE RED RIDING HOOD TO HER GRANDMOTHER'S HOUSE!



Give your opinion! How do you think the girls who look like this girl are?



I think they are:	Indicate with an X your opinion ...	
	Not at all like that	Exactly like that
Good people (help others)	Not at all like that	Exactly like that
Bad mannered (behave badly)	Not at all like that	Exactly like that
Sincere (say the truth)	Not at all like that	Exactly like that
Aggressive (are violent with others)	Not at all like that	Exactly like that
Honest (do not steal)	Not at all like that	Exactly like that
Dumb	Not at all like that	Exactly like that
Intelligent	Not at all like that	Exactly like that
Dirty	Not at all like that	Exactly like that
Studious (spend a lot of time studying)	Not at all like that	Exactly like that
Lazy (do not like to study)	Not at all like that	Exactly like that

Now look carefully at this Picture and give your opinion:



a. Here is Maria and here is Malika. What do you think happened?

b. Why?

c. Do you think Maria was good or bad?

👎 Very bad | | | | | Very good 👍

d. How much do you think they are friends?

👎 Not at all | | | | | Very much 👍

e. Which of these two girls would you like to be friends with? (put an x on the name of the girl you prefer)




Maria _____ Malika _____

Now let's talk about your school:

How do you feel here? (Indicate with an X your opinion)

Do you have friends that can help you?

No, not at all Yes, a lot


Do you like being in this school?

No, not at all Yes, a lot




Would you like to get more help at school?

No, not at all Yes, a lot

Have you been a weak student?

No, not at all Yes, a lot

If you had a problem at school could you count on someone's help?

No, not at all Yes, a lot

Now let's talk a little about your family:

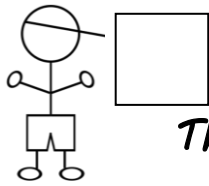
- How many brothers and sisters do you have? _____
- Who do you live with? _____

- Now your parents, in which country where they born?
 - Mum: _____
 - Dad: _____



Thank you for your collaboration!

Appendix E: Boys' questionnaire



Hello!

Thank you for coming! :)



*We are seeing how children your age live and feel
in PORTUGAL. Can you help me?*

Can we start by knowing a bit about you:

Name of your School: _____
Form: _____

Date of Birth: ____ / ____ / ____

Age: ____ years

Country where you were born: _____

Nationality: _____



How are lessons going?

Write here your grades for the 1st term:

Mathematics: _____

Portuguese: _____

Social Environmental studies: _____



Can you tell me who your best friends in the classroom are? And which country are they from?

Name: _____ Country?

Name: _____ Country?

Name: _____ Country?



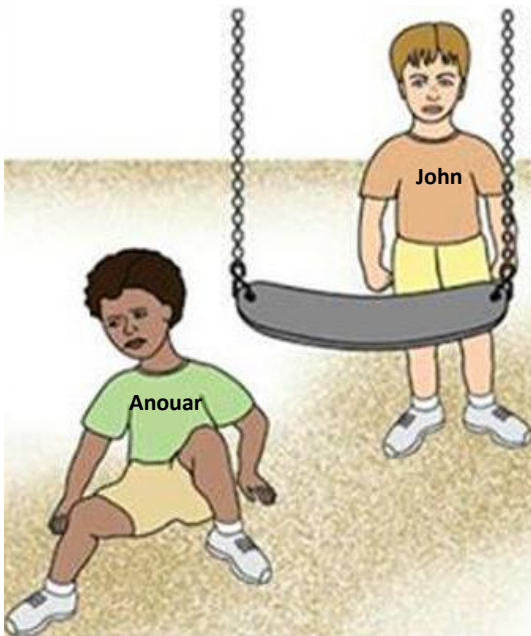
I see you have chosen your friends... 😊

How do you think the boys who look like this boy are? Give your opinion!



I think they are:	Indicate with an X your opinion ...	
	Not at all like that	Exactly like that
Good people (help others)	Not at all like that	Exactly like that
Bad mannered (behave badly)	Not at all like that	Exactly like that
Sincere (say the truth)	Not at all like that	Exactly like that
Aggressive (are violent with others)	Not at all like that	Exactly like that
Honest (do not steal)	Not at all like that	Exactly like that
Dumb	Not at all like that	Exactly like that
Intelligent	Not at all like that	Exactly like that
Dirty	Not at all like that	Exactly like that
Studious (spend a lot of time studying)	Not at all like that	Exactly like that
Lazy (do not like to study)	Not at all like that	Exactly like that

Now look carefully at this Picture and give your opinion:



a. Here is John and here is Anouar. What do you think happened?

b. Why?

c. Do you think John was good or bad?

👎 Very bad _____ Very good 👍

d. How much do you think they are friends?

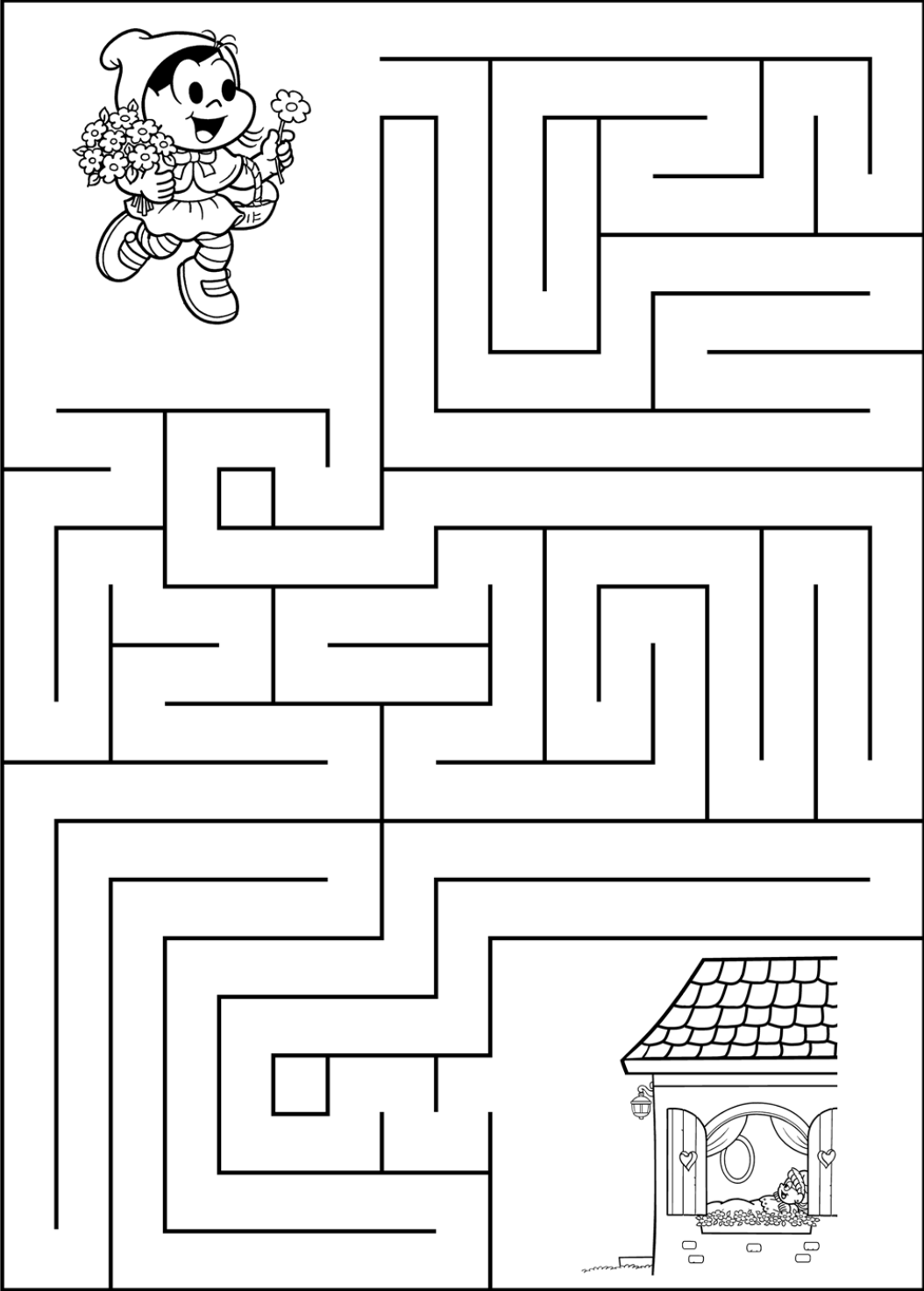
👎 Not at all _____ Very much 👍

e. Which of these two boys would you like to be friends with? (put an x on the name of the boy you prefer)

John _____ Anouar _____

Now let's do something fun, here is a game you all know well. You have 2 minutes to complete it!

LET'S TAKE LITTLE RED RIDING HOOD TO HER GRANDMOTHER'S HOUSE!

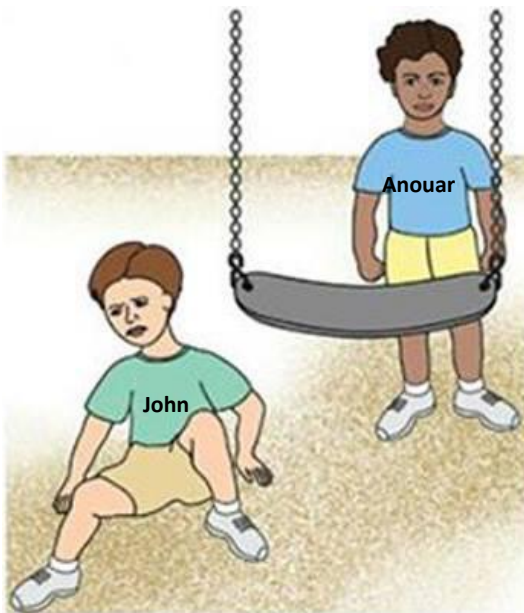


Give your opinion! How do you think the boys who look like this boy are?



I think they are:	Indicate with an X your opinion ...	
	Not at all like that	Exactly like that
Good people (help others)	Not at all like that	Exactly like that
Bad mannered (behave badly)	Not at all like that	Exactly like that
Sincere (say the truth)	Not at all like that	Exactly like that
Aggressive (are violent with others)	Not at all like that	Exactly like that
Honest (do not steal)	Not at all like that	Exactly like that
Dumb	Not at all like that	Exactly like that
Intelligent	Not at all like that	Exactly like that
Dirty	Not at all like that	Exactly like that
Studious (spend a lot of time studying)	Not at all like that	Exactly like that
Lazy (do not like to study)	Not at all like that	Exactly like that

Now look carefully at this Picture and give your opinion:



a. Here is John and here is Anouar. What do you think happened?

b. Why?

c. Do you think Anouar was good or bad?

Very bad | _____ | Very good

d. How much do you think they are friends?

Not at all | _____ | Very much

e. Which of these two boys would you like to be friends with? (put an x on the name of the boy you prefer)

John _____ Anouar _____

Now let's talk about your school:

How do you feel here? (Indicate with an X your opinion)



Do you have friends that can help you?

No, not at all Yes, a lot




Do you like being in this school?

No, not at all Yes, a lot




Would you like to get more help at school?

No, not at all Yes, a lot



Have you been a weak student?

No, not at all Yes, a lot

If you had a problem at school could you count on someone's help?

No, not at all Yes, a lot

Now let's talk a little about your family:

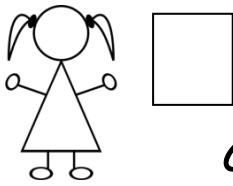
- How many brothers and sisters do you have? _____
- Who do you live with? _____

- Now your parents, in which country where they born?
 - Mum: _____
 - Dad: _____



Thank you for your collaboration!

Appendix F: Girls' questionnaire in Portuguese



Olá!

Obrigada por vires! :)

*Estamos a ver como vivem e se sentem os
meninos da tua idade em PORTUGAL. Podes
ajudar-me?*



Então, podemos começar por saber um pouco sobre ti:

Nome da tua Escola: _____

Turma: _____

Data de nascimento: ___/___/_____

Idade: _____ anos

País onde nasceste: _____

Nacionalidade: _____



E como estão a correr as aulas?

Escreve aqui as tuas notas do 1º período:

Matemática: _____

Português: _____

Estudo do Meio: _____



Podes dizer-me quem são os teus melhores amigos ou amigas na tua turma? E de que país são eles?

Nome: _____ País?

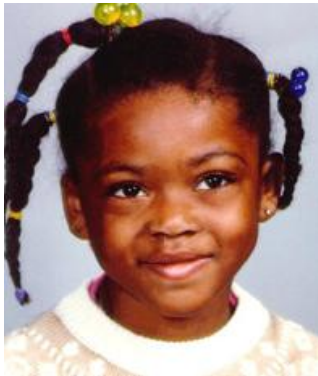
Nome: _____ País?

Nome: _____ País?



Já vi que escolheste os teus amigos... :)

Como achas que são as meninas como esta? Dá a tua opinião!



Acho que elas são:	Indica com um X o que achas ...	
	Não são nada assim	São mesmo assim
Boas Pessoas (ajudam os outros)	Não são nada assim	São mesmo assim
Mal-educadas (portam-se mal)	Não são nada assim	São mesmo assim
Sinceras (dizem a verdade)	Não são nada assim	São mesmo assim
Agressivas (são violentes com os outros)	Não são nada assim	São mesmo assim
Honestas (não roubam)	Não são nada assim	São mesmo assim
Burras	Não são nada assim	São mesmo assim
Inteligentes	Não são nada assim	São mesmo assim
Sujas	Não são nada assim	São mesmo assim
Estudiosas (estudam a matéria)	Não são nada assim	São mesmo assim
Preguiçosas (não gostam de estudar)	Não são nada assim	São mesmo assim

Agora vê com atenção este desenho e dá a tua opinião:



a. Aqui está a Maria e aqui está a Malika. O que achas que aconteceu?

b. Porquê?

c. A Malika foi boa ou má?

Má Boa

d. Quanto achas que elas são amigas?

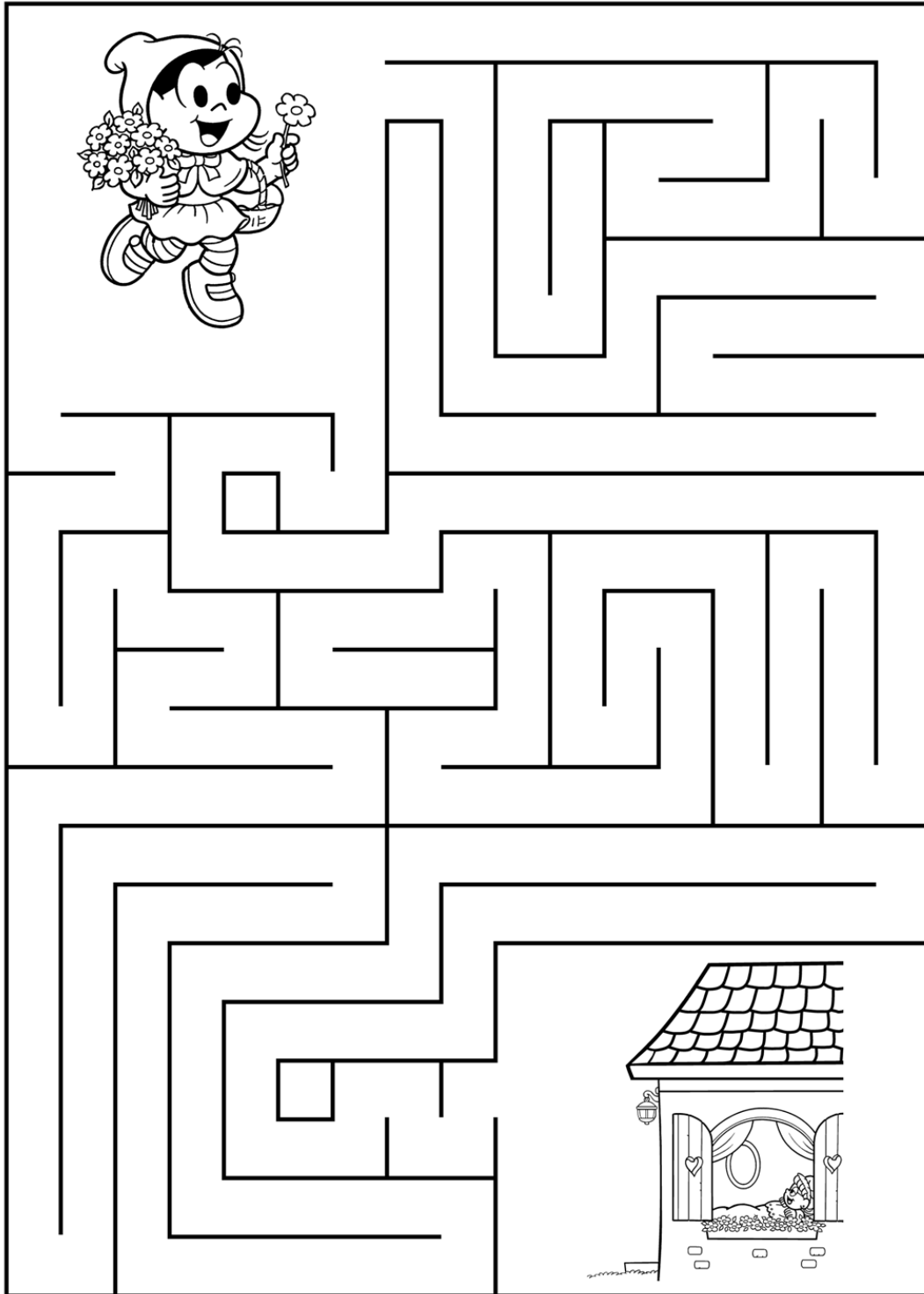
Nada Muito

e. De qual destas duas meninas gostavas tu de ser amiga?
 (põe um X no nome da menina que preferes)

Maria _____ Malika _____

Agora para se divertirem um pouco, está aí um jogo que vocês bem conhecem. Vão ter 2 minutos para o fazer!

VAMOS LEVAR CHAPEUZINHO VERMELHO ATÉ A CASA DA VOVÓ!



Fala-me agora da tua escola:

Como te sentes aqui? (Indica com um X o que achas)

Tens amigos que te ajudam?

Não | | | | | | | | | | Sim

☹️ ☹️ ☹️

Gostas de estar nesta escola?

Não | | | | | | | | | | Sim

☹️ ☹️ ☹️

Gostavas de ter mais ajuda na escola?

Não | | | | | | | | | | Sim

☹️ ☹️ ☹️

Tens sido uma aluna fraca?

Não | | | | | | | | | | Sim

☹️ ☹️ ☹️

Se tiveres um problema na escola, podes contar com a ajuda de alguém?

Não | | | | | | | | | | Sim

☹️ ☹️ ☹️



Agora fala-me um pouco sobre a tua família:

- Quantos irmãos tens? _____
- Com quem vives? _____

- E os teus pais, em que país nasceram?
 - Mãe: _____
 - Pai: _____



Obrigada pela tua colaboração!

Appendix G: Activities task

Hello! Thank you for coming! :)

We are seeing how children your age live and feel in PORTUGAL. Can you help me?



Can we start by knowing a bit about you:

Name of your School: _____
Form: _____

Date of Birth: ____ / ____ / _____

Age: ____ years

Gender:  _____  _____



Country where you were born: _____

Nationality: _____

How are lessons going? Write here your grades for the 1st term:

Mathematics: _____

Portuguese: _____

Social Environmental studies: _____



Now let's talk about your school:

Do you have friends that can help you?

No, not at all | _____ | Yes, a lot



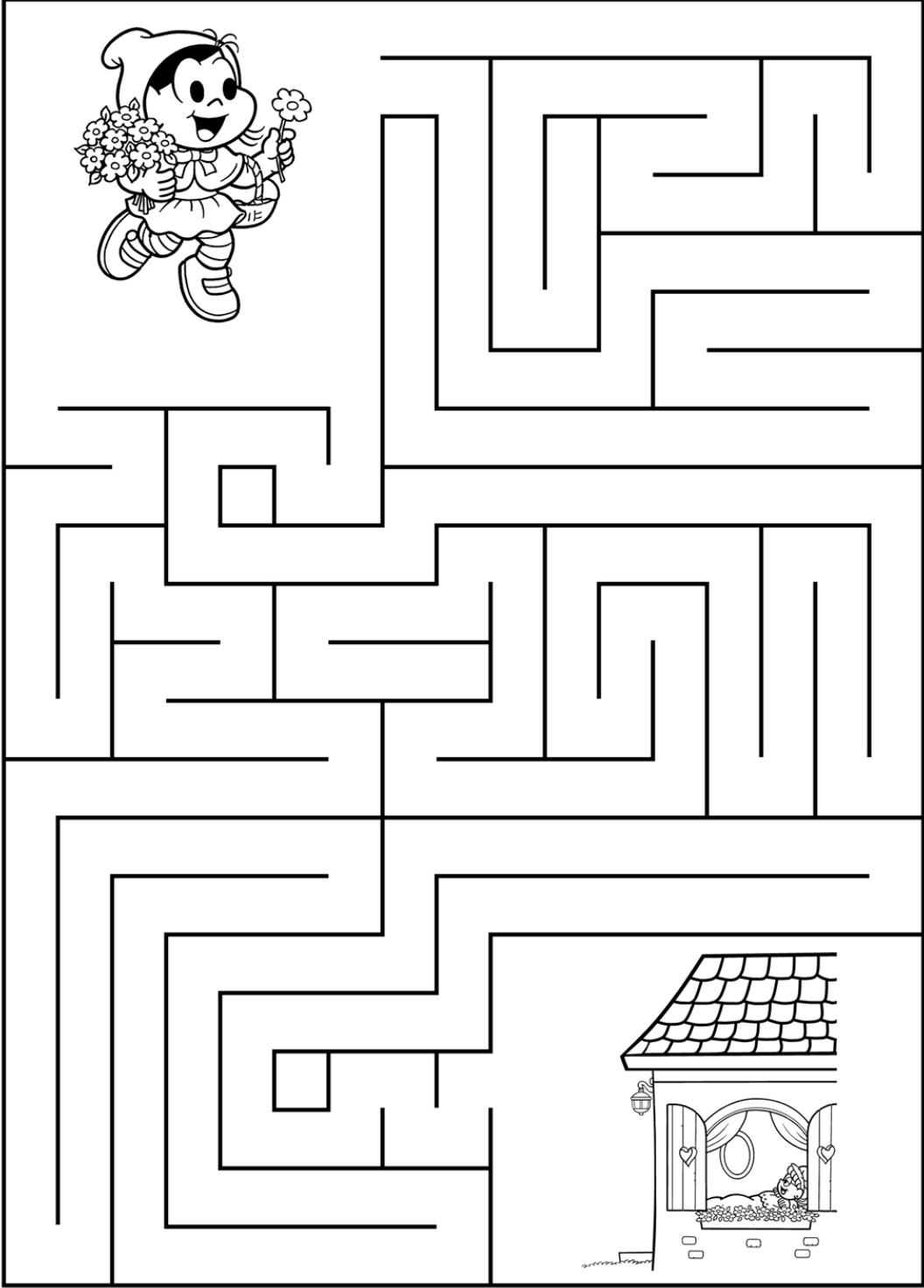
Do you like being in this school?

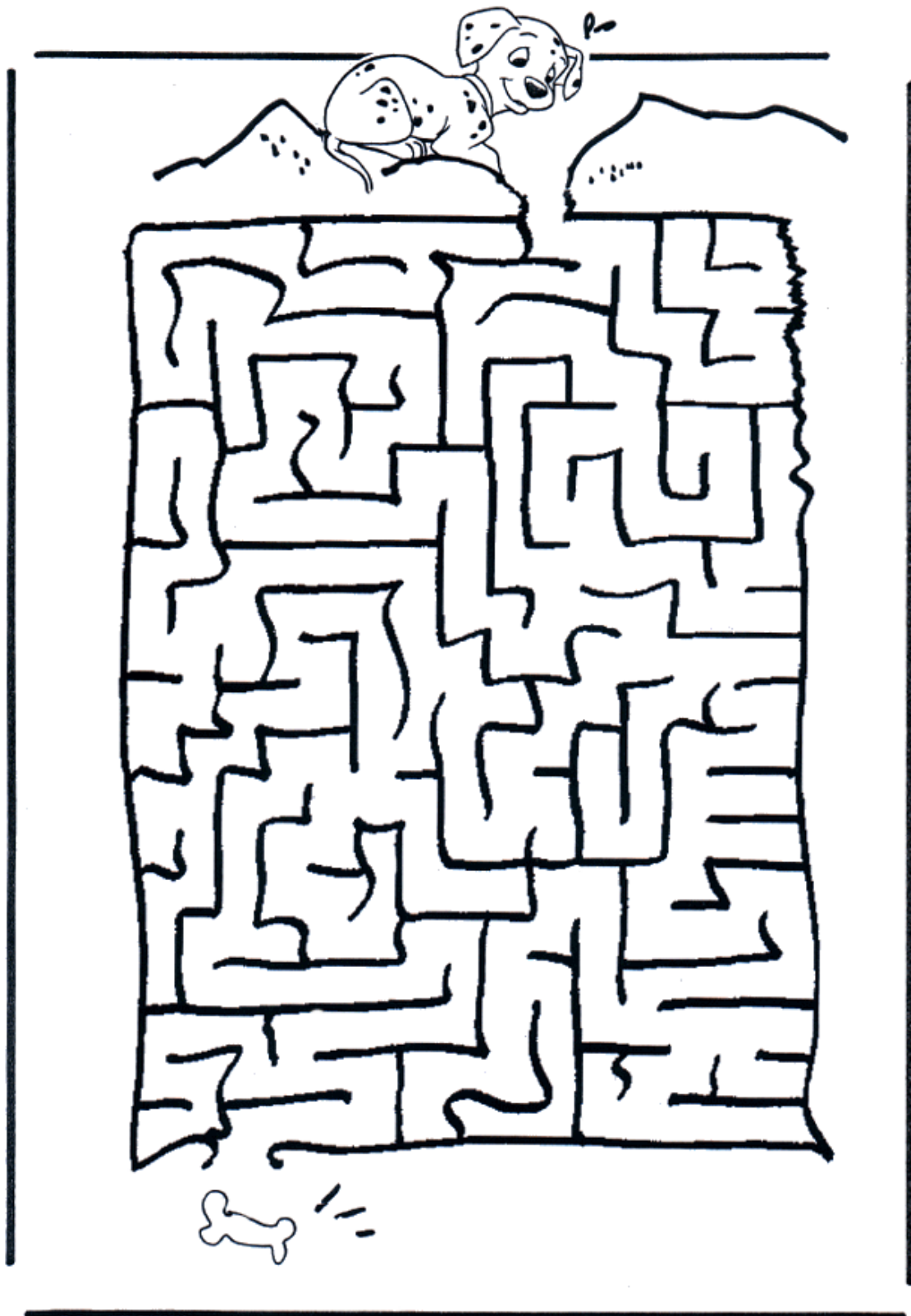
No, not at all | _____ | Yes, a lot



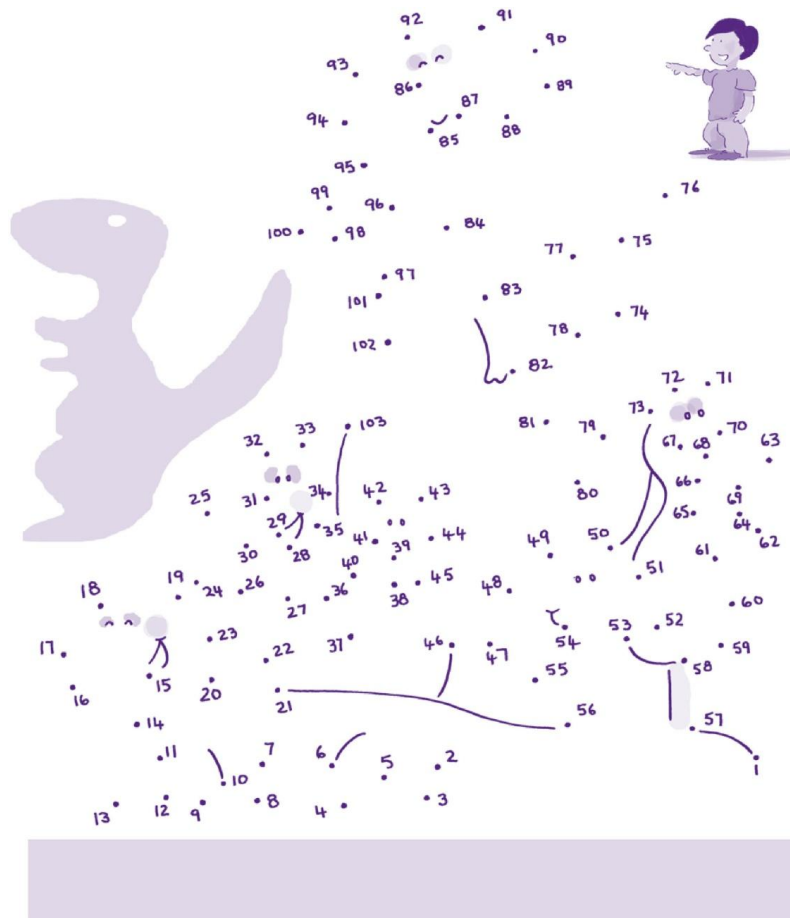
Now let's do something fun, here are a few games you know well. You have 10 minutes to complete them!

LET'S TAKE LITTLE RED RIDING HOOD TO HER GRANDMOTHER'S HOUSE!





Now join the dots to discover the pictures!



Thank you for your collaboration!

Appendix H: Tables of means and SD for internal (school) grades

Table 3.16

Means and SD of the Portuguese internal grades according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	White			Black			<i>n</i>	<i>M</i>	<i>SD</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
10% to 30%	27	3.93	.78	19	3.32	.67	46	3.67	.79
31% to 59%	13	4.08	.86	17	3.24	.83	30	3.60	.93
60% or more	8	3.25	.89	17	3.29	.69	25	3.28	.74
							101	3.55	.83
Total by ethnicity	48	3.85	.85	53	3.28	.72			

Table 3.17

Means and SD of the Mathematics internal grades according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	White			Black			<i>n</i>	<i>M</i>	<i>SD</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
10% to 30%	27	3.93	.96	19	3.16	.60	46	3.61	.91
31% to 59%	13	3.92	.95	17	3.06	.75	30	3.43	.94
60% or more	8	3.38	.92	17	2.82	.81	25	3.00	.87
							101	3.41	.93
Total by ethnicity	48	3.83	.95	53	3.02	.72			

Appendix I: Tables of means and SD for external (national) grades

Table 3.18

Means and SD of the Portuguese external grades according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	White			Black			<i>n</i>	<i>M</i>	<i>SD</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
10% to 30%	27	3.11	.85	18	3.00	.59	45	3.07	.75
31% to 59%	13	3.00	.82	15	3.40	.91	28	3.21	.88
60% or more	8	2.25	.89	17	2.82	.64	25	2.64	.76
							98	3.00	.81
Total by ethnicity	48	2.94	.89	50	3.06	.74			

Table 3.19

Means and SD of the Mathematics external grades according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	White			Black			<i>n</i>	<i>M</i>	<i>SD</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
10% to 30%	27	2.78	.85	18	2.39	.61	45	2.62	.78
31% to 59%	13	3.08	1.19	15	3.00	1.46	28	3.04	1.32
60% or more	8	1.75	1.04	17	2.53	1.28	25	2.28	1.24
							98	2.65	1.10
Total by ethnicity	48	2.69	1.06	50	2.62	1.16			

Appendix J: Table of means and SD of negative traits on attribution task

Table 3.20

Means and SD of negative traits according to school ethnic composition and participant's ethnicity

SEC	Participant's ethnicity						Total by SEC		
	White			Black			<i>n</i>	M	SD
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
10% - 30%	27	.18	.82	20	.19	.69	47	.18	.76
31% - 59%	13	.37	1.41	17	.09	.70	30	.21	1.06
60% or more	8	.55	1.14	17	-.06	1.01	25	.14	1.07
							102	.18	.92
Total by ethnicity	48	.29	1.05	54	.08	.80			

Appendix K: Count and expected count tables for Interpretation of situation

Interpretation of situation (when victim was Black)				Ethnicity		Total
				White	Black	
Negative	SEC	10%-30%	Count	23	16	39
			Expected Count	18.2	20.8	39.0
			% within Comp_Etn_Esc	59.0%	41.0%	100.0%
			% within Etnia	54.8%	33.3%	43.3%
			% of Total	25.6%	17.8%	43.3%
			Adjusted Residual	2.0	-2.0	
	31%-59%	Count	13	16	29	
		Expected Count	13.5	15.5	29.0	
		% within Comp_Etn_Esc	44.8%	55.2%	100.0%	
		% within Etnia	31.0%	33.3%	32.2%	
		% of Total	14.4%	17.8%	32.2%	
		Adjusted Residual	-.2	.2		
	60% or more	Count	6	16	22	
		Expected Count	10.3	11.7	22.0	
		% within Comp_Etn_Esc	27.3%	72.7%	100.0%	
% within Etnia		14.3%	33.3%	24.4%		
% of Total		6.7%	17.8%	24.4%		
Adjusted Residual		-2.1	2.1			
Total	Count	42	48	90		
	Expected Count	42.0	48.0	90.0		
	% within Comp_Etn_Esc	46.7%	53.3%	100.0%		
	% within Etnia	100.0%	100.0%	100.0%		
	% of Total	46.7%	53.3%	100.0%		
	Adjusted Residual					
Positive/ Neutral	SEC	10%-30%	Count	4	4	8
			Expected Count	4.0	4.0	8.0
			% within Comp_Etn_Esc	50.0%	50.0%	100.0%
			% within Etnia	66.7%	66.7%	66.7%
			% of Total	33.3%	33.3%	66.7%
			Adjusted Residual	.0	.0	
	31%-59%	Count	0	1	1	
		Expected Count	.5	.5	1.0	
		% within Comp_Etn_Esc	0.0%	100.0%	100.0%	
		% within Etnia	0.0%	16.7%	8.3%	
		% of Total	0.0%	8.3%	8.3%	
		Adjusted Residual	-1.0	1.0		
	60% or more	Count	2	1	3	
		Expected Count	1.5	1.5	3.0	
		% within Comp_Etn_Esc	66.7%	33.3%	100.0%	
% within Etnia		33.3%	16.7%	25.0%		
% of Total		16.7%	8.3%	25.0%		
Adjusted Residual		.7	-.7			
Total	Count	6	6	12		
	Expected Count	6.0	6.0	12.0		
	% within Comp_Etn_Esc	50.0%	50.0%	100.0%		
	% within Etnia	100.0%	100.0%	100.0%		
	% of Total	50.0%	50.0%	100.0%		
	Adjusted Residual					
Total	SEC	10%-30%	Count	27	20	47
			Expected Count	22.1	24.9	47.0
			% within Comp_Etn_Esc	57.4%	42.6%	100.0%
			% within Etnia	56.3%	37.0%	46.1%
			% of Total	26.5%	19.6%	46.1%
			Adjusted Residual	1.9	-1.9	
	31%-59%	Count	13	17	30	
		Expected Count	14.1	15.9	30.0	
		% within Comp_Etn_Esc	43.3%	56.7%	100.0%	
		% within Etnia	27.1%	31.5%	29.4%	
		% of Total	12.7%	16.7%	29.4%	
		Adjusted Residual	-.5	.5		
	60% or more	Count	8	17	25	
		Expected Count	11.8	13.2	25.0	
		% within Comp_Etn_Esc	32.0%	68.0%	100.0%	
% within Etnia		16.7%	31.5%	24.5%		
% of Total		7.8%	16.7%	24.5%		
Adjusted Residual		-1.7	1.7			
Total	Count	48	54	102		
	Expected Count	48.0	54.0	102.0		
	% within Comp_Etn_Esc	47.1%	52.9%	100.0%		
	% within Etnia	100.0%	100.0%	100.0%		
	% of Total	47.1%	52.9%	100.0%		
	Adjusted Residual					

Interpretation of situation (when victim was White)				Ethnicity		Total
				White	Black	
Negative	SEC	10%-30%	Count	22	18	40
			Expected Count	18.5	21.5	40.0
			% within Comp_Etn_Esc	55.0%	45.0%	100.0%
			% within Etnia	52.4%	36.7%	44.0%
			% of Total	24.2%	19.8%	44.0%
		Adjusted Residual	1.5	-1.5		
		31%-59%	Count	13	15	28
			Expected Count	12.9	15.1	28.0
			% within Comp_Etn_Esc	46.4%	53.6%	100.0%
			% within Etnia	31.0%	30.6%	30.8%
			% of Total	14.3%	16.5%	30.8%
		Adjusted Residual	.0	.0		
		60% or more	Count	7	16	23
			Expected Count	10.6	12.4	23.0
			% within Comp_Etn_Esc	30.4%	69.6%	100.0%
	% within Etnia		16.7%	32.7%	25.3%	
	% of Total		7.7%	17.6%	25.3%	
	Adjusted Residual	-1.7	1.7			
	Total	Count	42	49	91	
		Expected Count	42.0	49.0	91.0	
		% within Comp_Etn_Esc	46.2%	53.8%	100.0%	
% within Etnia		100.0%	100.0%	100.0%		
% of Total		46.2%	53.8%	100.0%		
Positive/Neutral	SEC	10%-30%	Count	5	2	7
			Expected Count	3.8	3.2	7.0
			% within Comp_Etn_Esc	71.4%	28.6%	100.0%
			% within Etnia	83.3%	40.0%	63.6%
			% of Total	45.5%	18.2%	63.6%
		Adjusted Residual	1.5	-1.5		
		31%-59%	Count	0	2	2
			Expected Count	1.1	.9	2.0
			% within Comp_Etn_Esc	0.0%	100.0%	100.0%
			% within Etnia	0.0%	40.0%	18.2%
			% of Total	0.0%	18.2%	18.2%
		Adjusted Residual	-1.7	1.7		
		60% or more	Count	1	1	2
			Expected Count	1.1	.9	2.0
			% within Comp_Etn_Esc	50.0%	50.0%	100.0%
	% within Etnia		16.7%	20.0%	18.2%	
	% of Total		9.1%	9.1%	18.2%	
	Adjusted Residual	-.1	.1			
	Total	Count	6	5	11	
		Expected Count	6.0	5.0	11.0	
		% within Comp_Etn_Esc	54.5%	45.5%	100.0%	
% within Etnia		100.0%	100.0%	100.0%		
% of Total		54.5%	45.5%	100.0%		
Total	SEC	10%-30%	Count	27	20	47
			Expected Count	22.1	24.9	47.0
			% within Comp_Etn_Esc	57.4%	42.6%	100.0%
			% within Etnia	56.3%	37.0%	46.1%
			% of Total	26.5%	19.6%	46.1%
		Adjusted Residual	1.9	-1.9		
		31%-59%	Count	13	17	30
			Expected Count	14.1	15.9	30.0
			% within Comp_Etn_Esc	43.3%	56.7%	100.0%
			% within Etnia	27.1%	31.5%	29.4%
			% of Total	12.7%	16.7%	29.4%
		Adjusted Residual	-.5	.5		
		60% or more	Count	8	17	25
			Expected Count	11.8	13.2	25.0
			% within Comp_Etn_Esc	32.0%	68.0%	100.0%
	% within Etnia		16.7%	31.5%	24.5%	
	% of Total		7.8%	16.7%	24.5%	
	Adjusted Residual	-1.7	1.7			
	Total	Count	48	54	102	
		Expected Count	48.0	54.0	102.0	
		% within Comp_Etn_Esc	47.1%	52.9%	100.0%	
% within Etnia		100.0%	100.0%	100.0%		
% of Total		47.1%	52.9%	100.0%		

Appendix L: Frequency and expected frequencies of friend preference

Friend preference (when victim was Black)				Ethnicity		Total
				White	Black	
Potential Transgressor	SEC	10%-30%	Count	2	1	3
			Expected Count	1.8	1.2	3.0
			% within Comp_Etn_Esc	66.7%	33.3%	100.0%
			% within Etnia	66.7%	50.0%	60.0%
			% of Total	40.0%	20.0%	60.0%
			Adjusted Residual	.4	-.4	
	31%-59%	Count	0	1	1	
		Expected Count	.6	.4	1.0	
		% within Comp_Etn_Esc	0.0%	100.0%	100.0%	
		% within Etnia	0.0%	50.0%	20.0%	
		% of Total	0.0%	20.0%	20.0%	
		Adjusted Residual	-1.4	1.4		
	60% or more	Count	1	0	1	
		Expected Count	.6	.4	1.0	
		% within Comp_Etn_Esc	100.0%	0.0%	100.0%	
% within Etnia		33.3%	0.0%	20.0%		
% of Total		20.0%	0.0%	20.0%		
Adjusted Residual		.9	-.9			
Total	Count	3	2	5		
	Expected Count	3.0	2.0	5.0		
	% within Comp_Etn_Esc	60.0%	40.0%	100.0%		
	% within Etnia	100.0%	100.0%	100.0%		
	% of Total	60.0%	40.0%	100.0%		
	Adjusted Residual					
Potential Victim	SEC	10%-30%	Count	25	19	44
			Expected Count	20.4	23.6	44.0
			% within Comp_Etn_Esc	56.8%	43.2%	100.0%
			% within Etnia	55.6%	36.5%	45.4%
			% of Total	25.8%	19.6%	45.4%
			Adjusted Residual	1.9	-1.9	
	31%-59%	Count	13	16	29	
		Expected Count	13.5	15.5	29.0	
		% within Comp_Etn_Esc	44.8%	55.2%	100.0%	
		% within Etnia	28.9%	30.8%	29.9%	
		% of Total	13.4%	16.5%	29.9%	
		Adjusted Residual	-.2	.2		
	60% or more	Count	7	17	24	
		Expected Count	11.1	12.9	24.0	
		% within Comp_Etn_Esc	29.2%	70.8%	100.0%	
% within Etnia		15.6%	32.7%	24.7%		
% of Total		7.2%	17.5%	24.7%		
Adjusted Residual		-2.0	2.0			
Total	Count	45	52	97		
	Expected Count	45.0	52.0	97.0		
	% within Comp_Etn_Esc	46.4%	53.6%	100.0%		
	% within Etnia	100.0%	100.0%	100.0%		
	% of Total	46.4%	53.6%	100.0%		
	Adjusted Residual					
Total	SEC	10%-30%	Count	27	20	47
			Expected Count	22.1	24.9	47.0
			% within Comp_Etn_Esc	57.4%	42.6%	100.0%
			% within Etnia	56.3%	37.0%	46.1%
			% of Total	26.5%	19.6%	46.1%
			Adjusted Residual	1.9	-1.9	
	31%-59%	Count	13	17	30	
		Expected Count	14.1	15.9	30.0	
		% within Comp_Etn_Esc	43.3%	56.7%	100.0%	
		% within Etnia	27.1%	31.5%	29.4%	
		% of Total	12.7%	16.7%	29.4%	
		Adjusted Residual	-.5	.5		
	60% or more	Count	8	17	25	
		Expected Count	11.8	13.2	25.0	
		% within Comp_Etn_Esc	32.0%	68.0%	100.0%	
% within Etnia		16.7%	31.5%	24.5%		
% of Total		7.8%	16.7%	24.5%		
Adjusted Residual		-1.7	1.7			
Total	Count	48	54	102		
	Expected Count	48.0	54.0	102.0		
	% within Comp_Etn_Esc	47.1%	52.9%	100.0%		
	% within Etnia	100.0%	100.0%	100.0%		
	% of Total	47.1%	52.9%	100.0%		
	Adjusted Residual					

Friend preference (when victim was White)				Ethnicity		
				White	Black	Total
Potential Transgressor	SEC	10%-30%	Count	2	3	5
			Expected Count	2.1	2.9	5.0
			% within Comp_Etn_Esc	40.0%	60.0%	100.0%
			% within Etnia	40.0%	42.9%	41.7%
			% of Total	16.7%	25.0%	41.7%
			Adjusted Residual	-.1	.1	
	31%-59%	Count	2	1	3	
		Expected Count	1.3	1.8	3.0	
		% within Comp_Etn_Esc	66.7%	33.3%	100.0%	
		% within Etnia	40.0%	14.3%	25.0%	
		% of Total	16.7%	8.3%	25.0%	
		Adjusted Residual	1.0	-1.0		
	60% or more	Count	1	3	4	
		Expected Count	1.7	2.3	4.0	
		% within Comp_Etn_Esc	25.0%	75.0%	100.0%	
% within Etnia		20.0%	42.9%	33.3%		
% of Total		8.3%	25.0%	33.3%		
Adjusted Residual		-.8	.8			
Total	Count	5	7	12		
	Expected Count	5.0	7.0	12.0		
	% within Comp_Etn_Esc	41.7%	58.3%	100.0%		
	% within Etnia	100.0%	100.0%	100.0%		
	% of Total	41.7%	58.3%	100.0%		
Potential Victim	SEC	10%-30%	Count	25	17	42
			Expected Count	20.1	21.9	42.0
			% within Comp_Etn_Esc	59.5%	40.5%	100.0%
			% within Etnia	58.1%	36.2%	46.7%
			% of Total	27.8%	18.9%	46.7%
			Adjusted Residual	2.1	-2.1	
	31%-59%	Count	11	16	27	
		Expected Count	12.9	14.1	27.0	
		% within Comp_Etn_Esc	40.7%	59.3%	100.0%	
		% within Etnia	25.6%	34.0%	30.0%	
		% of Total	12.2%	17.8%	30.0%	
		Adjusted Residual	-.9	.9		
	60% or more	Count	7	14	21	
		Expected Count	10.0	11.0	21.0	
		% within Comp_Etn_Esc	33.3%	66.7%	100.0%	
% within Etnia		16.3%	29.8%	23.3%		
% of Total		7.8%	15.6%	23.3%		
Adjusted Residual		-1.5	1.5			
Total	Count	43	47	90		
	Expected Count	43.0	47.0	90.0		
	% within Comp_Etn_Esc	47.8%	52.2%	100.0%		
	% within Etnia	100.0%	100.0%	100.0%		
	% of Total	47.8%	52.2%	100.0%		
Total	SEC	10%-30%	Count	27	20	47
			Expected Count	22.1	24.9	47.0
			% within Comp_Etn_Esc	57.4%	42.6%	100.0%
			% within Etnia	56.3%	37.0%	46.1%
			% of Total	26.5%	19.6%	46.1%
			Adjusted Residual	1.9	-1.9	
	31%-59%	Count	13	17	30	
		Expected Count	14.1	15.9	30.0	
		% within Comp_Etn_Esc	43.3%	56.7%	100.0%	
		% within Etnia	27.1%	31.5%	29.4%	
		% of Total	12.7%	16.7%	29.4%	
		Adjusted Residual	-.5	.5		
	60% or more	Count	8	17	25	
		Expected Count	11.8	13.2	25.0	
		% within Comp_Etn_Esc	32.0%	68.0%	100.0%	
% within Etnia		16.7%	31.5%	24.5%		
% of Total		7.8%	16.7%	24.5%		
Adjusted Residual		-1.7	1.7			
Total	Count	48	54	102		
	Expected Count	48.0	54.0	102.0		
	% within Comp_Etn_Esc	47.1%	52.9%	100.0%		
	% within Etnia	100.0%	100.0%	100.0%		
	% of Total	47.1%	52.9%	100.0%		

Appendix M: Research tables

School ethnic composition and academic achievement:

Authors & Journal	Title	Date	Objective	Variables	N	Ages	Method	Results	My observations
Mickelson, Bottia & Lambert Review of Educational Research Uni of North Carolina at Charlotte	Effects of School Racial Composition on K-12 Mathematics Outcomes: A Meta-regression Analysis	2013	The effect of school racial composition on mathematics achievement	School racial composition, race, SES, mathematics score	Race: Asian, Black/ A.American, Latino/ Hispanic, Native America and other	K-12 (K-12th)		mathematics achievement was lower in homogeneous schools	Composition measured as the % of minority students in a school (Concentrated minority, racially imbalances, racially isolated & segregated)
Baysu, Phalet & Brown British Journal of Social Psychology (Turkey, Belgium,	Relative group size and minority school success: The role of intergroup friendships and discrimination experience	2014	Main objective: “To investigate when and how the perceived relative proportions of minority and majority students in school affect	IV: Turkish minorities DV: School performance, school satisfaction, self-efficacy, perceived relative group size, intergroup friendships, experienced	1060 V-252 L-206 A-358 B-244	18-35 M=25 SD= 4.79	School Performance ->“in terms of final or current educational attainment levels” = higher education, upper secondary and primary/lower sec&apprenticeship. School Satisfaction ->“How satisfied are you with the level of education that you have achieved?” (5-p scale.) Self-efficacy -> short (four-item) version of the self-efficacy scale developed by Schwarzer and Jerusalem (1995).(4-p Likert scale.) Perceived relative group size -> “indicated retrospectively how many children of immigrant origin	“Curvilinear relationship between perceived relative group size and minority experiences of discrimination” (discrimination increased as numbers of minority and majority became closer, then decreased when minority group were in majority).	Participants reported information retrospectively . “Local-born members of Turkish minorities in: Vienna, Linz, Antwerp & Brussels. 24% students, 49% paid job, 27% unemployed.

Brighton)	s		the school success of minority group members.”	discrimination CV: Level at entry of secondary school, parental education, gender.			attended their primary and (lower) secondary school on 5-point Likert scales from 1 = almost none, 2 = around 25%, 3 = around half, 4 = around 75% to 5 = almost all” Intergroup friendships ->“how many of their friends were of non-immigrant Belgian/Austrian origin in their (lower) secondary school. Answers were given on a 5-point scale from 1 = none, 2 = very few, 3 = some, 4 = many to 5 = most of them. They were also asked to indicate the ethnic background of their best friend in the same period (1 = non-minority Belgian/Austrian, 0 = Turkish as the reference).” Experienced discrimination -> “indicated how often they personally experienced hostility or unfair treatment from teachers, peers or headmasters in secondary school because of their origin or background. Second, participants indicated whether they had ever been confronted with offensive words because of their origin or background at school. Answers were given on 5-point Likert scales from 1 = never to 5 = frequently.”	“Perceptions of higher proportions of minority group members in school increased experienced discrimination (in Vienna and Linz)” “Brussels – higher minority presence decreased experienced discrimination” “Intergroup friendships proved beneficial for school success of minorities” “direct effects of perceived relative group size on school success were no longer significant once experienced discrimination and friendship were added to the model” “discrimination negatively predicted school success” -opportunities for intergroup friendships depends strongly on school composition	
Goza and Ryabov Journal of Youth and Adolescence	Adolescents’ Educational Outcomes: Racial and Ethnic Variations	2009	To see if Coleman’s et al (1966) findings on SES and e.composition are still relevant	IV: race/ethnicity, race/e heterogeneity (0=same race,1= all races are equally	13,738 (sub-g)	7-12 th grade	Educational Achievement -> “estimate both short- and long-term school effects on the educational progress of students.” – GPA (Wave 1) and odds of high school graduation (Wave 3). (Wave 3- “asked to indicate the highest grade of regular school they completed”.	For African-A, sch level SES and e.comp are positive and sig predictors of achievement. African students perform better in heterogeneous sch/peer network.	Data is from National Longitudinal Study of Adolescent Health, 3 waves: 1994-96, 1996, 2001-02 (Add Heath 2008) GPA = Grade point

<p>Uni of Texas-Pan</p>	<p>in Peer Network Importance</p>		<p>today. To see the effect of racial composition and peer networks on achievement and attainment.</p>	<p>presented), school racial composition (same as race hetero) DV: educational achievement (GPA), attainment</p>			<p>Race/Ethnicity-> Asked students and for accuracy it was compared to their parents when possible. Generational Status-> “Foreign-born adolescents are coded as immigrant generation 1, US-born children with at least one foreign-born parent = generation 2 and generation 3 = born in the US with two US-born parents” Family structure effect-> traditional or “(i.e., single-parent and non-parent or guardianship” School level SES-> “standardized scores for parental income and education were averaged to create the resulting SES measure” Peer Network Attributes-> “race/ethnic heterogeneity of the peer network and mean network SES” student body, race/ethnic heterogeneity-> “Add Health data do not provide a measure of school race/ethnic heterogeneity, one can be directly calculated from the race/ethnicity responses of the student body.” Student body, socioeconomic composition-> “school-level SES variable was obtained by aggregating the corresponding individual-level SES measure”</p>	<p>SES positive and sig influence on achievement of Asians. Heterogeneity is a neg predictor of achievement for Asians. For Latino students, achievement is better in more homogeneous Latino networks. “Latinos and Asian-Americans are both more likely to do better in school and to graduate when their friendship networks are more homogeneous” race/e heterogeneity most sig school level predictor for Asian, Latino and N-His white = “are more likely to complete high school when they attend a school with a diverse student body”. But less likely to graduate when their peer network is heterogeneous.</p>	<p>average @Wave 3 aged between 18 to 26.</p>
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<p>Ryabov</p> <p>Journal of Adolescence</p> <p>Uni of Texas-Pan American</p>	<p>Adolescent academic outcomes in school context: Network effects Reexamined</p>	<p>2011</p>	<p>“the role of racial/ethnic segregation and peer effects in shaping educational achievement and attainment”</p>	<p>IV: Individual-level measures (peer social capital, SES, family social capital) and school-level variables (school racial & ethnical composition)</p> <p>DV: educational achievement (GPA = <i>grade point average</i>) and educational attainment (high school completion)</p>	<p>19,117</p>	<p>18-26</p>	<p>Dependent Variables- >“educational achievement, measured as GPA, and educational attainment, measured as high school completion” “answers range from “6th grade” (the lowest score) to “5 or more years of graduate school” (the highest score)”</p> <p>Generational status- >“Foreign-born adolescents are coded as immigrant generation one. U.S.-born children with at least one foreign-born parent are distinguished as generation two and generation three is comprised of those born in the U.S. with two U.S.-born parents”</p> <p>Socioeconomic status (SES)-> “Household income and parents’ education”</p> <p>Family social capital-> structural (e.g., family structure and size) and relationship components (e.g., the quality of parent–child relationship) of family social capital</p> <p>Racial/Ethnic composition->“not provided...can be directly calculated from the race/ethnicity responses of the student body”</p>	<p>“Blacks and Latinos are predicted to have significantly lower grades ($p < 0.001$) than non-Hispanic whites, while Asian marks are not significantly different from those of the white contrast group”</p> <p>“powerful effect family SES has on both GPA and high school graduation.”</p> <p>“educational achievement of children in both single-parent and guardian families (i.e., homes headed by relatives other than parents) is significantly lower ($p < 0.001$) than for children reared in two-parent households”</p> <p>“effect is negative and significant ($p < 0.001$) suggesting that higher concentrations of minority students result in lower grades”</p> <p>“peer network segregation index might be a mediator variable that explains the effect of racial/ethnic composition on academic achievement. In other words, close friends may have more effect on GPA than school composition”</p> <p>“socioeconomic and racial/ethnic composition, significantly impact academic attainment while peer network segregation does not”</p> <p>“SES is a more powerful predictor of achievement” than its composition</p>	<p>Data from: National Longitudinal Study of Adolescent Health (Add Health).</p> <p>“measures of school racial and ethnic composition are not provided by the Add Health data, they can be directly calculated from the race/ethnicity responses of the student body”</p>
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								<p>Effects of school composition differ depending on ethnic group – Latinos more likely to graduate if no of min increase BUT with Asians it's the opposite.</p> <p>“interactions between race/ethnicity and percentage of minority students at a school. Although these results are always insignificant predictors of achievement, they do attain statistical significance for several attainment measures. First, Latino _ percentage of minority students shows that as minority concentrations increase, Latinos become more likely to graduate than non-Hispanic whites ($p < 0.05$). This suggests that student educational outcomes are not necessarily worse in high-percent minority schools. These findings also suggest that the effects of school composition (i.e., race/ethnicity) differ depending on the specific group in question. For instance, the Asian interaction term in panel B reveals they become less likely than non-Hispanic whites to graduate from high schools with large concentrations of minority students, just the opposite of what occurs among Latinos”</p>	
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<p>Hornsta, van der Veen, Peetsma & Volman</p> <p>School Effectiveness and School Improvement</p> <p>Uni of Amsterdam, Netherlands</p>	<p>Does classroom composition make a difference: effects on developments in motivation, sense of classroom belonging, and achievement in upper primary school.</p>	<p>2014</p>	<p>“the influence of class composition on learning gains in academic achievement and changes in students’ sense of classroom belonging and motivation”</p>	<p>IV: Classroom composition</p> <p>DV: Motivation (task orientation, self-efficacy, student investment), sense of belonging, reading & maths score</p>	<p>722</p>	<p>3rd grade stu</p> <p>(37 classes, in 25 schs)</p> <p>(studied the students from 3-6th grade.</p>	<p>Motivation and sense of classroom belonging-> Questionnaire, “self-reports on task orientation and academic self-efficacy, and teacher reports on students’ investment” (“5-p Likert scale that ranged from totally not applicable to me (1) to totally applicable to me (5)”)</p> <p>Cognitive Ability-> “a non-scholastic cognitive ability test.”</p> <p>Mathematics and reading comprehension achievement-> “measured using national tests from the Dutch National Institute for Educational Measurement (Cito).” “from school records” “tests are administered to students in The Netherlands once a year (for reading comprehension) or twice a year (for mathematics) to monitor students’ progress”</p> <p>Classroom composition: SE Background-> “calculating the percentage of students with low SES (i.e., children whose parents have had no more than junior vocational education). This was a scaled variable with scores ranging from 0% (no low-SES students in the classroom) to 100% (only low-SES students in classroom)”</p> <p>Ethnic classroom composition-> “derived from the individual background characteristics of the students in the classes” “three types of classrooms were distinguished: (1) classrooms with no ethnic minority students; (2) classrooms with < 50% ethnic minority students; and (3) classrooms with > 50% ethnic minority students.”</p>	<p>“After accounting for: ethnicity, SES, gender & cog.ability” –stu with more e.min classmates have higher self-efficacy (2% of variance). “students with similar background characteristics showed greater achievement in classes with a larger share of ethnic minority students when compared to classes with fewer ethnic minority students”</p> <p>“Ethnic classroom composition did not relate to initial levels of or developments in task orientation, school investment, sense of classroom belonging, or math achievement.”</p> <p>Differential effects of e.cr comp: most students in cr with high numbers of e.min students showed higher initial levels of task orientation, self-efficacy, math achievement, and reading comprehension (1-13% of variance). FOR</p>	<p>In the Netherlands</p> <p>This data is a subsample from the COOL.</p> <p>78 stu (11%) e.minority (primarily Turkish or Moroccan), 642 stu (89%) Western backgrounds.</p>
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							<p>“Hence, for both ethnic and socioeconomic classroom composition, a higher score reflected a higher share of either low-SES or ethnic minority students, thus a higher level of classroom disadvantage”</p>	<p>MAJ.STUDENTS-CR COMP did not affect dep.variables.</p> <p>E.Min maths achievement was lower in classes with more min (10% of variance). E.Min reading achiev was higher in classes with more min (10% variance)</p>	
<p>Belfi, Goos, Pinxten, Verhaeghe, Gielen, de Fraine and Van Damme</p> <p>British Educational Research Journal</p> <p>Belgium</p>	<p>Inequality in language achievement growth? An investigation into the impact of pupil socio-ethnic background and school socio-ethnic composition</p>	2014	<p>To examine the growth of spelling, reading fluency and comprehension of children of different backgrounds and to see the effect of school SES and ethnical composition</p>	<p>IV: ethnicity, School composition(S ES & E.C) DV: Achievement(Reading fluency, spelling & reading comprehension), SES, school career</p>	<p>5095 - RF 5094 - S 4472 - RC</p> <p>Naitive -4071 Turk-262 Mag-224 E.Eu-152</p>	1 st to 6 th g	<p>Language achievement tests-> “reading fluency, spelling, and reading comprehension tests from the Dutch pupil monitoring system (LVS)” Ethnicity->“birthplace of a pupil’s mother as a proxy for ethnicity. Pupils were considered non-native, when their mother was not born in Belgium” SES-> “constructed using eight indicators: (1) educational level of the father; (2) educational level of the mother; (3) occupation of the father; (4) occupation of the mother; (5) family income; (6) employment status of the mother; (7) employment status of the father; and (8) family property” Gender-> 0=girls, 1=boys School career->“held back in school were coded ‘-1’, pupils with a standard school career were coded ‘0’, and pupils who were accelerated were coded ‘1’.” Socioeconomic school composition (SCH_SES) -> “was operationalised as the mean SES of the pupils in each school.” Ethnic school composition</p>	<p>Longitudinal – 1-6th grade – beginning measurement, Phase 1 (end of 1st g), 2(4th g), 3(5-6th g). Results show at first measurement, minorities achievement significantly lower than natives, especially for ReadingCom, then Spelling and not to different for RFluency. –Couldn’t understand results.</p> <p>“Regarding the effect of school ethnic composition when corrected for school socioeconomic composition, the results indicate that for all three language domains, schools with a proportion of minority pupils of one SD above average are associated with a lower achievement score on the first measurement occasion. These discrepancies of 4.93, 1.50, and 1.23 points in</p>	<p>Flanders Belgium</p> <p>6 ethnic categories distinguished: Native, Turkish, Maghreb(Moroccan, Tunisian/Algerian), Western E (incl:Amer,Cana,Aus), Eastern E & others (Latin Am, Asian & African)</p> <p>Native=ref category and Tur and Mag=special interest as high number in Flemish schools and low ach.</p> <p>E.S.Comp=proportion of non-n.</p>

							(SCH_ETH) -> “was operationalised as the proportion of non-native (excluding Western European) pupils in each school”	reading fluency, spelling, and reading comprehension, respectively, correspond to discrepancies of 1.1, 1.6, and 2.3 school months, respectively. School ethnic composition, however, is not associated with the total amount of growth in any of the three language domains.”	
Brown-Jeffy	School Effects: Examining the Race Gap in Mathematics Achievement	2009	To investigate the relationship between school racial composition and the race-based gaps in mathematics achievement	IV: Student level (race, gender and social class) and school level (School structure: suburban/small/large cities & sector: private/catholic/public & ethnic composition) DV: 12 th grade mathematics achievement	3392	10 th and 12 th grade	Mathematics achievement - > 12 th grade and “Item Response Theory (IRT) Estimated Number Right Score uses the pattern of right, wrong, and omitted items to create an ability scale. With IRT scoring, it is possible to measure gains in achievement from the 10th to the 12th grade years” Socioeconomic status (SES) -> “is a z-scored construct calculated from the father's education level, m's education level, f's occupation, m's occupation&family income...higher values = family has a higher SES.” School SES ->“was aggregated from student SES.” Interpersonal aspects of schools -> “Teacher collegiality”“Academic press” “student–teacher relationships”. “For these standardized scales, higher values indicate that more teacher collegiality exists, there is more academic emphasis and there are better student	SES strongest influence on achievement Sch with B&W students- where 50% or more is B/Hispanic, average maths ach is lower than when comp is 30-49%/-15%. -B&W gap= no sig difference. Sch with W&His students- sch w/50% or more W&His mean maths ach is lower than in schs with less B/His enrolled. -W&His gap- even after controlling school characteristics, gap between W&His ach. Gap is sig smaller in 30-49% B/H. SO, for ach gap, sch with minority are good but not as much as 50%. Sch with W&Asian- where 50% B/His mean	“data was obtained from the High School Effectiveness Study (HSES), which was developed as part of the 1 st follow-up of the Department of Education's National Educational Longitudinal Study of 1988 (NELS)” “The racial composition of the teaching staff is measured as the percentage of Hispanic and Black teachers in the school. On average schools have 14.2% Black and/or Hispanic teachers (SD=17.34).”

							<p>teacher relationships within the school. Lower values indicate there is less teacher collegiality, less academic pressure, and worse student teacher relationships in the school.”</p> <p>school racial composition->“50% or more Black and/or Hispanic (35% of the schools), 30–49% Black and/or Hispanic (10% of the schools), the comparison group 15–29% Black and/or Hispanic (18% of the schools), and less than 15% Black and/or Hispanic (37% of the schools).”</p>	<p>maths ach grades are lower than in schs with less % of B/His. Asians perform better than whites in sch of-15% B/His. Asians perform better in schools full of W/A. –A/W gap= no sig diff.</p> <p>High percentage (50% or more) of black/Hispanics = low maths grades.</p> <p>Racial categories used in the sample: 11% Asian, 16% Black, 13% Hispanic, and 60% White.</p>	
<p>Driessen</p> <p>Studies in Educational Evaluation</p> <p>Uni of Nijmegen Netherlands</p>	<p>School Composition and Achievement in Primary Education: A large-scale multilevel approach</p>	2002	<p>To study “the effects of socio-ethnic school composition on the language and math achievement of pupils”</p>	<p>IV: Socio-ethnic comp** and ethnic diversity(number of different ethnic groups).</p> <p>DV: Language(Dutch) and Maths level/skill. (Parental ethnicity, P education, Sex, Age, Intelligence)</p>	<p>14,334 12,630</p> <p>583 primary schools</p>	<p>4th and 8th grade = 8&12 year olds</p>	<p>Language and Maths proficiency-> “tests developed by the Dutch National Institute for Educational Measurement (CITO).” For grade 4 and 8.</p> <p>Parental ethnicity-> “birthplace of the mother .. when this information was lacking, the birthplace of the father.”</p> <p>Parental education-> “highest level of education within the family. and thus for the father or mother, was used.”</p> <p>Intelligence-> “two non-verbal intelligence tests with the number of correct answers summed to a total score”</p> <p>School composition-> below.</p> <p>Ethnic diversity-> “number of different ethnic groups was also included as a predictor variable at the level of the school.”</p>	<p>Sch w/50% min and low edu parents = lower grades for language “when compared to schools with predominantly non-min (grade 4). School comp is strong at predicting language scores at g4 but limited at predicting g4 maths and g8 language and n-sig for g8 language.</p> <p>When looking at only diversity – schools with more diff minorities = worse grades for g4</p>	<p>In Netherlands.</p> <p>Four ethnical cat: 1) Dutch(70%) 2) Surinamese/Antillean (5%) 3) Turkish/Moroccan(17%) and 4) other minority background(9%) (Western and N-W)</p>

								maths and language HOWEVER “This effect nevertheless disappears when school composition is taken into consideration.”	
Van Houtte and Stevens British Educational Research Journal Ghent Uni, Belgium	School ethnic composition and aspirations of immigrant students in Belgium	2010	To see if the ethnical composition of the school had an effect on immigrants future aspirations.	IV: ethnic composition, race DV: Intention to remain in school & What they see themselves doing after finishing school(higher education). (SES, school sector (p/p), age, gender, parental support, past failures, vocational track)	1324 Immigrants Turk 30% Mor30% S.Eur10% E.Eur 8% N.Afr 5%	3 rd & 5 th grade, approx. 15 & 17 years old	Drop out intention -> -‘Do you intend to finish high school?’ no/yes/don’t know yet. -‘What are you planning to do after the sixth grade of secondary education?’ (several answers) Schools ethnic composition -> “proportion of immigrant students in the third and fifth grade of each school, that is the proportion of immigrant respondents from each school in our database” SES of school -> “calculating the mean SES of the students at the school” School Sector -> Private/Public ‘Futility culture’ -> ‘absolutely do not agree’ to ‘totally agree’ (range 1–5). E.g. ‘People like me will not have much of a chance to do what we want to in life’, ‘People like me will never do well in school even though we try hard’, ‘I can do well in school if I work hard’ SES of family -> “ occupation of the father and mother, the highest of the two was used” Parental Support -> “‘absolutely do not agree’ (score 1) to ‘completely agree’ (score 5)” e.g. ‘My parents accept me as I am’, ‘My parents make me feel that I do not meet their expectations’.	Immigrants aspirations to finish school are higher in schools with 50.6-88.2%. Immigrants intentions to go onto higher education are higher in schools with 50.6-88.2%. “Native students’ graduation aspirations are not significantly associated with ethnic school composition” “In sum, all else being equal, immigrant students attending high concentration schools are significantly more likely to aspire to higher education than immigrant students in medium concentration schools. Native students attending high concentration schools are significantly more likely to aspire to higher education than native students in low concentration schools.”	Data is from: Flemish Educational Assessment (FIEA) from 2004-05, from 85 schools. Sch comp: 436 enrolled in 50.6-88.2% of immigrant students. 578 in 0-19.4% of imm stu. 310 in 30.5-50% imm stu.

School ethnic composition and cross-ethnic friendships:

Authors & Journal	Title	Date	Objective	Variables	N	Ages	Method	Results	My observations
McGlothlin, Killen & Edmonds British Journal of Developmental Psychology Uni of Maryland USA	European-American children's intergroup attitudes about peer relationships	2005	Assess the relation between implicit biases, perceptions of similarity and friendship judgment in white children	IV: school ethnic composition (but then joined data), age DV: Implicit biases, similarity scores, friendship judgements	94	1 st & 4 th graders M=6.8 & M=9.9	Implicit biases -> Ambiguous situation task. Similarity -> Perceptions of Similarity Task. P.Fship -> "Do you think (p.perpetrator) and (p.victim) were friends before?" [fship p], "Do you think they could be friends now?" [Subsequent fship p], "why can/can't they be friends now?" [fship p reasoning]	1 st and 4 th graders did not show racial biases when interpreting interracial social situations 4 th g are more unlikely to view them as potential friends.	Sch comp: 1 st -65%EA, 14%AA, 8%H, 9% AsianA. 2 nd -30%EA, 29%AA, 36%H & 5%AsainA. But no sig dif was found between child's responses so data was combined and analysed together.
Bagci, Kumashiro, Smith, Blumberg & Rutland International	Cross-ethnic friendships : Are they really rare? Evidence from secondary schools around London	2014	"explore how cross-ethnic friendship selection and quality vary across different ethnic groups and classroom ethnic diversity"	Ethnic composition of the classroom and ethnic diversity (IV), quantity and quality of cross-race friendships (DV) CV: percentage of same ethnicity, gender and	910 684 – for final analysis	11.09 (S.D=.45) (Year 7) 256 White European B, 63 Middle Easterner B, 118 Black B & 247 South Asian B	Ethnic diversity measure -> 'Simpson Diversity Index 1949' –"takes into account the no of e.grps in the context and the relative proportion of each e.grp" "higher scores indicating greater ethnic diversity" Fship -> think about friends they 'hang out' with – No of f="How many friends do you have from the same/diff ethnic grp?" Quality-think of 3 best c-e friends & asked for the friends ethnicity & 2 questions on a 5-point scale="How much do you interact with this friend?" [freq interaction] and "how close do you feel	"in general, children reported high numbers of both s&c e.fships." "more c-e fships than same ethnicity" "gender sig main effect, boys had more c-e fhships than girls" white children had more s-r fships than other e.grps. "classroom ethnic diversity had a positive effect on cross-ethnic friendship selection (~	Ethnic minorities (black, south Asian, middle Easterner) at least 30% of the total school population white Europeans in these schools varied from 2.3% - 67.4%

<p>Journal of Cultural Relations</p> <p>LONDON</p>				<p>classroom gender composition, SES, ethnic identity & perceived ethnic discrimination</p>			<p>to this friend?" [closeness] =composite variable 'friendship quality' by combining means of int&clo for the 3 friends. SES->self-report house type (council house/rent/own = low,med,hig ses) P. e discrimination-> 8-item scale on "how often children perceived each ethnic discrimination experience". 2 examples: "how often do you feel that teachers call on you less often than they call other kids because of your race/ethnicity?" "how often do you feel like you are not picked up for certain teams or school activities because of your race/ethnicity?" (1-5 point scale)</p>	<p>= .34, p = .06)" "White Europeans estimated higher cross-ethnic friendship selection compared to other groups, when classroom ethnic diversity was lower ($\sim = -.63, p < .01$)." "classroom ethnic diversity did not have a significant effect on cross-ethnic friendship quality" "Ethnic group also had a marginally significant interaction with ethnic diversity; White Europeans reported higher quality cross-ethnic friendships, when classroom ethnic diversity was higher ($\sim = 1.37, p = .06$)."</p>	
<p>Barth, McDonald, Lochman, Boxmeyer, Powell, Dillon & Sallee</p> <p>American Journal</p>	<p>Racially Diverse Classrooms: Effects of Classroom Racial Composition on Interracial Peer Relationships</p>	<p>2013</p>	<p>How children's race and classroom racial composition influences peer relationships (using sociometric measures)</p>	<p>IV: Classroom racial composition and race DV: sociometric ratings</p>	<p>872</p>	<p>5th graders (10-11 yrs)</p>	<p>Socio-metric survey -> children had unlimited nominations, had to nominate their classmates in the following categories: Like Most, Like Least, Leader, Fights and Victim.</p>	<p>Ratings varied according to the CRC. "Black children received more nominations, regardless of their representation in the classroom." "white children tended to be nominated as LEADERS but not in classrooms where the maj were black"</p>	<p>Sch comp: Blacks= 0-100% M=54.59% Whites=0-96.88% M=42.74%</p> <p>Divided classrooms: (67%+ black = high, 33%-66%black =middle and 32%-black = low)</p> <p>Children had to nominate: Like Most, Like</p>

of Orthops ychiatry								No CRC effects for FIGHTS	Least, Victim, Leader and Fights.
Uni of Alabam a USA									
Demanet, Agirdag & Van Houtte	Constrist in the School Context: The impact of Ethnic School Diversity on the Quantity and Quality of Friendships	2012	To test the constrict theory in school context. To test if the ethnic school diversity has an effect on the quality and quantity of friendships.	IV: ethnicity, ethnical school diversity (total number of different groups of immigrants) DV: Number of friendships, attachment to friends (4 items)	11,872 1,324 immigrants (Mostly Turkish & Moroccan)	3 rd and 5 th g	No of fships -> list of all student names in their year (no. associated to them), had to pick the numbers of their best friends. Attachment to friends -> 4items, on a 5-point scale. “I wish I had other friends at school” “My friends accept me as I am” “I trust my friends at school” “My friends at school respect my feelings and ideas” Ethnicity -> birthplace of maternal Grandmothers, (1% didn’t answer so used nationality of mothers and fathers). Students SES -> occupational status of the family. Ethnic school diversity -> “the total number of different groups of immigrants, corrected by their size.”	“Ethnic school diversity has a sig -ve association with the number of friendships” – students in more homogeneous schools had more friends, but effect disappears when taking into account control variables (schools SES so “students enrolled in a school with a more disadvantaged SES have a higher likelihood of having fewer friends, irrespective of the socioeconomic position of their own family”) “ for natives, e.school diversity has no association with the number of friendships, .. positive association between ethnic school diversity and the number of friendships for immigrants” “ethnic diversity is	FEA – Flemish Education Assessment data from 2004-2005. 3&5 th grade responde to 9&11 th in America. E.S.Diversity = Herfindahl index (Putnam, 2007), -1 (no div), 0 (total div) – mean= -.67.
The Sociological Quarterly									
Uni de Gante Belgica									

							<p>Schools' SES composition-> “mean parental occupational status per school.”</p> <p>Sector-> Private and Public</p> <p>School size-> “total number of students at school”</p>	<p>significantly negatively related to attachment to friends - association vanishes when ... schools SES”</p> <p>“for immigrant students, all else being equal, the ethnic school diversity has a positive association with attachment to friends”</p> <p>“We conclude that, for immigrants, higher ethnic school diversity in itself yields a higher quantity and quality of friendships.”</p>	
<p>Van Houtte and Stevens</p> <p>Sociology of Education</p> <p>Uni de Gante</p> <p>Bélgica</p>	<p>School Ethnic Composition and Student's Integration Outside and Inside Schools in Belgium</p>	2009	<p>To see the effect of interethnic friendships, social participation and sense of belonging on Belgian and immigrant students when diversity increases.</p>	<p>IV: ethnic origin, schools ethnic composition (% of immiorty students), ethnic diversity, SES, School sector</p> <p>DV: interethnic friendships (state how many are not Belgian), social</p>	<p>11,872</p> <p>1324</p> <p>immigrants</p>	<p>3rd and 5th grade</p>	<p>Ethnic origin-> “birthplace of the students' maternal Grandmothers, if not considered their mothers' and fathers' nationalities, since most immigrant students are second- or third generation and have Belgian nationality”</p> <p>Occurrence of interethnic friendships-> asked to state: “how many of their friends are of non-Belgian origin – nobody (scored 1), a few(2),half of them(3),most o t(4), all of them(5).”</p> <p>Social Participation-> “how often do you go to... a youths association, a sports club, a youth center & an art academy with : never (scored 1), sometimes(2) & often (3).”</p>	<p>More immigrant students at the school = more immigrant friends or fewer Belgian. SES reduces the e.comp effects.</p> <p>“immigrant students with a higher SES are less likely to have immigrant friends (and more likely to have Belgian friends)”</p> <p>“for immigrant students, there is no effect of ethnic composition on interethnic friendship”</p>	<p>Flemish Edu Assessment (FEA) 2004-05 data.</p> <p>“data set: 10 concentration Schools(50% imm stu), 34 monocultural schools (1-5% imm stu), and 9 multicultural schools(20-50% imm stu). The remaining 32 schools contained between 5-20% imm stu”</p>

				participation, sense of belonging			<p>Sense of belonging-> “Dutch translation of Goodenow’s (1993) 18-item Psychological Sense of School Membership scale” Answers ranging from ‘absolutely do not agree’(1) – ‘completely agree’(5).</p> <p>Schools ethnical composition-> 2 measures: 1=% of immigrant students in 3rd and 5th years of that school. 2=ethnic diversity “expressed as the total number of different groups of immigrants, corrected by their size”</p> <p>SES context of each school-> mean SES of the respondents</p> <p>School Sector-> private(42) and public(43)</p> <p>SES origin-> occupation, “using the highest of the two as an indicator of the SES of the family.”</p> <p>Parental Support-> 7item scale, 5 answers- do not agree(1) – completely agree(5)</p>	<p>there is no association between ethnic composition and interethnic friendships (for immigrants)</p> <p>“this (absence of a) relationship between ethnic composition and a sense of belonging is the same for both groups ($t = -0.074$).”</p>	<p>“Lancee and Dronkers (2008), we used an index of ethnic diversity—the Herfindahl index”</p>
Wilson & Rodkin	African American and European American Children in Diverse Elementary Classrooms: Social Integration, Social Status, and Social Behavior	2011	“Whether or not the peer social ecologies of diverse elementary classrooms support the presence of positive, integrated relationships between African American and European	IV: Classroom composition and ethnicity (AA/EA) DV: Friendships, peer affiliations, social behaviour, ethnic segregation, ethnic context of classroom: percentage of same-ethnicity	486 (23 5- AA & 251 EA) Boys & girls	8-11 years old (3 rd – 4 th graders)	<p>Friendships-> “to circle yes or no to the question, “Some kids have a number of close friends, but others have just one best friend, and still others don’t have a best friend. What about you? Do you have a best friend?” Had to “write an unlimited number of names of children .. considered to be their best friends”</p> <p>Peer affiliations-> “Do you hang around together a lot with some kids in your c.room?” “Besides the group that you’re in, are there other kids in your c.room who</p>	<p>AA & EA had segregated friendships and peer groups. Both disliked cross-ethnicity peers.</p> <p>AA likely to have more segregated friendships and peer groups when the classrooms had few AA. “segregation patterns of European American children were similar across classroom contexts”</p> <p>“African American</p>	<p>“The mean ethnic distribution of classrooms as reported by teachers was 44.1% AA, 41.1% EA, 7.9% Asian, 2.8% Latino/a, and 4.1% other. Classroom ethnic distributions varied considerably, from 8.0% to 78.6% AA ($SD = 16.4\%$), and from 9.1% to 70.8% EA ($SD = 17.1\%$)”</p>

			American children.”	peers.		<p>hang around together a lot?” Had to write names of those children. Social Behaviour-> unlimited peer nominations for: COOPERATE, NICE, MAKE FUN, SAY MEAN THINGS, FIGHTS & TROUBLE. Social Status-> unlimited p n for: LIKE MOST, LIKE LEAST, POPULAR, UNPOLULAR. Ethnic segregation-> “Each child’s pattern of sent friendship nominations, peer group affiliations, and sent liked least nominations were used to calculate up to three ethnic segregation indices.” Ethnic context of classroom-> “% of same-ethnicity peers-% of children in the classroom who were either (a) African A or (b) European A was used to measure classroom ethnic context.”</p>	<p>children disproportionately disliked European American children ($\beta = .18, p < .01$), but this did not vary by classroom context” “European American children disproportionately disliked African American peers ($\beta = .22, p < .01$); this tendency increased with more European Americans in the classroom ($\gamma = .010, p < .05$).”</p>	
Rude & Herda	Best Friends Forever? Race and the Stability of Adolescent Friendships	2010	Identify characteristics that determine friendships continuation or end and the effect of racial differences on stability of friendships	DV: friendship retention IV: racial differences in friendships, age, parental education, family type, immigrant generation, school achievement, school attitudes,	5,494 Wave I and II	<p>Friendship retention-> “indicating whether a best friendship existing at time 1 also exists at time 2.” ‘Cross-ethnic fship’-> “Whether friendship members share a common race {racial difference}” Proportion of students sharing the ego’s race-> is measured by taking the number of students in a school with the same race as the ego and dividing by the total number of students in the school. Urbanicity-> urban, suburban or rural.</p>	<p>“Cross-race friendships are most common in schools with the smallest numbers of same-race alternatives.” -Hispanics have more c-r friendships than whites. -C-r friendships least likely to be reciprocated = 57.1% cr compared to 68.5% sr. -Interracial bestf less likely to be retained:</p>	<p>Data from Add Health (1994-95)– using wave 1&2. Between wave 1 and 2 is a year.</p>

				friendship quality (reciprocity & friendship closeness)		<p>School Size-> school is small (1-400 students), medium (401-1,000 s), or large (1,001-4,000 s). Region-> School location: S,W,MW,NE. Family type difference-> “whether both friends have two-parent families, one-parent families or different f t.” Immigrant generation diff-> first, second, third or later generation. School achievement diff-> “the absolute value of the diff. in grade point averages between egos and alters, based on self-reported grades in math, history, science and English.” school attitudes difference-> “a mean scale of four diff. attitudes toward school for each friendship member.” five-category ratings (“strongly agree” - “strongly disagree”) “on whether the dyad members feel like they are a part of the school, feel close to people in school, report being happy to be in school, and feel socially accepted.” Common participation in socially approved activities-> 2 measures: same clubs or same sports. FRIENDSHIP QUALITY-> 2variables: <u>Reciprocity</u>- “measuring whether the alter also nominated the ego in any of his or her 10 in-school nominations at time 1” <u>Friendship closeness</u>- “mean scale of five .. items measuring whether in the past 7 days the ego has been to the alter's</p>	<p>cr: 24.5% are non-r while 18.9% are. -“Cross race best friendships become less stable relative to s-r friendships” when race proportion is 40-50%. “As the proportion sharing the ego's race surpasses the middle ranges, this trend reverses itself among cross-race dyads.” for femalefemale, indicating that friendships between girls are less likely to be retained than those between boys. “the closer the relationship between the ego and alter, the more likely it is that the friendship will be retained” “racial difference in the friendship remains a significant predictor of friendship retention even after controlling for all other predictors.”</p>
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							house, spent time with alter after school, spent time with alter over the weekend, talked to alter about a problem, or talked to alter on the phone”	When race proportion is lower, (incomplete) confusion with: ego’s race	
Killen, Kelly, Richards on, Crystal & Ruck Group Processes & Intergroup Relations USA	European American children’s and adolescents’ evaluations of interracial exclusion.	2010	“to examine how majority participants’ evaluations of exclusion and use of stereotypes varied as a function of ethnic school composition (and intergrp contact), and whether there exist age-related changes in the way that school diversity impacts on participants’ judgments regarding interracial exclusion.”	IV: age (4/7/10 th) and school composition (high and low diversity) DV: stereotype responses (affitmaton, recognition, social contexts of stereotypes), wrongfulness of exclusion ratings, estimation of frequency of exclusion ratings regarding each context. - Cross-r friendship measures (in school, out-of-school & the neighbourhood.)	414 EA	4 th , 7 th and 10 th grade.	Cross-race friendships-> from Intergroup contact questionnaire (ICQ), asked 3 questions: “1) At school how many friends do you have who are from a different racial or ethnic group than you?; 2) Outside of school how many friends do you have who are from a different racial or ethnic group than you?; and 3) How many of your friends from your neighbourhood are from a different racial/ethnic group than you? Responses to these items ranged from 1 (“none”) to 4 (“many”).” Social Contexts -> children evaluated exclusion in following scenarios: lunch, dance and sleepover. “1) Stereotype responses (affirmation, recognition, social contexts of stereotypes); 2) Wrongfulness of exclusion ratings (for race-based exclusion, non-race based exclusion, and group-functioning-based exclusion); and 3) Estimation of frequency of exclusion ratings (for race-based exclusion and for non-race based exclusion).”	School composition affects c-r friendships, children in high diversity schools have more c-r friendships. Report more c-r friendships in school than outside school/in neighbourhood. -Responses to racial exclusion situations: low-d schools = more stereotypes, 4&7 th used more stereotypes than 10 th . -Older kids (10 th) recognised stereotypes more. Older kids (10 th) rated exclusion more wrong than 4&7 th .	High ethnical diversity schools = 25% AA and Latinos enrolled & Low = <15%. intergroup contact questionnaire (ICQ) (see Crystal et al., 2008)

School ethnic composition and discrimination:

Authors & Journal	Title	Date	Objective	Variables	N	Ages	Method	Results	My observations
<p>McGlothlin & Killen</p> <p>Child development</p>	<p>Intergroup Attitudes of European American Children Attending Ethnically Homogeneous Schools</p>	2006	<p>How (white) children whom have less contact with black children interpret ambiguous interracial encounters (racial biases and friendships).</p>	<p>DV: Age</p> <p>IV: Implicit biases, intergroup contact, potential friendships</p>	138	<p>1st & 4th graders</p> <p>M=6.99 & M=10.01</p>	<p>Implicit biases -> Ambiguous situation task. P.fship -> “Do you think X (p.perpetrator) and Y (p.victim) are friends?” & “Why are/arent they friends?”</p> <p>Similarity -> Perceptions of Similarity Task.</p> <p>Contact situations -> Intergroup Contact Assessment.</p>	<p>children display implicit biases when interpreting interracial social situations and in judging potential friendships, contact had an effect on the ratings. 1st grades evaluated friendships as more likely. 4th graders interpreted the situations more negatively</p>	<p>2 schools, 86.1% and 91.2% of school population was of E.Americans.</p>
<p>Margie, Killen, Sinno & McGlothlin</p> <p>British Journal of Developmental Psychology</p>	<p>Minority children’s intergroup attitudes about peer relationships</p>	2005	<p>Assess the relation between implicit biases, perceptions of similarity and friendship judgment in black children (minority) in heterogeneous school</p>	<p>IV: Childs race and age</p> <p>DV: Implicit biases, similarity scores, friendship judgements</p>	<p>150</p> <p>70 African-A</p> <p>80 Non-AA minority (51 L-A, 24 Asi</p>	<p>1st & 4th graders</p> <p>M=6.5</p> <p>M=9.6</p>	<p>Implicit biases -> Ambiguous situation task. Similarity -> Perceptions of Similarity Task.</p> <p>Possibility of friendship -> “if the characters were friends before the incident (fship potential) if they could be friends afterwards (subsequent f p) and why they cld or cldnt be f afterwards (f p reasoning)”</p>	<p>Racial biases in interpretations of interracial social situation. African-A rated the white potential transgressor more negatively than the black. While white children did not show these biases.</p> <p>No biases for friendship judgments.</p>	<p>Data from 4 mixed-ethnicity schools. Percentages of E.A ranged from 20-71%. Data was combined as there was no difference in child responses and the type of school.</p>

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Pereira & Monteiro Livro: Actas do Simpósio Nacional de Investigação em Psicologia	Expressão do Racismo na Infância – O Efeito da Composição étnica da escola	2006	To see the effect of the different ethnical composition of schools on discrimination	IV: School e.comp, race of whom they were donating too DV: índice de distribuição, Índice de traços positivos, índice de traços negativos	280	5-7 (52,9%) 8-10	Discrimination-> -Atribuição de moedas as crianças (branca e negra) para compara uma bicicleta -Atribuição de traços, (pessoas boas, mal-educados, sinceros, agressivos, honestos, burros, inteligentes, sujos, estudiosos e preguiçosos) numa escala de 3 pontos (3= são mesmo assim & 1= não são nada assim).	Coins distribution: composition was majority black (+60%) there was no discrimination. When composition was 10-39% black the younger children discriminated (5-7) but not the 8-10. Pos and Neg distribution: Pos attributes- when in majority they don't show discrimination, but when they are in minority they do. Neg attributes- when in majority or minority attribute more neg to blacks.	Ethnic Composition: proportion of black children: 0-10%,10-39%,40-60% and +60%.
Vervoort, Scholte, Scheepers Journal of Adolescence	Ethnic composition of school classes, majority-minority friendships, and adolescents' intergroup attitudes in the Netherland	2011	“to investigate whether the proportion of ethnic minority adolescents in school classes and majority–minority friendships were related to ethnic	IV: Dutch/Non-Western, classroom composition (.0-.25 &.5) DV: intergroup friendships, friendship quality and intergroup	238 6 191 le maj orit y (68. 3% Dut ch) 475	12-16 years old Mean = 13 & 10months	<u>Ethnicity</u> -> parents country of birth, considered a min if: “if at least one of his/her parents as born abroad”. <u>Proportion of ethnic minority in class</u> -> “dividing the number of members of non-western ethnic minorities in class by the total class size”. <u>Intergroup friendship</u> -> given list of classmates name and number, had to pick max 5 friends and	-E.majority had fewer maj–min friendships than e.minority. Quality of friendships did not differ between maj. and min. -Ethnic majority have more -ve outgroup attitudes than minority BUT e.majority have more +ve ingroup attitudes than minority. -E.majority have more	NON-WESTERN means “i.e. anyone of whom at least one parent was born in Turkey or from a country in Africa, Latin America or Asia (Japan and Indonesia excepted)” Classrooms – low is .0-.25 and higher is .5+.

	s		majority and ethnic minority adolescents' out-group and in-group attitudes.”	attitudes	e min orit y (17 % non - wes tern		number their importance (1=best f). Intergroup friendship was classified when their was a maj-min f. <u>Friendship quality</u> -> rate how much they agree: I value my friendship highly', 'My friendship makes me very happy' and 'My friendship gives me what I need' (likert 5 point scale). Intergroup attitudes -> “extent..considered Dutch people (ethnic majority) to be warm, polite, decent, pleasant, hospitable, kind, and honest. And then about (ethnic min) - 4-point Likert scale ('entirely, 'a little', 'not' and 'not at all')”	negative out-group attitudes when the number of ethnic minority increases in the classroom. -Quality and quantity of maj-min friendships “was related to less negative out-group attitudes”. -E.minorities in classes with more minorities means more –ve out-group att. than when there was less minorities in the classroom. Ingroup attitudes: maj have more +ve attitudes when minorities are in higher proportion. Quality of maj-min friendships related to more +ve in-g att. – e.minorities report in classrooms with more min report less +ve in-g att.	Proportion of ethnic min in class range = .00 to .91.
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