

**Inter-ethnic prejudice reduction in childhood**

A common ingroup identity is not enough: The importance of  
the superordinate category type

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## Abstract

This thesis examines, in the framework of the common ingroup identity model, the effectiveness of different types of superordinate category to reduce intergroup prejudice among White and Black Portuguese children. Specifically, we tested the effect of a superordinate category related to groups' ethnic status (Portugal) and a superordinate category unrelated to groups' ethnic status (School). We expected that the status-related superordinate category would emphasize the salience and significance of the ingroup-outgroup distinction, resulting in less positive intergroup evaluations. In this condition, we also expected both subgroups to perceive the higher-status group (White) as more prototypical of the superordinate category than the lower-status group (Black). On the other hand, we expected that a status-unrelated superordinate category would shift attention away from the ingroup-outgroup distinction, resulting in more positive intergroup evaluations and more similar ingroup and outgroup prototypicality perception. These predictions were tested in three quasi-experimental studies ( $N = 575$ ) with White and Black Portuguese children aged 9-10. Overall, our results indicate that the superordinate category School, compared to Portugal, resulted in more positive intergroup evaluations and a more balanced representation of the subgroups within the superordinate category, for both White and Black children. Moreover, recategorization and dual identity's effects on prototypicality perceptions and intergroup evaluation were found to vary as a function of the type of superordinate category and groups' ethnic status. These findings highlight the importance of considering the differential effects of the type of superordinate category in prejudice reduction research and interventions.

**Key-words:** children, common ingroup identity, superordinate category, group status, prejudice reduction

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## Resumo

Esta tese analisa, no âmbito do modelo da identidade endogrupal comum, a eficácia de diferentes tipos de categoria supraordenada na redução do preconceito intergrupais entre crianças Portuguesas Brancas e Negras. Especificamente, testámos o efeito de uma categoria supraordenada relacionada com o estatuto étnico dos grupos (Portugal) e de uma categoria supraordenada não-relacionada com o estatuto étnico dos grupos (Escola). Esperávamos que a categoria supraordenada relacionada com o estatuto enfatizasse a saliência e importância da distinção endogrupo-exogrupo, resultando em avaliações intergrupais menos positivas. Nesta condição, esperávamos também que ambos os subgrupos percepcionassem o grupo de alto-estatuto (Branco) como mais prototípico da categoria supraordenada do que o grupo de baixo-estatuto (Negro). Por outro lado, esperávamos que a categoria supraordenada não-relacionada com o estatuto reduzisse o foco de atenção na distinção endogrupo-exogrupo, originando avaliações intergrupais mais positivas e uma percepção de maior semelhança entre a prototipicidade do endogrupo e do exogrupo. Estas hipóteses foram testadas em três estudos quasi-experimentais ( $N = 575$ ) com crianças Portuguesas, Brancas e Negras, com idades entre os 9 e os 10 anos. Globalmente, os resultados indicam que a categoria supraordenada Escola, em comparação com Portugal, originou avaliações intergrupais mais positivas a uma representação mais equilibrada dos subgrupos na categoria supraordenada, quer para as crianças Brancas quer para as crianças Negras. Além disso, os efeitos da recategorização e da dupla identidade na percepção de prototipicidade e avaliação intergrupais variaram em função do tipo de categoria supraordenada e do estatuto étnico dos grupos. Estes resultados realçam a importância de se considerarem os efeitos diferenciados do tipo de categoria supraordenada na investigação sobre redução do preconceito e, também, na intervenção.

**Palavras-chave:** crianças, identidade endogrupal comum, categoria supraordenada, estatuto dos grupos, redução do preconceito

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# General introduction

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*“a closer look at the experiences of persons belonging to minorities on the ground reveals that (...) discrimination still forms part of that ‘belonging to minorities’ means”*

*(European Union Fundamental Rights Agency, 2010)*

The structure of European societies has become increasingly diverse, mainly due to immigration. Population growth in the European Union has been primarily driven by migration flows, particularly since 2000 (Eurostat, 2010). In 2010, 32.5 million foreigners lived in the European Union (EU), accounting for about 6.5% of the total population (Eurostat, 2011). More than 60% were citizens from non-EU countries. In Portugal, like in Europe, society's structure has also become more diverse in the last decades. In 1980 there were 50,750 foreign citizens living in Portugal (SEF, 2011) and in 2010 this number increased to 445,262, accounting for about 4% of the total population (SEF, 2010). The sample of nationals from foreign countries living in Portugal is also more diverse: whereas in the 1980s and 1990s migrants came primarily from ex-Portuguese African colonies, more recently the population from Brazil and Eastern European countries has been rising steadily (SEF, 2010).

The increasing diversity of the population in Europe in the last decades, resulting from intense migration flows, and the consequent challenges in terms of social inclusion that arise from this phenomenon have been at the centre of the social and political agenda of the European Union (EU). Indeed, and from a formal point of view, the evolution of the EU legislation and policies reflect the fact that immigration “...is no longer considered a transient phenomenon as it was in the context of the 1970s but *a built-in feature* of our increasingly multicultural societies (Eurydice, 2004, p. 68; italics added).

On the onset of the European Economic Community, the treaties and legislation were primarily concerned with discrimination regarding gender in the employment area (European Union Fundamental Rights Agency, EU-FRA, 2010a). With the development of the EU integration, there was an increasing awareness that protection against discrimination on other grounds (e.g., ethnicity, sexual orientation, religious belief, language, age or disability) and in a wider variety of social areas, such as housing, justice, health and education, was needed in the EU legislative framework. In this context, two central legislative pieces have been adopted in 2000,

namely the Racial Equality Directive and the EU Charter of Fundamental Rights, which became legally binding since the Treaty of Lisbon came into force in 2009, and prohibits any type of discrimination<sup>1</sup> (EU-FRA, 2010a). In addition, the protection against discrimination is not only enforced in the framework of the EU's anti-discrimination policies "...but whenever defining and implementing [any] of its policies and activities" (Treaty on the Functioning of the European Union, cited in EU-FRA 2010b, p.10). This substantiates, from a political and legal point of view, the desire of the EU to promote, develop and sustain a multicultural cohesive society.

However, and in spite of the political and legal efforts to develop a more inclusive society, the attitudes of the European citizens and the experiences of the minorities living in Europe suggest that a fully inclusive and cohesive society is still a challenge. In 2005, a report of the European Monitoring Centre on Racism and Xenophobia (EMCRX) revealed that half the sample in a survey on majorities' attitudes towards minorities expressed "resistance to immigration" and "resistance to diversity". One out of four respondents indicated "resistance to multicultural society" and two out of three people considered that the "multicultural society has reached its limits", a proportion that significantly increased between 1997 and 2003. Four out of ten respondents also showed their opposition to civil rights to legal immigrants in the EU. In Portugal, the pattern of respondents' opinion was similar: about 62% showed "resistance to immigration" and 68% showed "resistance to diversity". The idea that the "multicultural society has reached its limits" was shared by 59% of the Portuguese sample.

From the point of view of minority members living in the EU, discrimination is still prevalent. Results from a survey to immigrant and ethnic minority individuals in all the 27 EU countries (European Union Minorities and Discrimination survey; EU-MIDIS), revealed that 55% of the respondents considered that discrimination based on ethnic or immigrant origin is "very" or "fairly" widespread in their host country (EU-FRA, 2011). In addition, 47% of Roma respondents and 77% of African origin respondents (Sub-Saharan and North-African) reported having been victims of at least one discriminatory act in the previous 12 months (EU-FRA, 2009) in areas like housing, school, health, the work place or access to services (e.g.,

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<sup>1</sup> The EU Charter of Fundamental Rights, article 21, states that: "Any discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation shall be prohibited."

restaurants/cafés, banks). According to these respondents, the main reason for being discriminated against was their ethnic or immigrant origin (93%), followed by religious beliefs (64%), gender (34%) and age (29%) (EU-FRA, 2011).

Furthermore, 82% of the individuals that reported having been victims of discriminatory incidents did not report this situation to the authorities or organizations providing support for minorities. The fact that a large percentage of minority respondents indicated not having any knowledge about the existence of EU law against discrimination on racial and ethnicity grounds, and over 50% not knowing about the existence of organizations providing support to minorities, probably accounts for the low levels of incident reporting (EU-FRA, 2009). However, the reasons invoked by the respondents for not having reported being victims of discriminatory acts are also concerning. Sixty three per cent of the individuals that had been victims of a discriminatory act in the previous 12 months said they had not reported this situation to the authorities because “nothing would happen/change by reporting” and 40% said “it’s too trivial, not worth reporting – it’s normal, happens all the time” (EU-FRA, 2009). In Portugal, the pattern of responses is somewhat similar: 60% of African origin respondents agreed that discrimination based in ethnic or immigrant origin is widespread in Portugal, 88% of this ethnic group reported not knowing about organizations providing support for minorities and, from the respondents that had been victims of a discriminatory incident, 100% of African origin and 98% of Brazilian individuals did not report this situation to the authorities. The conclusions of this European level survey also indicate that “(...) discrimination on more than one ground is generally highest for ‘visibly different’ minorities, such as people of African or Roma origin” (EU-FRA, 2011, p.10).

#### *Ethnic minorities and the educational area*

The increasing diversity of the European population is also reflected in the educational area. Although some difficulties exist in collecting data regarding the proportion of immigrant children or children from ethnic minorities, in 2001 the proportion of foreign children under 15 years old, in the total population of persons in the same age group in the EU, was up to 10%. In most countries, however, this percentage was under 6% (Eurydice, 2004). In Portugal, information on the proportion of ethnic minority children is also scarce, since it is not allowed for researchers to collect statistical information on ethnic or racial characteristics.

According to Baptista and Maciel (2006), in 1997, 36,220 African origin children were enrolled in basic and secondary education, representing 2.8% of the school population in Portugal. In 2001, this figure dropped to 1.7%, but it is likely that these figures are underrepresented, since they do not include children who have a migration background but that, in the meantime, acquired the Portuguese nationality (Baptista & Maciel, 2006).

The European law and policies have also been developed to protect against discrimination on the educational level, and to respond to the increasing challenges of a more diverse student population. The European directive 2000/43/EC prohibits any type of discrimination based on race or ethnic origin in the educational level and it further allows immigrant children or children of immigrant origin to appeal in the event of direct discrimination (treatment less favourable than that applicable to nationals) or indirect discrimination (when an apparently neutral provision, criterion or practice would put them at a disadvantage). From a formal political point of view, an adequate integration of immigrant or ethnic minority children at school is a key element in the development of a multicultural society (EU-FRA, 2010b). However, developing a truly inclusive school has been a challenge: “Educational policy-makers in European countries are faced with the *difficult task of transforming the intercultural diversity* now characteristic of schools *into an asset for everyone* concerned, whether immigrant or native pupils, teachers or parents.” (Eurydice, 2004, p.71, italics added).

One of the main problems minority children still face in schools, relative to majority children, is discrimination and lower academic achievement. Up to 10% of the EU-MIDIS respondents indicated that they had been victims of a discrimination incident by school personnel in the previous year (EU-FRA, 2010b). The groups more affected were the Roma (10%), North-Africans (8%) and Sub-Saharan Africans (6%). Example of racist incidents in the educational area detected in 2008 and 2009 included problematic content in school books, ethnic profiling, unjustified placement in alternative educational tracks or in special needs schools, hate speech and harassment by peers, teachers and parents (EU-FRA, 2010b). Although there is legislation prohibiting racial or ethnic discrimination in the educational area, these episodes are seldom monitored in the majority of the EU countries (with some exceptions in France, the Netherlands, the United Kingdom and Germany; EU-FRA, 2010b).

Providing equitable learning opportunities for all children has been one of the most important objectives of national and European policies but, despite these efforts, the lower performance in school of minorities, relative to the majority, still persists. The lower academic achievement of children with a migration background relative to majority children is apparent at the end of primary school and remains throughout school life (NESSE, 2008; European Commission, 2008). Results from PISA and other OECD studies consistently show, for example, that minority students' performance in reading, mathematics and science is lower than that of their majority peers (OECD, 2011; OCDE 2006; European Commission, 2008). The academic performance of migrant children in Portugal, despite its progress in the last three years, is similar to other OECD countries. Immigrant or ethnic minority children have lower academic results relative to the majority and their performance is below the national average (EMCRX, 2004; Carvalho et al., 2002).

A recent report on education and migration indicates that students with a migration background are educationally disadvantaged, relative to the majority, in five areas: enrolment in type of school, duration of attending school, indicators of achievement, drop-out rates and type of diploma achieved (NESSE, 2008).

One explanation for these results is the disadvantaged socio-economic status of migrant children relative to the majority, but even after adjusting for these differences, children with a migrant background still underperform relative to their majority peers (OECD, 2011). These results suggest that socio-economic status is not the only responsible for the achievement gap, and that other factors, which are often correlated with belonging to a minority group, may also account for these differences. The reasons that have been proposed for the achievement gap are multifold and range from national policies and institutional factors, the school level (e.g., school curriculum, peers, teachers, ethnic composition of the school), to the family and home levels (European Commission, 2008; NESSE, 2008; EMCRX, 2004). Although the phenomenon and the reasons accounting for the achievement gap are quite complex, there is evidence that discrimination based on ethnicity, and its consequences, play an important role (EMCRX, 2004). Not only prejudiced attitudes or direct discrimination from peers, or lower teachers' expectations regarding ethnic minority children have been proposed as reasons for the underachievement of minorities, but also other factors associated with the educational system (EU-FRA, 2010b). These include school and class segregation (e.g., high concentration of migrant students in

schools/classes), an overrepresentation of migrants in schools for “special needs” children or portraying migrants in textbooks and school life in a distorted fashion (NESSE, 2008; EMCRX, 2004).

Although European countries have set in place different policies and measures to integrate migrant pupils and to help reduce the achievement gap (Eurydice, 2004), most of these problems still persist in the educational systems. In 2008, a Green Paper of the European Commission on the challenges and opportunities for the educational systems stressed the importance of a proper and full integration of migrant pupils, since failure in this respect has the potential to reproduce and exacerbate the social inequalities that still persist in our societies. At the same time, a proper integration of migrant and ethnic minority students in schools bears the potential to not only lessen the correlation between educational achievement and socio-economic status, but also to create more harmonious and tolerant relationships between migrant and native peers:

“The educational challenge must always be seen in the broader social cohesion context – any failure to fully integrate migrant pupils within schools is likely to be echoed in a broader failure of social inclusion. Low educational attainment, low rates of school completion and high early school leaving will undermine the chances of young migrant pupils for successful labour market integration later in life. Failure to integrate education systems can also hinder development of the positive social bonds and interaction between different groups necessary for a cohesive society. (...) All forms of school segregation will weaken the ability of education to deliver on one of its main objectives – to build social inclusion, friendships and societal bonds between children of migrants and their peers.” (European Commission, 2008, p. 7-8)

This dissertation is focused on this last objective, namely, on how positive relationships between majority and minority children can be developed and, consequently, how social inclusion in schools can be further ameliorated.

## **Main goals of the thesis**

Drawing on the social psychological accounts of intergroup relations, in this thesis our aim is to advance the state of the art on how the relationship between ethnic majority and minority children can be structured to improve intergroup attitudes and reduce ethnic prejudice.

The origins, development and the consequences of intergroup prejudice phenomena have been largely studied in Social Psychology (e.g., Allport, 1954; Gaertner & Dovidio, 2000; Hewstone & Brown, 1986; Sherif, Harvey, White, Hood, & Sherif, 1961; Tajfel & Turner, 1979). The early emergence and the developmental evolution of prejudiced attitudes in childhood has also been the focus of extensive research (e.g., Aboud, 1988; Bigler & Lieben, 2006; Nesdale & Flessner, 2001). In fact, childhood is a critical developmental period for intergroup attitudes. Although racial awareness and the positive differentiation of the ingroup relative to the outgroup arise early in development (e.g. Aboud, 1988; Clark & Clark, 1947; Doyle & Aboud, 1995; Katz, 1976; Kinzler, Shutts, & Correll, 2010), intergroup attitudes during childhood seem to be malleable and not fully consolidated. Due to this fact, many researchers believe that this is a critical period to undermine the development of biased intergroup attitudes and to promote tolerant attitudes and behaviours, which can endure into adulthood (Bigler & Liben, 2007; Gaertner, Dovidio, Guerra, Rebelo, Monteiro, Riek et al., 2008; Killen & Rutland, 2011). The importance of this developmental period to the promotion of more tolerant intergroup attitudes is also associated to an important context variable: the school. The school is one of the pivotal contexts where ethnic majority and minority children have the opportunity to interact (Schofield, 1995) and it is, thus, a favourable context to rehearse interventions to improve intergroup attitudes (Banks, 2006; Oskamp, 2000; Stephan & Vogt, 2004).

The importance of intergroup contact as an opportunity to foster more tolerant intergroup attitudes has been one of the most important tenets of the seminal work of Gordon Allport, *The Nature of Prejudice* (1954). Allport's work has not only provided the foundations for the social psychology of prejudice, but it still remains one of the most influential contributions to the study of prejudice (Dovidio, Glick, & Rudman, 2005). Allport's contact hypothesis has been one of the most important springboards for the development of several models of prejudice reduction.

In this thesis we will focus on one of these models, namely the Common Ingroup Identity Model (CIIM; Gaertner, Mann, Murrell, & Dovidio, 1989; Gaertner & Dovidio, 2000). This model proposes that intergroup attitudes can be improved by reengineering the intergroup boundaries and, consequently, changing both the structure of the intergroup contact and the nature of the intergroup relation. This process aims to change the psychological relation between the different groups from an intergroup relation (“we” vs. “them”) to an intragroup relation (“us”). Instead of perceiving the ingroup and outgroup as separate groups, contact promoting a shared identity that includes both groups can be made salient. This change in the cognitive representation of the groups can be achieved in two ways – through *recategorization* or *dual identity*. Whereas in recategorization the structure of intergroup contact blurs subgroup boundaries and a superordinate category is made salient, encompassing the ingroup and outgroup (“one group” representation), in *dual identity* the structure of contact allows both the subgroup and the superordinate categories to be simultaneously salient (“two groups in the same team” representation).

Although in general the CIIM has received considerable empirical support, ranging from laboratory experiments to studies in natural settings, research has also shown that in some circumstances a superordinate category was not able to reduce intergroup prejudice (e.g., Hornsey & Hogg, 2000). Historical, contextual or structural factors play an important role in the success of recategorization and dual identity to improve intergroup attitudes (Dovidio, Gaertner, & Saguy, 2007) and important challenges to the efficacy of these cognitive representations to reduce prejudice for groups with different characteristics and in diverse contexts still remain. Gaertner, Dovidio and Houlette (2010) have identified three main conceptual and pragmatic challenges to categorization-based approaches to prejudice reduction, including the CIIM: *i*) the potential of generalization; *ii*) threats to important and valued identities and; *iii*) the relation between the subgroups and the superordinate category.

The present thesis deals with this last factor, the relationship between the subgroup dimension of categorization and the superordinate category, *i.e.*, the extent to which they are related to each other. Briefly, research on multiple categorization indicates that when there is a high overlap between the categorization dimensions, *i.e.*, when they are highly related to each other, the salience and significance of the categorical boundaries can be increased, reinforcing the ingroup-outgroup distinction and consequently, maintaining ingroup bias. On the other hand, dimensions of



categorization that are relatively independent of each other (low overlap) may lead to more positive intergroup attitudes (e.g., Hall & Crisp, 2005; Eurich-Fulcer & Schofield, 1995).

In this thesis we are focused on the relationship between an ethnic higher-status (majority) group (White children) and an ethnic lower-status (minority) group (Black children). Our main aim is to test the effectiveness of two types of superordinate categories, varying in the degree of association to the subgroup dimension of categorization, to reduce ethnic prejudice. We will test the relative efficacy of a superordinate category that is directly related to groups' ethnic status compared to a superordinate category that is unrelated to groups' ethnic status. Our expectation is that a superordinate category that is associated to groups' status will emphasize the comparative context between White and Black children, resulting in a higher salience of groups' asymmetries and a heightened potential to maintain intergroup bias. On the other hand, we expect that a superordinate category that is unrelated to the subgroup dimension of categorization (ethnic status) has the potential to create a more neutral context, where the previous distinction between the groups is not emphasized, resulting in more positive intergroup attitudes.

### **Outline of the thesis**

The present thesis is organized in three parts. The first part presents the theoretical background of the thesis (Chapter 1), the second part includes the empirical component and is constituted by Chapter 2 (Study 1), Chapter 3 (Study 2) and Chapter 4 (Study 3). The third part of the thesis includes Chapter 5, where the general conclusions are presented.

In Chapter 1, the theoretical background, we present a brief overview of the classical theories of intergroup relations and how they have provided a common springboard for the development of several models of prejudice reduction. In this respect, we will focus our review in categorization-based models for reducing intergroup prejudice and, more specifically, on the Common Ingroup Identity Model. Still drawing on categorization-based models of prejudice reduction, we will consider the importance of the relationship between the dimensions of categorization and how their overlap critically influences intergroup attitudes. We will also analyse how the

concept of groups' prototypicality and the process of ingroup projection are important concepts to further understand the relationship between different groups belonging to a common superordinate category. We will finalise this chapter with an overview of the main questions and goals of the present thesis.

Chapter 2 presents the first empirical study of the thesis. In this study our objective was to provide an operationalization for the type of superordinate category. We explored if for children, Portugal and School could be used, respectively, as a status-related superordinate category and as a status-unrelated superordinate category. Our main aim was to determine if these two superordinate categories were qualitatively different from each other. To this end, we assessed White and Black children's perception of the association between Portugal and School and ethnic/cultural characteristics, their identification with the superordinate categories and the evaluation of these categories. We secondarily tested the effects of these superordinate categories on prototypicality perceptions and intergroup evaluation.

In Study 2 (Chapter 3), we introduced the cognitive representations variable. In this study we measured children's agreement with different cognitive representations that can characterize the groups' contact structure as well as the relationship between those groups (categorization, recategorization, dual identity) and that are the focus of the present thesis. In fact, studies testing the effectiveness of recategorization or dual identity to reduce prejudice usually make salient these cognitive representations through experimental manipulations, whereas studies assessing how children perceive the relationships between different groups (e.g., White and Black children) are, to our knowledge, scarce. Taking this in consideration, we assessed children's perception of the relationship between White and Black children when Portugal or School are salient superordinate categories. We further explored the effects of relative agreement with the different cognitive representations in intergroup evaluation and prototypicality perceptions, as a function of groups' ethnic status and type of superordinate category.

In the last study (Study 3, Chapter 4), we attempted to perform a more controlled test of our predictions by experimentally manipulating the cognitive representations of the aggregate (categorization, recategorization, dual identity). In this study, we introduced an indirect contact situation to experimentally manipulate participants' cognitive representations of the intergroup contact structure. We have also used two sets of dependent measures, the first focusing on the fictitious ingroup

and outgroup members present in the experimental tasks and the second focusing on the overall target groups. In the present study, our main aim was to test the interplay of the contact cognitive representations, type of superordinate category and groups' ethnic status, on intergroup evaluation and prototypicality perceptions. Finally, we have also attempted to integrate these variables into a model where prototypicality should mediate the relationship between the cognitive representations and intergroup evaluations, namely for the higher-status group (White children) when the superordinate category is related to groups' status (Portugal).

The third part of this thesis (Chapter 5) presents the general discussion. In Chapter 5 we restate the main problems and goals of the thesis, critically review the results of the empirical studies, identify their limitations and discuss their contribution to both theory and intervention practices. Finally, we also provide some directions for future research.



# Chapter 1

## Theoretical background

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In this chapter we present the theoretical background of this thesis. First, we will present briefly the main theoretical frameworks that have guided research in social psychology on intergroup relations and that have served as a springboard for the development of several approaches to reduce intergroup prejudice. Then, we will focus on categorization-based prejudice reduction models that are the main foundation of this thesis, specifically the Common Ingroup Identity Model. We then proceed to analyse in a more detailed fashion the importance of the relationship between the categorization dimensions, specifically between the superordinate category and the subgroup dimension of categorization. We will finalise this chapter with an overview of the main issues and goals of the thesis.

### **Social psychological accounts of intergroup relations**

Social sciences in general and social psychology in particular have devoted great attention to the study of prejudice, stereotyping and discrimination. According to Duckitt (2010), before the twentieth century, prejudice was regarded neither as a social problem nor as the focus of scientific study. Indeed, "...negative intergroup attitudes were generally seen as natural and inevitable responses to group differences" (p. 29). It was only after the 1920s that the scientific study of prejudice started to become influential in the social sciences.

The conceptualization of prejudice has evolved throughout time, shaped by historical and social circumstances (Duckitt, 2010; 1992), but in social psychology prejudice has been typically defined as an unfavourable attitude. Allport, in his seminal work *The Nature of Prejudice* (1954), defined prejudice as "an antipathy based upon a 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), adding further that "the net effect of prejudice, thus defined, is to place the object of prejudice at some disadvantage not merited by his own misconduct" (p. 9). Prejudice and, more generally, intergroup bias, can occur as a

more favourable evaluation and treatment of the ingroup relative to the outgroup, that is, a more positive evaluation of the ingroup without a corresponding negative evaluation of the outgroup, as a negative evaluation and treatment of the outgroup with the intention of disadvantaging the outgroup, or both (Brewer, 1999). However, and considering the pervasiveness of intergroup bias (Mullen, Brown, & Smith, 1992; Hewstone, Rubin, & Willis, 2001), even just the more favourable evaluation of the ingroup, without a corresponding negative evaluation of the outgroup can have profound consequences for intergroup relations. As stated by Gaertner, Dovidio and Houlette (2010): “While attempts to positively differentiate the ingroup from outgroups sometimes stem from a proingroup orientation (i.e., a preference for ingroup members) rather than an anti-outgroup orientation, the disadvantaged status of outgroup members due to preferential treatment of one group over another can be as pernicious as discrimination based on anti-outgroup orientations” (p. 528).

Several approaches to the study of prejudice and, more generally, intergroup relations have been developed in social psychology. The main research traditions on these phenomena are the contact hypothesis (Allport, 1954) and the social identity perspective, comprising Social Identity Theory (Tajfel & Turner, 1979) and Self-Categorization Theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Below, we will briefly present these approaches.

### *Intergroup contact and the functional relationship between groups*

The contact hypothesis (Allport, 1954) was developed in the context of interracial relations in the United States and proposed that prejudice and hostility were fed by unfamiliarity and separation between the groups. If this was the case, then contact between members of different groups, under specific conditions, should help improve and promote more tolerant intergroup attitudes. Allport (1954) defined four qualifying, “optimal conditions” for contact to reduce prejudice, namely interaction under conditions of equal status, authority support in establishing norms and standards that favour intergroup acceptance, the ability of the contact situation to foster “acquaintance potential” encouraging intimate personalized contact, and cooperative interdependent contact, that is, groups working cooperatively towards a common goal.

According to Brewer and Gaertner (2001), this last qualifying condition of contact’s effects has been the most studied contact “optimal condition” since the

1950s. Allport (1954) contended that contact, by itself, is no guarantee that attitudes between members of different groups will become more positive. In fact, contact can actually reinforce stereotypes and maintain hostility between the different groups. A classic illustration of this fact is the field experiment conducted by Sherif and his colleagues (Sherif, Harvey, White, Hood, & Sherif, 1961), which became known as the Robbers Cave study. In this experiment, Sherif and colleagues tested the idea that the functional relationship between the groups, competitive or cooperative, critically shape intergroup relations. If the relationship between different groups is competitive, when one groups' goals and actions are seen to frustrate and hinder the other groups' goals (a zero-sum relationship), hostility between the groups emerges. However, in a cooperative situation, when different groups work cooperatively to attain common superordinate goals, intergroup harmony develops. In the Robbers Cave study (Sherif et al., 1961), Sherif and colleagues brought a group of 12 year-old boys to a summer camp. Initially the boys were divided in two groups that were kept apart for one week to allow time for group formation. After, group-oriented competitive activities were introduced and blatant hostility between members of both groups broke out (fighting, verbal insults). In a third phase of the experiment, Sherif and colleagues introduced intergroup contact situations that were neutral and non-competitive. However, hostility between the groups remained, mere contact was therefore not enough to reduce conflict between the groups. Only when the experimenters introduced superordinate goals, *i.e.*, goals that could only be attained with the full cooperation of both groups, did intergroup relations became more positive.

From the Robbers Cave experiment onwards a wide range of studies on the effects of contact have been conducted. The main propositions of the contact hypothesis have been tested both in experimentally controlled situations, with artificial and natural groups, and in correlational studies in natural settings in a variety of intergroup contexts (e.g., Cook, 1978; 1984 as cited by Hewstone & Brown, 1986; Amir, 1969). It is now widely accepted that intergroup contact can bring about more positive intergroup attitudes (Pettigrew, 1998; Brown & Hewstone, 2005; Pettigrew & Tropp, 2000; 2006). The results of a meta-analysis conducted by Pettigrew and Tropp (2006) show that, overall, higher levels of intergroup contact are associated with lower levels of intergroup prejudice ( $r = -.215$ ), and that this relation becomes stronger when Allport's optimal conditions of contact are met.

Of particular interest to this thesis is how contact influences intergroup attitudes among members of majority and minority groups. In this respect, research shows that positive contact effects are stronger for members of majority groups than for members of minority groups (Tropp & Pettigrew, 2005). A similar pattern of results has been verified in studies with ethnic majority and ethnic minority children (Tropp & Prenovost, 2008; Binder, Zagefka, Brown, Funke, Kessler, Mummendey et al., 2009). Tropp and Prenovost (2008), for example, have analysed how different features of intergroup contact present in the classroom environment (e.g., proportion of ethnic minority and majority children in the classes, bilingual or monolingual classes) can influence ethnic majority (Anglo, European American) and ethnic minority (Latino) children's intergroup attitudes. They verified that Latino children displayed an equally positive evaluation and a similar friendship preference for ingroup and outgroup targets, irrespective of the level of intergroup contact in their classes. For ethnic majority children, however, higher levels of intergroup contact significantly increased outgroup evaluation and friendship preference for outgroup targets.

These results call attention to the fact that it is necessary to understand not only under what conditions or when contact reduces prejudice (moderator variables), but also why and how intergroup contact influence intergroup attitudes, that is, the psychological processes responsible for the effectiveness of intergroup contact (e.g., Kenworthy, Turner, Hewstone, & Voci, 2005). In fact, Allport did not define the psychological mechanisms responsible for contact's effects on intergroup prejudice, or how these effects could be generalized to the outgroup as a whole, to other situations and to other outgroups. As put by Tropp and Pettigrew (2005) "these omissions explain why he [Allport] called it a 'hypothesis' and not a 'theory' " (p. 271).

The later development of Social Identity Theory (Tajfel & Turner, 1979) and Self-Categorization Theory (Turner et al., 1987) have provided important contributions to, in particular, the understanding of the psychological mechanisms triggered by intergroup contact and also, more generally, to the understanding of intergroup relations, and the emergence and reduction of prejudice (Brewer & Gaertner, 2001).



### *The social identity perspective and the importance of social categorization*

The social identity perspective, with Social Identity (Tajfel & Turner, 1979) and Self-Categorization Theories (Turner, 1987; Turner et al., 1987), has established the foundations for the categorization analysis of intergroup relations (Oakes, 2001). The main ideas of these theories regarding the role of social categorization and social identity have been largely influential in the field of intergroup relations (Turner & Reynolds, 2004). Importantly, both theories assume that intergroup relations result from an interaction between psychology and society (Turner & Reynolds, 2004; 2001).

Social identity theory is a comprehensive theory on intergroup relations and has addressed the questions “why do people in groups discriminate against each other?” and “why are they ethnocentric?” (Turner & Reynolds, 2001, p. 134). The response provided by social identity theory has moved beyond the functional relationship between the groups (Sherif et al., 1961) to a cognitive-motivational account, that of the need to positively distinguish the group one belongs to (ingroup) relative to other group that one does not belong to (outgroup) (Tajfel & Turner, 1979). This proposition was developed as a consequence of the results from the so-called minimal group experiments (Tajfel, Billig, Bundy, & Flament, 1971). In these experiments, Tajfel and colleagues showed that even in a “minimal” intergroup setting, where only an arbitrary criterion for group distinction is present, the mere categorization of individuals into ingroups and outgroups can provide a basis for intergroup differentiation.

Three processes are central to the Social Identity Theory: social categorization, social identification and social comparison (Tajfel & Turner, 1979). Social categorization refers to the process in which individuals place stimuli in categories (social categories, groups), thereby structuring and providing meaning to the individuals’ social environment. In this process individuals tend to minimize perceived differences within the categories and, at the same time, accentuate differences between the categories. Social identification refers to the extent that people define themselves and act as a group member or as an individual (the “interpersonal-intergroup continuum”). Social comparison reflects the process by which people compare the value of a group relative to another. Social identity is the outcome of these processes and is defined as “that part of individual’s self-concept

which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance to that membership” (Tajfel, 1978a, p. 63). It is the fact that the self is involved in the process of social categorization (that individuals belong to one group but not another) that social categories become relevant. The theory contends that individuals are motivated to establish a positive social identity by favourably distinguishing the ingroup from relevant outgroups. According to Turner and Reynolds (2004; 2001) this was the basic psychological idea of social identity theory, that social comparisons between groups are driven by the need to establish positive ingroup distinctiveness vis-à-vis relevant outgroups. The way groups and their members maintain or promote their social identity is then dependent on several socio-structural variables: the permeability of group boundaries, the stability of the status relation between groups and the legitimacy of those relations (Tajfel & Turner, 1979). Depending on these conditions, individuals can engage in different identity management strategies, which can be individual or group-based (Tajfel, 1986; Ellemers, 1993).

Self-Categorization Theory (Turner, 1987; Turner et al., 1987), like social identity theory, also tries to explain and predict intergroup behaviour, but its main focus is on how people become a group and the psychological bases of group processes. According to Turner and Reynolds (2001), Self-Categorization Theory addressed the questions “what is a psychological group?” and “how are people able to act psychologically in a collective way as group members?” (p. 135). The theory proposes that self-perception can vary between a personal and a social identity and that group behaviour emerges when individuals define the self in terms of a social identity. Self-categorization theory replaced the notion that personal and social identity were a bipolar continuum (as specified in social identity theory) and conceptualized these identities as representing different levels (of inclusiveness) of self-categorization (Turner & Onorato, 1999). The social categories that people use to represent themselves at different levels of inclusiveness have a hierarchical relation to each other, in the sense that more abstract self-categories (e.g., Europeans) contain less abstract self-categories (e.g., Portuguese).

The most important levels for understanding group behaviour are personal identity (the individual is defined as a unique person) and social identity (ingroup vs. outgroup), when “[the] self is defined and experienced as identical, equivalent to, similar to, or interchangeable with, a social class of people in contrast to another class.

Psychologically, the social collectivity becomes self; individual self-perception tends to become depersonalized” (Turner & Onorato, 1999, p. 22). Which social category, or group membership becomes salient at any given time is determined by which categories are more accessible – either because they are used frequently or because they are relevant in that context –, which categories better account for similarities and differences between people in that particular context and which categories make the most sense of people’s behaviour in that particular situation (Abrams & Hogg, 2010; Turner & Onorato, 1999).

The social identity perspective has critically influenced the relevance of social categorization in the study of intergroup relations. Knowledge of the role of social categorization as a fundamental process in organizing and ascribing meaning to our perceptions of the social environment, along with the understanding that self-categorizations in ingroup *vs.* outgroup are accompanied by a motivation to positively differentiate the ingroup from the outgroup, have put the process of social categorization at the centre of the study of intergroup relations. For Wilder (1986) social categorization, and its consequences, is the psychological basis fostering intergroup bias: “categorization, per se, propels the individual down the road to bias” (p. 292). Indeed, social categorization has been shown to have profound influence in social perceptions, affect, cognitions and behaviours. For example, people experience more positive affect towards ingroup members than outgroup members (Otten & Moskowitz, 2000), they perceive ingroup members as more heterogeneous than outgroup members (Jones, Wood, & Quattrone, 1981), have better memory for information in which ingroup members are similar and outgroup members are dissimilar to the self (Wilder, 1981) and remember less positive information about outgroup members (Howard & Rothbart, 1980). People also favour ingroup members in reward allocations (Tajfel et al., 1971) and are more helpful towards ingroup than outgroup members (Dovidio, Gaertner, Validzic, Matoka, Johnson, & Frazier, 1997).

The extensive research on the “negative” consequences of social categorization has led many researchers to conceptualize social categorization as the critical causal factor for intergroup prejudice and discrimination (but for a different perspective see Park & Judd, 2005). However, categorization of individuals into groups is not fixed, it is a malleable process. Depending, for example, on the characteristics of the context and individuals’ motivation, different social categories at different levels of inclusiveness can be activated and guide individuals actions.

Therefore, several authors have relied on the process of social categorization not only to explain intergroup bias, but also as a means to reduce intergroup prejudice: “We cannot hold categorization, *per se*, responsible for intergroup discrimination. Indeed, we know that *exactly the same process of categorical self-definition* can, under appropriate conditions, *reduce hostility*” (Oakes, 2001, p. 15-16, italics in the original).

Contributions of the contact hypothesis and the social identity perspective have been combined in several integrative models intended to reduce intergroup prejudice (e.g., Brewer & Miller, 1984; Gaertner et al., 1989; Hewstone & Brown, 1986). These models focus on how intergroup contact should be structured in order to alter the cognitive representations of the groups. The basic idea of these models is that by changing the structure of the cognitive representations of the groups, intergroup prejudice can be reduced.

### **Combining contact and categorization: Integrative models for prejudice reduction**

Three models have received much attention in the literature: the Decategorization Model (Brewer & Miller, 1984), the Mutual Differentiation Model (Hewstone & Brown, 1986) and the Common Ingroup Identity Model (Gaertner et al., 1989; Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993). Although these models are based in the same theoretical framework, they propose different ways as to when and how contact reduces prejudice.

The Decategorization Model (Brewer & Miller, 1984) proposes that contact should be structured so as to reduce the salience and perceptual reliance on social categories, thereby promoting interpersonal interactions (instead of intergroup interactions, categorical-based). This interpersonal focus should allow greater differentiation among outgroup members and more personalized interactions, it should “promote opportunities to get to know outgroup members as individual persons” (Brewer & Gaertner, 2001, p. 458) and not as members of a social group. Personalized contact should then replace the usefulness of social categories as the main basis for interpreting and organizing people’s perceptions, and should provide

opportunities to disconfirm negative group stereotypes (Brewer & Miller, 1988). This model has received empirical support (e.g., Bettencourt, Brewer, Croack, & Miller, 1992), but some problems concerning the stability of its effects have been pointed out. For example, it may be difficult to maintain personalized representations across time and across different social situations, generalization of positive contact effects can be hindered because, since social categories are not salient, there is no psychological connection between the outgroup members in the contact situation and other outgroup members (e.g., Brewer & Gaertner, 2001; Brown & Hewstone, 2005).

The Mutual Intergroup Differentiation Model (Hewstone & Brown, 1986), contrary to the Decategorization Model, proposes that the original ingroup-outgroup categorization should not be degraded. The authors suggest that groups should be encouraged to work together in distinct but complementary roles in order to achieve a common, superordinate goal. Groups would therefore value mutual superiorities and inferiorities within the context of a cooperative task. This way, groups are allowed to maintain their social identities and positive distinctiveness (Hewstone & Brown, 1986), while intergroup affect changes from negative to positive interdependence and evaluation (Brewer & Gaertner, 2001). This model has also been supported by empirical research (e.g., Brown & Wade, 1987; Brown & Hewstone, 2005). Some shortcomings, however, have also been pointed out: although the maintenance of the ingroup-outgroup distinction is a solution that is stable in terms of the structural aspect of the intergroup situation, with time the reinforcement of these group differences may lead to resurgence of negative beliefs or anxiety between the groups (Brewer & Gaertner, 2001).

In this thesis we will focus on the Common Ingroup Identity Model (Gaertner et al., 1989; 1993; Gaertner & Dovidio, 2000). This model proposes that intergroup relations can be improved by altering the perceptions of group boundaries and inducing group members to conceive their relationship at a higher order of category inclusion.

### *The Common Ingroup Identity Model*

The common ingroup identity model proposes that prejudice reduction can be achieved by changing group members' cognitive representation of the intergroup

encounter. Instead of conceiving the intergroup situation as ingroup-outgroup (“*we*” vs. “*them*”, categorization), a superordinate category can be made salient, i.e., a more inclusive category at a higher level of inclusiveness, encompassing both groups (Gaertner et al., 1989). This process implies that former outgroup members are now conceived as ingroup members, thereby changing the structure of the groups’ relation from intergroup to intragroup (“*we*” vs. “*them*” becomes “*us*”). Two different processes, or cognitive representations, have been developed in the framework of this model: recategorization and dual identity, which we will describe below.

The authors have further proposed that contact effects on intergroup relations can be explained, at least partly, by the cognitive representation of the aggregate (the groups involved in the contact situation). This account has been integrated in a more general integrative framework specifying the causes and consequences of recategorization and dual identity (Gaertner & Dovidio, 2000). Different types of intergroup interdependence and cognitive, perceptual, linguistic, affective, and environmental factors can, either independently or concurrently, modify individual’s cognitive representation of the aggregate. In turn, the cognitive representations (e.g., categorization, recategorization, dual identity) are proposed to result in different cognitive, affective and behavioural consequences (Gaertner & Dovidio, 2000). The features specified in the contact hypothesis (equal status, authority support, cooperation, and opportunity for personalized contact) are therefore presumed to influence individual’s cognitive representation of the aggregate which, in turn, should mediate contact’s effects on the cognitive, affective and behavioural consequences (Gaertner, Dovidio, & Bachman, 1996; Gaertner, Rust, Dovidio, Bachman, & Anastasio, 1996).

In addition, the authors proposed that achieving a common ingroup identity could also be accomplished by increasing the salience of an already existing superordinate membership (e.g., a school, a company) or by introducing factors that are perceived to be shared by the memberships (e.g., common goals, fate; Gaertner & Dovidio, 2000).

### *Recategorization*

In recategorization, ingroup and outgroup affiliations are blurred and replaced by a single inclusive superordinate category, encompassing both the former ingroup and outgroup members. The authors have argued that this ‘one group’ cognitive representation reduces intergroup bias by redirecting the cognitive and motivational processes responsible for ingroup bias towards the new more inclusive superordinate category. As a consequence, recategorization reduces bias by increasing the attractiveness of former outgroup members who, as they are redefined as ingroup members, now benefit from the social identity processes initially accounting for ingroup favouritism, as their evaluation becomes as positive as that only granted to (former) ingroup members (Gaertner & Dovidio, 2000). The authors further propose that this process may occur, at least initially, in a heuristic and stereotyped fashion. With time and with further interactions shaped by a common identity, more elaborate and personalized impressions of outgroup members can then be developed, thereby initiating a second route to intergroup bias reduction (Gaertner & Dovidio, 2000).

The benefits of recategorization to improve intergroup relations have been largely supported by empirical research both from laboratory and field studies. For example, several laboratory studies have shown that interventions promoting a change in groups’ cognitive representation of the aggregate – from simple categorization (separate groups) to recategorization (one single common group) – are able to reduce intergroup bias, through features as cooperation (Gaertner, Mann, Dovidio, Murrell, & Pomare, 1990), perceptual similarity (Gaertner et al., 1989) and positive affect (Dovidio, Gaertner, & Loux, 2000). Field studies in varied settings as high schools, bank mergers and blended families have also shown that a one group cognitive representation improves intergroup attitudes (Banker & Gaertner, 1998; Gaertner, Bachman, Dovidio, & Banker, 2001; Gaertner et al., 1996). The benefits of making salient a common superordinate category are also extended to children. In an elementary-school intervention, a one-group cognitive representation originated more inclusiveness in children’s choice of preferred playmate, such that children who were part of the intervention group showed greater willingness to select children from a different race and sex than their own as preferred playmate, than children in a control group (Houlette, Gaertner, Johnson, Banker, Riek, & Dovidio, 2004). Recategorization has also been shown to improve intergroup attitudes among White-

Portuguese and Black-Portuguese children (Monteiro, Guerra, & Rebelo, 2009) and towards refugee children (Cameron, Rutland, Brown, & Douch, 2006).

In spite of the strong empirical support for recategorization effects, some limitations have also been identified in the literature (Hewstone, 1996; Brewer & Gaertner, 2001). First, a new common identity may be unstable and difficult to maintain across time, and not be potent enough to “overcome powerful ethnic and racial categorizations on more than a temporary basis” (Hewstone, 1996, p. 351). Asymmetries in groups’ size, power or status may also induce resistance to a superordinate category, namely by minority group members who may not be willing to accept a superordinate category dominated by the majority group (Brewer & Gaertner, 2001). A common ingroup identity may even be unfeasible in some contexts, particularly those where groups have a long history of overt conflict and hostility. In addition, a single superordinate category may not provide enough levels of group distinctiveness. Brewer’s (1991) optimal distinctiveness theory posits that social identity is driven by the need for inclusion and the need for differentiation, thus individuals seek inclusion in social groups that satisfy both needs (belonging to a distinctive social group). A highly inclusive superordinate category, where no clear boundaries between ingroup and outgroup are defined, may not satisfy these needs, and therefore subgroup identities may re-emerge over time (Brewer & Gaertner, 2001). Another limitation refers to individual’s motivation to maintain a positive distinctiveness of their ingroup, relative to the outgroup (Tajfel & Turner, 1979). When intergroup boundaries are blurred, such as in recategorization, individuals may feel that their group identity is threatened and try to reestablish a positive differentiation of their ingroup by maintaining or increasing bias towards the outgroup (e.g., Brown & Wade, 1987; Deschamps & Brown, 1983). A study by Hornsey and Hogg (2000a), with a group of humanities and math-science students revealed greater bias when a common identity was made salient (university affiliation) than when separate group identities were maintained. These effects are also more likely to occur when individuals are highly identified with the original ingroup (Crisp, Stone, & Hall, 2006). A final limitation deals with the generalization of recategorization effects. Since group boundaries are eroded in recategorization, there is an absence of a psychological link between the outgroup members in the contact situation and other outgroup members, which could preclude the generalization of positive intergroup attitudes to other outgroup members (Hewstone, 1996; Vivian, Hewstone, & Brown,



1997). However, research with both adults (González & Brown, 2003; 2006) and children (Guerra, Rebelo, Monteiro, Riek, Mania, Gaertner, & Dovidio, 2010) has shown that recategorization positive effects may, in fact, be extended to outgroup members not directly present in the contact situation.

These limitations to recategorization effectiveness have led the authors to propose an alternative form of recategorization: dual identity.

### *Dual identity*

In an attempt to address different groups' aims and contexts, dual identity combines contributions from the Mutual Intergroup Differentiation Model (Hewstone & Brown, 1986), by maintaining the salience of subgroup identities, and from recategorization, by keeping the salience of a common superordinate category at a higher order of inclusiveness. In dual identity – a cognitive representation of ‘two groups in the same team’ – both the ingroup and the outgroup keep their subgroup identities salient, but in the context of a binding superordinate category (Gaertner et al., 1993; Gaertner & Dovidio, 2000). Gaertner and colleagues (1993) suggest that dual identity reduces bias by a similar process of recategorization, that is, by increasing the attractiveness of the outgroup (while ingroup attractiveness remains unchanged). Even though outgroup evaluation may not be so favourable as in recategorization, due to subgroups' distinctiveness, it may still reduce intergroup bias by bringing the outgroup evaluation closer to that of the ingroup.

Dual identity has the advantage, over recategorization, of lessening potential identity threats that stem from the erosion of subgroup distinctiveness. The authors further propose that this may be particularly important in contexts where subgroup identities and their associated cultural values are central to groups' functioning or in which identities are associated to highly visible cues (e.g., ethnic origin; Gaertner & Dovidio, 2000): “...it would be undesirable or impossible for people to relinquish these group identities or, as perceivers, to be ‘color-blind’. Recognition of original group identities within an overriding superordinate category can ameliorate identity threat that can otherwise exacerbate intergroup bias” (Dovidio, Gaertner, & Saguy, 2009, p. 7). In addition, another potential advantage of dual identity concerns the generalization of positive effects. Because in dual identity the subgroups' distinctiveness is maintained, so is the psychological link between the outgroup

members in the contact situation and other outgroup members not present in the intergroup encounter. This psychological association should therefore facilitate the generalization of dual identity's positive effects to the outgroup as a whole.

Empirical tests to the effectiveness of dual identity have been conducted both experimentally (e.g., Nier, Gaertner, Dovidio, Banker, Ward, & Rust, 2001), and in survey studies (e.g., Gaertner et al., 1996; Gaertner, Dovidio, & Bachman, 1996; Banker & Gaertner, 1998). Although research has shown that the salience of a dual identity can be beneficial for intergroup relations, contrary to the more consistent association of recategorization and positive intergroup attitudes, in dual identity there is mixed evidence regarding its effects.

For example, González and Brown (2003) in a laboratory experiment formed two artificial groups (analytics and synthetics) that interacted in conditions emphasizing either their separate identities (categorization), their common identity as members of the same university (recategorization) or their subgroup and superordinate category affiliations (dual identity). Even though no significant differences in bias reduction emerged for outgroup members encountered in the contact situation, the authors found that when participants evaluated other outgroup members not present in the contact situation bias was lowest in dual identity (although not significantly lower than in the common identity condition). In a study conducted by Nier and colleagues (2001) with White and Black college students, dual identity and recategorization were both able to reduce intergroup bias (specially among White participants). Like adults, children from 7-8 years old are able to use multiple dimensions for classifying stimuli, such as subordinate and superordinate categories (Aboud, 2003; Bigler, 1995; Bigler & Liben, 1992). In line with this ability, research has shown that dual identity is also effective to improve intergroup attitudes among children. Cameron and colleagues (2006) found that dual identity was the most effective cognitive representation to improve British children's attitudes towards refugee children, compared to recategorization and decategorization. Monteiro and colleagues (2009, study 2) have also shown that dual identity is able to reduce prejudice among White and Black-Portuguese children, namely when groups perform different and complementary tasks.

Evidence from correlational studies has also offered support for dual identity although, at the same time, it has shown that it may not always lead to more positive intergroup relations. In a study conducted in a multi-ethnic high school (Gaertner et

al., 1996), students who perceived the school's population as "two groups playing in the same team" or as "one group" were more likely to display positive affect towards other ethnic groups. In addition, ethnic minority students who described themselves in terms of a dual identity, belonging simultaneously to their ethnic group and to the American superordinate category (e.g., Korean American), displayed more positive attitudes towards other ethnic groups than students who defined themselves exclusively at the subgroup level. In contrast to these results, in studies conducted with banking executives involved in a merger and with members of blended families, the perception of dual identity was associated with higher levels of intergroup bias (Gaertner, Dovidio, & Bachman, 1996; Banker & Gaertner, 1998).

The empirical tests to recategorization and dual identity's effects on intergroup relations have highlighted the importance of understanding how these cognitive representations operate for different groups and in different intergroup contexts (Dovidio et al., 2007). Several accounts and variables influencing the relative (in)succes of recategorization and dual identity have been proposed in the literature (Crisp et al., 2006; Crisp & Beck, 2005; Mummendey & Wenzel, 1999; Dovidio et al., 2007). Of particular relevance to this thesis is the influence of group status on recategorization and dual identity's effects and, particularly, the relationship between the superordinate category dimension and the subgroup dimension of categorization. We will describe these effects in turn.

### **Group status and the Common Ingroup Identity Model**

A large part of the empirical studies on the effectiveness of recategorization and dual identity have involved equal-status groups. However, this "optimal condition" of intergroup contact (Allport, 1954) is seldom feasible with natural groups. It is therefore critical to understand how contact between asymmetrical status-groups<sup>2</sup> can

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<sup>2</sup> The concepts of majority and minority group often indicate differences in group size, power and status. Although conceptually different (Sachdev & Bourhis, 1987; 1991), in social reality these concepts are often correlated, although not always (e.g., apartheid in South-Africa; Simon, Aufderheide, & Kampmeier, 2001). Higher-status groups are generally more powerful and represent a numerical majority while lower-status groups are frequently socially disadvantaged, dominated groups and numerically inferior. Nevertheless, the focus of the distinction is the social position held by groups (Tajfel, 1978b). In this thesis we focus on natural groups with asymmetrical ethnic status, White-Portuguese children (higher-status group, who also represent a numerical majority), and Black-Portuguese children (lower-status group who also represent a numerical minority). This relative position of the groups in the social hierarchy has also been acknowledged by White and Black-

be structured to improve intergroup relations (Brewer & Gaertner, 2001, Tropp & Pettigrew, 2005).

The authors of the Common Ingroup Identity Model have proposed that recategorization and dual identity's effects can be moderated by group status. Dovidio, Gaertner and Kafati (2000b) have proposed a parallel between Berry's (1984) acculturation strategies and the cognitive representations in the common ingroup identity model. Berry's (1984) model specifies different acculturation strategies that immigrants pursue when integrating into a host society and Dovidio and colleagues (2000b; see also Dovidio, Gaertner, John, Halabi, Saguy, Pearson, & Riek, 2008) have extended it to apply to majority and minority groups' relations. Specifically, the authors have proposed a parallel between the acculturation strategies of assimilation and integration and the cognitive representation of recategorization and dual identity. In assimilation, minority group members are required to abandon their ethnic and cultural values and to fully adopt the majority's values, resulting in the blurring of the subgroup identity and a high salience of the superordinate category, mirroring recategorization. In the case of integration, minorities wish to preserve their cultural values while also embracing the majority host culture, resulting in the simultaneous salience of subgroup and superordinate categories, mirroring dual identity. Drawing on acculturation research, which indicates that majorities (host country population) usually endorse assimilation ideologies whereas minorities typically endorse an integration ideology (e.g., van Oudenhoven, Prins, & Buunk, 1998; Verkuyten, 2006), Dovidio and colleagues (2000b) proposed that majorities would more likely reduce prejudice when a one group identity (recategorization) is salient, while dual identity would be more effective for minorities.

Dovidio, Gaertner and Saguy (2009) further extended this proposal arguing that groups adopt the cognitive representation (recategorization, dual identity) that most effectively promotes each group's goals. In this functional perspective, the authors contend that majority/higher-status groups are motivated to preserve their advantageous higher status while minority/lower-status groups are motivated to enhance their status. In line with this reasoning, the majority group is likely to endorse a one-group cognitive representation (recategorization) because differences and

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Portuguese children, in previous studies (Alexandre, Monteiro, & Waldzus, 2007; Rebelo, 2006; Guerra, 2007; Feddes, Monteiro, & Justo (2011) and also among the sample in this thesis (see study 2).

disparities between the subgroups are obscured and replaced by a focus on commonalities, which can reduce the likelihood that the minority/lower-status group would engage in collective action challenging the status quo, *i.e.*, challenging the majority's higher position in the social hierarchy. Relatedly, in a one-group cognitive representation the qualities and characteristics of the superordinate group are more likely to be dominated by the majority's values and characteristics (Devos & Banaji, 2005; Waldzus, Mummendey, Wenzel, & Boettcher, 2004). On the other hand, minority group members are more likely to endorse a dual identity representation because it asserts subgroups' distinctiveness (subgroup identity is likely to be a central social category for minority group members), and emphasizes group disparities, while at the same time providing a context of cooperation and connection with the majority group, via the salience of a shared superordinate category. In a dual identity cognitive representation, group-based inequalities are more likely to be addressed by both majority and minority groups, which can motivate groups towards action for equality (Dovidio, ten Verget, Stewart, Gaertner, Johnson, Esses et al., 2004; Tyler & Blader, 2003).

Empirical research supports the hypothesis that majority group members typically endorse a one-group cognitive representation and minority group members endorse dual identity. For example, Dovidio, Gaertner, Niemann and Snider (2001) found that for European Americans (majority, higher-status group) intergroup contact reduced intergroup bias by increasing the perception of a one-group representation. For ethnic minority groups, however, dual identity was the cognitive representation mediating intergroup contact effects on reduced bias. Dovidio and colleagues (2000b) also found that White American college students (majority higher-status group) held more positive intergroup attitudes and showed greater commitment to the university the more they perceived relations at the university as consisting of 'one-group'. On the other hand, ethnic minority students revealed more positive intergroup attitudes and higher levels of institutional commitment the more they perceived intergroup relations at the university as reflecting a dual identity cognitive representation.

In contrast, other studies on the effectiveness of a one-group cognitive representation and dual identity as a function of group status have shown a different pattern of results. González and Brown (2006, study 2) found that recategorization and dual identity were equally effective to reduce intergroup bias among a laboratory numerical majority and a numerical minority group in the contact situation. However,

when participants evaluated ingroup and outgroup members not present in the contact situation, dual identity worked best for the numerical minority group, whereas for the numerical majority group neither recategorization nor dual identity were able to reduce intergroup bias. In a study conducted by Hornsey & Hogg (2002) with math-science and humanities students, the lower the status participants perceived their group to be, the more they were willing to be categorized at the superordinate level (university). In the condition of one-group representation, the higher the status participants perceived their group to be the more they identified with their subgroup and the higher levels of bias they displayed. This relationship did not emerge in dual identity condition.

Research conducted with children also indicates that group status is an important variable moderating the effectiveness of recategorization and dual identity on prejudice reduction (Gaertner et al., 2008; Guerra et al., 2010; Monteiro et al., 2009; Rebelo, 2006). In a set of studies conducted with White-Portuguese (higher-status group) and Black-Portuguese children (lower-status group), the experimenters brought two 3-children groups to interact under conditions varying the groups' position during the interaction (segregated, integrated seating pattern), the nature of interdependence among groups and the cognitive representation of the aggregate (categorization, recategorization, dual identity) (Guerra et al., 2010, Monteiro et al., 2009; Rebelo, 2006). The results showed that when groups interacted using artificial categories (e.g., the green group, the blue group), both recategorization and dual identity (with complementary tasks) were able to reduce intergroup bias. However, when children interacted using categories that directly emphasized their ethnic status (Portuguese origin and African origin for the subgroup level and Portuguese as the superordinate category) a different pattern of results emerged. For the higher-status group (White-Portuguese children) dual identity was more effective to reduce intergroup bias (Rebelo, 2006; Guerra et al., 2010), whereas for the lower-status group (Black-Portuguese children) intergroup bias was reduced in both recategorization and dual identity conditions (Rebelo, 2006, study 3) or only in recategorization (Guerra et al., 2010). In addition, recategorization and dual identity were also effective to generalize positive outgroup attitudes to other outgroup members not present in the contact situation across different contexts (school and neighbourhood; Monteiro et al., 2009, study 3) and across time (Guerra et al., 2010). In this last study, and for White-Portuguese and Black-Portuguese children,

recategorization and dual identity were both able to produce positive outgroup attitudes, relative to the categorization control condition, for the outgroup as a whole during the experimental session and three weeks later. Generalization of positive outgroup attitudes occurred not only in dual identity, as predicted by the Common Ingroup Identity Model, but also in recategorization. The authors proposed that generalization could have occurred also in recategorization because some degree of recognition of the original group boundaries (ethnic group membership) still remained in the contact situation.

Regarding the influence of group status on recategorization and dual identity's effects, namely the fact that the higher-status group (White-Portuguese children) reduced intergroup prejudice primarily in dual identity, whereas recategorization seemed to be a more effective cognitive representation for the lower-status group (Black-Portuguese children), the authors have argued for the importance of the functional perspective (Dovidio et al., 2009). Guerra and colleagues (2010) suggested that the specific historical and cultural context in Portugal might account for these results. Specifically, in Portugal the integration of African origin individuals is relatively recent (less than 40 years) and it is at a different phase of societal change and development than that verified at the United States, where the Common Ingroup Identity Model has been developed and (predominantly) empirically tested.

Other possible explanations have been proposed for the apparent divergence of results found in the common ingroup identity framework, where it is proposed that the majority group should reduce prejudice primarily in recategorization and the minority group in dual identity, and other studies reviewed above where a different pattern of results was found. These accounts lie on motivational factors and responses to perceived threat (Gaertner et al., 2010; González & Brown, 2006; Hornsey & Hogg, 2002) and also on the relationship between the dimensions of categorization (e.g., the degree of association between the superordinate category and the subgroup categorization; Crisp, 2010; Gaertner et al., 2010).

Regarding the first aspect, Hornsey and Hogg (2002) do not deny that, in some intergroup contexts, recategorization may be primarily effective to improve intergroup attitudes among the majority group and dual identity among the minority group. However, these authors have suggested that for the higher-status group merging in a single group (the superordinate category) with a lower-status group may threaten the group's positive distinctiveness and therefore trigger higher levels of bias (González

& Brown, 2006; Hornsey & Hogg, 2002). A related idea at the individual level was put forward by Hogg, Abrams, Otten and Hinkle (2004), regarding individual mobility strategies pursued by low-status group members: “It is not in the dominant group’s interest to permit wholesale passing. Successful wholesale passing would ‘contaminate’ the dominant group and would dissolve the subordinate group, effectively abolishing the comparison group that makes the dominant group appear relatively superior” (p. 258). However, for the lower-status group, sharing a superordinate identity with a higher-status subgroup (whether in recategorization or dual identity) may provide the former a more positive social identity and, consequently, more positive intergroup attitudes may arise (González & Brown, 2006; Hornsey & Hogg, 2002).

The second account, the relationship between the superordinate category and the subgroup dimension of categorization, is the focal aspect of this thesis. We propose that it can shed further light on why, in different intergroup contexts, the salience of a superordinate category can have beneficial or detrimental effects on intergroup relations. Below, we present the theoretical rationale pertaining to the importance of this construct.

### **The critical relationship between the superordinate and the subgroup dimensions of categorization**

In this section we will focus on the relationship between the superordinate category and the subgroup dimension of categorization. When different groups are categorized along multiple dimensions of categorization, such as the subgroup and the superordinate level, the relevance of the different social categories to the perceiver may not be equivalent. Indeed, some researchers have drawn attention to the fact that when group members are categorized along multiple dimensions, the relationship between those dimensions is a critical aspect to predict intergroup attitudes (Crisp & Hewstone, 2007; Crisp, 2010; Gaertner et al., 2010; Urban & Miller, 1998). Multiple categorization, i.e., when individuals are categorized along multiple dimensions of categorization (e.g., gender and age), can occur at different levels of inclusiveness, as is the case in the common ingroup identity model, where subgroups are included in a



superordinate category (at a higher level of inclusiveness)<sup>3</sup>, or at the same level of inclusiveness (Crisp & Hewstone, 2007). This last case is usually referred to as crossed-categorization (Crisp & Hewstone, 2007). Most of the research on the relevance of different social categories and its impact on intergroup evaluation has been conducted in the crossed-categorization framework. More recently, the relevance and relationship between the superordinate category and the subgroup dimension of categorization have also been addressed in the literature. We will first describe research on relevance in the framework of crossed-categorization and then present how relevance has been conceptualized when the intergroup structure comprises a superordinate category and different subgroups.

#### *Relevance: conceptualization in crossed-categorization research*

In the crossed-categorization paradigm two dimensions of categorization, at the same level of inclusiveness, are made simultaneously salient for participants making group-relevant evaluations (Crisp & Hewstone, 2007; Crisp, Ensari, Hewstone, & Miller, 2002; Urban & Miller, 1998). This approach “attempts to answer the question of whether bias towards outgroup individuals can be mitigated by the simultaneous presence of one or more ingroup cues” (Miller, Kenworthy, Canales, Douglas, & Strenstrom, 2006, p. 160-161). In the crossed-categorization paradigm an individual is perceived as an ingroup member on one dimension of social categorization and as an outgroup member on the other dimension, or as an ingroup or outgroup member on both dimensions of categorization. For example, if we cross the dimensions of age and gender we obtain four new categories: young-male, young-female, old-male, old-female. From the point of view of a young-male, other young-males are double ingroup members, old-females are double outgroup members, and young-females or old-males are ingroup members in one dimension of social categorization and outgroup members in the other dimension.

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<sup>3</sup> The dual identity formulation reflects an instance of multiple categorization, since two dimensions of categorization are simultaneously salient. Recategorization, on the other hand, reflects an instance where subgroup boundaries are blurred in favour of an encompassing superordinate category. However, recategorization can also be considered as a form of multiple categorization because both the subgroup and the superordinate category may remain salient to some degree (Crisp & Hewstone, 2007; Dovidio, Gaertner, Hodson, Riek, Johnson, & Houlette, 2006), namely when the ingroup-outgroup distinction is based on highly visible cues (e.g., ethnicity).

Considering that categorizing individuals into ingroup *vs.* outgroup leads to category differentiation (differences within groups are weakened and differences between groups are accentuated; Doise, 1978) and that ingroups are typically more positively evaluated than outgroups (e.g., Mullen et al., 1992), Deschamps and Doise (1978) have proposed that when one dimension of categorization is crossed with another dimension this should lead category differentiation processes to work against each other. Differentiation on one dimension will be counteracted by assimilation on a second dimension (Deschamps & Doise, 1978). This process should result in lessening the salience and importance of the categorical boundaries. Consequently, intergroup bias should be reduced, namely for the target-groups that are ingroup members on one dimension and outgroup members in another dimension. Experimental studies testing this hypothesis have shown that in some cases crossed-categorization, compared to a simple categorization condition (ingroup *vs.* outgroup), reduced intergroup bias (e.g., Deschamps & Doise, 1978; Vanbeselaere, 1987; 1991), whereas in others it did not (e.g., Brown & Turner, 1979; Vescio, Judd, & Kwan, 2004). These results have led researchers to examine how individuals evaluate the composite groups formed from crossing two dimensions of categorization (Hewstone, Islam, & Judd, 1993) and to identify moderators of the crossed-categorization effect (Urban & Miller, 1998). In addition to the most common pattern, the additive pattern – where double ingroup members are evaluated more positively than mixed group members, with double outgroup members being the least positively evaluated (Crisp & Hewstone, 1999) –, research has identified other five evaluative patterns of crossed-groups (Hewstone et al., 1993).

For the purpose of this thesis, however, we will focus on one such pattern, namely the dominance pattern (Urban & Miller, 1998). In the dominance pattern, the targets' evaluation is primarily driven by one dimension of categorization, a dominant dimension, while the other dimension of categorization is ignored and, therefore, not used as a basis for group-evaluation. This category dominance pattern results in a convergence of group boundaries, reinforcing the differences between the ingroup and the outgroup (Crisp & Hewstone, 2007). That is, in a context where two dimensions of categorization are salient, instead of creating divergent group boundaries, resulting in lower category differentiation and inducing lower levels of bias (as is the typical case in crossed-categorization), a dominant dimension of categorization results in creating convergent group boundaries. In turn, converging group boundaries can

provide a stronger basis for evaluative differentiation, which can maintain high levels of intergroup bias (Crisp & Hewstone, 2007). In other words, and as put by Miller, Spanovic and Stenstrom (2010) “the presence of a dominant category essentially reverses the beneficial effects of the presence of an ingroup category on a non-dominant dimension” (p. 205).

A dominance pattern occurs because one dimension of categorization is, contextually, more important and more relevant to the perceiver than the other dimension, i.e., one dimension has more cognitive impact than the other in driving group-based evaluations (Miller et al., 2006). It is this differential importance and relevance between the two (or more) dimensions of categorization available that produces the category dominance pattern (Miller et al., 2006).

According to Ensari, Stenstrom, Pedersen and Miller (2009) relevance of social categories has been conceptualized in two different ways. The first one, “importance-type relevance” refers to the degree of importance the category dimension has to the perceiver (e.g., Devos, 1998; Spears & Manstead, 1989). Based in social identity theory (Tajfel & Turner, 1979), the more important a dimension of categorization is to the perceiver, the more relevant and significant it becomes to drive intergroup judgments. “Importance-type relevance” is the perceived importance or significance of the category dimension to the perceiver (Ensari et al., 2009). In the second perspective, relevance refers to the degree that one dimension correlates with or predicts other comparison dimensions (Simon & Brown, 1987; Wilder, 1984) and is termed “fit-type relevance” (Ensari et al., 2009). In this conceptualization of relevance, the stronger the empirical or logical association between the categorization dimensions is, the more convergent the intergroup boundaries will become. When different dimensions of categorization are highly related to each other (e.g., social status and ethnicity), the salience and significance of the categorical boundaries can be increased, reinforcing the ingroup-outgroup distinction and consequently maintaining intergroup bias (e.g., Eurich-Fulcer & Schofield, 1995).

In sum, relevance has been conceptualized in two different ways, either based on the importance of the category dimension to the participant (importance-type relevance) or based on the logical or empirical correlation between the dimensions (fit-type relevance). Even though these two operationalizations of relevance are conceptually distinct, they both produce the effect of creating a dominance pattern based on the degree of relevance of the social categories (Miller et al., 2006).

For the purpose of this thesis, however, we will focus on contributions of the fit-type relevance approach, that is, we will focus on the logical or empirical connection between the categorization dimensions. As an empirical illustration of the potential detrimental effects on intergroup bias of correlated (overlapping) social categorizations, in a study conducted by Eurich-Fulcer and Schofield (1995) students were ostensibly categorized along two dimensions: a) preference for Klee or Kandinsky and; b) as underestimators or overestimators. The authors then varied the degree of correlation between these two dimensions. In the no correlation condition, participants were told that 51% of individuals who belonged to the Klee group also belonged to the overestimator group and 49% belonged to the underestimator group. In the moderately correlated condition participants were told that 67% of individuals who preferred Klee belonged to the overestimator group and 33% belonged to the underestimator group. In the highly correlated condition, participants were told that 97% of individuals who preferred Klee belonged to the overestimator group and only 3% belonged to the underestimator group. Results revealed that bias in trait ratings and point allocation against both the partial (ingroup members on one dimension and outgroup members on the other) and the total outgroup (outgroup members in both dimensions) increased as the correlation between the crossed categorization dimensions also increased. In addition, in the high correlation condition, bias was equally high between the partial and the total outgroup members.

These results point to the importance of considering how the relationship between different dimensions of categorization can influence intergroup bias. In sum, research on the framework of crossed-categorization indicates that when two or more dimensions of categorization are simultaneously salient, the differential relevance of the dimensions to the perceiver can create a category dominance pattern. This pattern creates convergent group boundaries, reinforcing the meaningfulness of the ingroup-outgroup distinction. In turn, this may result in the maintenance of intergroup bias.

#### *Relevance: conceptualization in common ingroup contexts*

The issue of the relationship and relevance of the superordinate category and the subgroup categorization has only recently received attention. Definitions of relevance,

focusing specifically on the relationship between a superordinate category and the subgroup dimension of categorization, are still somewhat scarce.

In a study conducted by Meiser, Mummendey and Waldzus (2005), the authors have conceptualized relevance as a function of both the structure of the intergroup setting and the contents of the intergroup comparison. The structure of the intergroup setting reflects the extent to which the ingroup and the outgroup are included in the superordinate category. For example, the subgroups can be fully subsumed by the superordinate category (nested structure) or they can be only partially included in the superordinate category (cross-cutting structure). The content of the intergroup comparison refers to the correspondence between the dimensions that characterize the group distinction and the dimensions in which subgroups are evaluated. According to the authors, “a superordinate category forms a relevant frame for intergroup comparisons to the degree to which it includes the ingroup and outgroup as a whole and provides dimensions for group evaluation that match the content of the intergroup scenario” (p. 8). In this study, the authors compared the effects of making salient a high-relevant superordinate category (natural sciences) vs. a low-relevant superordinate category (university affiliation) in relation to the target group of students of chemistry (ingroup) and students of biology (outgroup). The results showed that significant ingroup favouritism remained in the high-relevant superordinate condition, compared to a control condition (categorization), but was eliminated in the condition of low-relevance.

Other definitions of relevance have also been proposed in the literature (Hall & Crisp, 2005; Gaertner et al., 2010). These are more closely connected to the fit-type relevance conceptualization defined above, that is, the logical or empirical relationship between the categorization dimensions. Hall and Crisp (2005), for example, have proposed a distinction between related and unrelated category dimensions. Related category dimensions are “those that are conceptually linked with the target categories” while unrelated category dimensions are “those that are not conceptually linked with the target categories” (p. 1438). In this study, Hall and Crisp (2005) asked university students to generate dimensions of social categorization that were either related or unrelated to the initial ingroup-outgroup subgroups (defined by university affiliation). Related alternative categories were those that made the superordinate category “students” more salient and relevant (creating convergent group boundaries; e.g., subject studied, hall of residence), whereas unrelated

categories were those that created alternative bases for categorizing the subgroups (creating divergent group boundaries; e.g., gender, place or birth). Results showed that participants who generated related dimensions displayed higher levels of intergroup bias than participants who generated dimensions that were independent, unrelated, to the superordinate category “students”.

Gaertner and colleagues (2010) have proposed that a critical aspect between the superordinate and the subgroup categories is the extent to which they are part of the same domain of group life. Domains of group life include, for example, family, school, nation, ethnicity, or company. The authors have identified two ways wherein the relatedness of the domain of group life represented by the subgroup and superordinate identities may vary. Firstly, the primary function of the subgroup and the superordinate identity may be the same. For example, a new stepfamily is composed of formerly separate families. In this case, the subgroup dimension (the two component families) is in the same domain as the superordinate category (the new stepfamily), that is, the family. On the other hand, groups may also vary in the relatedness of their subgroup identities and the activity or goals of the superordinate category. For example, students from different religious groups can work together as a superordinate group to design a chapel or a college dormitory. Designing a chapel is related to the subgroups’ religious identities, whereas designing a college dormitory is unrelated to those identities (Gaertner et al., 2010). These differences could help explain the divergent results of dual identity on intergroup attitudes. For example, in the study of stepfamilies (Banker & Gaertner, 1998), perceptions of dual identity were related to higher intergroup bias, whereas in a study in a multi-ethnic school (Gaertner et al., 1996), perceptions of dual identity were related to less intergroup bias. One possible explanation for these differences lies in the relatedness of the subgroup and the superordinate categories: in the stepfamily study, both the subgroup and the superordinate identities were in the same domain of group life (family), whereas in the multi-ethnic school, the subgroups (ethnic groups) and the superordinate category (school) were in different domains of group life (Gaertner et al., 2010).

A somewhat related notion is proposed by Crisp (2010), who contends that the degree of correlation between the superordinate and the subgroup dimensions of categorization is critical to understanding the effects on intergroup attitudes. When the subgroup and the superordinate dimensions are highly correlated (when there is a high overlap between them), intergroup bias is more likely to occur than when the

dimensions do not overlap, when they are unrelated and independent of each other (Eurich-Fulcer & Schofield, 1995).

To sum up, the conceptualization and study of the relationship between the superordinate and the subgroup identities is recent. A unified theoretically grounded perspective on this issue is yet to be developed, but the definitions we have presented all point to the importance of the empirical and/or logical connection between the subgroup and the superordinate identities in order to understand the influence of a salient superordinate identity on intergroup attitudes. The literature of crossed-categorization has provided important clues with respect to the importance of the relationship between dimensions of categorization when they are simultaneously salient in a particular context. If one dimension of categorization is more relevant to the perceiver than the other, the former will increase the convergence of group boundaries, reinforcing the ingroup-outgroup distinction, and becoming dominant in driving intergroup judgement. This situation may likely result in maintaining or increasing intergroup bias, compared to a situation in which perceivers attend to dimensions of categorization that are independent/unrelated to each other. The definitions of relevance advanced in the context of the relationship between superordinate and subgroup identities point, in general, to the significance of the logical and/or empirical connection between the dimensions of categorization, either defined by the correspondence of the evaluative dimensions of the superordinate category and the subgroups (Meiser et al., 2005), by similarity in terms of domain of group life or activity/goals of the superordinate group (Gaertner et al., 2010) or, more simply, by a conceptual connection (Hall & Crisp, 2005) or correlation (Crisp, 2010) between the superordinate and the subgroup identities. These different perspectives also seem to converge to the idea that when there is a high overlap between the superordinate and the subgroup dimensions of categorization, higher levels of intergroup bias are more likely to emerge, compared to when the subgroup and superordinate identities are relatively independent/unrelated to each other (e.g., Hall & Crisp, 2005).

Gaertner and colleagues (2010) and Crisp (2010) have also proposed that when there is a high overlap between the subgroup and the superordinate identities, it is possible that subgroups will try to project their group attributes and values onto the superordinate group. As a consequence, the subgroups can perceive their own ingroup as more prototypical and representative of the superordinate category than the

outgroup (Mummndey & Wenzel, 1999), which can have important consequences for intergroup relations (e.g., Waldzus & Mummendey, 2004). The importance of groups' prototypicality perceptions to understand the effects of a superordinate category on intergroup relations has been developed in the framework of the Ingroup Projection Model (Mummndey & Wenzel, 1999). In the next section, we first review the Ingroup Projection Model and, subsequently, we explain how groups' prototypicality perceptions may be an important variable to further understand the effects of the relationship between the categorization dimensions on intergroup evaluations.

### **The Ingroup Projection Model**

Drawing on Self-Categorization Theory (Turner et al., 1987), the Ingroup Projection Model (Mummendey & Wenzel, 1999, for a review of the model see Wenzel, Mummendey, & Waldzus, 2007) assumes that when different groups are included in a superordinate category, they compare each other in relation to the superordinate identity that subsumes both groups. The subgroups compare and evaluate each other in relation to the prototype of the superordinate category. The prototype is "an ideal-type member of a category that best represents its identity in a given context and frame of reference" (Wenzel et al., 2007, p. 335). The prototype of the superordinate category thus provides the norms and standards with which both subgroups are compared against. The extent to which each group is regarded as prototypical of the superordinate category defines how positive the evaluation of the groups is, *i.e.*, the more similar a group is to the superordinate category's prototype the more positively it will be evaluated. A central concept to this model, relative ingroup prototypicality, is then defined as "the degree to which the ingroup is perceived to be more (or less) prototypical for a given superordinate group than the outgroup" (Wenzel et al., 2007, p. 336).

The Ingroup Projection Model (Mummendey & Wenzel, 1999) proposes that when subgroups are included in a superordinate category, under specific conditions, one or both subgroups may project the distinctive attributes, characteristics and values of the ingroup onto the superordinate category. Consequently, the ingroup is perceived as more similar to the prototype of the superordinate category than the



outgroup (ingroup projection). Because it is similarity to the superordinate category's prototype that defines subgroups' positive evaluation, when the ingroup is perceived to be more prototypical of the broader superordinate category than the outgroup, the outgroup is, consequently, perceived as less prototypical. A less prototypical outgroup is thus perceived as non-normative; it is considered inferior and less deserving and can be the target of negative evaluations (e.g., Waldzus & Mummendey, 2004; Wenzel, Mummendey, Weber, & Waldzus, 2003). Indeed, a recent meta-analysis showed that there is a consistent negative relationship between relative ingroup prototypicality and outgroup attitudes, such that the more the ingroup is perceived to be prototypical of the superordinate category relative to the outgroup, the more negatively the outgroup is evaluated (Wenzel et al., 2007).

However, ingroup projection, and the resulting effect of negative outgroup evaluation, does not emerge in every intergroup situation where subgroups are included in a superordinate category (e.g., Gaertner et al., 1993). Ingroup projection is likely to emerge when, for example, both the subgroup and the superordinate identity are important to the perceiver and when the superordinate category is positively evaluated (Wenzel et al., 2003). In addition, the prototype of the superordinate category is not fixed or immutable, and neither is the degree of similarity of the ingroup and outgroup in relation to that prototype. Rather, the prototype of the superordinate category is flexible and dependent on, for example, the perspective of each subgroup within the superordinate category (Waldzus et al., 2004; Wenzel et al., 2003) or the frame of reference of the specific intergroup situation (Waldzus, Mummendey, & Wenzel, 2005). Waldzus and colleagues (2004) have shown that different subgroups included in the same superordinate category can have diverging perspectives in terms of the relative prototypicality of their ingroup. For example, chopper-bikers and sports-bikers each perceived their respective ingroup to be more prototypical of the superordinate category bikers than the outgroup. In the same vein, primary-school teachers and high-school teachers also perceived their respective ingroup as more representative of the superordinate category teachers than the outgroup. Waldzus and colleagues (2005) have also shown that the same ingroup (Germans) maintained the perception of higher relative ingroup prototypicality even when the comparison group changed (Italian or British) in the context of the superordinate category European. The attributes used to define the ingroup varied as a function of context: when compared to Italians, Germans defined the ingroup as more

reserved than when compared to British. When compared to British, Germans saw their ingroup as more open and sociable. Importantly, the prototype of the superordinate category Europeans also varied as a function of the comparison outgroup.

Another factor that may influence groups' claims of relative ingroup prototypicality is the social asymmetry between groups. When we consider unequal-status groups, reality constraints may allow both the higher and the lower-status group to perceive the former as being more prototypical of the superordinate category (Waldzus et al., 2004). As put by Wenzel and colleagues (2007), "social reality may put constraints on ingroup projection, where common sense (widely shared beliefs about social reality) might make it seem preposterous for a group to claim to be more prototypical than the other (e.g., in many majority/minority contexts)" (p. 343). This hypothesis has been supported in a study conducted by Waldzus and colleagues (2004, study 3), in the context of the political unification in Germany. In this study, with Western and Eastern Germans, both subgroups considered the higher-status group (Western Germans) to be more prototypical of the superordinate category (Germans). However, there was disagreement on the subgroups' level of prototypicality: Western Germans (higher-status group) considered their subgroup to be much more prototypical of the superordinate category than Eastern Germans (lower-status group) deemed to be the case.

#### *Ingroup projection and the relevance of superordinate and subgroup identities*

When two dimensions of categorization are simultaneously salient, and those dimensions are highly associated to each other, ingroup projection is likely to occur (Crisp, 2010; Gaertner et al., 2010). This may happen because, when there is a high overlap between the superordinate and the subgroup identities, this situation increases comparability between the subgroups, providing them with a relevant comparison context (the superordinate identity) where the subgroups strive for positive distinctiveness. In this case, one or both subgroups may project their distinctive attributes onto the superordinate category, perceiving the ingroup as more prototypical of the common identity than the outgroup. As a result, the outgroup is seen as less prototypical and even deviant, and can be thus derogated. On the other hand, when the intergroup context is characterized by a low overlap between the superordinate and

the subgroup identities, it is likely that ingroup projection will not occur because there is no connection between the categorization dimensions: one dimension does not predict the other (Crisp, 2010; Gaertner et al., 2010). A low correlation between the dimensions can thus hinder ingroup projection. As put by Crisp (2010),

“When they are highly correlated, simultaneously salient dual identities can allow ingroup projection...in contexts where a dual identity is defined, however, by *uncorrelated* categories, there is no route by which ingroup projection can occur. Because there is no relationship between the two categories that comprise dual identity, there is no way that one can be seen as normative of the other and no way that someone could perceive one of their groups as representative of the other” (p. 516).

Crisp (2010) further contends that this scenario, wherein correlated dimensions lead to ingroup projection and uncorrelated dimensions do not, represents an extreme situation. In real social contexts, the relationship between different dimensions of categorization shifts in a continuum ranging from low overlap to high overlap. In addition, Crisp (2010) also argues that it is the degree of correlation between the superordinate and subgroup dimension of categorization that predicts intergroup attitudes, and not the structural relation between those dimensions. That is, it is not the fact that subgroups are completely subsumed by the superordinate category (nested structure) or that they cross-cut the superordinate category (Meiser et al., 2005), that defines the (in)success of a salient superordinate category to reduce prejudice. Instead, the critical aspect is the extent to which the superordinate and the subgroup dimension are correlated, “the extent that they do not share overlapping characteristics” (Crisp, 2010, p. 516).

Another important variable in this thesis is group status. As mentioned before, when the intergroup contact structure comprises asymmetrical status groups, it is likely that both the higher- and the lower-status group will acknowledge that the higher-status group is more representative/prototypical of the superordinate category than the lower-status group. In this situation, the superordinate category becomes primarily defined by the values and characteristics of the dominant, higher-status group (Dovidio et al., 2007; 2009). Furthermore, this situation is more likely if the superordinate and the subgroup dimensions of categorization are highly associated to

each other, compared to a situation where the overlap is low. If this is the case, then the higher-status group will display higher ingroup relative prototypicality which, in turn, may drive higher levels of intergroup bias. As put by Dovidio and colleagues (2007), “group projection may be more likely to occur when the common superordinate identity is more relevant to the dimension on which the subgroup identities reside. This connection between subgroup identity and superordinate identity arouses needs for social comparisons and positive distinctiveness, and it provides the bridge of comparability for projection to occur” (p. 321-322).

### **Overview of the thesis’ goals**

In this thesis we focus our attention on the effectiveness of recategorization and dual identity to reduce prejudice between asymmetrical ethnic status groups, namely White-Portuguese (higher-status group) and Black-Portuguese (lower-status group) children. Considering the theoretical contributions reviewed in this chapter regarding the importance of the relationship between the superordinate and the subgroup dimensions of categorization, our main aim is to test the effectiveness of two types of superordinate category to reduce ethnic prejudice. These two types of superordinate category vary in their degree of connection/association to the subgroup dimension of categorization. We test the effects of a superordinate category which is associated/related to the subgroup dimension of categorization (ethnic status), and of a superordinate category which is, on the contrary, unrelated to the subgroup dimension of categorization. The two superordinate categories used throughout this thesis were the national group, as the status-related superordinate category (Portugal), and School, as the status-unrelated superordinate category. The reason for our choice of these two categories is twofold: both superordinate categories have been used in previous studies with children (Guerra et al., 2010; Monteiro et al., 2009; Cameron et al., 2006) and they both represent real and important contexts and identities for children (McGlothlin & Killen, 2005; 2010).

Overall, we expect that when the relevance of the superordinate category derives directly from groups’ unequal status, the high overlap between the categorization dimensions can originate convergent group boundaries, emphasizing

the comparative context between the subgroups and maintaining a high salience of groups' asymmetries and differences. In this situation it is likely that ingroup projection will arise, namely from the higher-status group, and that intergroup bias be maintained. On the other hand, a superordinate category that is independent/unrelated to the subgroup dimension of categorization may shift the attention away from the ingroup-outgroup distinction. This can thus create conditions for a different comparative context to develop, where the previous distinction of subgroups is not emphasized. Consequently, in a more neutral context we expect ingroup projection to be hindered, and positive intergroup attitudes to arise<sup>4</sup>.

We thus aim to understand how the relatedness of the superordinate category to the subgroup dimension influences recategorization and dual identity's effects on intergroup prejudice reduction among children from unequal status groups.

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<sup>4</sup> In this thesis we do not intend to directly compare the Common Ingroup Identity Model (e.g., Gaertner et al., 1993) and the Ingroup Projection Model (Mummendey & Wenzel, 1999). In our perspective these two models focus on different aspects. While the Common Ingroup Identity Model focuses on reducing intergroup prejudice via the salience of a superordinate category, the Ingroup Projection Model focuses on why intergroup bias may resurface when a superordinate category is salient.

In this thesis, our main aim is to analyse the importance of the relationship of the superordinate and the subgroup dimensions of categorization within the Common Ingroup Identity Model. In this context, groups' prototypicality perceptions may be an important variable to help understand the effects of a superordinate category on intergroup evaluation.



## Chapter 2

# Portugal and School: Different superordinate categories? – Study 1

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### Overview and hypotheses

In this chapter we present the first empirical study of the thesis. The main aim of this first study was to provide an operationalization for the different types of superordinate category.

As mentioned before, our main goal was to test the relative effectiveness of two types of superordinate categories, differing in the extent to which they are associated to the subgroup dimension of categorization, to reduce intergroup prejudice among a higher ethnic-status group (White-Portuguese) and a lower ethnic-status group (Black-Portuguese) of children. Because the subgroup dimension of categorization critical to our approach is ethnic status, we sought to compare the effects of a superordinate category that is more closely related to groups' ethnic status *vs.* a superordinate category that is relatively independent or unassociated to this subgroup dimension of categorization. For this purpose, we focused on two superordinate categories: the national group (Portugal) and School. It is important to note that both these categories are real and meaningful, reflecting important contexts and identities for children (e.g., Banks, 2006; McGlothlin & Killen, 2005; 2010). In addition, both the national group and School have been used in previous research testing the effectiveness of the common ingroup identity model to reduce prejudice among children (Cameron et al., 2006; Guerra et al., 2010; Monteiro et al., 2009).

The main aim of this first empirical study was thus to test the possibility that, for children themselves, Portugal and School mapped onto a status-related superordinate category and a status-unrelated superordinate category, respectively. Our primary objective was to establish that these two superordinate categories were qualitatively different from each other and that children acknowledged these differences.

To test this idea, in a first step we assessed children's perceptions on the association between School and Portugal and ethnic/cultural characteristics. We

expected that participants would perceive the superordinate category Portugal as more associated to ethnic/cultural characteristics than the superordinate category School, independently of participants' ethnic status (hypothesis 1). We have also assessed participants' evaluation of the superordinate categories and their level of identification with these categories to ensure that possible effects of the different superordinate categories on prototypicality and intergroup attitudes would not be confounded with evaluative differences or different levels of identification.

Our secondary objective was to test the effects of the type of superordinate category on intergroup attitudes and prototypicality perceptions. A superordinate category that emphasizes the differentiation between the subgroups should render the subgroup dimension of categorization more salient and meaningful (Hall & Crisp, 2005). We therefore expected the status-related superordinate category (Portugal) to trigger higher levels of intergroup bias, compared to the status-unrelated superordinate category (School), because the latter shifts attention away from the subgroup dimension of categorization (hypothesis 2). Specifically, we hypothesized that the outgroup would be evaluated less favourably in the status-related superordinate category condition (Portugal) than in the status-unrelated superordinate category (School) (hypothesis 2.1). We also expected that the ingroup evaluation would be equivalent in both experimental conditions, based on the results of the common ingroup identity model (hypothesis 2.2) (Gaertner et al., 1989; 1993).

Regarding prototypicality perceptions, we expected the higher-status group to perceive the ingroup as more prototypical of the status-related superordinate category (Portugal) than the outgroup (Waldzus et al., 2004). We also hypothesized that the lower-status group would acknowledge this view. That is, it would perceive the higher-status group as more representative of the status-related superordinate category than the lower-status group (hypothesis 3.1). These different perceptions of groups' relative prototypicality are likely to be less pronounced in the condition where the status-unrelated superordinate category (School) was made salient (hypothesis 3.2).

We have also explored the relationship between prototypicality and intergroup attitudes. We expected that this relationship would depend on the type of superordinate category, such that a stronger relationship should arise when the superordinate category is related to groups' status (hypothesis 4).



## Method

### *Participants and design*

Participants were 100 fourth grade Portuguese male and female children (60 White-Portuguese and 40 Black-Portuguese; 56% female; overall mean age 10.06, *SD* = 1.05), attending five public schools in the suburban area of Lisbon, Portugal. In all the schools, the percentage of ethnic minorities was about 30%. All children were from middle-low SES and were given parental permission to participate in the study.

Participants were randomly assigned to one of the two experimental conditions: status-related superordinate category and status-unrelated superordinate category. The experimental design was 2 (type of superordinate category: Status-related *vs.* Status-unrelated)  $\times$  2 (participants' ethnic status: Higher – White-Portuguese *vs.* Lower – Black-Portuguese)  $\times$  2 (target group: ingroup, outgroup). The type of superordinate category and participants' ethnic status were between-subjects factors and target group was a within-subjects factor. Cell *Ns* ranged from 20 to 30 participants.

### *Procedure*

Participants completed the questionnaire<sup>5</sup> at school, in a private room, in small groups of 4 children per session. Participants were randomly assigned to the experimental condition: status-related superordinate category (Portugal) or status-unrelated superordinate category (School).

As a cover story, children were told the experimenter was writing a story about children the same age as themselves and their help was required to get more ideas to write up that story. Children were given the questionnaires and completed them individually. Completion of the questionnaires lasted for about 15 minutes.

### *Measures*

#### *Relevance of the superordinate category.*

Children were asked to think about *Portugal* or their *School* (depending on the experimental condition) and to choose from a list of words the 4 most important ones to describe that category (“Think about [your school/Portugal] and the people here. From this word list choose the 4 most important”). The word list included the critical

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<sup>5</sup> An example of the questionnaire can be found in Appendix A.

ethnic/cultural-related characteristics (White, Black, African people, Portuguese, Asians, Brazilians), as well as social (adults, girls, boys, children) and personal traits (friendly, polite, friends, unfriendly, happy, smart).

Because we were primarily interested in the amount of ethnic/cultural characteristics chosen in the status-related superordinate category condition (Portugal), compared to the status-unrelated condition (School), we computed, for each participant, the number of the relevant characteristics chosen (scale ranged from 0 – no ethnic/cultural characteristics chosen –, to 4 – maximum number of ethnic/cultural characteristics chosen).

### *Prototypicality*

In order to assess groups' prototypicality we used a pictorial measure adapted from Waldzus and Mummendey (2004). In the original measure, participants were presented with 7 pictures varying the distance between the group and the superordinate category. Each subgroup and the superordinate categories were represented by two circles placed in a horizontal line. The distance between the circles representing the subgroup and the superordinate categories varied along the 7 pictures, from maximum distance to zero distance (total overlap). In the present study children were presented with a smaller scale – only 5 pictures varying the degree of similarity between each subgroup and the superordinate category. The circles representing the subgroups and superordinate categories were coloured: light yellow for White children, brown for Black children, green for the 'Portugal' superordinate category and blue for the 'School' superordinate category. Children had to select the horizontal line that best described their perceived ingroup – superordinate category and outgroup – superordinate category similarity (e.g., "Please think about your school [Portugal] and about Black [White] children. How similar are Black [White] children to the children of your school? [Portuguese children]"; 1 = not at all similar to 5 = a lot similar). The order of presentation of the subgroups was counterbalanced across participants.

Drawing on Ullrich (2008), ingroup and outgroup prototypicality scores were analysed separately, in addition to the relative ingroup prototypicality score (difference score between ingroup prototypicality and outgroup prototypicality). Relative ingroup prototypicality scores varied between -4 and +4, with higher scores indicating higher ingroup relative prototypicality.

### *Identification*

Research on the Ingroup Projection Model with adults indicates that identification is associated to relative ingroup prototypicality (Waldzus et al., 2003; Wenzel et al., 2003). To rule out the possibility that different levels of identification with the superordinate categories could contribute to explain differences in the perception of prototypicality, identification with the ingroup and superordinate categories were measured.

The measure of identification was adapted from Monteiro, Vala and Lima (1988). This measure operationalized the definition of social identity proposed by Tajfel (1979), which taps the recognition of belonging to the group and its emotional value to the individual. Participants were presented with several social groups, among which the ingroup, the superordinate categories, and other filler items (“We all belong to several groups. Which groups do you belong to?”). Identification with each group was measured on a 4-point Likert scale (1 = I don’t belong to this group; 2 = I belong to this group but that is not important to me; 3 = I belong to this group and that is a little important to me; 4 = I belong to this group and that is really important to me).

### *Intergroup evaluation*

Participants evaluated the ingroup and outgroup on a positive and a negative dimension (Marinho, 2005). For each subgroup, participants were presented with 4 pictures of ingroup members and 4 pictures of outgroup members (the same gender as the participant), and were asked “How are children like these?”. Children were then presented with positive (polite, courageous, good runners, feel love) and negative characteristics (noisy, liars, feel shame, feel rage), and rated the target-groups on a 5-point Likert scale (1 = not at all ; 5 = a lot). The order of presentation of the ingroup and outgroup was counterbalanced across participants.

Positive and negative items for the ingroup and outgroup were averaged to form four indexes: positive ingroup evaluation ( $\alpha_{\text{ingroup}} = .60$ ), positive outgroup evaluation ( $\alpha_{\text{outgroup}} = .59$ ), negative ingroup evaluation ( $\alpha_{\text{ingroup}} = .64$ ) and negative outgroup evaluation ( $\alpha_{\text{outgroup}} = .73$ ). Bias scores on positive and negative characteristics were obtained by subtracting the outgroup score from the ingroup score (higher values indicate higher ingroup bias).

Regarding the evaluation of the superordinate category, participants were asked “How are children like at your school?” or “How are Portuguese children like?”,

depending on the experimental condition. Children were then presented with the same positive and negative characteristics used to evaluate the ingroup and outgroup. Children rated the superordinate category on a 5-point Likert scale (1 = not at all ; 5 = a lot). Positive and negative items (reversed) were averaged to form an index of the superordinate category evaluation<sup>6</sup> ( $\alpha = .64$ ;  $\alpha_{\text{SC-Portugal}} = .60$ ;  $\alpha_{\text{SC-School}} = .72$ ).

## Results<sup>7</sup>

### *Relevance of the superordinate category*

To consider hypothesis 1, that the superordinate category ‘Portugal’ would be more related to groups’ ethnic relative status than the superordinate category ‘School’, we performed a 2 (type of superordinate category)  $\times$  2 (participants’ ethnic status) ANOVA on the number of ethnic/cultural characteristics that were used to describe both superordinate categories. The analysis revealed a main effect of type of superordinate category ( $F(1,96) = 12.905$ ;  $p < .05$ ,  $\eta_p^2 = .12$ ). As expected, in the ‘Portugal’ superordinate category condition participants referred more ethnic/cultural characteristics than in the ‘School’ superordinate category condition ( $M = 0.76$  vs.  $M = 0.26$ ). No main effects of participants’ ethnic status or interaction effects emerged ( $F_s < 1$ ), indicating that both White and Black children perceived the superordinate category Portugal as more related to groups’ ethnic status than the superordinate category School. In order to rule out that this result would be due to the semantic overlap between the category ‘Portugal’ and the characteristic ‘Portuguese’, we also performed a 2 (type of superordinate category)  $\times$  2 (participants’ ethnic status) ANOVA on the number of ethnic/cultural characteristics, excluding the word “Portuguese”. This analysis revealed the same pattern of results. Only the main effect

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<sup>6</sup> A single index of superordinate category evaluation was computed because separate indexes of positive and negative evaluation did not reach adequate reliability.

<sup>7</sup> Preliminary analyses revealed that gender did not show significant effects on the dependent variables and was thus excluded from the analyses. Because of the unbalanced number of participants per cell, in the Analyses of Variance described throughout this chapter, we used SPSS Type III sums of squares to adequately control for Type I error (e.g., Tabachnick & Fidell, 2001). This estimation method treats all cells as if they had equal sample sizes and adjusts the sums of squares of any effect in the design to the remaining effects that are being tested, therefore eliminating any redundancy that could result from the design being non-orthogonal.

of type of superordinate category was significant ( $F(1,96) = 11.34; p < .05, \eta_p^2 = .11; M_{SC-Portugal} = 0.38$  vs.  $M_{SC-School} = 0.1$ ). Again, no effect of participants' ethnic status was found ( $F_s < 1$ ).

### *Identification*

To assess the relative importance of the two superordinate categories for children, we performed a 2 (type of superordinate category)  $\times$  2 (participants' ethnic status)  $\times$  3 (target: ingroup, superordinate categories) mixed ANOVA with the last factor as a within-subjects factor, on identification with the ingroup and the superordinate categories.

Results revealed a three-way interaction ( $F(1,96) = 6.92, p < .05, \eta_p^2 = .07$ ). For White participants, the type of superordinate category had no effect on the level of identification with the two superordinate categories ( $M_{school} = 3.67$  vs.  $M_{Portugal} = 3.63; F(1,96) = 0.03, ns$ ) or on the identification with the ingroup ( $M_{school} = 3.47$  vs.  $M_{Portugal} = 3.13; F(1,96) = 2.15, ns$ ). For Black participants, identification with the superordinate category was also identical for both types of superordinate category ( $M_{school} = 3.65$  vs.  $M_{Portugal} = 3.30; F(1,96) = 1.95, ns$ ), but ingroup identification was marginally higher when the superordinate category Portugal was salient than when School was ( $M = 3.75$  vs.  $M = 3.25, F(1,96) = 3.22; p = .08$ ).

In general, these results showed the similar high relevance for White and Black participants, of both superordinate categories and the ingroup (all  $t$ -tests against the scale mid-point  $p < .001$ ).

### *Intergroup evaluations*

To consider the hypothesis that the type of superordinate category influences intergroup bias, we performed a 2 (type of superordinate category)  $\times$  2 (participants' ethnic status) ANOVA on bias scores, for positive and negative evaluation separately. Regarding the positive evaluation, no effect of the type of superordinate category ( $M_{school} = -0.7$  vs.  $M_{Portugal} = 0.8; F(1,96) = 1.88; p = .17$ ) or interaction was found ( $F(1,96) = 0.38; ns$ ), although the means are in the expected direction. For the negative evaluation, again no effect of type of superordinate category ( $M_{School} = -0.6$  vs.  $M_{Portugal} = -0.22; F(1,96) = 1.46, ns$ ) or interaction ( $F(1,96) = 0.35, ns$ ) was found.

To test the influence of the type of superordinate category on the evaluation of outgroup and ingroup (hypotheses 2.1 and 2.2), we performed a 2 (type of superordinate category)  $\times$  2 (participants' ethnic status)  $\times$  2 (target group: ingroup, outgroup) mixed ANOVA, with the last factor as within subjects-factors, for positive and negative evaluation separately.

For the positive evaluation, a marginal effect of type of superordinate category emerged ( $F(1,96) = 3.07, p = .08, \eta_p^2 = .03$ ), indicating that both subgroups were evaluated more positively in the condition School than in the condition Portugal ( $M = 4.03$  vs.  $M = 3.81$ ). Because we had *a priori* hypotheses, we conducted simple contrasts, testing differences on outgroup and ingroup evaluation scores between School and Portugal, for White and Black participants separately. For White participants, the outgroup evaluation was reliably more positive on the School condition than on Portugal ( $M = 4.03$  vs.  $M = 3.69; t(96) = 1.99; p < .05$ ). For Black participants, no differences in outgroup evaluation were found between School and Portugal ( $M = 4.10$  vs.  $M = 3.84; t(96) = 1.28; p = .20$ ), although the mean trends are in the same direction as of White participants. As expected, no differences in ingroup evaluation were found between School and Portugal, neither for White participants ( $M = 3.97$  vs.  $M = 3.73; t(96) = 1.32; ns$ ) nor for Black participants ( $M = 4.01$  vs.  $M = 3.98; t(96) = 0.16, ns$ ).

For the negative evaluation the 2 (type of superordinate category)  $\times$  2 (participants' ethnic status)  $\times$  2 (target group: ingroup, outgroup) mixed ANOVA revealed a main effect of target group ( $F(1,96) = 3.96, p < .05, \eta_p^2 = .04$ ), indicating that the outgroup was evaluated more negatively than the ingroup ( $M = 2.52$  vs.  $M = 2.38$ ). Simple contrast analysis indicated that White participants did not show differences on the outgroup evaluation between School and Portugal ( $M = 2.50$  vs.  $2.77; t(96) = -1.17, n.s.$ ). For Black participants, School and Portugal did not trigger differences regarding outgroup evaluation ( $M = 2.20$  vs.  $M = 2.61; t(96) = -1.47; n.s.$ ). As expected, no differences in ingroup evaluation on negative traits between School and Portugal were found, either for White participants ( $M = 2.42$  vs.  $M = 2.59; t(96) = -0.86, n.s.$ ) or for Black participants ( $M = 2.18$  vs.  $M = 2.33; t(96) = -0.59; n.s.$ ).

To verify whether both Portugal and School were positively evaluated by participants, a 2 (type of superordinate category)  $\times$  2 (participants' ethnic status) ANOVA was conducted on attitudes towards the superordinate category. No main

effects of type of superordinate category, participants' ethnic status or interaction effects were found (all  $F$ s < 1). The evaluations of both Portugal and School were positive and above the scale mid-point ( $M_{\text{SC-School}} = 3.52$ ,  $t(49) = 5.77$ ,  $p < .05$ ;  $M_{\text{SC-Portugal}} = 3.44$ ,  $t(49) = 6.15$ ,  $p < .05$ ).

### *Group Prototypicality*

To consider the hypothesis that the perceptions of ingroup and outgroup prototypicality would be moderated by participants' ethnic status and type of superordinate category (hypothesis 3.1 and 3.2) we performed a 2 (type of superordinate category)  $\times$  2 (participants' ethnic status)  $\times$  2 (target group: ingroup; outgroup) mixed ANOVA on ingroup and outgroup prototypicality scores.

The results revealed the expected three-way interaction ( $F(1,96) = 12.43$ ;  $p < .05$ ,  $\eta_p^2 = .12$ ; Figure 1). The higher ethnic-status group (White children) perceived the ingroup as more prototypical of the superordinate category Portugal than the outgroup ( $M = 4.20$  vs.  $M = 3.33$ ) ( $t(96) = 3.83$ ;  $p < .05$ ). Also as expected, the lower ethnic-status group (Black children) acknowledged this view, by perceiving the ingroup as less prototypical of the superordinate category Portugal than the outgroup ( $M_{\text{ingroup}} = 2.8$  vs.  $M_{\text{outgroup}} = 3.95$ ;  $t(96) = -4.15$ ;  $p < .05$ ). Indeed, black children perceived the ingroup as only moderately prototypical of Portugal, as the t-test against the scale middle point shows ( $t(19) = -.55$ ;  $p > .05$ ).

However, when the superordinate category School was salient, both the higher and the lower ethnic-status groups perceived the ingroup and the outgroup as equally prototypical (White children:  $M_{\text{ingroup}} = 4.1$  vs.  $M_{\text{outgroup}} = 3.87$ ;  $t(96) = 1.03$ ;  $ns$ ; Black children:  $M_{\text{ingroup}} = 3.35$  vs.  $M_{\text{outgroup}} = 3.35$ ;  $t(96) = 0.00$ ,  $ns$ ).

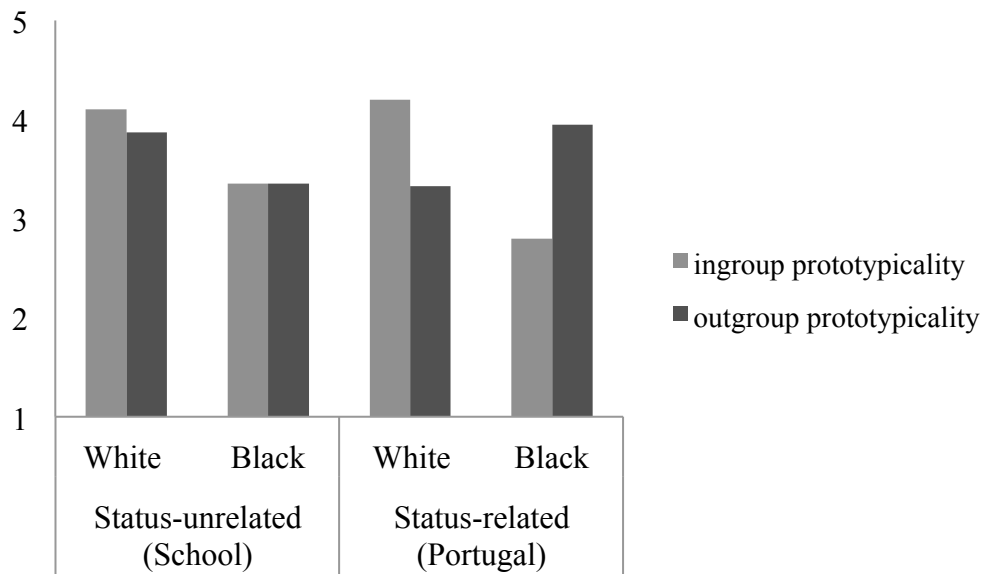


Figure 1. Prototypicality scores for White (higher-status group) and Black children (lower-status group), as a function of the type of superordinate category.

A two-way interaction between participants' ethnic-status and target group also emerged ( $F(1,96) = 19.79; p < .001, \eta_p^2 = .17$ ). White children perceived the ingroup as more prototypical than the outgroup ( $M_{\text{ingroup}} = 4.15$  vs.  $M_{\text{outgroup}} = 3.6; t(96) = 3.43; p < .05$ ) and Black children perceived the ingroup as less prototypical than the outgroup ( $M_{\text{ingroup}} = 3.08$  vs.  $M_{\text{outgroup}} = 3.65; t(96) = 2.93; p < .05$ ).

A 2 (type of superordinate category)  $\times$  2 (participants' ethnic status) ANOVA on relative ingroup prototypicality scores indicated the expected two-way interaction ( $F(1,96) = 12.43; p < .05, \eta_p^2 = .12$ ). For the higher ethnic status group (White children), relative ingroup prototypicality was reliably higher when the superordinate category was Portugal (status-related;  $M = 0.87$ ) than School (status-unrelated;  $M = 0.23$ ) ( $t(96) = 1.97; p = .051$ ). For the lower ethnic-status group (Black children), relative ingroup prototypicality was reliably higher in the School condition (status-unrelated;  $M = 0.00$ ) than in the Portugal condition (status-unrelated;  $M = -1.15$ ) ( $t(96) = 2.93; p < .05$ ).



*Relation between prototypicality perceptions and outgroup evaluation as a function of type of superordinate category*

Hypothesis 4 stated that the relationship between prototypicality and intergroup evaluation should depend on the type of superordinate category, such that a stronger relationship should arise when the superordinate category is related to groups' status. The correlations between prototypicality measures and the dependent measures are presented in Table 1.

No significant correlations were found between the prototypicality measures and intergroup bias. For White participants, no correlations were found between prototypicality measures and outgroup evaluation. For Black participants, the relationship between prototypicality perceptions and outgroup evaluation varied as a function of the type of superordinate category, providing partial support for hypothesis 4. For Black children in the status-unrelated condition (School), higher ingroup and outgroup prototypicality were positively related to the outgroup evaluation (on positive traits). On the contrary, in the status-related superordinate category (Portugal) a negative relationship was found between prototypicality perceptions and outgroup evaluation. No correlations were found between prototypicality perceptions and ingroup evaluation, for both types of superordinate categories and for both subgroups<sup>8</sup>.

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<sup>8</sup> See Appendix A.

Table 1. Correlations between prototypicality and the dependent measures, as a function of participants' ethnic status and type of superordinate category.

Participants' ethnic status	Type of superordinate category	Dependent measures				
		Bias positive evaluation	Bias negative evaluation	Outgroup positive evaluation	Outgroup negative evaluation	
Higher (White)	<b>School</b>					
	Ingroup prototypicality	-.100	.061	.074	.202	
	Outgroup prototypicality	-.021	.051	-.095	.177	
	Relative ingroup prototypicality (RIP)	-.087	.006	.198	.011	
	<b>Portugal</b>					
	Ingroup prototypicality	-.023	.029	-.108	-.120	
	Outgroup prototypicality	-.224	.039	-.070	.017	
	Relative ingroup prototypicality (RIP)	.211	-.018	.007	.176	
	Lower (Black)	<b>School</b>				
		Ingroup prototypicality	-.152	-.319	.610**	-.110
Outgroup prototypicality		-.299	.132	.523*	-.226	
Relative ingroup prototypicality (RIP)		.332	-.236	.128	.120	
<b>Portugal</b>						
Ingroup prototypicality		.301	-.315	-.580**	.471*	
Outgroup prototypicality		.268	-.332	-.490*	.227	
Relative ingroup prototypicality (RIP)		.306	-.355	-.207	.335	

Note: \*\*  $p < .01$ ; \*  $p < .05$ .

To assess whether the relationship between prototypicality perceptions and outgroup evaluation was moderated by the type of superordinate category, we conducted multiple regression analyses predicting outgroup evaluation in positive and negative traits in turn. In all the analyses, ingroup prototypicality and outgroup prototypicality scores were standardized (mean equals 0 and standard deviation equals 1) and the type of superordinate category (School, Portugal) was coded with contrast codes (-1, +1). All the variables, including the two-way interaction, were entered in the same model. Where the interaction term was significant, simple slope analyses (Aiken & West, 1991) were used to explore the interaction effect. Since correlations between prototypicality and outgroup evaluation were only found for Black participants, the following regression analyses were conducted only for this subgroup.

Results of the regression analyses revealed a significant interaction between outgroup prototypicality and type of superordinate category on predicting outgroup evaluation on positive traits<sup>9</sup> ( $b = -0.37$ ,  $SE = .11$ ,  $t(35) = -3.45$ ,  $p < .05$ ). For participants in the School condition, the simple slope was significantly positive ( $b = 0.36$ ,  $SE = .17$ ,  $t(35) = 2.11$ ,  $p < .05$ ), which means that, for black children in the school condition, higher levels of outgroup prototypicality significantly increased outgroup evaluation (positive traits). For Black children in the Portugal condition, the simple slope was significantly negative ( $b = -0.38$ ,  $SE = .19$ ,  $t(35) = -2.04$ ,  $p < .05$ ), indicating that in this condition higher levels of outgroup prototypicality decrease outgroup evaluation (positive traits).

The regression analyses also revealed a significant interaction between ingroup prototypicality and type of superordinate category<sup>10</sup> ( $b = -0.46$ ,  $SE = .11$ ,  $t(35) = -4.34$ ,  $p < .05$ ) on predicting outgroup evaluation on positive traits (Table 4). For participants in the School condition, the simple slope was significantly positive ( $b = 0.45$ ,  $SE = .18$ ,  $t(35) = 2.59$ ,  $p < .05$ ), indicating that for black children in the School condition, higher levels of ingroup prototypicality significantly increased outgroup evaluation on positive traits. For black children in the Portugal condition, the simple slope was significantly negative ( $b = -0.46$ ,  $SE = 0.16$ ,  $t(35) = -2.87$ ,  $p < .05$ ), indicating that in this condition, higher levels of ingroup prototypicality decreased outgroup evaluation on positive traits.

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<sup>9</sup> Because ingroup and outgroup prototypicality scores were correlated (see Appendix A), in this analysis we have controlled for the effects of ingroup prototypicality.

<sup>10</sup> Controlling for outgroup prototypicality.

Regarding the outgroup evaluation on negative traits, no significant interaction between outgroup prototypicality and type of superordinate category was found<sup>11</sup> ( $b = 0.18$ ,  $SE = .14$ ,  $t(35) = 1.31$ , *n.s.*).

The regression analyses revealed a significant interaction between ingroup prototypicality and type of superordinate category ( $b = 0.30$ ,  $SE = 0.14$ ,  $t(35) = 2.06$ ,  $p < .05$ ) on predicting outgroup evaluation on negative traits<sup>12</sup>. For participants in the School condition, the simple slope was not significant ( $b = 0.01$ ,  $SE = .24$ ,  $t(35) = 0.03$ , *n.s.*). For black children in the Portugal condition, the simple slope was significantly positive ( $b = 0.60$ ,  $SE = .22$ ,  $t(35) = 2.74$ ,  $p < .05$ ), indicating that higher levels of ingroup prototypicality significantly increase outgroup evaluation on negative traits.

## Discussion

In this first empirical study our main aims were to show that, for children, the two superordinate categories under test (Portugal and School) were qualitatively different from each other and that they could provide an operationalization for a status-related and a status-unrelated superordinate category.

In general, and using real and meaningful categories, we showed that when the intergroup structure comprises unequal-status groups, a relevant, status-related superordinate category can emphasize the ingroup-outgroup distinction and lead to less positive outgroup attitudes. On the contrary, an independent, status-unrelated superordinate category, has the potential to de-emphasize subgroups' differences and become a more inclusive superordinate category.

### *Relevance of the superordinate category*

Our results support the hypothesis that both for White and for Black children, the national superordinate category Portugal makes ethnic and cultural characteristics more salient than the superordinate category School. To our knowledge, this is first evidence identifying the national category to be a status-related superordinate category and the category School as a status-unrelated superordinate category. It is

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<sup>11</sup> Controlling for ingroup prototypicality.

<sup>12</sup> Controlling for outgroup prototypicality.

important to note that no other measures were introduced before, thus there were no factors that could prime intergroup differentiation beforehand. In our view, the results obtained in this study further confirm that, relative to school, the national category is more related to group status.

*Type of superordinate category and intergroup evaluation*

Regarding intergroup evaluation, the salience of both superordinate categories had a positive effect on outgroup evaluation but, as predicted, this was more pronounced in the status-unrelated condition School (hypothesis 4). The outgroup was evaluated more positively in the School condition than in the status-related condition Portugal, by White and Black participants (although only marginally for the latter). As expected, no effects were found regarding the ingroup evaluation (hypothesis 5). This pattern of results is in line with predictions and results of studies using the Common Ingroup Identity Model, both with adults (Gaertner et al., 1989; 1993) and with children (Gaertner et al., 2008; Guerra et al., 2010; Monteiro et al., 2009), which show that bias reduction is achieved by the increase in outgroup evaluation, while ingroup evaluation remains stable. The fact that outgroup evaluation was more positive on the status-unrelated condition School is also in line with studies on the effects of multiple categorization (e.g., Eurich-Fulcer & Schofield, 1995; Hall & Crisp, 2005), which show that, compared to categories related to the subgroup dimension of categorization, categories that are independent of the latter trigger lower levels of bias, because the salience of the ingroup-outgroup distinction is not emphasized. The increase in outgroup evaluation in the School condition, compared to the national category Portugal was only marginal for Black children (lower-status). It is conceivable that the effect was not as strong because attitudes towards higher-status groups are generally positive (Alexandre et al., 2007; Griffiths & Nesdale, 2006). A study conducted by Alexandre and colleagues (2007) with Black-Portuguese and Gypsy-Portuguese children (lower-status groups) found that both groups showed a similar preference for the ingroup and the higher-status outgroup (White-Portuguese).

### *Type of superordinate category and prototypicality*

We have also found evidence to support the hypothesis that White and Black children are sensitive to the social context when assessing subgroups' prototypicality. In fact, asymmetries in groups' power, size or status can create "reality constraints" that prevent or minimize claims of high prototypicality by the disadvantaged subgroup (Waldzus et al., 2004). In line with this model, our results show that both White (higher-ethnic status) and Black (lower-ethnic status) children agree on the higher prototypicality of the higher-status group. However, our results indicate that this was only the case when the superordinate category was status-related (Portugal). The status-unrelated superordinate category School blurred the differences between the subgroups' representativeness in the superordinate category. Indeed, both White and Black children perceived the subgroups as equally prototypical of the superordinate category School.

These results cannot, however, be accounted for by different levels of identification with the ingroup and the superordinate category (Waldzus et al., 2003; Wenzel et al., 2003), since participants showed high levels of identification with both the ingroup and the superordinate categories. Importantly, we have also found evidence that both White and Black children are highly and similarly identified with the national group and with school, indicating that both categories are important and relevant for them. In addition, both superordinate categories were positively evaluated and, independently of participants' ethnic status or type of superordinate category. This further indicates that the relevance of the superordinate category, deriving from its association/connection to the subgroup dimension of categorization, is not confounded with evaluative differences between the superordinate categories.

### *The relationship between prototypicality perceptions and intergroup evaluation*

We have also found support for the hypothesis that prototypicality is related to outgroup evaluation but, unexpectedly, only for Black children, providing only partial support for hypothesis 6. Research on the Ingroup Projection Model (Mummendey & Wenzel, 1999) has shown evidence of a positive relation between outgroup prototypicality and outgroup evaluation (Ullrich, 2008) and a negative correlation

between relative ingroup prototypicality (difference score between ingroup and outgroup prototypicality) and outgroup evaluation (e.g., Wenzel et al., 2007). Contrary to the findings of Ullrich (2008), who only found an association between outgroup prototypicality (but not ingroup prototypicality) and outgroup attitudes, in our sample both ingroup and outgroup prototypicality significantly predicted outgroup evaluations (for Black participants only). In a meta-analysis conducted by Wenzel and colleagues (2007), both ingroup ( $r = -.05$ ) and outgroup prototypicality ( $r = .23$ ) were correlated with outgroup evaluation, although the effect size for ingroup correlation was quite small.

In addition, our results show that only for Black children was the relationship between prototypicality and outgroup attitudes moderated by the type of superordinate category. When the superordinate category School was salient, higher ingroup and outgroup prototypicality was positively related to outgroup attitudes. However, when the status-related superordinate category Portugal was salient this relationship became negative; higher ingroup and outgroup prototypicality were actually detrimental for outgroup evaluation.

One possible explanation for these results is that in the superordinate category School, because subgroups' representativeness is more balanced, i.e., the prototype of School is defined as much by the White children subgroup as by the Black children subgroup, the more prototypical the subgroups are perceived to be, the better the evaluation of the outgroup. This positive correlation is in line with the results of Ullrich (2008) and the meta-analysis conducted by Wenzel and colleagues (2007). In this sense, the more included the subgroups are in the superordinate category, the more representative they are, the better the outgroup evaluation. However, Black children in the superordinate category condition Portugal acknowledged their lower prototypicality relative to the higher-status group (White children). That is to say that the prototype of this category is dominated by the White subgroup and Black children's representativeness is hindered. In this case, the negative correlations found between prototypicality and outgroup attitude could be a strategy of maintaining some positive distinctiveness.

Contrary to the case of Black children, we did not find any relationship between prototypicality and outgroup evaluation for White children. It is possible that for White children intergroup attitudes were mainly driven by the mere inclusion of the ingroup and outgroup in a superordinate category, and not influenced by the

differences in groups' representativeness in the shared category. More research is needed to clarify the relationship between prototypicality and intergroup attitudes, especially taking into consideration groups' relative status. Another possible explanation for our results is that White children's position regarding different structures of the common group – recategorization or dual identity – could influence the relationship between prototypicality and intergroup attitudes.

One limitation of the present study is that we did not manipulate or control children's agreement with the cognitive representations of the subgroups – recategorization, as “we are all one group”, or dual identity, as “we are two different groups in the same team” (Gaertner & Dovidio, 2000). For this reason, in the next study we introduced an assessment of children's perception of the cognitive representations that can characterize the relationship between White and Black children.



# Chapter 3

## Children's perception of one group and dual identity cognitive representations in School and in Portugal – Study 2

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### Objectives and hypotheses

In the first study, we established the qualitative difference between the two superordinate categories, Portugal and School. We have shown that both these categories could provide an operationalization of a status-related and a status-unrelated superordinate category. However, in the previous study we did not consider the role of the cognitive representations of the subgroups within the superordinate category (recategorization, dual identity). Hence, in the second study we have introduced this critical variable.

Previous studies with children have tested the effects of recategorization and dual identity on intergroup bias by experimentally manipulating these cognitive representations, either in a full contact interaction (e.g., Guerra et al., 2010) or through an indirect contact situation, such as the presentation of the cognitive representations (recategorization, dual identity) through fictional stories read to children (Cameron et al., 2006). For example, Guerra and colleagues (2010; Guerra, 2007; Rebelo, 2006) have adapted to children the experimental procedures for manipulating the cognitive representations initially proposed by Gaertner and colleagues (1989; 1993). In a full interaction with two 3-person groups of White and Black Portuguese children, researchers varied the nature of interdependence among participants and their position during the experimental interaction (e.g., integrated vs. segregated seating), successfully inducing recategorization, dual identity and categorization (control condition) cognitive representations (Guerra et al., 2010; Guerra, 2007; Rebelo, 2006).

To our knowledge, studies testing the effectiveness of recategorization and dual identity on prejudice reduction among children have mainly relied on the experimental manipulation of contact features during groups' interaction in order to induce the different cognitive representations. This approach allows for a controlled

test of the cognitive representations' effects on intergroup attitudes but, at the same time, little is known about how children perceive the contact structure and the relationship between different groups in a natural context. Previous research has shown that both the social context and social experience influence children's intergroup attitudes (e.g., Tropp & Prenovost, 2008) and reasoning about intergroup exclusion (e.g., Crystal, Killen, & Ruck, 2008; Killen, Kelly, Richardson, Crystal et al., 2010). Specifically, both the school and the classroom context (for example, whether ethnically homogeneous or heterogeneous) impact ethnic intergroup attitudes and judgments about potential for cross-race friendships (e.g., Kinket & Verkuyten, 1999; McGlothlin & Killen, 2010; 2006; Pereira & Monteiro, 2006; Verkuyten & Thijs, 2001). Moreover, endorsement of assimilationism or multiculturalism has also been shown to influence intergroup evaluation among majority and minority group members (Verkuyten, 2005; 2008). Thus, research indicates that both the social context and children's perceptions about the relationship between different groups can be important factors to understand intergroup attitudes.

Taking this into consideration, in this study our main goal was to understand how White-Portuguese and Black-Portuguese children perceive both the contact structure and the relationship between these subgroups. In a natural context and without experimentally manipulating the salience of different cognitive representations of the subgroups, we intended to verify if children's differential agreement with the cognitive representations under study (recategorization, dual identity and categorization) could impact intergroup evaluation. In addition, we also intended to ascertain if children's perception about the relationship between White and Black target groups varied as a function of context, i.e., if it varied as a function of the type of superordinate category that was salient – related to groups' status (Portugal) or unrelated to groups' status (School). Similarly to study 1, we assessed groups' prototypicality perception as a function of the type of superordinate category and participants' ethnic status, as well as the relationship between prototypicality and intergroup evaluation.

Regarding children's perception of the contact structure and the relationship between the higher- and lower-status groups (White and Black children, respectively), and considering the lack of previous research on this matter, we opted for an exploratory analysis on children's agreement with the cognitive representations of categorization, recategorization and dual identity, as a function of participants' ethnic

status and type of superordinate category. In this study, we have also measured participants' level of identification with the ingroup and the superordinate category.

Similarly to the previous study, we expected the status-related superordinate category (Portugal) to trigger higher levels of intergroup bias than the status-unrelated superordinate category (School) (hypothesis 1). We also expected the outgroup to be evaluated more favourably in the School condition, compared to the Portugal condition, whereas ingroup evaluation should remain stable in both experimental conditions (Gaertner et al., 1989) (hypothesis 1.1).

With respect to prototypicality perceptions, we expected that the status-related superordinate category (Portugal) would trigger higher levels of ingroup relative prototypicality than the status unrelated superordinate category (School), namely for the higher ethnic-status group (White children). We expected the higher-status group to perceive the ingroup as more prototypical of the status-related superordinate category (Portugal) than the outgroup. We also hypothesized that the lower-status group would acknowledge this view, that is, to perceive the higher-status group as more representative of the status-related superordinate category than the lower-status group (hypothesis 2.1). These different perceptions about groups' relative prototypicality were hypothesized to be less pronounced in the condition where the status-unrelated superordinate category (School) was made salient (hypothesis 2.2).

Regarding the relationship between the agreement with the cognitive representations and intergroup evaluation, overall we expected that higher agreement with categorization would be positively correlated with intergroup bias, while stronger agreement with recategorization and dual identity would be negatively correlated with intergroup bias (hypothesis 3), a prediction in line with the results of the Common Ingroup Identity Model, both with adults (Gaertner & Dovidio, 2000) and with children (e.g., Guerra et al., 2010; Monteiro et al., 2009).

Taking further into consideration participants' ethnic status and the type of superordinate category, we expected that both factors would influence the relationship between the cognitive representations and intergroup evaluation. A superordinate category unrelated to groups' status (School) should shift the attention away from group differences. In this case, we expected that for the higher- and the lower-status groups both recategorization and dual identity should be negatively related to intergroup bias (hypothesis 4). In contrast, a superordinate category related to groups'

status (Portugal) should emphasize group differences, making the subgroup dimension of categorization (ethnic status) more salient and meaningful.

In the case of recategorization, where subgroup boundaries are eroded, it is possible that, for the higher-status group, merging into a superordinate category together with a lower-status group does not afford its members with a more positive social identity (e.g., Hornsey & Hogg, 2002). This is because, in the context of an overriding superordinate category, the positive distinctiveness that belonging to a higher-status group affords to its members is somewhat lost when both high- and low-status group members are included, in an undifferentiated way, in a superordinate category. This may lead to the fact that recategorization may, actually, result in intergroup bias for the higher-status group (e.g., Hornsey & Hogg, 2002).

On the other hand, in dual identity, subgroups' distinctiveness is maintained, allowing the higher-status group to maintain its positive distinctiveness vis-à-vis the lower-status group. Previous studies with children, where both the ethnic membership and the national superordinate category were made salient (Guerra et al., 2010; Gaertner et al., 2008; Monteiro et al., 2009), have shown that for White-Portuguese children (higher-status), dual identity resulted in lower intergroup bias compared to recategorization. On the other hand, for Black-Portuguese children (lower-status), recategorization seemed to be more effective to reduce intergroup bias than dual identity. The authors have argued that the specific historical and cultural context of Portugal can account for these results (Guerra et al., 2010). Regarding the lower-ethnic status group of Black children, "a dual identity may not be functional or desirable for second-generation African-Portuguese children who may strive for assimilation and equality with European Portuguese children" (Guerra et al., 2010, p. 447). Indeed, in dual identity, namely when the superordinate category is directly related to the status-differences between the subgroups (such as Portugal), the relative lower-status of Black children is maintained (in comparison to White children). Dual identity, involving the simultaneous salience of subgroups – defined by their status asymmetry – within a superordinate category, which is itself related to that asymmetry, further accentuates groups' differences. This may emphasize Black children's lower ethnic status in relation to the higher-ethnic group (White children), which can be counter to Black children's goal of achieving a more positive and equal position in relation to the higher-status outgroup.

Considering this rationale and the previous results obtained in studies with children, we hypothesized that when the superordinate category is status-related (Portugal), recategorization would be associated to higher levels of bias for White-Portuguese children, while dual identity would be associated to lower levels of bias (hypothesis 5). For Black-Portuguese children in the status-related superordinate category condition (Portugal), we expected that recategorization would be negatively related to intergroup bias, while dual identity would be positively correlated to bias (hypothesis 6).

Finally, and similarly to the previous study, we expected the relationship between prototypicality and intergroup evaluation to depend on the type of superordinate category, such that a stronger relationship should arise when the superordinate category is related to groups' status (hypothesis 7).

## **Method**

### *Participants and design*

Participants were 235 fourth grade Portuguese male and female children (149 White-Portuguese and 86 Black-Portuguese; 49% female; overall mean age 9.62,  $SD=0.66$ ), attending five public schools in the suburban area of Lisbon, Portugal. In all of these schools the percentage of ethnic minorities was about 30%. All children were from middle-low SES and were given parental permission to participate in the study.

From the total of 235 participants, 18 were excluded from the analysis because they failed to differentiate between the cognitive representations (valid final  $N = 217$ ; White-Portuguese  $N = 139$ ; Black-Portuguese  $N = 78$ ).

The experimental design was a 3 (cognitive representation: categorization, recategorization, dual identity)  $\times$  2 (type of superordinate category: Status-related vs. Status-unrelated)  $\times$  2 (participants' ethnic status: Higher – White-Portuguese vs. Lower – Black-Portuguese)  $\times$  2 (target group: ingroup, outgroup). The type of superordinate category and participants' ethnic status were between subject factors. Cognitive representation and target group were within-subjects factors.

### *Procedure*

Participants completed the questionnaire<sup>13</sup> at school, in a private room, in small groups of 4 to 6 children per session. Participants were randomly assigned to the superordinate category type condition: status-related superordinate category (Portugal) or status-unrelated superordinate category (School).

Children were told the questionnaire was intended to collect their opinion on other children the same age as themselves. Children were given the questionnaires and completed them individually. Completion of the questionnaires lasted for about 25-30 minutes.

### *Measures*

#### *Self-categorization and identification*

Participants were presented with a list of several social groups, among which the ingroup, the outgroup and the superordinate category (“We all belong to several groups. Which groups do you belong to?”). Participants had to choose whether they belonged to each of the groups presented (self-categorization). Identification with the ingroups (groups that the participant indicated as belonging to) was measured on a 5-point Likert scale, indicating how important the target group was to the participant (1 = not important at all; 5 = really important).

#### *Perceived cognitive representations*

Participants read a small paragraph about the superordinate category (“Think about [your school/Portugal] and the people that are there. [In your school/In Portugal] there are White children, from Portuguese origin, and Black children, from African origin”). Then they were asked to rate their agreement with the 3 cognitive representations under study (Categorization: “White and Black children are different, so they belong to two really different groups; Recategorization: “White and Black

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<sup>13</sup> An example of the questionnaire can be found in Appendix B.

In this study, we used, apart from the dependent measures described below, an adapted version of the Multiple-response Racial Attitudes measure (MRA) and a friendship measure. Results for these measures are not reported, since the independent variables of interest in this study (cognitive representations, type of superordinate category and participants’ ethnic status) did not produce significant effects on the MRA or friendship measure.

In this study we also measured the perception of groups’ status (adapted from Guerra, 2007), in a 5-point Likert scale (higher values indicate higher status). A 2 (type of superordinate category) × 2 (participants’ ethnic status) × 2 (target: ingroup, outgroup) mixed ANOVA on group status was performed. The results revealed only an effect of the target group. White children were perceived as having higher-status ( $M = 3.57$ ) than Black children ( $M = 2.84$ ;  $F(1,213) = 121.79, p < .001$ ).

children are similar, so they all belong to the [Portuguese/School] group; Dual identity: “White and Black children are different, they belong to two different groups, but at the same time they are also similar, so they also belong to the [Portuguese/School] group”). Participants rated their agreement in a 5-point Likert scale (1 = it’s not like that at all; 5 = it’s exactly like that). The order of presentation of the 3 statements was counterbalanced across participants.

### *Prototypicality*

The measure of prototypicality was identical to the one used in Study 1 (adapted from Waldzus & Mummendey, 2004). Children were presented with 5 pictures varying the degree of similarity between each subgroup (ingroup and outgroup) and the superordinate category. Participants then had to choose the picture that best captured the perceived overlap between each subgroup and the superordinate category (e.g., “Please think about your school [Portugal] and about Black [White] children. How similar are Black [White] children to the children of your school? [Portuguese children]”; 1 = not similar at all 5 = a lot similar). The order of presentation of the subgroups was counterbalanced across participants. Similarly to the previous study, we have analysed ingroup and outgroup prototypicality scores, as well as the relative ingroup prototypicality score, which ranges from -4 to +4 (higher scores indicate higher relative ingroup prototypicality).

### *Intergroup evaluation*

The measure of ingroup and outgroup evaluation was identical to the one in Study 1. Again, participants were presented with pictures of children (the same gender as the participant) from the ingroup and the outgroup and rated both subgroups on positive (e.g., polite, courageous) and negative characteristics (e.g., noisy, liars) on a 5-point Likert scale (1 = not at all; 5 = a lot). The order of presentation of the ingroup and outgroup was counterbalanced across participants. Positive and negative items for the ingroup and outgroup were averaged to form four indexes: positive ingroup evaluation ( $\alpha_{\text{ingroup}} = .62$ ), positive outgroup evaluation ( $\alpha_{\text{outgroup}} = .59$ ), negative ingroup evaluation ( $\alpha_{\text{ingroup}} = .59$ ) and negative outgroup evaluation ( $\alpha_{\text{outgroup}} = .64$ ).

Bias scores on positive and negative characteristics were obtained by subtracting the outgroup score from the ingroup score (higher values indicate higher ingroup bias).

## Results<sup>14</sup>

### *Perceived cognitive representations of intergroup contact*

To assess the relative agreement of participants with the cognitive representations we conducted a 2 (type of superordinate category)  $\times$  2 (participants' ethnic status)  $\times$  3 (cognitive representations) mixed ANOVA, with the last factor as within-subjects factor.

The results revealed a main effect of cognitive representation ( $F(2,426) = 30.96$ ,  $p < .001$ ,  $\eta_p^2 = .13$ ). Post-hoc multiple comparisons (Tukey HSD test) showed a higher agreement with dual identity ( $M = 4.07$ ,  $SD = 1.18$ ), followed by recategorization ( $M = 3.49$ ,  $SD = 1.39$ ) and categorization ( $M = 3.00$ ,  $SD = 1.54$ ) (all means significantly different at  $p < .05$ ). This effect was qualified by the type of superordinate category ( $F(2,426) = 3.34$ ,  $p < .05$ ,  $\eta_p^2 = .02$ ). Post-hoc multiple comparisons (Tukey HSD test) indicated that participants in the School condition showed the highest agreement with dual identity ( $M = 4.27$ ,  $SD = 1.15$ ), followed by recategorization ( $M = 3.71$ ;  $SD = 1.41$ ) and categorization ( $M = 2.85$ ;  $SD = 1.52$ ) (all means significantly different at  $p < .05$ ). Participants in the Portugal condition also showed a significantly higher agreement with dual identity ( $M = 3.89$ ,  $SD = 1.19$ ) than with recategorization ( $M = 3.29$ ,  $SD = 1.36$ ) and categorization ( $M = 3.12$ ,  $SD = 1.56$ ), but no differences were found between categorization and recategorization. No effects of participants' ethnic origin emerged.

### *Identification*

To assess the relative importance of the two superordinate categories for children, we performed a 2 (type of superordinate category)  $\times$  2 (participants' ethnic

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<sup>14</sup> Preliminary analyses revealed that gender did not show significant effects on the dependent variables and was thus excluded from the analyses. Because of the unbalanced number of participants per cell, and similarly to the previous study, in the Analyses of Variance described throughout this chapter, we have used SPSS Type III sums of squares to adequately control for Type I error (e.g., Tabachnick & Fidell, 2001).



status)  $\times$  3 (target: ingroup, superordinate category) mixed ANOVA with the last factor as within-subjects factor, on identification with the ingroup and the superordinate category.

Results revealed a three-way interaction ( $F(1,213) = 5.41, p < .05, \eta_p^2 = .03$ ). For White children, identification with the superordinate category was marginally higher in the School condition ( $M = 4.55$ ) than in the Portugal condition ( $M = 4.26$ ) ( $F(1,213) = 2.96, p = .09$ ). No differences were found regarding the identification with the ingroup as a function of the type of superordinate category ( $M_{\text{School}} = 3.42; M_{\text{Portugal}} = 3.29$ ) ( $F(1,213) = 0.33, ns$ ). For Black children, identification with the superordinate category was identical between the School ( $M = 4.47$ ) and Portugal conditions ( $M = 4.24$ ). Identification with the ingroup was higher when the superordinate category Portugal was salient ( $M = 3.88$ ) than when School was salient ( $M = 3.03$ ) ( $F(1,213) = 7.61, p < .05$ ).

#### *Type of superordinate category and intergroup evaluation*

We expected that the type of superordinate category would influence bias levels, i.e., the status-related superordinate category (Portugal) should trigger higher levels of intergroup bias than the status-unrelated superordinate category (School). Furthermore, we expected that outgroup evaluation would be more positive in the School condition than in the Portugal condition, but no differences were expected for ingroup evaluation.

A 2 (type of superordinate category)  $\times$  2 (participants' ethnic status) ANOVA was performed on bias scores for positive and negative traits separately. For bias scores on positive characteristics no effect of the type of superordinate category was found, although the mean trends are in the expected direction ( $M_{\text{School}} = 0.11$  vs.  $M_{\text{Portugal}} = 0.25; F(1,213) = 2.20; p = .14$ ). No interaction with participants' ethnic status emerged ( $F(1,213) = .90; ns$ ). Regarding bias scores on negative traits, there was a main effect of type of superordinate category ( $M_{\text{School}} = -0.03$  vs.  $M_{\text{Portugal}} = -0.25; F(1,213) = 4.36, p < .05$ ). Because in this measure negative values indicate that the outgroup is evaluated more negatively than the ingroup, these results indicate that the salience of the superordinate category Portugal resulted in a more negative evaluation of the outgroup than the ingroup.

In terms of the influence of type of superordinate category on the evaluation of ingroup and outgroup, the 2 (type of superordinate category)  $\times$  2 (participants' ethnic

status)  $\times$  2 (target group: ingroup, outgroup) mixed ANOVA on positive evaluation scores did not show the expected three-way interaction ( $F(1,213) = 0.90, ns$ ). Because we had *a priori* hypotheses, we conducted simple contrasts, testing differences on outgroup and ingroup scores between School and Portugal, for White and Black participants separately. For White participants, the outgroup evaluation was significantly more positive in the School condition ( $M = 3.76$ ) than in Portugal ( $M = 3.46$ ) ( $t(213) = 2.31, p < .05$ ). Ingroup evaluation was marginally higher in School ( $M = 3.90$ ) than in Portugal ( $M = 3.67$ ) ( $t(213) = 1.86, p = .06$ ). For Black participants, no differences were found for outgroup evaluation ( $M_{\text{School}} = 3.81$  vs.  $M_{\text{Portugal}} = 3.59$ ;  $t(213) = 1.29, ns$ ), although the means are in the same direction as of White participants. As expected, no differences in ingroup evaluation were found between School ( $M = 3.84$ ) and Portugal ( $M = 3.90$ ) ( $t(213) = -0.33, ns$ ). A closer inspection of means revealed, however, that White participants in the Portugal condition evaluated the outgroup less positively than the ingroup ( $M_{\text{ingroup}} = 3.67$  vs.  $M_{\text{outgroup}} = 3.46$ ) ( $t(213) = 2.16, p < .05$ ), whereas in the School condition, there were no differences between ingroup and outgroup evaluations ( $M_{\text{ingroup}} = 3.91$  vs.  $M_{\text{outgroup}} = 3.76$ ;  $t(213) = 1.51, ns$ ). For Black children, no differences in ingroup and outgroup evaluation were found when the superordinate category School was salient ( $M_{\text{ingroup}} = 3.85$  vs.  $M_{\text{outgroup}} = 3.82$ ,  $t(213) = 0.21, ns$ ). However, when Portugal was salient, the outgroup was evaluated less positively than the ingroup ( $M_{\text{outgroup}} = 3.59$  vs.  $M_{\text{ingroup}} = 3.90$ ;  $t(213) = 2.54; p < .05$ ).

Regarding the evaluation on negative traits, the 2 (type of superordinate category)  $\times$  2 (participants' ethnic status)  $\times$  2 (target group: ingroup, outgroup) mixed ANOVA on negative evaluation scores showed a marginal three-way interaction ( $F(1,213) = 3.05; p = .082$ ). We conducted simple contrasts, testing differences on outgroup and ingroup scores between School and Portugal, for White and Black participants separately. For White participants, outgroup negative evaluation was identical between School and Portugal ( $M_{\text{School}} = 2.78$  vs.  $M_{\text{Portugal}} = 2.67$ ,  $t(213) = 0.68, ns$ ), similar to the ingroup evaluation ( $M_{\text{School}} = 2.67$  vs.  $M_{\text{Portugal}} = 2.52$ ,  $t(213) = 1.00, ns$ ). A closer inspection of the means revealed that, for White children, no differences were found between ingroup and outgroup evaluations, neither on the School condition ( $M_{\text{ingroup}} = 2.67$  vs.  $M_{\text{outgroup}} = 2.78$ ,  $t(213) = -0.93, ns$ ), nor on the Portugal condition ( $M_{\text{ingroup}} = 2.52$  vs.  $M_{\text{outgroup}} = 2.67$ ,  $t(213) = -1.34, ns$ ). For Black children, outgroup negative evaluation was identical between School and Portugal

( $M_{\text{School}} = 2.44$  vs.  $M_{\text{Portugal}} = 2.63$ ,  $t(213) = -0.89$ , *ns*), as was ingroup evaluation ( $M_{\text{School}} = 2.56$  vs.  $M_{\text{Portugal}} = 2.23$ ,  $t(213) = 1.61$ , *ns*). A closer inspection of means revealed that for Black children ingroup and outgroup evaluation on negative traits was identical in the School condition ( $M_{\text{ingroup}} = 2.56$  vs.  $M_{\text{outgroup}} = 2.44$ ,  $t(213) = 0.75$ , *ns*). However, in the Portugal condition the outgroup was evaluated more negatively than the ingroup ( $M_{\text{ingroup}} = 2.23$  vs.  $M_{\text{outgroup}} = 2.63$ ,  $t(213) = -2.76$ ,  $p < .05$ ).

### *Type of superordinate category and prototypicality*

To consider the hypothesis that the perceptions of ingroup and outgroup prototypicality would be moderated by participants' ethnic status and type of superordinate category (hypotheses 2.1 and 2.2) we performed a 2 (type of superordinate category)  $\times$  2 (participants' ethnic status)  $\times$  2 (target group: ingroup; outgroup) mixed ANOVA on ingroup and outgroup prototypicality scores.

The results revealed the expected three-way interaction ( $F(1,213) = 8.37$ ,  $p < .05$ ,  $\eta_p^2 = .04$ ). Simple contrast analysis confirmed that when Portugal was salient White children perceived the ingroup as more prototypical than the outgroup ( $M_{\text{ingroup}} = 4.11$  vs.  $M_{\text{outgroup}} = 3.14$ ,  $t(213) = 6.21$ ,  $p < .001$ ). As expected, Black children in the Portugal condition perceived the ingroup as less prototypical than the outgroup ( $M_{\text{ingroup}} = 3.00$  vs.  $M_{\text{outgroup}} = 3.82$ ,  $t(213) = -4.15$ ,  $p < .001$ ). When the superordinate category School was salient, White children still perceived the ingroup as more prototypical than the outgroup ( $M_{\text{ingroup}} = 3.72$  vs.  $M_{\text{outgroup}} = 3.19$ ,  $t(213) = 3.40$ ,  $p < .001$ ). Black children, however, perceived both subgroups as equally prototypical of School ( $M_{\text{ingroup}} = 2.76$  vs.  $M_{\text{outgroup}} = 2.94$ ,  $t(213) = -0.79$ , *ns*).

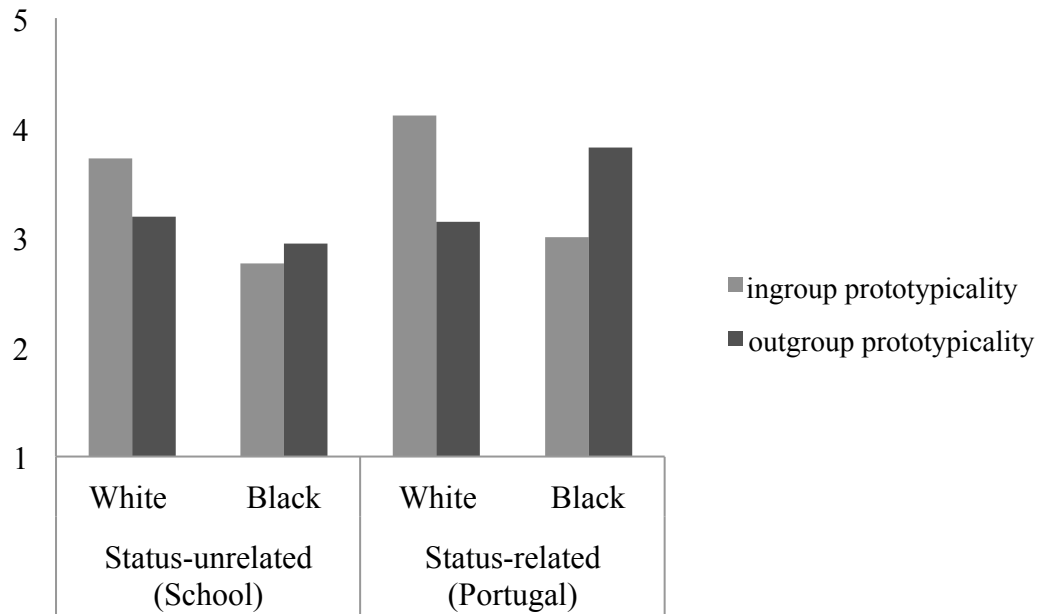


Figure 2. Prototypicality scores for White (higher-status group) and Black children (lower-status group), as a function of the type of superordinate category.

Similarly to study 1, a two-way interaction between participants' ethnic status and target group also emerged. White children perceived the ingroup as more prototypical than the outgroup ( $M_{\text{ingroup}} = 3.92$  vs.  $M_{\text{outgroup}} = 3.17$ ,  $t(213) = 6.79$ ,  $p < .001$ ) and Black children perceived the ingroup as less prototypical than the outgroup ( $M_{\text{ingroup}} = 2.90$  vs.  $M_{\text{outgroup}} = 3.44$ ,  $t(213) = -3.33$ ,  $p < .05$ ).

A 2 (type of superordinate category)  $\times$  2 (participants' ethnic status) ANOVA on relative ingroup prototypicality scores indicated the expected two-way interaction ( $F(1,213) = 8.37$ ;  $p < .05$ ,  $\eta_p^2 = .04$ ). For White children, relative ingroup prototypicality was higher in Portugal than in School ( $M_{\text{Portugal}} = 0.97$  vs.  $M_{\text{School}} = 0.53$ ,  $t(213) = 1.96$ ,  $p = .051$ ). For Black children, relative ingroup prototypicality was higher in School than in Portugal ( $M_{\text{Portugal}} = -0.82$  vs.  $M_{\text{School}} = -0.18$ ,  $t(213) = -2.15$ ,  $p < .05$ ).

*Relation between perceived cognitive representation of intergroup contact, type of superordinate category and intergroup evaluation*

We expected that categorization would be positively related to intergroup bias and that both recategorization and dual identity would be negatively related to

intergroup bias. In addition, we expected these effects to vary according to the type of superordinate category and participants' ethnic status. The correlations between participants' agreement with the cognitive representations and the dependent measures are presented in Table 2.

The pattern of correlations was not very supportive of our hypotheses. Indeed, no consistent relationships were found between the perceived cognitive representations and intergroup bias. Providing some support for our predictions, for Black children in the School condition dual identity was negatively related to bias on positive evaluation ( $r(34) = -.443, p < .01$ ). However, for Black children also in the School condition a higher agreement with recategorization was positively related to bias on positive evaluation ( $r(34) = .327, p = .059$ ), although this relationship was only marginal.

To further explore the relationship between the perceived cognitive representations and intergroup evaluation, we have also analysed the relationship between the cognitive representations and outgroup evaluation<sup>15</sup>. For Black children in the School condition, a higher agreement with recategorization resulted in a less positive outgroup evaluation (on positive traits,  $r(34) = -.453, p < .01$ )<sup>16</sup>. For White children, the relationship between recategorization and outgroup evaluation on negative traits seems to depend on the type of superordinate category. For White participants in the School condition, higher agreement with recategorization resulted in a less negative evaluation of the outgroup ( $r(69) = -.279, p < .05$ ), whereas in the Portugal condition, this relationship was marginally positive, indicating that the higher agreement with recategorization the more negative the outgroup evaluation ( $r(70) = .230, p = .056$ ).

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<sup>15</sup> Correlations between the cognitive representations and ingroup evaluation are presented in Appendix B.

<sup>16</sup> The correlation between recategorization and ingroup evaluation on positive traits for Black children in the School condition was non-significant ( $r = -.165, ns$ ; see Appendix B).

Table 2. Correlations between perceived cognitive representations of intergroup contact and the dependent measures, as a function of participants' ethnic status and type of superordinate category.

Participants' ethnic status	Type of superordinate category	Dependent measures			
		Bias positive evaluation	Bias negative evaluation	Outgroup positive evaluation	Outgroup negative evaluation
Higher (White)	<b>School</b>				
	Categorization	.215 <sup>†</sup>	.006	-.104	.158
	Recategorization	-.032	.053	.026	-.279*
	Dual identity	.102	.202 <sup>†</sup>	.024	.003
	<b>Portugal</b>				
	Categorization	.112	.162	-.269*	-.152
	Recategorization	-.074	-.054	.199	.230 <sup>†</sup>
	Dual identity	-.111	.050	-.109	.089
	Lower (Black)	<b>School</b>			
Categorization		-.166	.113	.137	.086
Recategorization		.327 <sup>†</sup>	-.017	-.453**	.235
Dual identity		-.443*	.238	.081	-.242
<b>Portugal</b>					
Categorization		-.218	.031	.018	-.271 <sup>†</sup>
Recategorization		.035	.100	.081	.187
Dual identity		.041	.227	-.036	.030

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; <sup>†</sup>  $p < .10$

To confirm this moderation we conducted a multiple regression analysis. Recategorization was standardized (mean equals 0 and standard deviation equals 1) and the categorical variables, participants' ethnic origin (Black vs. White) and type of superordinate category (School vs. Portugal), were coded with contrast codes (-1, +1). All the variables, including the 3 two-way interactions and the three-way interaction were entered in the same model. The three-way interaction was significant ( $b = .094$ ,  $SE = 0.46$ ,  $t(209) = 2.05$ ,  $p < .05$ ). Simple slope analyses were used to explore the interaction effect (Aiken & West, 1991). For White participants in the School condition the simple slope was significantly negative ( $b = -.198$ ,  $SE = .07$ ,  $t(209) = -2.56$ ,  $p < .05$ ). For White participants in the Portugal condition the simple slope was

marginally significant ( $b = .138$ ,  $SE = .08$ ,  $t(209) = 1.71$ ,  $p = .089$ ). The remaining simple slopes were not significant.

*Relation between prototypicality, type of superordinate category and intergroup attitudes*

We expected the relationship between prototypicality and intergroup attitudes to depend on the type of superordinate category, such that a stronger relationship should arise when the superordinate category is related to groups' status. The correlations between the prototypicality measures and intergroup bias are presented in Table 3. Similarly to study 1, no significant correlations were found between the prototypicality measures and intergroup bias.

Table 3. Correlations between prototypicality and the dependent measures, as a function of participants' ethnic status and type of superordinate category.

Participants' ethnic status	Type of superordinate category	Dependent measures				
		Bias positive evaluation	Bias negative evaluation	Outgroup positive evaluation	Outgroup negative evaluation	
Higher (White)	<b>School</b>					
	Ingroup prototypicality	-.055	.087	.202 <sup>†</sup>	-.130	
	Outgroup prototypicality	-.148	.063	.183	-.199	
	Relative ingroup prototypicality (RIP)	.096	.036	.043	.061	
	<b>Portugal</b>					
	Ingroup prototypicality	-.012	-.119	.103	.058	
	Outgroup prototypicality	-.118	-.073	.230 <sup>†</sup>	.293*	
	Relative ingroup prototypicality (RIP)	.101	-.025	-.134	-.178	
	Lower (Black)	<b>School</b>				
		Ingroup prototypicality	.171	.098	-.051	-.197
Outgroup prototypicality		-.111	.220	-.030	-.120	
Relative ingroup prototypicality (RIP)		.256	-.089	-.024	-.089	
<b>Portugal</b>						
Ingroup prototypicality		.086	-.072	.146	.013	
Outgroup prototypicality		.148	-.194	.091	.159	
Relative ingroup prototypicality (RIP)		-.055	.106	.043	-.125	

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; <sup>†</sup>  $p < .10$



To further explore the relationship between prototypicality perceptions and intergroup attitudes, we have also analysed the relationship between prototypicality and outgroup evaluation. For Black children, and contrary to study 1, prototypicality and outgroup evaluation were not correlated. For White children, outgroup prototypicality was positively related to negative outgroup evaluation ( $r(70) = .239, p < .05$ ) when the superordinate category was Portugal, but not when it was School ( $r(69) = -.199, ns$ )<sup>17</sup>. To confirm this moderation, we conducted a multiple regression analysis. Outgroup prototypicality was standardized (mean equals 0 and standard deviation equals 1) and type of superordinate category (School, Portugal) was coded with contrast codes (-1, +1). Ingroup prototypicality (standardized) was entered as a control variable. All the variables, including the two-way interaction, were entered in the same model. The interaction term was significant ( $b = .206, SE = .085, t(134) = 2.43, p < .05$ ) and simple slope analyses were used to explore the interaction effect (Aiken & West, 1991). For White participants in the Portugal condition the simple slope was marginally significant ( $b = .181, SE = .10, t(134) = 1.77, p = .08$ ). The simple slope for White participants in the School condition was not significant ( $b = -.23, SE = .15, t(134) = -1.56, ns$ ). These findings suggest that for the higher-status group (White children), when the superordinate category is related to groups' status, higher outgroup prototypicality is associated to a more negative evaluation of the outgroup.

## Discussion

In this study, our main goals were to ascertain how White-Portuguese and Black-Portuguese children perceived the contact structure and the relationship between the subgroups in a natural intergroup context and without experimentally manipulating the cognitive representations under study (recategorization, dual

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<sup>17</sup> A marginally significant correlation between outgroup prototypicality and outgroup evaluation on positive traits also emerged for White participants in the Portugal condition ( $r(70) = .230, p = .056$ ). However, multiple regression analysis did not confirm the moderation of type of superordinate category (two-way interaction between outgroup prototypicality and type of superordinate category:  $b = .017, SE = .07, t = 0.246, ns$ ).

identity, categorization). To this end, we have measured children's agreement with statements depicting the cognitive representations. In addition, we also intended to verify if children's perception of the relationship between the subgroups would vary as a function of type of superordinate category – related to groups' status (Portugal) or unrelated to groups' status (School). Importantly, we also intended to ascertain if the differential agreement with the cognitive representations could have an effect on intergroup evaluation.

Globally, the results of this study indicate that the type of superordinate category is an important variable to understand how White-Portuguese and Black-Portuguese children perceive the relationship between the subgroups. In addition, and replicating, overall, the pattern of results found in study 1, in this study we have confirmed the important role of the type of superordinate category on both intergroup evaluation and prototypicality perceptions. The national group (Portugal), a superordinate category that is directly connected to the subgroup categorization, seems to emphasize groups' differences, resulting in less positive intergroup relations and in a prototype of the superordinate category that is dominated by the higher-status group. On the other hand, School, a superordinate category that is relatively independent of the subgroup dimension of categorization, seemed to provide a context where White and Black children perceived the relationship between the subgroups to be characterized by a common identity, where groups' prototypicality within the shared category was more equivalent and where intergroup relations were more positive.

#### *Perceived cognitive representations of intergroup contact*

The results revealed that both White-Portuguese and Black-Portuguese children perceived the relationship between the subgroups as being mainly characterized by dual identity (“two groups in the same team”), followed by recategorization (“one group”) and, lastly, by categorization (“two different groups”). This pattern was verified when School was the salient superordinate category, but not Portugal. When the status-related superordinate category (Portugal) was salient, a different pattern of results emerged. Children perceived the contact structure of the White and Black subgroups as being principally represented by dual identity. However, and contrary to

the case of School, children agreed moderately and to a similar extent with recategorization and categorization.

These results seem to indicate that in the context of School, both White and Black children tend to perceive the relationship between the subgroups as being characterized mainly by the salience of a shared superordinate category, whether in the form of dual identity or of a single group representation (recategorization), but not as separate groups (categorization). In the case of Portugal, dual identity was again chosen as best describing the relationship between the subgroups, but participants seemed to agree to a similar extent with recategorization and categorization, indicating that, in the case of a status-related superordinate category, the focus on groups commonalities is not as strong as in the case of School.

Since little is known about how children perceive the contact structure between different groups, in different contexts, and its possible effects on intergroup attitudes, future research could profit from a deeper examination of this issue. Indeed, as proposed by Schmid and Hewstone (2010), “any examination of the contextual, macro-level effects of diversity needs to consider how such contextual diversity is subjectively experienced and encountered” (p. 303).

#### *Type of superordinate category and intergroup evaluation*

Regarding the influence of the type of superordinate category on intergroup bias (hypothesis 1), the results of this study provide some support for our hypothesis. The status-related superordinate category, Portugal, triggered higher intergroup bias on the negative evaluation domain, compared to the School condition (status-unrelated superordinate category). Although the same pattern of results was not statistically significant in the case of intergroup bias on positive evaluation, the mean trends were in the expected direction, indicating a tendency for higher levels of bias in the Portugal condition, compared to the School condition. These results were not qualified by participants' ethnic status. In addition, the outgroup was evaluated more positively in the School condition than in the Portugal condition, while ingroup positive evaluation remained stable across both types of superordinate categories, confirming our hypothesis (hypothesis 1.1). This pattern of results was statistically significant for White children, but not for Black children, although the pattern of

means is in the same direction. Globally, these results replicate the findings from the first study, and are in line with results found in the framework of the Common Ingroup Identity Model (e.g., Gaertner et al., 1989; Guerra et al., 2010).

Moreover, both for White-Portuguese and Black-Portuguese children in the School condition, outgroup and ingroup positive evaluation were equivalent. However, in the Portugal condition, both subgroups evaluated the outgroup less positively than the ingroup. These results provide support for our hypothesis that a status-related superordinate category – because it emphasizes and increases the significance of groups' differences – should result in higher levels of intergroup bias, while a superordinate identity that is independent of the subgroup dimension of categorization should lead to more positive intergroup attitudes and evaluations (e.g., Hall & Crisp, 2005).

Regarding groups' evaluation on negative characteristics, Black-Portuguese children in the Portugal condition evaluated the outgroup more negatively than the ingroup, while no differences were found for ingroup and outgroup evaluation in the School condition, and no differences were found for White-Portuguese children. Previous research indicates that, typically, groups try to differentiate themselves from a relevant outgroup on positive outcomes, but not on negative. This phenomenon has been termed the positive-negative asymmetry effect (Mummendey, Simon, Dietze, Grünert, Haeger, Kessler et al., 1992). However, in some circumstances, ingroup differentiation may occur even when negative attributes are used, such as when the ingroup has lower-status (Blanz, Mummendey, & Otten, 1995). It is possible that this may account for why Black-Portuguese children displayed ingroup favouritism in the negative evaluation domain. In addition, because this only occurred when the superordinate category was status-related (Portugal), it is possible that this condition emphasized the comparability between the subgroups, and that Black-Portuguese children tried to differentiate the ingroup in the negative domain but not in School, where the intergroup differences are not so pronounced and meaningful.

*Cognitive representations and type of superordinate category: joint effects on intergroup evaluation*

Considering the relationship between the cognitive representations and type of superordinate category on shaping intergroup bias, the pattern of results obtained in this study was not very supportive of our hypothesis. However, we have found that, for Black-Portuguese children, when School was the salient superordinate category, dual identity was negatively related to intergroup bias on positive evaluation. For White-Portuguese children we did not find significant correlations between the cognitive representations and intergroup bias. Still, when the superordinate category was School, higher agreement with recategorization triggered lower levels of outgroup negative evaluation among White-Portuguese children. On the other hand, when the superordinate category was Portugal, White-Portuguese children showed a marginal positive association of recategorization and outgroup negative evaluation. Although this result was only marginal and we should interpret it with caution, it is in line with previous studies with children (Guerra et al., 2010), where a full recategorization (“we are all Portuguese”) was not effective to reduce intergroup bias for White children. In addition, these results point, globally, to the potential positive effect of making salient a superordinate category that is independent of groups’ status. Although in this study the relationship between the cognitive representations and intergroup evaluation was merely correlational, these results indicate that the type of superordinate category may influence the relationship between recategorization and dual identity and prejudice reduction.

*Type of superordinate category and prototypicality perceptions*

In terms of the influence of the type of superordinate category on prototypicality perceptions, the results of this study closely replicate the results obtained in the first study. When the status-related superordinate category (Portugal) was salient, both White-Portuguese and Black-Portuguese children perceived the higher-status group as reliably more prototypical of the superordinate category than the lower-status group. In the status-unrelated superordinate category condition (School), this gap was lessened. Similarly to study 1, Black-Portuguese children perceived both the ingroup and the outgroup as equally prototypical of school. White children, contrary to study

1, perceived the ingroup as more prototypical of School than the outgroup, but to a lesser extent than in the status-related superordinate category (Portugal) condition. Despite these small differences between study 1 and 2, the results of both studies converge to the idea that, in terms of subgroups' representativeness within the superordinate category, the category School seems to provide a more balanced representation of the superordinate category. That is, in School, the prototype of the superordinate category seems to be defined to a similar extent by both subgroups. On the contrary, when Portugal, a status-related superordinate category, was salient the status asymmetry between the White and Black children was reflected on prototypicality perceptions, since both subgroups acknowledged that the prototype of the category Portugal was dominated by the higher-status group, while the lower-status group maintained its subordinate position. These results are in line with previous research showing that reality constraints shape groups' claims of prototypicality (Waldzus et al., 2004). Recent studies have also shown that claims of groups' prototypicality of the national superordinate category are shaped by the socio-structural context (Devos & Banaji, 2005; Devos, Gavin, & Quintana, 2010; Sibley & Barlow, 2009). For example, in a set of studies conducted by Devos and colleagues (2010), using both explicit and implicit measures, the American identity was associated to a larger extent with Caucasian-Americans than with Latino-Americans. Furthermore, this pattern was acknowledged by both subgroups, Caucasian and Latino Americans.

#### *The relationship between prototypicality and intergroup evaluation*

Finally, regarding the relationship between prototypicality and intergroup bias, similarly to study 1, we did not find reliable correlations between these variables. We have, however, found a relationship between outgroup prototypicality and outgroup evaluation. Contrary to study 1, where a relationship between these variables was found only among Black-Portuguese children, in this study a reliable relationship emerged only for White-Portuguese children. When the superordinate category was Portugal, higher outgroup prototypicality was positively related to outgroup negative evaluation (although only marginally), while no relationship emerged when School was the salient superordinate category. This result is in line with our prediction that the relationship between prototypicality and outgroup evaluation should emerge when

the superordinate category provides a relevant comparison context between the subgroups, that is, when the superordinate category is status-related. Other studies have also shown a similar pattern of results (Meiser et al., 2005). In a study conducted by Meiser and colleagues (2005), researchers have found that a reliable relationship between relative ingroup prototypicality and intergroup bias emerged, but only when the superordinate category was relevant (natural science students) for subgroups comparison (students of chemistry vs. students of biology), and not when it was considered irrelevant (university affiliation). However, groups' relative status was not considered in this study. Indeed, studies investigating the relationship between prototypicality and intergroup evaluation as a function of groups' status are rare. More research is needed to understand the role that variables like groups' status or relevance of the superordinate category can play, independently and in conjunction, in the relationship between prototypicality and intergroup bias.

One limitation of this study is the correlational nature of the relationship between the cognitive representations and intergroup evaluation. Indeed, a more rigorous test of our hypotheses requires the experimental manipulation of the cognitive representations. In addition, a more diverse set of outcome measures, including not only evaluative or attitudinal items, but also behavioural measures, might shed further light on the effects of the cognitive representations on prejudice reduction. These limitations were addressed in the third study.





## **Chapter 4**

# **The interplay between recategorization, dual identity and type of superordinate category: Experimental evidence – Study 3**

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### **Objectives and hypotheses**

In this study our main goal was to perform a more controlled test of the interplay between the cognitive representations and the type of superordinate category to predict prejudice reduction for White and Black Portuguese children. To this end, in the present study we manipulated experimentally the cognitive representations of categorization (control condition), recategorization and dual identity. Similarly to the previous study, we were primarily interested in ascertaining the effects of recategorization and dual identity on prejudice reduction for both White and Black children, as a function of the type of superordinate category. In addition, we have also assessed groups' prototypicality perceptions and the relationship between prototypicality and intergroup evaluation. Extending our focus, relative to previous studies, we have also examined the effects of the cognitive representations on prototypicality perceptions. In addition, we attempted to integrate all the relevant variables under study – cognitive representation, type of superordinate category, participants' ethnic status and prototypicality perceptions – into a model explaining the predicted effects of the cognitive representations on intergroup evaluation via prototypicality.

Previous studies with children testing the effectiveness of recategorization and dual identity to reduce intergroup bias have manipulated the cognitive representations through a contact situation where both subgroups (e.g., White and Black children) interacted directly (Guerra, 2007; Rebelo, 2006) in two 3-person groups. These experimental procedures closely resembled the ones developed by Gaertner and colleagues (1989; 1993). By systematically varying the nature of groups' interdependence and groups' position during the interaction, the researchers were able to successfully induce different cognitive representations (categorization, recategorization and dual identity; Guerra, 2007; Rebelo, 2006).

In the present study we have, however, introduced a different manipulation of the cognitive representations. We have used an indirect contact situation, that is, a non-interactive contact situation. This type of operationalization has been used in previous research with both adults (e.g., Hornsey & Hogg, 2000; 1999) and children (Cameron et al., 2006). For example, Cameron and colleagues have successfully adapted children's story books to depict and manipulate recategorization and dual identity. Our approach in this study was distinct from the one proposed by Cameron and colleagues (2006). In this study, we have adapted the experimental procedures developed by Rebelo (2006) and Guerra (2007) to the indirect contact situation.

Regarding our hypotheses for this study, overall we expected that both recategorization and dual identity would reduce intergroup bias, compared to the categorization control condition (hypothesis 1). In line with studies within the common ingroup identity framework (e.g., Gaertner et al., 1989; Guerra et al., 2010), we expected that bias would be reduced due to an increase in outgroup evaluation, while negligible effects on ingroup evaluation were expected. More importantly, and directly addressing our main goal in this study, we expected the type of superordinate category and participants' ethnic status to influence the relationship between the cognitive representations and intergroup evaluation.

Similarly to the previous study, we expected that School, the status-unrelated superordinate category, would deemphasize the differences between the subgroups, shifting the focus of attention away from the ingroup-outgroup distinction. In this condition, the salience of a status-unrelated superordinate category, we then expected the positive effects of a common identity to emerge. That is, we expected that recategorization and dual identity School should both equally result in lower intergroup bias. In addition, we expected this to be the case for both White and Black children (hypothesis 2). On the other hand, when a status-related superordinate category is salient (Portugal), we expected the ingroup-outgroup distinction to become more salient and meaningful for intergroup comparison. This situation may likely result in a convergence of intergroup boundaries, and in an increase in groups' comparability, providing a favourable context for the maintenance of intergroup bias.

As we had hypothesized in the previous study, recategorization in a status-related superordinate category (Portugal) may not be very effective to reduce intergroup bias for White children (higher-status group). This is because, in recategorization, the relative higher-status of White children (relative to Black

children) is not maintained, since subgroup boundaries are blurred in favour of a single, all-encompassing superordinate category. This situation does not allow the higher-status group to positively differentiate the ingroup from the outgroup, namely in a context (status-related superordinate category) where subgroup comparability is heightened. In dual identity, the higher-status group may actually preserve its positive distinctiveness relative to the lower-status group within the context of a shared identity. Although the Ingroup Projection Model (Mummendey & Wenzel, 1999) would predict that in dual identity the higher-status group would be more likely to engage in ingroup projection, which could originate higher levels of intergroup bias, it is also conceivable that bias could be reduced, because in dual identity the higher-status group is allowed to maintain its positive distinctiveness. In fact, previous studies have shown that dual identity was more effective to reduce intergroup bias than recategorization among White children (higher-status). In sum, we expected that when the superordinate category is status-related (Portugal), dual identity should be more effective to reduce intergroup bias than recategorization for White children (hypothesis 3). In the same vein, but now considering the lower-status group (Black children), in the case of dual identity, when a status-related superordinate category is salient (Portugal), the lower-status group would maintain its relative lower-status in comparison to White children (higher-status group). This can be contrary to Black children's goal of achieving a more positive social identity. Moreover, previous studies with children have shown that recategorization may be more effective than dual identity to reduce intergroup bias among Black-Portuguese children (Guerra et al. 2010). Therefore, we hypothesized that for Black children, when a status-related superordinate category is salient, recategorization should be more effective to reduce intergroup bias than dual identity (hypothesis 4).

In this study we have also analysed the effect of the cognitive representations and type of superordinate category on prototypicality perceptions. When both subgroups share a superordinate category (whether in recategorization or dual identity conditions) that is status-related (Portugal), it is likely that the higher-status group will perceive the ingroup as more prototypical than the outgroup. The ingroup projection model (Mummendey & Wenzel, 1999) further proposes that this situation is more likely to arise when both the subgroup and the superordinate category dimension are simultaneously salient (i.e., in dual identity condition; Wenzel et al., 2003). We then expected White children to perceive the ingroup as more prototypical than the

outgroup when the superordinate category is status-related (Portugal), namely in dual identity, compared to the condition of status-unrelated superordinate category (School; hypothesis 5). For Black children, we expected that they would perceive the higher-status group as more prototypical of the superordinate category Portugal than the lower-status group (even in recategorization and dual identity). We expected these differences to be less pronounced when the subgroups share a superordinate category (recategorization or dual identity) that is unrelated to groups' status (School; hypothesis 6).

As in the previous studies, we expected the relationship between prototypicality and intergroup evaluation to vary as a function of the type of superordinate category. Specifically, we expected a stronger relationship between prototypicality and intergroup evaluation when the superordinate category is related to groups' status (Portugal), compared to when it is unrelated to groups' status (School; hypothesis 7).

In an attempt to integrate the relevant variables under study, we further hypothesized that prototypicality should mediate the relationship between the cognitive representations (recategorization, dual identity) and intergroup evaluation, but only when the type of superordinate category is related to groups' status (Portugal). We expected this to occur for the higher-status group, and not for the lower-status groups (hypothesis 8), since prototypicality should be mainly relevant to drive intergroup evaluation for the higher-status group in the status-related superordinate category (Dovidio et al., 2006).

## **Method**

### *Participants and design*

Participants were 240 fourth grade Portuguese male and female children (150 White-Portuguese and 90 Black-Portuguese; 50.2% female; overall mean age 10.84;  $SD = 1.98$ ), attending 6 public schools in the suburban area of Lisbon, Portugal. In all of the schools the percentage of ethnic minorities was about 30%. All children were from middle-low SES and were given parental permission to participate in the study.

The experimental design was 3 (condition: categorization; recategorization; dual identity)  $\times$  2 (type of superordinate category: Status-related *vs.* Status-unrelated)  $\times$  2 (participants' ethnic status: Higher – White-Portuguese *vs.* Lower – Black-Portuguese)  $\times$  2 (target: ingroup, outgroup), with the last factor as within subjects-factor. Condition, type of superordinate category and participants' ethnic status were between-subjects factors.

From the total of 240 participants, 5 did not correctly identify the experimental condition to which they had been assigned<sup>18</sup>. These children were thus excluded from further analysis (valid final  $N = 235$ )<sup>19</sup>.

### *Procedure*

In this study, as previously mentioned, children did not interact directly with other ingroup and outgroup members. Instead, we created an indirect contact situation. The experimental task was adapted from Rebelo (2006) and Guerra (2007; Guerra et al., 2010). These authors have successfully adapted to children the cognitive representations' manipulation and the Winter Survival Problem (Johnson & Johnson, 1975), the task used in most of the Common Ingroup Identity Model studies (Gaertner et al., 1993). Their operationalization involved interacting groups of White-Portuguese and Black-Portuguese children. Because the present study involved an indirect contact situation we kept the experimental task as similar as possible to the approach developed by Rebelo (2006) and Guerra (2007), making changes wherever necessary to ensure the credibility of the experimental cover to the participants.

Participants were interviewed individually at school, in a private room, during approximately 30-35 minutes. A White experimenter conducted the interviews. In the first part of the interview the experimental manipulations were introduced and participants completed the survival task. The experimental manipulations were presented in a computer screen. In the second part, participants completed a

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<sup>18</sup> These participants were in the recategorization condition but chose the dual identity item in the manipulation check. Three participants were White-Portuguese and two were Black-Portuguese.

<sup>19</sup> The number of participants per condition was the following: Status-related superordinate category & higher ethnic status (White children): categorization = 25, recategorization = 26, dual identity = 26; Status-related superordinate category and lower ethnic-status (Black children): categorization = 15, recategorization = 13, dual identity = 15; Status-unrelated superordinate category and higher ethnic-status (White children): categorization = 21, recategorization = 25, dual identity = 23; Status-unrelated superordinate category and lower-ethnic-status (Black children): categorization = 15, recategorization = 15, dual identity = 15.

questionnaire with the manipulation check and the dependent measures. The experiment ended with a short debriefing.

### Experimental manipulations

In the beginning of the interview, the child was told that the experimenter was writing a story about children the same age as the participant and help was needed to complete that story. The child was told that he/she could play a game to decide the end of the story. The child was then presented with the story plot: a trip by boat around the world, the onset of a storm in the sea and the damage caused to the boat, and the sighting of a desert island where the boat's crew could settle for a few days until their boat was repaired. In order to survive, the crew had to choose, from a set of 10 objects (bag, books, clock, clothes, dishware, lantern, medicine, rope, tent, water) the 6 most important ones to take to the island. These explanations were accompanied by images shown to the child in a computer<sup>20</sup>.

After, the child was told that this game was played in teams.

*“As you know there are many different children at your school. For example, there are older and younger children, there are boys and girls, and there are White-Portuguese children and Black-Portuguese children.”*

This explanation was accompanied by pictures of children representing these social groups. By raising the child's awareness of different groups, namely the ethnic groups, we intended to prime the ethnic dimension of categorization (which in a full interaction procedure was achieved by the two teams playing the game separately). This part of the procedure was the same across the different experimental conditions.

Afterwards, the experimental manipulations were introduced.

In the categorization condition, the child was told that two teams were going to play the game: the Portuguese origin team and the African origin team. The child was then presented with pictures of his/her team members. The pictures depicted two children, of the same sex and ethnic origin as the participant. The child was asked if he/she would like to play the game in the allocated team. The experimenter also told

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<sup>20</sup> An example of the materials used in this experiment is presented in Appendix C.

the participant that the other children could not be present at the same time as the participant because they were from another grade/had a different school time, but the participation of all the children was needed to complete the game. The child was told that it was not possible to put his/her photo next to the photos of the other children from his/her team and was asked to write his/her name in the computer next to the team's photos. The participant then chose a name to his/her team, wrote it down in the computer and on a card with a colour tag to represent his/her team. The colour tag was directly related to the child's ethnic status (brown for African origin and white for Portuguese origin children).

Then the child was shown a board with the picture of his/her team and the objects of the task. The child wrote again his/her name next to the pictures of his/her team members and the name of the team he/she had chosen. The experimenter then explained that from those 10 objects, the team could only choose the 6 most important ones to survive in the desert island. The child was told that the other members of his/her team had already chosen 4 objects. The participant had to choose two more objects to complete his/her team solution to the game. The participant could also change one of the objects previously selected. At this stage, the experimenter emphasized that the solution of the participant's team was going to be compared to the other team (Portuguese origin or African origin) and a prize would be given to the team with the best solution to the game. The child then selected the objects to complete his/her team solution.

In the recategorization condition, the participant was told that he/she was going to play the game in one team (the Portuguese team or the School team, depending on the type of superordinate category condition). Children were told that although in their team there were Portuguese origin children and African origin children, that fact did not matter because all the children in the participant's team were Portuguese, or from the same school as the participant. It was then again emphasized that they were all one single team. Pictures of same sex children, 2 from the same ethnic origin as the participant and 3 from the other ethnic origin group were shown to the participant (in total, the team was composed of 3 White-Portuguese and 3 Black-Portuguese members; the pictures of White and Black children were presented alternately, similar to the spatial distribution of ingroup-outgroup members in a full interaction, where the sitting pattern is ABABAB). The explanation regarding the absence of the other team members, the choice of the team name, and the writing of the participant's name next

to the other team members' pictures was identical to the categorization condition. The colour tag assigned was green for participants in the Portugal superordinate category condition and blue for participants in the School superordinate category condition. The explanation regarding the number of objects that had to be chosen to complete the task was also identical to the instructions in the categorization condition. The participant was told that his/her team solution was going to be compared to a team from another school and a prize would be given to the team with the best solution to the game. The participant then selected the objects to complete his/her team solution.

In the dual identity condition, the participant was told that he/she was going to play in a team (the Portuguese team or the School team, depending on the type of superordinate category condition) that was composed by two groups, the Portuguese origin group and the Black-origin group. Pictures of same sex children, 2 from the same ethnic origin as the participant and 3 from the other ethnic origin, were shown to the participant (in total, the team was composed of 3 Portuguese origin children and 3 African origin children; the pictures of White and Black children were grouped by ethnic origin and were presented slightly apart, although included in the same picture of the team, similarly to the spatial distribution of ingroup-outgroup members in a full interaction where the sitting pattern is AAA-BBB). The remaining features of the cognitive representation manipulation were similar to the other conditions (the absence of the other team members, the assignment of a team name). Two colour tags were assigned to the participant: the subgroup tag, which was directly related to groups' ethnic status (white for Portuguese origin children and brown for Black origin children), and the superordinate category tag (green for "Portugal" and blue for "School"). The explanation regarding the number of objects that had to be chosen to complete the task was identical to the instructions in the other experimental conditions. In the dual identity condition, however, after choosing the objects, the participant was told that each subgroup within his/her team had to write the name of the objects or glue them to the board, and that those two different tasks were needed to finish the game<sup>21</sup>. The child was then told to which task (write or glue) his/her subgroup had been assigned to and then completed it. The different tasks were

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<sup>21</sup> A study conducted by Guerra (2007) has shown that subgroups having different and complementary tasks is needed in order for dual identity to have a positive effect on intergroup attitudes. In this study, dual identity with similar tasks showed no improvement in intergroup attitudes, whereas dual identity with different but complementary tasks resulted in more positive intergroup attitudes. Drawing on these results, we decided to keep dual identity with complementary tasks.



randomly assigned to the White-Portuguese and to the Black-Portuguese group, to ensure that both subgroups would perform different tasks. The participant was told that his/her team solution was going to be compared to a team from another school and a prize would be given to the team with the best solution to the game. The participant then selected the objects to complete his/her team solution.

In the second part of the interview the manipulation checks and the dependent measures were administered. The participant was told that he/she was going to fill a questionnaire with questions about the game he/she had played. The questions were presented in a computer screen, but the participant answered in a paper-pencil answering sheet.

The participants were told that later on they would be informed about the result of the game, namely which team had won. At the end of the data collection, a symbolic prize was given to all the students.

#### Pre-test of the experimental manipulations

A pre-test of the experimental manipulations was conducted with 19 children attending one public school in the suburban area of Lisbon, Portugal ( $N_{\text{White-Portuguese}} = 12$ ;  $N_{\text{Black-Portuguese}} = 7$ ). Participants were randomly assigned to the experimental conditions 3 (condition: categorization, recategorization, dual identity)  $\times$  2 (type of superordinate category: Status-related vs. Status-unrelated).

After the session, participants completed a questionnaire with manipulation checks and a resource allocation measure<sup>22</sup> (number of pencils attributed to ingroup and outgroup members). Two items were used as a manipulation check. The first item asked participants to select from 5 sentences depicting different cognitive representations, the one that best represented the team to which they had been assigned during the task. The 5 items represented the cognitive representations of categorization (“My team was: the Portuguese origin team; the African origin team), recategorization (“My team was the Portuguese team [the school team]”), dual identity (“My team was the Portuguese team [the school team], formed by the Portuguese origin group and by the African origin group) and individuation (“My team was only myself”). The second item asked participants about their perception of

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<sup>22</sup> Results for the dependent measure of resource allocation were not subject to analysis.

the groups involved in the task (“How was the game?”). Participants were presented with 4 sentences representing the cognitive representations and had to choose the sentence that best characterized the task: categorization (“the team of the Portuguese origin children played against the team of African origin children”), recategorization (“this school’s team [the Portuguese team] played against children from another school”), dual identity (“this school’s team [the Portuguese team], formed by the Portuguese origin group and by the African origin group, played against children from another school”) and individuation (“The team that was only myself played against other children”).

The experimental manipulations were successful. Responses to item 1 revealed that only one child did not correctly identify the experimental condition to which he had been assigned. Responses to item 2 showed that, in this case, all children correctly identified the experimental condition. Importantly, none of the participants selected the individuation item, indicating that children perceived the experimental task at the group level.

## *Measures*

### *Manipulation checks*

After the experimental task, participants were asked to choose the paragraph that best represented the team to which they belonged (e.g., “my team was the Portuguese team”). This item was the manipulation check for the cognitive representation (categorization, recategorization or dual identity).

The manipulation check to assess the relatedness of the subgroup categorization to the superordinate category consisted of 3 items (adapted from Guerra, 2007). Participants had to evaluate in a 4-point Likert scale (1 = not at all; 4 = very much) how much, during the experimental task, they felt as: African origin, Portuguese origin, Portuguese or from the School (depending on the type of superordinate category condition).

### *Dependent measures*

Two sets of dependent measures were used: *i*) dependent measures focused on the fictitious ingroup/outgroup members present in the experimental tasks and; *ii*) dependent measures focused on the overall target groups.

Regarding the measures focusing on the ingroup/outgroup members present in the experimental task, three dependent measures were adapted from previous studies (Guerra, 2007; Rebelo, 2006): competence (“how well did (picture of each participant) play the game?”) and similarity (“Did (picture of each participant) choose like me?”) – assessed in a 4-point Likert scale (1 = not at all; 4 = very much) – and a behavioural measure, resource allocation (number of pencils allocated to ingroup and outgroup members<sup>23</sup>).

Regarding the measures focused on the overall target groups, we used a measure of contact intention and positive and negative evaluation. In the measure of contact intention, participants were presented with 11 pictures of ingroup and outgroup members and were asked to choose 5 members to be part of their team in a fictitious future experimental task. The score was the number of ingroup and outgroup members chosen. The measure of positive and negative evaluation was similar to the one used in the previous studies (adapted from Marinho, 2005). Participants were presented with pictures of children from the ingroup and outgroup and rated both target groups on positive (e.g., polite, courageous) and negative characteristics (e.g., noisy, liars) using a 5-point Likert scale (1 = not at all; 5 = a lot). The order of presentation of the ingroup and outgroup was counterbalanced across participants. Positive and negative items for the ingroup and outgroup were averaged to form four indexes: positive ingroup evaluation ( $\alpha_{\text{ingroup}} = .59$ ), positive outgroup evaluation ( $\alpha_{\text{outgroup}} = .60$ ), negative ingroup evaluation ( $\alpha_{\text{ingroup}} = .61$ ) and negative outgroup evaluation ( $\alpha_{\text{outgroup}} = .60$ ).

### *Prototypicality*

To assess groups’ prototypicality we used the same pictorial measure as in the previous studies (adapted from Waldzus & Mummendey, 2004). Participants were

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<sup>23</sup> A  $\log_{10}$  transformation was used on the original resource allocation measure because exploratory analyses revealed the presence of outliers and a positively skewed distribution.

presented with 5 pictures varying the degree of similarity between the ingroup/outgroup and the superordinate category and were asked to choose the picture that best captured the perceived overlap between each subgroup and the superordinate category (e.g., “Please think about your school [Portugal] and about Black [White] children. How similar are Black [White] children to the children of your school [Portuguese children]?; 1 = not at all similar to 5 = a lot similar). The order of presentation of the subgroups was counterbalanced across participants. As with the previous studies, we have analysed the relative ingroup prototypicality scores (ingroup prototypicality – outgroup prototypicality), which range from -4 to +4 (higher values indicate higher relative ingroup prototypicality), as well as the ingroup and outgroup prototypicality scores separately.

## Results

### *Manipulation checks*

As mentioned previously, from the total of 240 participants, 5 did not correctly identify the experimental condition to which they had been assigned and were thus excluded from the analysis, leaving a final  $N = 235$ .

To ascertain the relatedness of the subgroup dimension of categorization to the superordinate category, *i.e.*, to verify that this association would hold for the status-related superordinate category (Portugal), but not for the status-unrelated superordinate category (School), we recoded the items “during the experimental task, how much I felt as: African origin, Portuguese origin” to reflect the extent to which participants felt like belonging to their ingroup. We then computed the correlation between the extent to which participants’ felt belonging to their ingroup and to the superordinate category. Overall, collapsing across participants’ ethnic status, the ingroup and the superordinate category were positively correlated in the status-related condition ( $r(120) = 0.248$ ;  $p < .01$ ) but not in the status-unrelated condition ( $r(97) = -0.071$ ; *ns*).

### *Bias reduction*

To consider the hypothesis that both recategorization and dual identity reduce prejudice, compared to the categorization condition, we performed a 3 (condition: categorization; recategorization; dual identity)  $\times$  2 (type of superordinate category: status-related vs. status unrelated)  $\times$  2 (participants' ethnic status: higher; lower) ANOVAs on participants' bias scores.

In terms of the dependent measures focused on ingroup/outgroup members present in the experimental tasks (competence, similarity and resource allocation), the results revealed the expected main effect on similarity ( $F(2,223) = 5.60$ ;  $p < .01$ ,  $\eta_p^2 = .48$ ) and resource allocation ( $F(2,223) = 11.66$ ;  $p < .001$ ,  $\eta_p^2 = .09$ ). Because we had *a priori* hypotheses, we conducted a series of simple contrast analyses comparing participants' bias scores in the categorization condition to each of the recategorization and dual identity conditions (collapsing across participants' ethnic status and type of superordinate category). The comparisons revealed less bias in recategorization relative to the categorization condition in the resource allocation measure ( $M = -0.02$  vs.  $M = 0.12$ ;  $t(223) = 4.66$ ;  $p < .001$ ) and also on similarity ( $M = 0.13$  vs.  $M = 0.32$ ;  $t(223) = 1.99$ ;  $p < .05$ ). Although a main effect did not emerge for the competence measure, the contrast analysis revealed that recategorization marginally reduced bias relative to categorization ( $M = 0.13$  vs.  $M = 0.28$ ;  $t(223) = 1.74$ ;  $p = .08$ ). In terms of the process of prejudice reduction, recategorization reduced bias relative to categorization due to an increase in outgroup evaluation (competence:  $M_{Cat} = 3.23$  vs.  $M_{Rec} = 3.41$ ,  $t(223) = -2.47$ ,  $p < .05$ ; resource allocation:  $M_{Cat} = 0.59$  vs.  $M_{Rec} = 0.80$ ,  $t(223) = -4.51$ ,  $p < .001$ ), while having negligible effects on ingroup evaluation (competence:  $M_{Cat} = 3.51$  vs.  $M_{Rec} = 3.53$ ,  $t(223) = -0.56$ , *ns*; resource allocation:  $M_{Cat} = 0.71$  vs.  $M_{Rec} = 0.78$ ,  $t(223) = -1.46$ , *ns*). For the similarity measure, and although bias was reduced in recategorization relative to categorization, no statistically significant differences were found regarding outgroup and ingroup evaluation between both experimental conditions (outgroup evaluation:  $M_{Cat} = 2.93$  vs.  $M_{Rec} = 2.94$ ,  $t(223) = -0.45$ , *ns*; ingroup evaluation:  $M_{Cat} = 3.25$  vs.  $M_{Rec} = 3.07$ ,  $t(223) = 1.60$ , *ns*).

Dual identity did not reduce bias relative to the categorization condition in the similarity measure ( $M = 0.43$  vs.  $M = 0.32$ ;  $t(223) = -1.32$ ; *ns*) or in the resource allocation measure ( $M = 0.09$  vs.  $M = 0.12$ ;  $t(223) = 1.26$ ; *ns*). Dual identity

marginally reduced bias relative to the categorization condition in the competence measure ( $M = 0.09$  vs.  $M = 0.28$ ;  $t(223) = 1.78$ ;  $p = .07$ ). In this dependent measure, dual identity reduced bias relative to the categorization condition by increasing outgroup evaluation ( $M_{Cat} = 3.23$  vs.  $M_{Di} = 3.42$ ,  $t(223) = -2.30$ ,  $p < .05$ ), while ingroup evaluation differences were negligible ( $M_{Cat} = 3.51$  vs.  $M_{Di} = 3.47$ ,  $t(223) = -0.34$ , *ns*).

For the dependent measures focused on the overall target groups (contact intention and positive and negative evaluation), the results were not very supportive in relation to our hypotheses. In the measure of contact intention the expected main effect of condition was not significant ( $F(2,223) = 1.25$ , *ns*). Contrast analysis revealed that neither recategorization nor dual identity were able to reduce intergroup bias relative to categorization, although the mean trends were in the expected direction ( $M_{Rec} = 0.76$  vs.  $M_{Cat} = 1.37$ ,  $t(223) = 1.36$ , *ns*;  $M_{Di} = 1.23$  vs.  $M_{Cat} = 1.37$ ,  $t(223) = -0.01$ , *ns*). In the measure of positive groups' evaluation, the expected main effect of condition was marginally significant ( $F(2,223) = 2.79$ ,  $p = .06$ ). Contrast analysis revealed that recategorization did not reduce bias relative to the categorization condition ( $M_{Rec} = 0.08$  vs.  $M_{Cat} = -0.02$ ,  $t(223) = -1.71$ ,  $p = .08$ ) and, in fact, bias levels were marginally higher in recategorization than in categorization. Dual identity also did not reduce bias relative to categorization. Intergroup bias was actually higher in dual identity than in the categorization condition ( $M_{Di} = 0.14$  vs.  $M_{Cat} = -0.02$ ,  $t(223) = -2.27$ ,  $p < .05$ ). A similar pattern of results also emerged for the groups' negative evaluation (main effect of condition was significant:  $F(2,223) = 5.94$ ,  $p < .01$ ,  $\eta_p^2 = .05$ ). Recategorization did not reduce bias relative to categorization. Actually, participants displayed higher levels of bias in recategorization relative to categorization ( $M_{Rec} = 0.15$  vs.  $M_{Cat} = -0.20$ ,  $t(223) = -3.38$ ,  $p < .01$ ) which also happened in dual identity relative to the categorization condition ( $M_{Di} = .02$  vs.  $M_{Cat} = -0.20$ ,  $t(223) = -2.28$ ,  $p < .05$ )<sup>24</sup>.

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<sup>24</sup> One sample t-test (against the value zero) for the bias measures as a function of participants' ethnic status, condition and type of superordinate category are presented in Appendix C.

*The joint effects of cognitive representations, type of superordinate category and ethnic status on intergroup evaluations*

We expected that when the superordinate category is unrelated to groups' status (School), no differences in intergroup bias should emerge between recategorization and dual identity, for both White and Black children. However, when the superordinate category is status-related (Portugal), we hypothesized that dual identity should reduce prejudice relative to recategorization for White children, and that for Black children, the reverse pattern should arise, i.e., recategorization should trigger lower levels of bias compared to dual identity.

We performed a 2 (cognitive representation: recategorization, dual identity)  $\times$  2 (type of superordinate category: status-associated – Portugal; status non-associated – School)  $\times$  2 (participants' ethnic status: higher, lower) ANOVA on participants' bias scores. To confirm our hypothesis, the analyses should reveal a three-way interaction between cognitive representation, type of superordinate category and participants' ethnic status. A three-way interaction was found on the competence bias measure ( $F(1,151) = 4.75, p < .05, \eta_p^2 = .03$ ) and on the contact intention bias measure ( $F(1,151) = 3.92, p < .05, \eta_p^2 = .02$ ). The three-way interaction was not significant on the remaining bias measures: similarity ( $F(1,151) = 1.07, ns$ ), resource allocation ( $F(1,151) = 0.15, ns$ ), positive evaluation ( $F(1,151) = 0.21, ns$ ) and negative evaluation ( $F(1,151) = 0.09, ns$ ). We then ran simple contrast analyses testing the predicted effects of the type of superordinate category and participants' ethnic status on bias levels.

Supporting our hypotheses for the status-unrelated superordinate category condition (School), we found that for White children, intergroup bias was identical between recategorization and dual identity for the intergroup bias measures of competence ( $M_{Rec} = 0.31$  vs.  $M_{Di} = 0.07; t(151) = 1.51, ns$ ), similarity ( $M_{Rec} = 0.19$  vs.  $M_{Di} = 0.25; t(151) = -0.33, ns$ ), contact intention ( $M_{Rec} = 1.28$  vs.  $M_{Di} = 1.00, t(151) = 0.46, ns$ ), positive evaluation ( $M_{Rec} = 0.03$  vs.  $M_{Di} = -0.09, t(151) = 0.73, ns$ ) and negative evaluation ( $M_{Rec} = 0.22$  vs.  $M_{Di} = -0.05, t(151) = 1.34, ns$ ). Also supporting our hypotheses for Black children in the School condition, intergroup bias was found to be identical between recategorization and dual identity in the measures of resource allocation ( $M_{Rec} = -0.04$  vs.  $M_{Di} = 0.01, t(151) = -0.88, ns$ ), positive ( $M_{Rec} = 0.20$  vs.

$M_{Di} = 0.25$ ,  $t(151) = -0.18$ , *ns*) and negative evaluation ( $M_{Rec} = 0.33$  vs.  $M_{Di} = 0.05$ ,  $t(151) = 1.07$ , *ns*).

Contrary to our hypotheses, however, when the superordinate category was School, White children marginally displayed lower levels of intergroup bias in recategorization, relative to dual identity in the resource allocation measure ( $M_{Rec} = -0.01$  vs.  $M_{Di} = 0.08$ ,  $t(151) = -1.86$ ,  $p = .07$ ). Also not in line with our hypotheses, for Black children in the School condition, recategorization reduced intergroup bias relative to dual identity in the similarity measure ( $M_{Rec} = -0.14$  vs.  $M_{Di} = 0.69$ ,  $t(151) = -3.39$ ,  $p < .01$ ) and, marginally, on both the competence ( $M_{Rec} = 0.04$  vs.  $M_{Di} = 0.41$ ,  $t(151) = -1.76$ ,  $p = .07$ ) and the game measure ( $M_{Rec} = 0.13$  vs.  $M_{Di} = 1.47$ ,  $t(151) = -1.70$ ,  $p = .09$ ).

Regarding the status-related superordinate category (Portugal), and supporting our hypotheses, we have found that for Black children recategorization reduced intergroup bias relative to dual identity in the measure of resource allocation ( $M_{Rec} = 0.01$  vs.  $M_{Di} = 0.15$ ,  $t(151) = -2.21$ ,  $p < .05$ ) and also, marginally, in the measure of similarity ( $M_{Rec} = -0.06$  vs.  $M_{Di} = 0.36$ ,  $t(151) = -1.66$ ,  $p = .09$ ). However, in the remaining dependent measures, Black children displayed similar levels of intergroup bias between recategorization and dual identity, thus not supporting our hypotheses (competence:  $M_{Rec} = -0.08$  vs.  $M_{Di} = -0.24$ ,  $t(151) = 0.77$ , *ns*; contact intention:  $M_{Rec} = 1.38$  vs.  $M_{Di} = 1.20$ ,  $t(151) = 0.23$ , *ns*; positive evaluation:  $M_{Rec} = 0.15$  vs.  $M_{Di} = 0.27$ ,  $t(151) = -0.59$ , *ns*; negative evaluation:  $M_{Rec} = 0.02$  vs.  $M_{Di} = 0.11$ ,  $t(151) = -0.34$ , *ns*). For White children in the Portugal condition, there was no evidence that dual identity reduced bias relative to recategorization, thus not supporting our predictions. Instead, White children in the Portugal condition displayed similar levels of bias between recategorization and dual identity in the measures of competence ( $M_{Rec} = 0.09$  vs.  $M_{Di} = 0.13$ ,  $t(151) = -0.24$ , *ns*), similarity ( $M_{Rec} = 0.33$  vs.  $M_{Di} = 0.45$ ,  $t(151) = -0.61$ , *ns*), positive evaluation ( $M_{Rec} = 0.05$  vs.  $M_{Di} = 0.20$ ,  $t(151) = -0.90$ , *ns*), and negative evaluation ( $M_{Rec} = 0.05$  vs.  $M_{Di} = 0.00$ ,  $t(151) = 0.23$ , *ns*). Furthermore, recategorization was found to reduce intergroup prejudice compared to dual identity in the resource allocation measure ( $M_{Rec} = -0.02$  vs.  $M_{Di} = 0.10$ ,  $t(151) = -2.87$ ,  $p < .01$ ) and also, marginally, on the contact intention measure ( $M_{Rec} = 0.31$  vs.  $M_{Di} = 1.30$ ,  $t(151) = -1.68$ ,  $p = .09$ ).



*The effect of cognitive representations and type of superordinate category on prototypicality perceptions*

To consider the hypothesis that prototypicality perceptions would be influenced by the type of superordinate category, cognitive representation and participants' ethnic status, we performed a 3 (condition)  $\times$  2 (type of superordinate category)  $\times$  2 (participants' ethnic status) ANOVA on relative ingroup prototypicality scores.

The expected three-way interaction was not significant ( $F(2,223) = 1.04, ns$ ). Simple contrast analysis indicated that for White children in the status-related superordinate category condition (Portugal), relative ingroup prototypicality was identical both in recategorization and in dual identity, compared to the categorization condition ( $M_{Cat} = 0.76$  vs.  $M_{Rec} = 0.77, t(223) = -0.03, ns$ ;  $M_{Cat} = 0.76$  vs.  $M_{Di} = 1.07, t(223) = -0.98, ns$ ). Relative ingroup prototypicality was also identical in recategorization and dual identity conditions ( $t(223) = -0.95, ns$ ). For Black children in the Portugal condition, relative ingroup prototypicality was identical between categorization and recategorization ( $M_{Cat} = -1.33$  vs.  $M_{Rec} = -0.69, t(223) = -1.46, ns$ ), that is, the lower-status group was perceived as reliably less prototypical of the superordinate category Portugal than the higher-status group. However, dual identity reliably increased relative ingroup prototypicality compared to categorization ( $M_{Cat} = -1.33$  vs.  $M_{Di} = 0.00, t(223) = -3.15, p < .01$ ). Relative ingroup prototypicality was identical in recategorization and dual identity ( $t(223) = -1.58, ns$ ).

Regarding the results for the status-unrelated superordinate category (School), for White children relative ingroup prototypicality was equivalent between categorization and recategorization ( $M_{Cat} = 0.86$  vs.  $M_{Rec} = 0.92, t(223) = -0.18, ns$ ). However, dual identity marginally reduced relative ingroup prototypicality compared to the categorization condition ( $M_{Cat} = 0.86$  vs.  $M_{Di} = 0.25, t(223) = 1.76, p = .08$ ). Dual identity also reliably decreased relative ingroup prototypicality relative to recategorization condition ( $t(223) = 2.20, p < .05$ ). For Black children in the School condition, both recategorization and dual identity significantly increased relative ingroup prototypicality relative to the categorization condition ( $M_{Cat} = -1.50$  vs.  $M_{Rec} = -0.13, t(223) = -3.23, p < .01$ ;  $M_{Cat} = -1.50$  vs.  $M_{Di} = 0.00, t(223) = -3.55, p < .001$ ). No differences emerged in relative ingroup prototypicality between recategorization and dual identity ( $t(223) = -0.32, ns$ ).

We have also conducted a 3 (condition)  $\times$  2 (type of superordinate category)  $\times$  2 (participants' ethnic status)  $\times$  2 (target group: ingroup, outgroup) mixed ANOVA on ingroup and outgroup prototypicality scores (see Figure 3 for graphical representation of means). The four-way interaction did not reach statistical significance ( $F(2,223) = 1.03$ , *ns*). Simple contrast analysis indicated that for White children in the Portugal condition, the ingroup was always reliably perceived as more prototypical than the outgroup, irrespective of the cognitive representation (categorization:  $M_{ingroup} = 4.32$  vs.  $M_{outgroup} = 3.56$ ,  $t(223) = 3.28$ ,  $p < .01$ ; recategorization:  $M_{ingroup} = 4.46$  vs.  $M_{outgroup} = 3.69$ ,  $t(223) = 3.39$ ,  $p < .001$ ; dual identity:  $M_{ingroup} = 4.73$  vs.  $M_{outgroup} = 3.65$ ,  $t(223) = 4.74$ ,  $p < .001$ ). For White children in the School condition, both in the categorization and recategorization conditions, the ingroup was still perceived as more prototypical than the outgroup (categorization:  $M_{ingroup} = 4.14$  vs.  $M_{outgroup} = 3.29$ ,  $t(223) = 3.39$ ,  $p < .001$ ; recategorization:  $M_{ingroup} = 4.36$  vs.  $M_{outgroup} = 3.44$ ,  $t(223) = 3.97$ ,  $p < .001$ ). Only in dual identity were the ingroup and outgroup perceived as equally prototypical of the superordinate category School ( $M_{ingroup} = 4.83$  vs.  $M_{outgroup} = 4.58$ ,  $t(223) = 1.05$ , *ns*). It is also worth noting that outgroup prototypicality was reliably higher in dual identity School ( $M = 4.58$ ) than in recategorization<sup>25</sup> ( $M = 3.44$ ; Tukey HSD  $p < .001$ ) and categorization ( $M = 3.29$ , Tukey HSD  $p < .001$ ). Ingroup prototypicality scores were identical in categorization ( $M = 4.14$ ), recategorization ( $M = 4.36$ ) and dual identity ( $M = 4.83$ ;  $p > .05$ <sup>26</sup>).

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<sup>25</sup> Because we did not have specific hypotheses regarding the increase/decrease of outgroup prototypicality and ingroup prototypicality between the experimental conditions (categorization, recategorization, dual identity), Tukey HSD post-hoc comparisons were used to test mean differences between ingroup and outgroup prototypicality scores across the experimental conditions.

<sup>26</sup> Tukey HSD post-hoc comparisons showed no differences between all pairs of means  $p > .05$ .

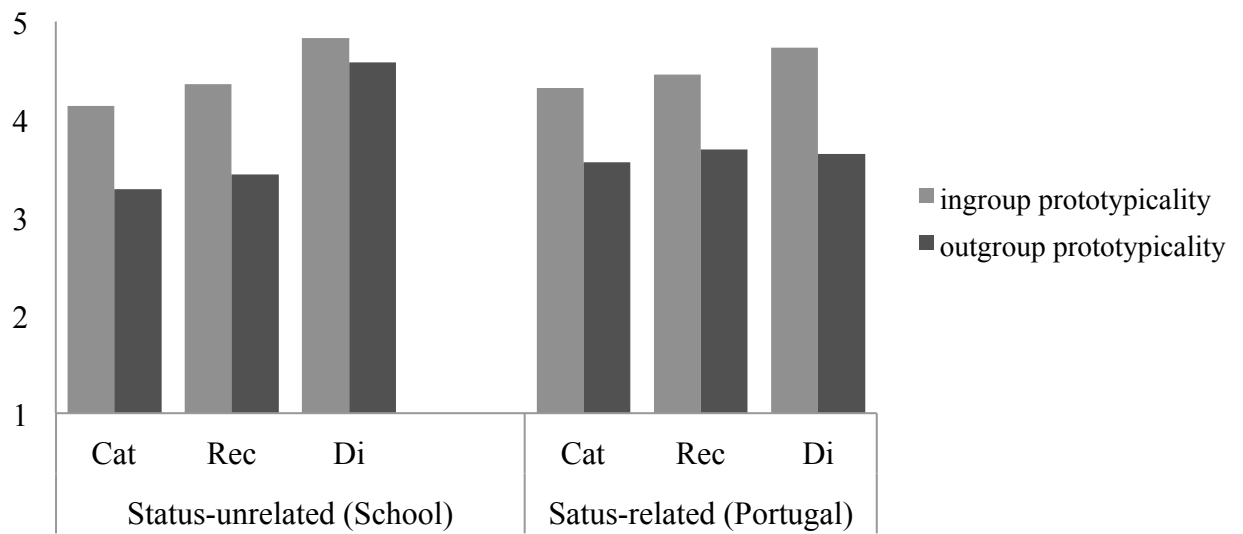


Figure 3a. Prototypicality scores for the higher-status group (White children), as a function of cognitive representation and type of superordinate category.

*Note:* Cat = categorization; Rec = recategorization, Di = dual identity.

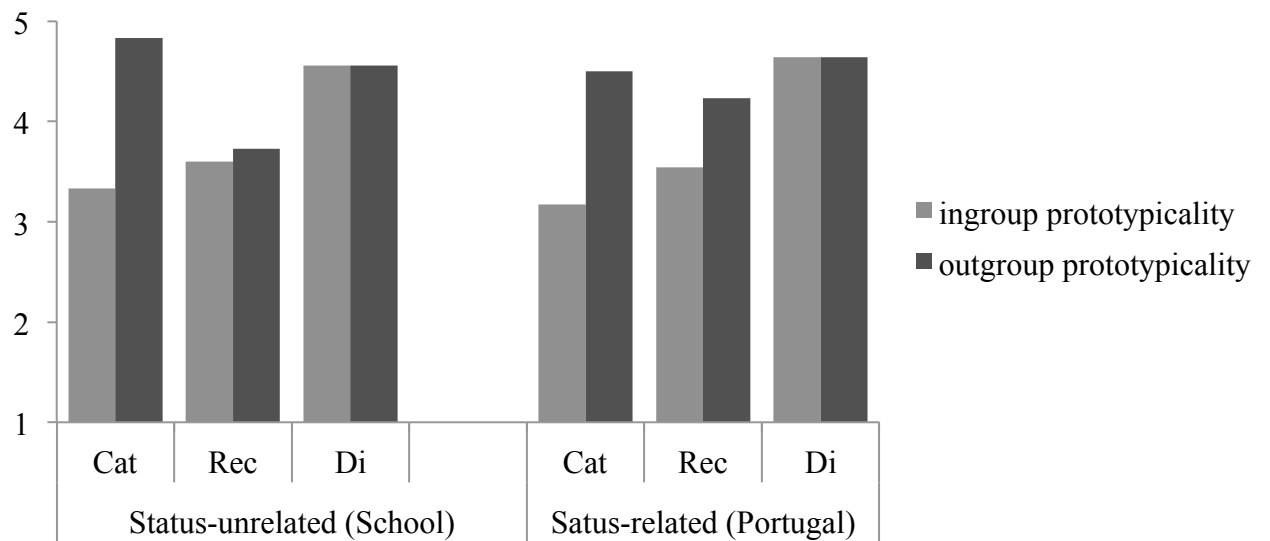


Figure 3b. Prototypicality scores for the lower-status group (Black children), as a function of cognitive representation and type of superordinate category.

*Note:* Cat = categorization; Rec = recategorization, Di = dual identity.

For Black children in the Portugal condition, the ingroup was perceived as less prototypical than the outgroup both in the categorization condition ( $M_{ingroup} = 3.17$  vs.  $M_{outgroup} = 4.5$ ,  $t(223) = -4.46$ ,  $p < .001$ ) and in recategorization ( $M_{ingroup} = 3.54$  vs.  $M_{outgroup} = 4.23$ ,  $t(223) = -2.16$ ,  $p < .05$ ). However, in dual identity Portugal, the ingroup and outgroup were perceived as equally prototypical ( $M_{ingroup} = 4.64$  vs.  $M_{outgroup} = 4.64$ ,  $t(223) = 0.00$ , *ns*). This change was due to a significant increase in ingroup prototypicality in dual identity ( $M = 4.64$ ) compared to categorization ( $M = 3.17$ ; Tukey HSD  $p < .05$ ) and also, marginally, compared to recategorization ( $M = 3.54$ ; Tukey HSD  $p = .07$ )<sup>27</sup>. Outgroup prototypicality was identical across the three cognitive representations<sup>28</sup>.

For Black children in the School condition, the outgroup was perceived as more prototypical than the ingroup in the categorization condition ( $M_{ingroup} = 3.33$  vs.  $M_{outgroup} = 4.83$ ,  $t(223) = -5.01$ ,  $p < .001$ ). However, both in recategorization and dual identity School, the ingroup and outgroup were perceived as equally prototypical (recategorization:  $M_{ingroup} = 3.60$  vs.  $M_{outgroup} = 3.73$ ,  $t(223) = -0.45$ , *ns*; dual identity:  $M_{ingroup} = 4.56$  vs.  $M_{outgroup} = 4.56$ ,  $t(223) = 0.00$ , *ns*). Ingroup prototypicality was higher in dual identity ( $M = 4.56$ ) relative to categorization ( $M = 3.33$ ) and to recategorization ( $M = 3.60$ ; Tukey HSD  $p < .05$ ). No differences were found in ingroup prototypicality between categorization and recategorization (Tukey HSD  $p > .05$ ). Outgroup prototypicality was higher in both categorization ( $M = 4.83$ ) and dual identity ( $M = 4.56$ ) relative to the recategorization condition ( $M = 3.73$ ; Tukey HSD  $p < .05$ ).

### *Relation between prototypicality and intergroup evaluation*

As in the previous studies, we expected the relationship between prototypicality and intergroup evaluation to vary as a function of the type of superordinate category and participants' ethnic status. Specifically, we expected a stronger relationship

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<sup>27</sup> Ingroup prototypicality for Black participants in the Portugal condition was identical between categorization ( $M = 3.17$ ) and recategorization ( $M = 3.54$ , Tukey HSD post-hoc comparisons showed no significant differences,  $p > .05$ ).

<sup>28</sup> Outgroup prototypicality scores for Black children in the Portugal condition (categorization = 4.5, recategorization = 4.23, dual identity = 4.64; Tukey HSD post-hoc comparisons showed no significant differences between all pairs of means  $p > .05$ ).

between prototypicality and intergroup evaluation when the superordinate category is related to groups' status (Portugal), compared to when it is unrelated to groups' status (School), namely for the higher-status group.

Table 4 presents the correlations between relative ingroup prototypicality and intergroup bias as a function of participants' ethnic status and type of superordinate category<sup>29</sup>. Contrary to study 1 and 2, in the present study relative ingroup prototypicality was found to be significantly associated with intergroup bias. Furthermore, this relationship varied as a function of type of superordinate category and participants' ethnic status. Specifically, relative ingroup prototypicality was positively correlated with most measures of intergroup bias for White children in the status-related superordinate condition (Portugal), but not in the status-unrelated superordinate category condition (School). These results indicate that the more White children perceived the ingroup as prototypical of Portugal (compared to the outgroup), the higher levels of intergroup bias they displayed. The only exception to this pattern was the association between relative ingroup prototypicality and bias on the positive evaluation, which was reliably positive both in Portugal ( $r(52) = .346, p < .05$ ) and School conditions ( $r(48) = .295, p < .05$ ; for White children).

A negative correlation between relative ingroup prototypicality and bias on negative evaluation also emerged. Because higher values in the measure of bias on negative evaluation indicate that the ingroup is evaluated more negatively than the outgroup (ingroup negative – outgroup negative), this correlation indicates that the more prototypical the ingroup is (relative to the outgroup), the less negatively the ingroup is evaluated (relative to the outgroup). This was the case for White children in the Portugal condition ( $r(52) = -.357, p < .05$ ) and also for Black children in both Portugal ( $r(28) = -.413, p < .05$ ) and, marginally, in the School conditions ( $r(30) = -.342, p < .10$ ). For Black children, no other reliable correlations between relative ingroup prototypicality and intergroup bias were found.

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<sup>29</sup> The correlations depicted in this table include participants in the recategorization and dual identity conditions. Participants in the categorization condition were not included in this analysis. The correlations between the remaining prototypicality measures (ingroup prototypicality, outgroup prototypicality), intergroup bias and outgroup evaluation measures are presented in Appendix C.

Table 4. Correlations between relative ingroup prototypicality and intergroup bias, by participants' ethnic status and type of superordinate category.

Participant s' ethnic status	Type of superordinate category	Bias measures					
		Competence	Similarity	Resource allocation	Contact intention	Positive evaluation	Negative evaluation
Higher (White)	<b>School</b> (n= 48) Relative ingroup prototypicality	.064	.052	-.027	-.107	.295*	-.191
	<b>Portugal</b> (n=52) Relative ingroup prototypicality	.347*	.253 <sup>†</sup>	.409**	.229	.346*	-.357**
Lower (Black)	<b>School</b> (n= 30) Relative ingroup prototypicality	.116	-.093	.021	.264	.268	-.342 <sup>†</sup>
	<b>Portugal</b> (n=28) Relative ingroup prototypicality	-.251	.178	-.083	.179	-.009	-.413*

Note: <sup>†</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

Importantly, the pattern of correlations between prototypicality and intergroup bias was reliable mainly in the condition of dual identity, but not in recategorization. Table 5 presents the correlations between prototypicality and intergroup bias for participants in the dual identity condition<sup>30</sup>. In line with the previous results, the pattern of correlations was mainly reliable for White children in the status-related superordinate category (Portugal), where higher levels of ingroup relative prototypicality were positively related to intergroup bias, but not in the status-unrelated superordinate category (School). In the case of School, for White children, relative ingroup prototypicality was not related to intergroup bias.

<sup>30</sup> The correlations between ingroup prototypicality and intergroup bias for participants in dual identity condition and the correlations between prototypicality measures and outgroup evaluation for the recategorization condition are presented in Appendix C.

Table 5: Correlations between relative ingroup prototypicality and intergroup bias measures for participants in dual identity condition, by participants' ethnic status and type of superordinate category.

Participants' ethnic status	Type of superordinate category	Bias measures					
		Competence	Similarity	Resource allocation	Contact intention	Positive evaluation	Negative evaluation
Higher (White)	<b>School</b> (n= 23) Relative ingroup prototypicality	.047	.000	.164	.080	-.031	-.026
	<b>Portugal</b> (n= 26) Relative ingroup prototypicality	.514**	.463*	.585**	.152	.600**	-.515**
Lower (Black)	<b>School</b> (n= 15) Relative ingroup prototypicality	.771*	-.488 <sup>†</sup>	.276	.278	.474 <sup>†</sup>	-.779**
	<b>Portugal</b> (n= 15) Relative ingroup prototypicality	-.202	-.219	-.118	.104	.130	-.519*

Note: <sup>†</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

Interestingly, for Black children we found an opposite pattern of results. Whereas no reliable correlations emerged in the dual identity Portugal condition (with the exception of bias on negative evaluation), in dual identity School higher levels of relative ingroup prototypicality were positively related to intergroup bias in the measures of competence ( $r(15) = .771, p < .05$ ) and, marginally, on positive evaluation ( $r(15) = .474, p < .10$ ).

To test the hypothesis that prototypicality mediates the relationship between the cognitive representation and intergroup evaluation for White children, but only when the type of superordinate category is status-related (Portugal), we used the moderated mediation analysis framework developed by Preacher, Rucker and Hayes (2007). This analysis uses a bootstrapping procedure to estimate conditional indirect effects, *i.e.*, the indirect effect for each level of the proposed moderator. Confidence intervals on the indirect effects are employed to assess their statistical significance. The indirect effect is significant if the confidence interval does not include the value zero.

Analyses testing the conditional indirect effect of cognitive representation (recategorization vs. dual identity) on intergroup bias via relative ingroup prototypicality, depending on the type of superordinate category (for White children) did not yield statistically significant results<sup>31</sup>. In addition, we have also tested the effect of the cognitive representations on outgroup evaluation via outgroup prototypicality<sup>32</sup>. The indirect effect of the cognitive representation (recategorization vs. dual identity) on outgroup positive evaluation via outgroup prototypicality was moderated by the type of superordinate category<sup>33</sup>. Contrary to our initial expectations, the indirect effect was significant in the School condition (indirect effect = 0.11; CI<sub>.95</sub> = [.03, .29], but not in the Portugal condition (indirect effect = -0.01; CI<sub>.95</sub> = [-.11, .05]<sup>34</sup>). For descriptive purposes, the coefficients for the two models are presented in Figure 4.

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<sup>31</sup> We used bootstrapping based on 5000 resamples.

<sup>32</sup> Correlations between prototypicality measures and outgroup evaluation are presented in Appendix C.

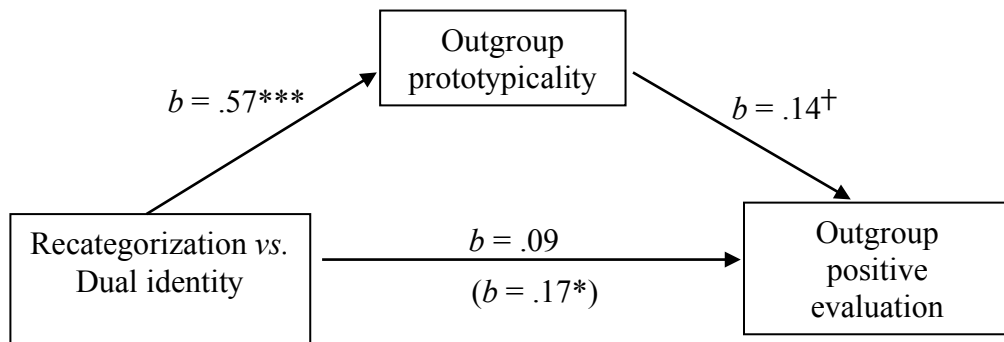
<sup>33</sup> Evidence of a moderated mediation implies a significant interaction either between  $X \rightarrow Mo$  in predicting the  $Me$  (an interaction on the  $a$  path), or a significant interaction between  $Me \rightarrow Mo$  in predicting  $Y$  (an interaction on the  $b$  path), or both (Preacher, Rucker & Hayes, 2007). In the present analyses we tested the moderated mediation model with the interaction terms on both  $a$  and  $b$  paths. However, the interaction with our proposed moderator (type of superordinate category) was only significant on the  $a$  path, *i.e.*, an interaction between the cognitive representations (recategorization vs. dual identity) and type of superordinate category on predicting the mediator.

It is also worth noting that we did not obtain a significant indirect effect of cognitive representation on intergroup bias via relative ingroup prototypicality for White children in the Portugal condition because, although the  $b$  path was significant (relative ingroup prototypicality reliably predicted intergroup bias), the interaction with type of superordinate category on the  $a$  path (recategorization vs. dual identity  $\times$  type of superordinate category  $\rightarrow$  relative ingroup prototypicality) was not significant. Indeed, relative ingroup prototypicality in the Portugal condition was identical in recategorization and dual identity.

<sup>34</sup> The confidence intervals reported here are bias-corrected and accelerated confidence intervals (Preacher et al., 2007; Preacher & Hayes, 2008). Results of the regression model for the mediator and the dependent variable are presented in Appendix C.



a) Mediation for the status-unrelated superordinate category condition (School)



b) Mediation for the status-related superordinate category condition (Portugal)

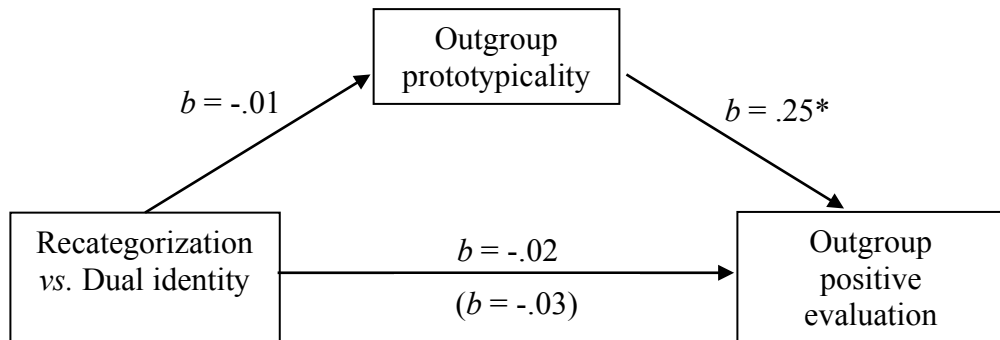


Figure 4. Mediation model for both types of superordinate category.

Note:  $^{\dagger} p = .06$ ;  $* p < .05$ ;  $*** p < .001$

## Discussion

In this study our main goal was to perform a controlled test of our main predictions regarding the joint effects of the cognitive representations and type of superordinate category on reducing intergroup bias for White-Portuguese and Black-Portuguese children. Therefore, in the last empirical study presented in this thesis we have manipulated the cognitive representations (recategorization, dual identity, categorization). We examined the interactive effects of the cognitive representations

and type of superordinate category on prototypicality perceptions. Finally, we have tried to integrate the main variables under study in a model where the effects of the cognitive representation on intergroup evaluation are mediated by prototypicality, namely for the higher-status group (White children) when the superordinate category is status-related (Portugal).

In general, and replicating results from previous research with children (e.g., Guerra, 2007; Monteiro et al., 2009; Rebelo, 2006), this study showed that recategorization and dual identity are effective to reduce intergroup bias among White-Portuguese and Black-Portuguese children. Importantly, the type of superordinate category also shaped intergroup evaluation and prototypicality perceptions. Although the joint effects of the type of superordinate category and cognitive representations on intergroup bias reduction were somewhat weak in relation to our hypothesis, the results regarding its impact on prototypicality perceptions were more encouraging. Indeed, the influence of the cognitive representations on prototypicality perceptions for both White and Black children were critically influenced by the type of superordinate category. Although important differences emerged for White and Black children, for participants in the School condition, ingroup and outgroup prototypicality perceptions were, globally, more balanced. When the superordinate category Portugal was salient the divide between ingroup and outgroup prototypicality perceptions was more marked.

Importantly, a consistent relationship between prototypicality perceptions and intergroup bias emerged. This relationship was more pronounced for the higher-status group when a status-related superordinate category (Portugal) was salient. Contrary to our initial expectations, we have also found that the positive effects of dual identity on improving outgroup evaluation were mediated by outgroup prototypicality, but only for White children when the superordinate category was unrelated to groups' status (School).

In this study we have introduced a new operationalization of the cognitive representations. Instead of full interacting groups of children, we have used a non-interactive contact situation. Our results show that this manipulation was effective to induce the cognitive representations of categorization, recategorization and dual identity. Importantly, and although children did not interact directly with other ingroup or outgroup members, they still perceived the experimental situation at the group level. In fact, the results from the manipulation check indicate that the

experimental task was not perceived as consisting of a single individual (the participant himself), but that children correctly perceived the situation at the group level, that is, as consisting of separate groups, one group or two groups in the same team, depending on the experimental condition. Recent studies have shown that vicarious, indirect forms of contact, i.e., situations where participants do not directly interact face-to-face with outgroup members, can be successfully applied to reduce intergroup anxiety and improve intergroup relations (e.g., Crisp & Turner, 2009; Turner, Crisp, & Lambert, 2007; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). Several approaches have been developed in this respect such as extended contact (Wright et al., 1997) – knowing that a member of the ingroup has an outgroup friend – or even just imagined contact, i.e., a mental simulation of a positive interaction with an outgroup member (Turner et al., 2007). These forms of indirect contact have also been successfully tested with children (e.g., Cameron, Rutland, & Brown, 2007; Cameron & Rutland, 2006; Cameron et al., 2006; Cameron & Rutland, 2008; Vezzali, Capozza, Giovannini, & Stathi, 2012). As mentioned previously, Cameron and colleagues (2006) have manipulated the cognitive representations of recategorization and dual identity using story books adapted to children.

The findings of this study regarding the manipulation of the cognitive representations further indicate that they can be successfully induced, even in the absence of direct intergroup interaction. However, we also note that manipulations involving direct contact are more likely to result in stronger and longer lasting effects than manipulations involving indirect contact. In fact, research has shown that, despite the positive effects of indirect contact, several problems still persist with this approach (Bigler & Hughes, 2010). Indeed, direct contact has a more powerful effect on improving intergroup attitudes than indirect forms of contact (e.g., Turner, Hewstone, & Voci, 2007; Feddes, Noack, & Rutland, 2009). In spite of its weaker effects, indirect contact can be an important tool to promote prejudice reduction, namely in contexts where the opportunity for direct intergroup contact is scarce, where there is segregation and a long lasting divide between groups. In these circumstances, indirect contact can be beneficial to bring about more positive intergroup attitudes and reduce intergroup anxiety. In addition, the several contact approaches – extended, imagined, and direct – can be conceptualized as complementary, and not mutually exclusive tools (Crisp & Turner, 2009), and can be used to fit in more appropriately with interventions in different contexts.

*Bias reduction: effects of cognitive representations and type of superordinate category*

The results from this study indicate that, overall, and as expected, recategorization and dual identity were effective to reduce intergroup bias relative to the categorization control condition. In addition, bias reduction was achieved by an increase in outgroup evaluation, while ingroup evaluation remained stable. These findings concur with previous research on the framework of the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Guerra et al., 2010). However, we have found stronger effects for recategorization than for dual identity. Previous studies with children indicate that dual identity only reduced intergroup bias relative to categorization when the subgroups performed different and complementary tasks (Guerra, 2007, study 1). Although we have tried to keep this feature in our experimental manipulations, it is possible that the distinctive and complementary role of the subgroups was only faintly perceived by participants, therefore mitigating dual identity's effects on bias reduction. Additionally, the positive effects of recategorization and dual identity to reduce intergroup bias were only apparent in the dependent measures focused on the fictitious ingroup and outgroup members present in the experimental task, but not on the dependent measures focused on the overall target groups.

Regarding the influence of the type of superordinate category on recategorization and dual identity's effects on prejudice reduction, we had expected that when the superordinate category is status-unrelated (School), recategorization and dual identity should be equally effective to reduce intergroup bias for both White and Black children. On the contrary, when the superordinate category is status-related (Portugal), we expected dual identity to be more effective to reduce intergroup bias than recategorization for White children, while recategorization should reduce intergroup bias relative to dual identity for Black children (Guerra et al., 2010; Monteiro et al., 2009). The results of this study only partially supported our predictions, namely for the status-unrelated superordinate category condition. When the superordinate category was School, recategorization and dual identity were equally effective to reduce intergroup bias for both White and Black children in most of the dependent measures. For some dependent measures, namely resource allocation

(for White children) and similarity (for Black children), recategorization triggered less bias than dual identity.

When the status-related superordinate category (Portugal) was salient, however, the results of this study did not provide much support for our hypothesis. For White-Portuguese children (higher-status group), recategorization and dual identity triggered similar levels of bias in most of the dependent measures. For Black children, and providing some support for our hypotheses, recategorization triggered lower levels of bias than dual identity for resource allocation and similarity (marginally). These results are in line with results obtained by Guerra (2007). However, recategorization and dual identity triggered similar levels of intergroup bias for Black children in most of the dependent measures, namely the ones focused on the overall target groups (contact intention, positive and negative evaluation). Although the general pattern of results is somewhat consistent across the different dependent measures, future research should investigate the effects of recategorization and dual identity on different types of dependent measures, especially for Black children. Indeed, this subgroup showed more differences in intergroup bias across different measures, regarding both material forms of bias (resource allocation) and contact intention, but also more symbolic measures (competence, positive and negative evaluation).

In general, the results of intergroup bias reduction point to a similar pattern between recategorization and dual identity effects, irrespective of the type of superordinate category. It is possible that the experimental manipulations have induced a stronger representation of a common identity and that the strength of the different types of superordinate category became relatively unimportant when assessing participants' intergroup bias. This could explain why we have failed to find systematic differences in the effectiveness of recategorization and dual identity as a function of the type of superordinate category. However, the results from the previous study (study 2) provided some indication that the effect of the cognitive representations on intergroup bias can be influenced by the type of superordinate category.

*Prototypicality perceptions: effects of cognitive representations and type of superordinate category*

The results of this study show that both the type of superordinate category and the cognitive representations critically influence prototypicality perceptions for both White and Black children. We expected that when the superordinate category is status-related (Portugal), White children should perceive the ingroup as more prototypical of the superordinate category, namely in dual identity. Considering Black children in the status-related superordinate category condition (Portugal), we expected that they would perceive the outgroup as more prototypical of Portugal than the ingroup, both in recategorization and dual identity. For the status-unrelated superordinate category condition (School), we expected less differentiation between groups' prototypicality perceptions.

The results of this study indicate that when the status-related superordinate category (Portugal) was salient, White-Portuguese children perceived the ingroup as more prototypical of Portugal than the outgroup, irrespective of the cognitive representation. That is to say, even when the experimental situation provided a context where there was a focus on groups' commonalities, whether in the form of recategorization or dual identity, White children could not abandon the perception that the ingroup was more representative than the outgroup of what it is to be Portuguese. Contrary to our expectations and to the proposal of the Ingroup Projection Model, wherein higher projection was expected in dual identity (Waldzus et al., 2003; Wenzel et al., 2003), our results show that White children displayed higher levels of ingroup prototypicality, compared to outgroup prototypicality, in all the experimental conditions. The focus on groups' commonalities and shared identity as Portuguese was not sufficient to lessen the perception that the prototype of the Portuguese superordinate category was dominated by the higher-status group. Black children also concurred with this view, that is, they perceived the outgroup as more representative of Portugal than the ingroup both in categorization and in recategorization. Unexpectedly, in dual identity Black children perceived the ingroup and the outgroup as equally representative of Portugal.

When the superordinate category was not related to groups' status (School), dual identity was able to reduce the gap between ingroup and outgroup prototypicality perceptions for White children. That is, when White children perceived the aggregate

as two distinctive groups sharing a common identity, the differences in groups' prototypicality perceptions faded away. This was not the case for recategorization, wherein White children showed ingroup projection. For Black children in the condition School, the focus on the subgroups' shared identity, both in recategorization and dual identity, resulted in similar perceptions of ingroup and outgroup representativeness in the superordinate category. However, we should note that in dual identity the mean values of ingroup and outgroup prototypicality were higher than in recategorization. It thus seems that, even though a similar perception of prototypicality emerged in recategorization and dual identity, dual identity seemed to provide a context where there was a stronger inclusion of the subgroups within School.

It is also interesting to note that for White children in the School condition, the decrease in relative ingroup prototypicality in dual identity, relative to recategorization and categorization, was due to an increase in outgroup prototypicality perceptions, while ingroup prototypicality remained stable. On the contrary, for Black children, the increase in relative ingroup prototypicality both in dual identity School and Portugal was due to an increase in ingroup prototypicality, while outgroup prototypicality perceptions remained unchanged. These results highlight the importance of considering ingroup and outgroup prototypicality separately, as proposed by Ullrich (2008). As the results of this study suggest, this may be especially informative to understand intergroup processes when we consider asymmetrical status groups. In addition, research focusing on prototypicality perceptions and its effects for lower-status groups is scarce (for exception see Alexandre, 2010). Future research could therefore profit from considering both ingroup and outgroup prototypicality effects and how they might differ for unequal status groups.

In sum, when a status-related superordinate category (Portugal) was salient, the prototype of the national group was defined primarily by the higher-status group, while the lower-status group remained on a secondary position. This perception was shared by both White and Black children. Moreover, the focus on groups' commonalities provided by recategorization and dual identity were not able to change this perception, namely for White children. Black participants in the condition of dual identity Portugal improved their ingroup prototypicality, closing the gap with the outgroup. White children in the Portugal condition, however, did not concede their

higher prototypicality. A more consensual view between both groups emerged only in dual identity School, where White and Black children perceived the prototype of School as being defined as much by the ingroup as by the outgroup. This condition thus seems to have offered participants with a more inclusive context, where both subgroups are equally represented and valuable to define the prototype of School.

### *Prototypicality and intergroup evaluation*

Similarly to the previous studies, we expected the relationship between prototypicality and intergroup evaluation to be stronger when the status-related superordinate category was salient, compared to the status-unrelated superordinate category condition. Contrary to the results from studies 1 and 2, in this study we have found a consistent relationship between relative ingroup prototypicality and intergroup bias. Higher levels of relative ingroup prototypicality were associated with higher levels of intergroup bias, for most of the dependent measures. As expected, this relationship emerged when Portugal, the status-related superordinate category, was salient, but not in the School, status-unrelated condition. In addition, these significant relationships emerged for the higher-status group (White children), but not for the lower-status group. A superordinate category that is closely connected to the subgroup dimension of categorization provides a relevant frame of reference for groups' comparison. With higher group comparability, the higher-status group, considering it is a better representative of this superordinate category, may more likely use prototypicality to positively differentiate the ingroup from the outgroup.

Furthermore, this pattern of associations was only found in dual identity condition. This finding is in line with the Ingroup Projection Model (Mummendey & Wenzel, 1999), which proposes that prototypicality should be related to intergroup evaluation when both the ingroup and the superordinate categories are relevant identities for individuals (Waldzus et al., 2003; Wenzel et al., 2003). Our results also concur with the findings from Meiser and colleagues (2005), who found an association between prototypicality and ingroup favouritism when the superordinate category was highly relevant, but not when the superordinate category was of low-relevance. It thus seems that the relationship between prototypicality and intergroup bias is likely to arise when the superordinate category provides a relevant comparison context (status-related) and, namely, for the higher-status group.



For Black children, an unexpected finding emerged. Higher relative ingroup prototypicality was positively correlated with intergroup bias for some dependent measures (competence and positive evaluation, the latter only marginally) and negatively correlated for others (negative evaluation and similarity, marginally). This pattern only emerged for participants in dual identity when the superordinate was School. One possible explanation for these results is the nature/type of superordinate category, related or unrelated to status. It is possible that in a context where the status gap is lessened, like School, Black children can take the opportunity to use their relative position within the superordinate category (their representativeness, prototypicality) to drive intergroup evaluation. This would be more unlikely when the superordinate category is Portugal, since reality constraints might prevent the lower-status group to use its representativeness as a basis for intergroup differentiation. Relatedly, research has shown that lower-status groups may try to positively differentiate the ingroup on ‘irrelevant’ dimensions of comparison, that is, evaluative dimensions that are unrelated to the status differential (e.g., Mullen et al., 1992). Several studies have shown that lower-status groups usually defer and concede to the higher-status group their relative superiority in status-related dimensions (Mullen et al., 1992; Mummendey & Schreiber, 1984; Reichl, 1997). Realistic and structural constraints may indeed prevent claims of ingroup superiority for the lower-status group where they are clearly recognized as inferior (Hinkle & Brown, 1990), such as the relevant, status-related dimensions of intergroup evaluation. On the other hand, on status-unrelated dimensions, where there is less social consensus about the hierarchical position of groups, the lower-status group may more likely try to compare favourably relative to the higher-status group (e.g., Reichl, 1997). Future research could try to further examine the relationship between prototypicality and intergroup evaluation as a function of the nature of the superordinate category and group status. Indeed, this could be useful to understand how different cognitive representations impact intergroup bias on measures and dimensions that are directly related or unrelated to the status differentials that define groups’ relative position in the social hierarchy.

Finally, and contrary to our hypothesis, we have found that outgroup prototypicality mediated the cognitive representation effects on outgroup positive evaluation, but only for White participants in the status-unrelated superordinate category, School. We had only expected this mediation for the status-related

superordinate category. Indeed, although the relationship between prototypicality and intergroup evaluation was significant for the status-related superordinate category, the path from the cognitive representations to prototypicality was non-significant, since White children displayed high levels of ingroup prototypicality across the experimental conditions.

Our results indicate that when School was salient, dual identity increased outgroup prototypicality which, in turn, increased outgroup evaluation on positive characteristics. We should note, however, that the relationship between outgroup prototypicality and outgroup evaluation was only marginal, although the indirect effect was significant. In addition, this moderated mediation was only apparent on one of the dependent measures. These results warrant further empirical replication but, nonetheless, they indicate that prototypicality perceptions may be important not only in a context where there is a strong connection between the superordinate category and the subgroup dimension of categorization. In the same vein, a study conducted by Lloret, Popa-Roch and Waldzus (2011), researchers have also found that dual identity's effect on intergroup bias was mediated by ingroup prototypicality, but only when the superordinate category was of low-relevance.

Research dealing with the relationship between cognitive representations, prototypicality perceptions and intergroup bias is still recent (but see Lloret et al., 2011; Meiser et al., 2005; Riek & Gaertner as cited by Dovidio et al., 2006). We believe future research should consider not only the effects of the type of superordinate category, but also, and importantly, groups' status. As we have seen, it is possible that different types of superordinate categories may differently impact intergroup evaluation and prototypicality perceptions for higher- and lower-status groups, and that the relationship between these variables may follow a differentiated pattern shaped by groups' status.

## Chapter 5

### General discussion

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Understanding the psychological basis of intergroup phenomena like stereotyping, prejudice and discrimination has been at the core of social psychological research (e.g., Allport, 1954; Fiske, 1998; Operario & Fiske, 2001; Tajfel & Turner, 1979; Turner et al., 1987). Along with the focus on the origins and development of intergroup prejudice, researchers have also been concerned with how positive and harmonious intergroup relations can be developed and sustained (e.g., Brewer & Miller, 1984; Brown & Hewstone, 2005; Gaertner & Dovidio, 2000; Hewstone & Brown, 1986). These questions become even more relevant nowadays, where intense migration movements have come to be one of the defining characteristics of western societies (e.g., Eurostat, 2011). This increasing diversity, nonetheless, poses important challenges to social inclusion and cohesion. As research in social psychology has consistently shown, mere contact between members of different groups (e.g., ethnic, religious) is not enough to ensure smooth intergroup relations (e.g., Allport, 1954; Schofield & Eurich-Fulcer, 2001). One of the main challenges for western societies has thus been the issue of “diversity within unity” (Banks, Cookson, Gay, Hawley, Irvine, Nieto et al., 2001). That is, how to promote and cherish the different groups’ characteristics and identities while, at the same time, ensuring social inclusion and cohesion.

The issue of prejudice reduction becomes especially important when we consider the fact that, more often than not, intergroup contact involves asymmetrical status groups. Indeed, group status has been shown to moderate the effectiveness of prejudice reduction models, both with adults (e.g., Dovidio et al., 2009) and with children (e.g., Guerra et al., 2010; Monteiro et al., 2009).

In this thesis we have focused on how intergroup relations between children from asymmetrical ethnic status-groups (White and Black) can be improved and, consequently, how social inclusion in schools can be further developed. Childhood is a critical developmental period and it is also one of the times in individuals’ lives where there are more opportunities for contact with members of different groups, namely in the school context (e.g., Schofield, 1995; Shofield & Eurich-Fulcer, 2001).

Therefore, interventions targeting intergroup biases and aiming at the promotion of positive intergroup attitudes and relationships have the potential to result in enduring positive relations. As put by Killen, Rutland and Ruck (2011), “childhood, when attitudes are only just beginning to formulate and develop, is the time for implementing effective interventions designed to promote equality, tolerance, and justice” (p. 1).

In this thesis we have focused on the Common Ingroup Identity Model (Gaertner et al., 1993), which proposes that intergroup attitudes can be ameliorated if intergroup boundaries are redefined. That is, instead of perceiving the ingroup and the outgroup as two separate groups, a common, shared, identity can be made salient. Individuals may then perceive the aggregate as one single group (recategorization), wherein ingroup and outgroup boundaries are blurred in favour of a common superordinate identity, or as two groups in the same team. In the latter case, dual identity, the ingroup and the outgroup boundaries are kept salient but in the context of a binding superordinate category, i.e., both the subgroup and the superordinate identities are simultaneously salient. In the present work we have focused, specifically, on the relationship between the superordinate category and the subgroup dimension of categorization. When two dimensions of categorization are salient, the degree of association between them is likely to influence intergroup evaluations. Previous research indicates that when two categorization dimensions are relatively independent of each other, that is, when there is low overlap, the perceiver’s attention shifts away from the initial ingroup-outgroup distinction, which may result in more positive intergroup attitudes. On the other hand, when the two categorization dimensions are related to each other, and there is a high overlap between them, the initial ingroup-outgroup distinction is heightened and becomes more meaningful to drive intergroup judgments. In this situation, it is more likely that intergroup bias will emerge (e.g., Crisp, 2010; Hall & Crisp, 2005; Miller et al., 2006).

In this thesis, our main goal was to extend research on the relationship between the categorization dimensions to the study of recategorization and dual identity’s effectiveness to reduce intergroup prejudice among White and Black Portuguese children. To this end, we have tested the effects of two types of superordinate categories, varying in their degree of association/relatedness to the subgroup dimension of categorization – groups’ relative ethnic status. We have thus tested the effect of a subgroups’ ethnic status-related superordinate category compared to a

subgroups' ethnic status-independent superordinate category on children's interethnic prejudice.

### **Empirical evidence**

Three quasi-experimental studies were conducted, using natural groups and natural social categories (e.g., White, Black, the national group, Portugal, School). In the first study our main goal was to provide an operationalization for the type of superordinate category. We tested whether children would perceive the categories Portugal and School as status-related and status-unrelated, respectively. In study 2 our main goal was to understand how White-Portuguese and Black-Portuguese children perceived both the contact structure and the relationship between these subgroups in Portugal and in School. In this study we have introduced the cognitive representation (recategorization, dual identity) variable. Without experimentally manipulating the salience of different cognitive representations, we intended to verify if children's differential agreement with the cognitive representations under study (recategorization, dual identity and categorization) could impact intergroup evaluation. Moreover, both in studies 1 and 2, we have also assessed children's prototypicality perceptions as a function of the type of superordinate category and the relationship between prototypicality and intergroup evaluation. In the final study presented in this thesis, study 3, we attempted a more controlled test of our predictions by manipulating the cognitive representations under study (recategorization, dual identity, and categorization control condition). We examined the interplay between the cognitive representations and the type of superordinate category to reduce ethnic prejudice among White and Black Portuguese children. Additionally, we have also examined the effects of these variables on prototypicality perceptions. Finally, we have tested if the cognitive representations' effect on intergroup evaluation would be mediated by prototypicality, namely for the higher-status group (White children) when the superordinate category was status-related.

*Portugal and School: different superordinate categories?*

One important goal of this thesis was to show that the superordinate categories Portugal and School were differently related to the subgroup dimension of categorization – ethnic status. We intended to show that Portugal and School could map, respectively, onto a status-related and a status-unrelated superordinate category.

Study 1 revealed that both White-Portuguese and Black-Portuguese children associated more ethnic/cultural characteristics to the category Portugal, compared to the category School. Importantly, we have established that, for children themselves, these two superordinate categories are qualitatively distinct. We consider this is an important aspect, since it is important to understand how children subjectively perceive their environment (Schmid & Hewstone, 2010) and not just define *a priori* if, in this case, one superordinate category would be more related to groups' status than another.

Moreover, we have also shown that the qualitative distinction between the superordinate categories Portugal and School is not confounded either with the positive evaluation of the superordinate categories (study 1) or with different levels of identification (studies 1 and 2).

Another important contribution of the studies presented in this thesis was to show how children perceive the relationship and contact structure between the subgroups (study 2). Importantly, these perceptions were found to vary depending on the type of superordinate category. When School was the salient superordinate category, both White-Portuguese and Black-Portuguese children perceived the relationship between these subgroups as being characterized to a larger extent by dual identity or recategorization, than by categorization (two separate groups). On the other hand, when Portugal was salient, both subgroups still perceived the relationship between the subgroups as being characterized to a larger extent by dual identity, but the perception of two different groups (categorization) was not rejected. It was moderate and similar to the perception of one single group (recategorization). This pattern of results indicates that the superordinate category School seems to facilitate a perception of commonality between the groups, compared to the category Portugal.

It is possible that schools' ethnic composition has, in part, contributed to this result. In fact, all the data for this thesis has been collected in schools where the proportion of minority pupils is around 30%. Previous research indicates that schools'

ethnic composition influences intergroup attitudes (e.g., McGlothlin & Killen, 2010; Pereira & Monteiro, 2006; Tropp & Prenovost, 2008), with ethnically diverse schools typically promoting more positive intergroup attitudes. It is thus possible to conceive that the higher focus on group commonalities in the School condition obtained in study 2 was partly due to the more balanced ethnic composition of the participating schools. In more ethnically homogeneous schools it is possible that children would perceive the relationship of the White and the Black subgroups as being more characterized by groups' differences (categorization) than by their commonalities.

Nevertheless, the results obtained in studies 1 and 2 suggest that, compared to the category School, Portugal was perceived as a context more associated to groups' status and where children's perception about the relationship and contact structure between the White and Black subgroups was represented as less centred on groups' common identity.

*Type of superordinate category and cognitive representation of groups' relationship: effects on intergroup evaluation*

In this thesis we have focused on the type of superordinate category – status-related or status-unrelated – as a critical variable to understand the effects of a salient superordinate category on intergroup attitudes and, especially, to understand the effectiveness of the Common Ingroup Identity Model in reducing the expression of prejudice among children from unequal status groups.

We expected that in the status-related superordinate category condition the ingroup-outgroup distinction would be emphasized, because a high overlap between the superordinate category and the subgroup dimension should result in convergent group boundaries, increasing groups' comparability within the superordinate category and, therefore, accentuating the status asymmetries between the subgroups. We expected that this condition would trigger higher levels of intergroup bias. On the other hand, a status-unrelated superordinate category should shift the attention away from the ingroup-outgroup distinction, creating an alternative basis for categorization besides the ethnic subgroup dimension. In this condition, we expected that subgroup comparability within the superordinate category should not be as relevant as in the

status-related superordinate category, and that more positive intergroup evaluations should arise.

Providing support for our hypotheses, the results showed that intergroup attitudes were, globally, more positive in the School condition than in the Portugal condition, whether considering less intergroup bias (study 2) or a more positive and equivalent evaluation of the outgroup compared to the ingroup (studies 1 and 2). Importantly, we have also found that while outgroup (positive) evaluation was more positive in the school condition, compared to the Portugal condition, ingroup (positive) evaluation was identical across conditions and for both subgroups (studies 1 and 2).

Globally, these findings are in line with previous research showing that a superordinate category that is independent of the initial ingroup-outgroup distinction should result in more positive intergroup evaluations, while a superordinate category that is closely associated to the subgroup categorization should result in less positive intergroup attitudes (e.g., Eurich-Fulcer & Schofield, 1995; Hall & Crisp, 2005). Moreover, our results are also in line with research in the framework of the Common Ingroup Identity Model with both adults and children (e.g., Gaertner et al., 1993; Guerra et al., 2010), which proposes that intergroup bias should be reduced by an increase in outgroup evaluation/attractiveness, while ingroup evaluation should remain stable.

Regarding the interplay between recategorization/dual identity and the type of superordinate category, we expected that in the School condition (status-unrelated superordinate category), recategorization and dual identity should be equally effective to reduce intergroup bias for both White and Black children. When Portugal was salient (status-related superordinate category), we expected dual identity to be more effective to reduce intergroup bias than recategorization for White children, while recategorization should reduce intergroup bias relative to dual identity for Black children. Although some empirical support was found for our hypotheses, globally the pattern of results from studies 2 and 3 was not very supportive of our hypotheses.

In study 3, and in line with our hypotheses, we have found that when School was salient, intergroup bias was similar across recategorization and dual identity for both White-Portuguese and Black-Portuguese children, in most of the dependent measures. When the status-related superordinate category (Portugal) was salient, recategorization triggered less bias than dual identity for Black children (Study 3; in



resource allocation and, marginally, on similarity dependent measures). This latter result concurs with the findings of Guerra and colleagues (2010; Monteiro et al., 2009). However, our results also indicate that for the dependent measures focused on the overall target groups (contact intention, positive and negative evaluation), recategorization and dual identity Portugal conditions triggered similar levels of bias for Black-Portuguese children.

Regarding White children in the status-related superordinate category condition, Portugal, we had expected that recategorization would trigger higher levels of bias than dual identity. The results from Study 2, and especially Study 3, were not particularly consistent with this hypothesis. In study 2, when the superordinate category was Portugal, a marginal relationship emerged between recategorization and outgroup evaluation, such that higher agreement with recategorization was positively associated to outgroup negative evaluation. We should note, however, that this relationship was only marginally significant, and that it only emerged for one dependent measure. In Study 3, we have found no evidence of this relationship. In Study 3, and for the majority of the dependent measures, our results indicate that intergroup bias was similar across recategorization and dual identity Portugal.

Studies conducted by Guerra (2007) and Guerra and colleagues (2010) indicate that while groups' ethnic status moderates recategorization and dual identity's effects on intergroup bias, this effect seems to be weaker for the higher-status group (White children). In fact, whereas in some studies dual identity was more effective to reduce intergroup bias among White children than recategorization (Guerra et al., 2010), in others, both cognitive representations equally reduced intergroup bias (see Guerra, 2007, study 3). For the lower-status group (Black children), however, our results are more in line with those found by Guerra and colleagues (2010; Guerra, 2007; Monteiro et al., 2009), when Portugal was the salient superordinate category. It thus seems that for the lower-status group, when the superordinate category is status-related (Portugal), emphasizing the one-group cognitive representation is more effective to promote more positive intergroup relations. Relatedly, research with Portuguese Cape Verdean adolescents has also shown that those who endorsed assimilationism (high identification with the Portuguese group and low identification with their ethnic ingroup) had better academic achievement than the adolescents who endorsed integration (high identification both with Portugal and with their ethnic group) (Maurício, 2002; Mouro, 2003).

Globally, the results of our studies showed that a status-related superordinate category (Portugal) has the potential to result in less positive intergroup evaluations than a superordinate category that is unrelated to subgroups' status. However, the empirical results presented in this thesis did not show a clear and consistent pattern regarding the interactive effects of the cognitive representations, type of superordinate category and groups' ethnic status on intergroup bias reduction. In addition, this was more apparent for the status-related superordinate category (Portugal), while for the status-unrelated superordinate category (School) a significant part of the results were in line with our hypotheses. It is possible that the experimental manipulations introduced in Study 3, where the cognitive representations were manipulated through an indirect contact situation, were not strong enough to produce more systematic differences in intergroup evaluation. Although children correctly identified the cognitive representation condition (recategorization, dual identity) both when School and Portugal were the salient superordinate categories, it is conceivable that the relative strength of the common identity and the type of superordinate category were not equivalent. That is, it is possible that children focused their attention only in the fact that the aggregate was one group (recategorization) or two-groups in the same team (dual identity), but that the strength of the different types of superordinate category became relatively downgraded when children had to evaluate the groups. Future research could therefore try to ascertain if a more powerful manipulation of the cognitive representation (through direct contact, for instance) could differently impact intergroup evaluation.

*Type of superordinate category and cognitive representation of groups' relationship: effects on prototypicality*

Throughout this thesis we have looked at how the type of superordinate category – status-related and status-unrelated – can influence groups' prototypicality perceptions, and how this can provide important cues to understand the effects of a salient superordinate category on intergroup relations. We expected that in the condition of a status-related superordinate category (Portugal), the higher-status group would be perceived as more prototypical of the superordinate category than the lower-

status group, whereas in the status-unrelated superordinate category condition (School), a more balanced perception of groups' prototypicality would emerge.

Indeed, our results provide support for these hypotheses (studies 1 and 2), showing that the higher-status group was consistently perceived as more prototypical of the superordinate category Portugal than the lower-status group. Importantly, this perception was shared by both White-Portuguese and Black-Portuguese children. These results concur with previous research showing that when asymmetrical status groups (in terms of power, size or status) are included in a superordinate category and the intergroup status relationship is stable and consensually shared, reality constraints may minimize or prevent lower-status group's claims of high prototypicality for the superordinate category (e.g., Waldzus et al., 2004). This result has emerged in different studies, using explicit and implicit measures, and across different intergroup contexts, like in Germany (Waldzus et al., 2004), the United States of America (Devos & Banaji, 2005; Devos, Gavin, & Quintana, 2010) and Australia (Sibley & Barlow, 2009). When the superordinate category was School, however, this prototypicality gap between White and Black children was reduced (study 2) or even eliminated (study 1). In the context of School, intergroup prototypicality perceptions were more consensual, and both subgroups were perceived as equally included and representative of their School.

Research conducted by Alexandre (2010) has investigated the role of the complexity of the superordinate category on higher and lower-status groups' prototypicality perceptions. A complex superordinate category means that it can be represented by multiple prototypes (Waldzus, 2009). Alexandre (2010) has found that a (positive) complex superordinate category decreases relative ingroup prototypicality for the higher-status group, while increasing it for the lower-status group. When a complex superordinate category is salient, there is more consensus among the subgroups regarding prototypicality claims for the superordinate category. One could argue that the pattern of results we have obtained regarding prototypicality perceptions for School and Portugal could be due to differences in complexity of the superordinate categories. However, in study 1, the diversity of characteristics chosen to define both superordinate categories and its frequency distribution were similar for both School and Portugal. We thus consider that the differences found on prototypicality perceptions between the two superordinate categories can be better

accounted for by the degree of association of the superordinate category to subgroups' status.

Nevertheless, our results converge with those of Alexandre (2010), in that structural aspects of the superordinate category, be it its complexity or the degree of association to the subgroup dimension of categorization, result in different processes for higher- and lower-status groups.

Our results have also shown that groups' prototypicality perceptions may change according to the salient cognitive representation and type of superordinate category. For White children, neither recategorization nor dual identity were able to reduce the perception that the ingroup was reliably more prototypical than the outgroup when the superordinate category was status-related (Portugal). Black children in the status-related superordinate category condition (Portugal) also concurred with this view in recategorization, but not in dual identity. In the latter, both the ingroup and the outgroup were perceived as equally representative of the Portuguese prototype.

On the other hand, when the superordinate category was School (status-unrelated), White children still perceived the ingroup as more prototypical than the outgroup in recategorization, but not in dual identity. In fact, in dual identity School condition, both the ingroup and the outgroup were perceived as similarly prototypical. In addition, this change in perception was due to an increase in perceived outgroup prototypicality. In dual identity School condition, White children perceived the Black subgroup as reliably more prototypical than in recategorization or categorization conditions. For Black children in the School condition, both recategorization and dual identity triggered similar levels of ingroup and outgroup prototypicality, promoting a more consensual view of this category's prototype. However, in dual identity School condition, both ingroup and outgroup prototypicality scores were higher than in recategorization. In fact, for both White and Black children in dual identity School, ingroup and outgroup prototypicality scores were quite near the high end of the scale. While this may indicate a ceiling effect, it also provides an indication that in this condition both the ingroup and the outgroup are perceived as highly included and representative of School.

Additionally, another interesting finding is that relative ingroup prototypicality was reduced for White children in dual identity School condition by an increase in outgroup prototypicality, while ingroup prototypicality remained stable. For Black

children, higher relative ingroup prototypicality emerged in dual identity School condition by an increase in ingroup prototypicality. These results suggest that different processes may likely occur for higher- and lower-status groups. Future research should further analyse ingroup and outgroup prototypicality (Ullrich, 2008), taking further in consideration groups' status. The results obtained in study 3 also provide indication that not only the type of superordinate category – status-related or unrelated – is an important variable to understand intergroup perceptions, but also that the cognitive representations that are salient in a particular context (recategorization, dual identity) play an important role in structuring subgroups' degree of inclusion within the superordinate category.

Globally, the results from studies 1, 2 and 3 suggest that School seems to be a more inclusive superordinate category than the national group, Portugal. In School, both subgroups (White and Black children) seem to contribute, to a similar extent, to the definition of the prototype of School. In the same vein, we concur with Banks (2006), who has proposed that: “superordinate groups that only reflect the norms and values of dominant and powerful groups within the school are not likely to improve intergroup relations among different groups in the school. If they are not carefully structured and monitored, crosscutting groups can reproduce the dominant power relationships that exist within the school and the larger society” (p. 612).

*Type of superordinate category and cognitive representation of groups' relationship: the relationship between prototypicality and intergroup evaluation*

In this thesis, we also intended to further understand the importance of the type of superordinate category – status-related and status-unrelated – in the relationship between groups' prototypicality perceptions and intergroup evaluation. This can provide important cues to understand the effectiveness of different types of superordinate categories to reduce intergroup prejudice between White-Portuguese and Black-Portuguese children.

Our hypothesis was that the relationship between groups' prototypicality perceptions and intergroup evaluation should be stronger for the status-related superordinate category (Portugal) than for the status-unrelated superordinate category (School). Globally, our results indicate that the type of superordinate category moderates the relationship between prototypicality and intergroup evaluation (studies

1 and 3 and also, marginally, in study 2). Our results show that this relationship is also influenced by groups' status. In study 1, we have only found associations between prototypicality and outgroup evaluation for Black-Portuguese children, while in study 2 this relationship only emerged for White-Portuguese children. The pattern of results regarding the relationship between prototypicality and intergroup evaluation was, however, more consistent in study 3. In this study we have found that higher levels of relative ingroup prototypicality were positively associated to intergroup bias, namely for White children when the superordinate category was status-related (Portugal). In addition, these results emerged only in the dual identity condition, in line with the proposal of the Ingroup Projection Model (Waldzus et al., 2003; Wenzel et al., 2003). The fact that a more consistent pattern of relationships emerged when the status-related superordinate category was salient is also in line with the results of Meiser and colleagues (2005). The results we have obtained concur with past research in that the relationship between prototypicality and intergroup evaluation seems to be more likely to arise when the superordinate category provides a relevant comparison context (status-related) and, namely, for the higher-status group. Unexpectedly, for Black children, some correlations emerged between ingroup relative prototypicality and intergroup bias, but only in dual identity when the superordinate category was School (study 3).

Previous research indicates that higher-status groups typically show ingroup favouritism on status-related evaluation dimensions, and that lower-status groups use status-unrelated dimensions to achieve some degree of positive distinctiveness (Mullen et al., 1992; Mummendey & Schreiber, 1984; Reichl, 1997). Extending this reasoning to our results, it is possible that, while the higher-status group tried to positively differentiate itself on a status-related superordinate category and used prototypicality to drive intergroup judgments only in this condition, the lower-status group could have taken the same opportunity but in a context where the superordinate category was unrelated to groups' status. While we can only conjecture about the results obtained for the lower-status group, more research is needed to attempt to replicate these findings and to understand how different cognitive representations impact intergroup bias on dimensions that are directly related or unrelated to the status differentials that define groups' relative position in the social hierarchy.

Finally, we have tested if the cognitive representations' effect on intergroup evaluation would be mediated by prototypicality, namely for White children in the

status-related superordinate category (study 3). The results obtained indicated that this was the case but, contrary to our hypothesis, only when the superordinate category was unrelated to groups' status (School). For White children, when School was salient, dual identity, relative to recategorization, increased outgroup prototypicality, which in turn increased outgroup evaluation on positive characteristics. This result opens the possibility that prototypicality perceptions may be not only important to understand why intergroup bias emerges in the context of a superordinate category, but also to account for the beneficial effects of a superordinate category. We should however note that in this study the relationship between outgroup prototypicality and outgroup evaluation was only marginal, and emerged only for one of the dependent measures. Further research is needed to ascertain whether this result is consistent.

### **Theoretical and practical implications**

The results of the present thesis hold several implications for research in the area of multiple categorization and its effects on intergroup relations, namely in the area of prejudice reduction among children. Previous research has shown that making salient a superordinate category can improve intergroup attitudes among adults (e.g., Gaertner et al., 1993) and children (e.g., Gaertner et al., 2008; Guerra et al., 2010; Monteiro et al., 2009). Our results extend the existing literature by highlighting the importance of the degree of connection/association between the superordinate category and the subgroup dimension of categorization. Although previous research indicates that when multiple dimensions of categorization are used to drive intergroup judgments the relationship between those dimensions is a critical aspect to predict intergroup evaluations (e.g., Eurich-Fulcer & Schofield, 1995), research focusing specifically on the relationship between the superordinate category and the subgroups is more recent (e.g., Hall & Crisp, 2005; Meiser et al., 2005). In the same vein, and to our knowledge, studies investigating this issue with children are quite scant. Focusing on unequal ethnic status groups (White and Black children in Portugal), our results, in line with research on multiple categorization, indicate that when a superordinate category is closely related to the subgroup dimension of categorization (groups' ethnic status), the initial ingroup-outgroup distinction is emphasized and group boundaries

converge (Miller et al., 2010; 2006). In this situation, it is more likely that intergroup bias or less positive intergroup evaluations will emerge. On the contrary, a superordinate category that is unrelated to groups' status seems to provide a more inclusive context, where the ingroup-outgroup differences are downgraded and positive intergroup relations are more likely to arise (Hall & Crisp, 2005), both for White and Black children.

Another important aspect of the research presented is the focus on natural and asymmetrical groups. Indeed, as Tropp and Pettigrew (2005) have suggested, more research is needed to ascertain how different features of the contact situation differently impact majority and minority groups' relationships. Previous research with children indicates that contact effects on intergroup attitudes are stronger for majority group members than for minority group members (Tropp & Pettigrew, 2005; Tropp & Prenovost, 2008; Feddes et al., 2009), and that recategorization and dual identity may be differently related to prejudice reduction among majorities and minorities (Cameron et al., 2006; Guerra et al., 2010). Our results further add that, when natural social categories are salient, the meaning and content of those categories and the relationship between them are important variables with a critical influence on intergroup perceptions and evaluations. Relatedly, the results of this thesis also add to the literature that prototypicality may be an important construct for understanding how children represent and react to different common ingroup contexts. In fact, research in the framework of the Ingroup Projection Model (Mummendey & Wenzel, 1999) has mostly focused on adults and majority group members. To understand the role of prototypicality in intergroup relations it seems advantageous to consider and distinguish the psychological processes between majority and minority group members (Alexandre, 2010).

Our results further add to the framework of ingroup projection research that the relationship between prototypicality and intergroup evaluations depends not only on the inclusion of the subgroups in the superordinate category (Waldzus & Mummendey, 2004), as has been previously demonstrated, but also on the type of superordinate category. In this respect, our results partly converge with the findings from Meiser and colleagues (2005), in that prototypicality was related to ingroup favouritism when the superordinate category was highly relevant, but not when it was of low-relevance for the intergroup comparison. Our results showed that this was the case, namely in Study 3, but that in some circumstances at least, in the context of a



superordinate category that is unrelated to groups' status (School), prototypicality can also be associated to intergroup attitudes. Particularly encouraging was the result that, in the context of School, higher levels of outgroup prototypicality could also contribute to more positive intergroup attitudes (study 1 and 3).

When considering our results in terms of how an intervention to promote more positive intergroup attitudes between majority and minority group members should be designed, we need to consider how, in an actual intergroup interaction, intergroup contact should be structured. That is, what cognitive representation and superordinate category would be maximally effective to reduce inter ethnic prejudice among White and Black children? Although we did not find robust results indicating the differential effectiveness of recategorization and dual identity as a function of the type of superordinate category for White and Black children, globally our results point to dual identity being more effective when the superordinate category is unrelated to groups' status (School). In this experimental condition bias was reduced (relative to the categorization control condition) and both subgroups perceived White and Black children as similarly and highly representative of the superordinate category, which for White children contributed to a more positive evaluation of the outgroup (study 3).

The value of a dual identity to promote both more positive intergroup attitudes, but also to promote awareness of inequalities between the subgroups and to facilitate structural social change, has been recently highlighted in the literature (Dovidio et al., 2009). Whereas recategorization can be quite beneficial for improving intergroup attitudes, it may also, at the same time, promote the maintenance of the asymmetrical status relations between the subgroups, shifting attention away from inequity and hindering structural changes in society (Dovidio et al., 2009; Saguy, Tausch, Dovidio, & Pratto, 2009). In addition, and considering the relationship between the superordinate category and the subgroup dimension of categorization, Crisp (2010) further proposes that "the apparent robustness of promoting dual identities that are not highly correlated makes this type of multiple categorization a compelling contender for a catch-all strategy. Whether this will turn out to be the case, and the contexts where different strategies operate best, will be important questions for future research" (p. 521).

We believe that the fact that we have conducted this research in a natural intergroup context and with natural social categories increases the ecological validity of our results and can, therefore, provide important cues to inform prejudice reduction

interventions in schools. In the studies reported we have showed that not all common identities are beneficial for intergroup relations among asymmetrical status groups. Identities that stress the status asymmetries between the subgroups (e.g., Portugal) are likely to result in more negative intergroup relations, while identities that are independent from status asymmetries (e.g., School) have the potential to create a more inclusive and egalitarian context, promoting more harmonious intergroup relations.

Many interventions tackling intergroup prejudice developed in schools have shown limited effectiveness (e.g., Bigler, 1999; Paluck & Green, 2009). Probably contributing to this fact is the lack of integration between social psychological research and practical interventions (Cameron & Turner, 2010; Cameron & Rutland, 2008; Killen et al., 2011). Cameron and Turner (2010) have synthesized some of the main benefits and pitfalls of interventions designed by educators and of theoretically based prejudice reduction interventions developed by social psychologists. While interventions designed by educators are often very practical and well tailored to the school and the community context, they are also, more often than not, based on practitioners' intuition and personal experiences. Critically, these interventions are seldom subject to rigorous evaluation, which makes it difficult to determine the extent of their effectiveness, the underlying (psychological) mechanisms responsible for the intervention's effects and for whom it was effective. On the other hand, theoretically based proposals for prejudice reduction, while characterized by rigorous evaluation both in terms of the results achieved and the underlying mechanisms, are rarely translated to practical interventions. When they are, those interventions are often impractical and unsustainable (Cameron & Turner, 2010). Thus, several authors have proposed that practical interventions, namely in the educational sector, should not only be informed and rely on scientific based knowledge, but that social scientists and educators should work in collaboration to develop such interventions (Cameron & Turner, 2010; Cameron & Rutland, 2008; Killen et al., 2011). In addition, and according to Killen and colleagues, interventions in the school context "have to address the types of social experiences children have with peers and adults, incorporate children's interpretations and evaluations of these experiences, and provide a strategy for enabling children and adolescents to make decisions that reflect fairness and justice" (p. 5).

## **Limitations and future directions**

Despite the contributions this research may have to the contemporary debate on the effectiveness of different prejudice reduction approaches and, in particular, for prejudice reduction among children from unequal-status groups, below we address some problems and limitations of the research reported in this thesis.

Firstly, and as we have noted in chapter 1, a theoretically sound definition of relevance of the superordinate category is still to be developed. In this thesis we have focused on the degree of overlap or logical connectedness between the superordinate category and the subgroup dimension of categorization. However, different emphases in the definitions of relevance of the superordinate category have been suggested in the literature, such as the structure of the superordinate category and content of the intergroup comparison (Meiser et al., 2010), the empirical correlation/overlap between the categorization dimensions (Crips, 2010) or the domain of intergroup relations (Gaertner et al., 2010). Future research could try to disentangle whether different aspects of the superordinate category's structure, content or conceptual domain additively or in conjunction contribute to the contrasting effects of different superordinate categories in reducing or maintaining intergroup prejudice.

A related limitation concerns the operationalization of the type of superordinate category. Throughout this thesis we have focused only on two specific categories – Portugal and School. While we consider that these are relevant categories for children, and our results have indeed provided some support to this argument, future research is needed to verify if the results obtained in this thesis are replicated with other superordinate categories related or unrelated to groups' status. Artificial categories have the potential benefit to control for additional variables that often co-occur in natural intergroup settings and that could account for the results we have found. However, and despite its obvious advantages, interventions for prejudice reduction may more likely benefit from the use of natural categories and identities.

Regarding the relationship between the cognitive representations and type of superordinate category for reducing prejudice among White and Black children, the results obtained in Study 3 did not provide much support for our hypothesis, considering especially the status-related superordinate category. As we have proposed before, this could be partly due to the differential strength of the superordinate categories or even the indirect contact situation used in the experimental

manipulations, which could result in weaker effects. Future studies could benefit from directly comparing the effectiveness of School and Portugal with interacting groups of children. Importantly, we also consider that future studies could try to ascertain the relative value of these superordinate categories to reduce intergroup bias when the evaluative dimensions used for group comparison are directly 'relevant' or 'irrelevant' (unimportant) for the content of the specific superordinate category. Previous research investigating the effectiveness of recategorization in a bank merger, for example, found that the former higher-status company showed more bias in more 'status-related' dimensions of intergroup comparison (e.g., work related), while the lower-status company showed more bias in 'status-unrelated' dimensions (e.g., sociability).

Finally, we have not addressed the issue of generalization of positive intergroup attitudes in this thesis. Previous research with children shows that recategorization and dual identity were able to generalize contact's positive effects for outgroup members not present in the contact situation across time and across different contexts (school, neighbourhood; Guerra et al., 2010; Guerra, 2007). Future research could investigate if the type of superordinate category moderates generalization's effects. While School is an important context for children, the national group is a more permanent identity. With the decreasing importance of School in late adolescence and early adulthood, could the effects of this superordinate category be weaker than a more stable identity like the national group?

Another important aspect is that research in the framework of the Common Ingroup Identity Model and namely with children have mainly considered recategorization and dual identity's effects on explicit measures. Recent work by Gaunt (2009) indicates that a focus on a common superordinate identity can also have positive effects on more indirect measures, such as inhumanization. The use of indirect or implicit measures in assessing the cognitive representations' effects could be beneficial to either extend their effectiveness or to find boundary conditions. In fact, intergroup attitudes displayed by children from 7-8 years old onwards reflect self-presentational concerns. Studies conducted by Monteiro, França and Rodrigues (2009) and Rodrigues (2011) show that 9-10 year old White Portuguese children, under a condition of accountability, showed decreased intergroup bias, while intergroup bias was still apparent under a condition of non-accountability. Thus, the explicit nature of the dependent measures used in this thesis and, generally, in

research tackling intergroup prejudice reduction with children could partly account for the decreased levels of intergroup bias. Future research could therefore analyse whether recategorization and dual identity's positive effects on explicit intergroup attitudinal measures are also extended to more indirect measures.

We finish with a quote by Killen and colleagues (2011), emphasizing two key ideas addressed in this thesis: the need for early interventions to counteract the development of intergroup biases and the importance of some of the core social psychological constructs for the pursuit of such task:

*“Given the complexity of issues surrounding prejudice and discrimination in adulthood, it is important to intervene early when children are just becoming aware of and forming groups that may lead to potential prejudice ... early categorization and group identity, in particular, often reflect hierarchical societal arrangements and status. Implementing interventions that specifically target these expectations, messages, and constructs to promote equity, tolerance, and justice is an important step towards fostering a more just and fair world” (p. 18-19).*



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## **Appendices**

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**Appendix A**  
**Study 1**

---



Questionnaire (School condition, male version)

I'M WRITING A STORY ABOUT A GROUP OF CHILDREN  
GOING ON A TRIP.

TO WRITE THE STORY, I WOULD LIKE TO KNOW WHAT  
YOU THINK ABOUT OTHER CHILDREN THE SAME AGE AS  
YOURSELF.

BEFORE YOU START, FILL THE FOLLOWING TABLE.

NAME: _____
DATE OF BIRTH: _____
NATIONALITY: _____
TEACHER: _____

Think about your **School** and the people here.



From this word list, choose the **four most important** to you.

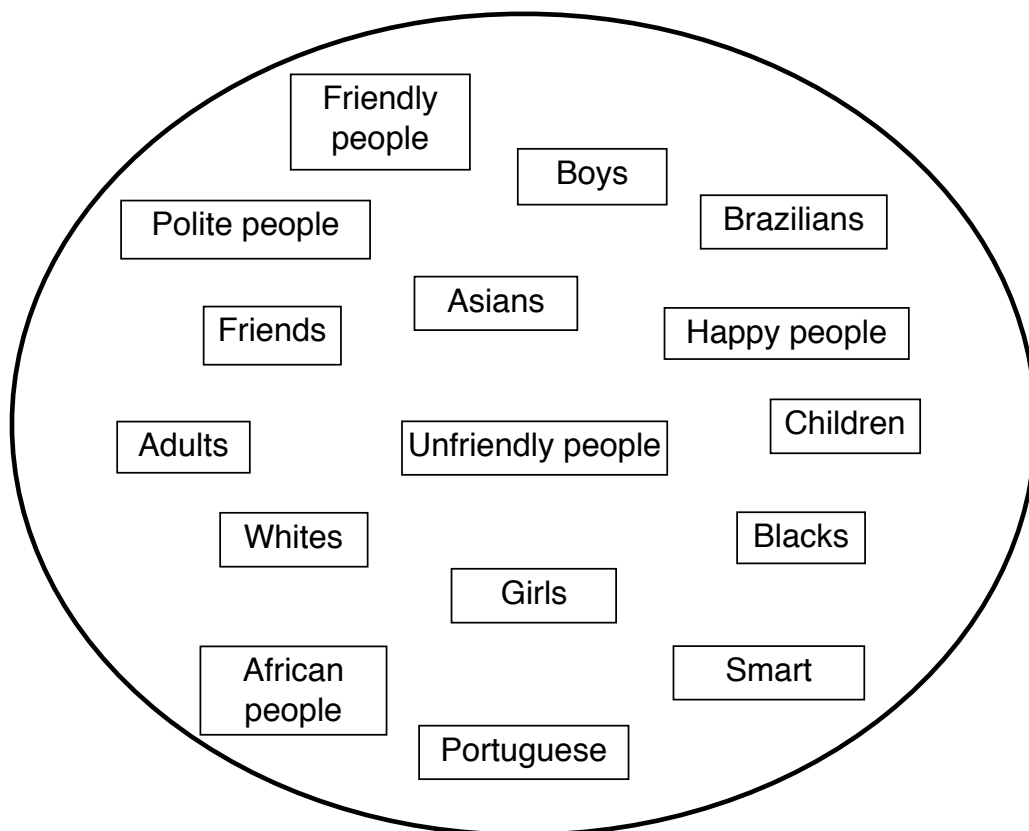
**When I think about my school...**

1. ...I think about \_\_\_\_\_

2. ... I think about \_\_\_\_\_

3. ... I think about \_\_\_\_\_

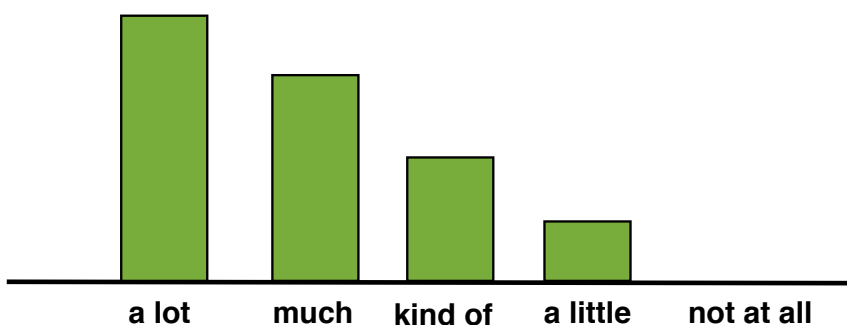
4. ... I think about \_\_\_\_\_



# How are children like at your School?



To answer, put an  X



They feel RAGE					
They're NOISY					
They feel LOVE, they like people					
They're LIARS					
They're COURAGEOUS					
They feel SHAME					
They're POLITE					
They're GOOD RUNNERS					

We all belong to several groups.

## Which groups do you belong to?

To answer, put an



**I don't belong to**  
this group



**I belong to this group**  
but that's **not**  
**important to me**



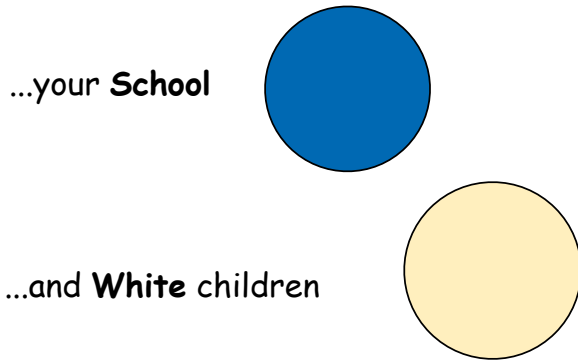
**I belong to this group**  
and that's **a little**  
**important to me**



**I belong to this group**  
and that's **really**  
**important to me**

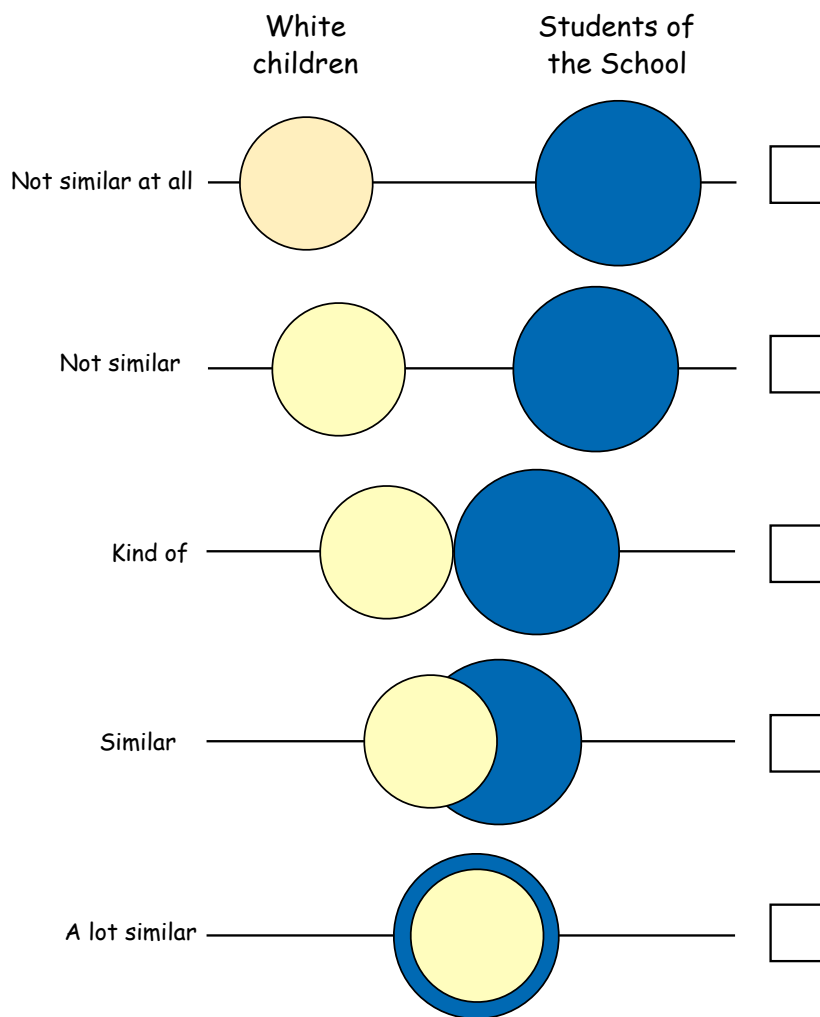
<b>Boys</b>				
<b>My School</b>				
<b>White</b>				
<b>Children</b>				
<b>Black</b>				
<b>Europeans</b>				
<b>Portuguese</b>				

# Please think about ...



## How similar are White children to the children of your School?

To answer, put an  X



Think about how children of your age are like.



From the list below, choose the **4 most important things to you.**

Children of my age are...

1. ....

2. ....

3. ....

4. ....

Fun

Friendly

Good students

Pretty

Friends

Unhappy

Polite

Happy

Cool

Happy

Bad students

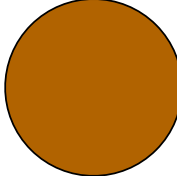
Smart

Unfriendly



## Please think about ...

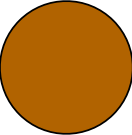
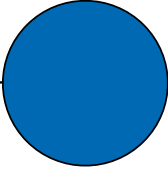
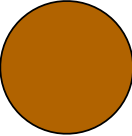
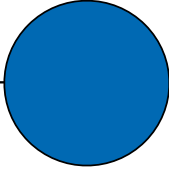
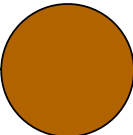
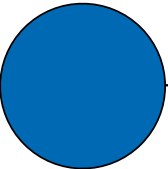
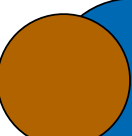
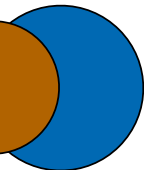
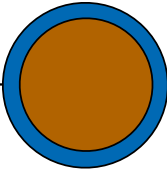
...your **School** 

...and **Black** children 

**How similar are Black children to the children of your School?**

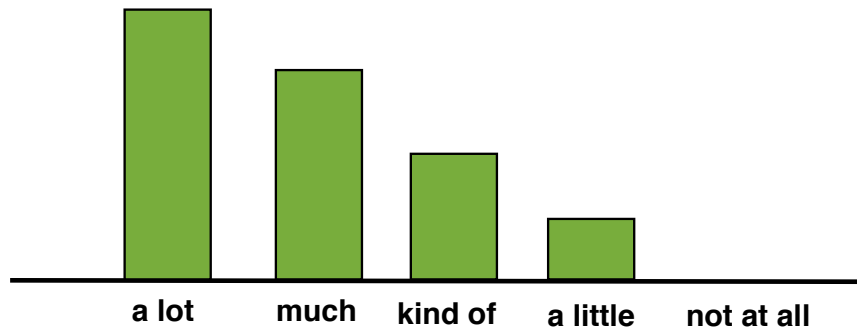
To answer, put an



	Black children	Students of the School	
Not similar at all			<input type="checkbox"/>
Not similar			<input type="checkbox"/>
Kind of			<input type="checkbox"/>
Similar			<input type="checkbox"/>
A lot similar			<input type="checkbox"/>

## How are children like these?

To answer, put an  X



They're <b>GOOD RUNNERS</b>					
They feel <b>LOVE</b> , they like people					
They're <b>COURAGEOUS</b>					
They're <b>POLITE</b>					
They feel <b>SHAME</b>					
They feel <b>RAGE</b>					
They're <b>NOISY</b>					
They're <b>LIARS</b>					

The children in our story are going on a boat trip. They will have to choose some objects to take with them

From the list below, choose the **3 most important objects to take in the boat.**



1.....

2.....

3.....



Clothes



Tent



Bag



Clock



Dishware



Medicine



Books



Rope



Water



Lantern

## How are children like these?

To answer, put an  X



They're <b>NOISY</b>					
They feel <b>LOVE</b> , they like people					
They're <b>POLITE</b>					
They're <b>GOOD</b> <b>RUNNERS</b>					
They're <b>COURAGEOUS</b>					
They feel <b>SHAME</b>					
They're <b>LIARS</b>					
They feel <b>RAGE</b>					

**Thank you for helping to write  
this story!**



Table 6. Means and standard deviations of the main variables.

	Type of superordinate category			
	School		Portugal	
	M	SD	M	SD
<b>White participants</b>				
Ingroup prototypicality	4.10	1.12	4.20	0.92
Outgroup prototypicality	3.87	1.22	3.33	1.30
Relative ingroup prototypicality	0.23	1.01	0.87	1.28
Ingroup evaluation – positive traits	3.97	0.73	3.73	0.59
Ingroup evaluation – negative traits	2.42	0.60	2.59	0.81
Outgroup evaluation – positive traits	4.02	0.49	3.69	0.64
Outgroup evaluation – negative traits	2.50	0.76	2.77	0.91
<b>Black participants</b>				
Ingroup prototypicality	3.35	1.53	2.80	1.64
Outgroup prototypicality	3.35	1.46	3.95	1.36
Relative ingroup prototypicality	0.00	1.34	-1.15	1.39
Ingroup evaluation – positive traits	4.01	0.89	3.97	0.62
Ingroup evaluation – negative traits	2.18	0.78	2.33	1.02
Outgroup evaluation – positive traits	4.10	0.72	3.84	0.82
Outgroup evaluation – negative traits	2.20	0.63	2.61	1.17

*Note:* ingroup prototypicality, outgroup prototypicality, ingroup and outgroup evaluation measures range from 1 to 5, with higher values indicating higher scores. Relative ingroup prototypicality ranges from -4 to 4, with higher values indicating higher relative ingroup prototypicality.

Table 7. Correlations of the main variables

Type of Superordinate category	1.	2.	3.	4.	5.	6.	7.
<b>School</b>							
1. Ingroup prototypicality	—	.636**	.344 <sup>†</sup>	-.024	.307 <sup>†</sup>	.074	.202
2. Outgroup prototypicality	.601**	—	-.506**	-.078	.266	-.095	.177
3. Relative ingroup prototypicality (RIP)	.488*	-.404	—	.068	.019	.198	.011
4. Ingroup positive traits	.363	.027	.387 <sup>†</sup>	—	-.158	.687**	.141
5. Ingroup negative traits	-.361	-.068	-.339	-.390 <sup>†</sup>	—	-.022	.746**
6. Outgroup positive traits	.610**	.523*	.128	.571*	-.149	—	.087
7. Outgroup negative traits	-.110	-.226	.120	-.068	.567*	-.234	—
<b>Portugal</b>							
1. Ingroup prototypicality	—	.374*	.344 <sup>†</sup>	-.134	-.218	-.108	-.120
2. Outgroup prototypicality	.586**	—	-.742**	-.232	.057	-.070	.017
3. Relative ingroup prototypicality (RIP)	.610**	-.284	—	.137	-.215	.007	.176
4. Ingroup positive traits	-.250	-.360	.056	—	.057	.787**	-.161
5. Ingroup negative traits	-.030	-.016	-.019	-.281	—	.139	.586**
6. Outgroup positive traits	-.580**	-.490*	-.207	.601*	-.281	—	-.250
7. Outgroup negative traits	.471*	.227	.335	-.307	.706**	-.525*	—

Note: Lower diagonal correlations for Black participants. Upper diagonal correlations for White participants.

\*\*  $p < .01$ ; \*  $p < .05$ ; <sup>†</sup>  $p < .10$



Table 8. Regression model for ingroup prototypicality as predictor of outgroup evaluation (Black participants).

Variable	Positive traits			Negative traits		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>
Ingroup prototypicality	-.00	.13	-0.02	.31	.18	1.70
Type of superordinate category	-.13	.11	-1.19	.28	.15	1.85
Outgroup prototypicality	-.00	.13	-0.02	-.12	.18	-0.69
Ingroup prototypicality × type of superordinate category	-.46	.11	-4.34**	.30	.14	2.06*

Note: Positive traits,  $F(4,35) = 5.17, p < .05$ ; Adj.  $R^2 = .30$ . Negative traits:  $F(4,35) = 2.54, p = .057$ ; Adj.  $R^2 = .14$

\*  $p < .05$ , \*\*\*  $p < .001$

Table 9. Regression model for outgroup prototypicality as a predictor of outgroup evaluation (Black participants).

Variable	Positive traits			Negative traits		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>
Outgroup prototypicality	-.01	.14	-.06	-.13	.19	-.68
Type of superordinate category	-.13	.12	-1.07	.28	.16	1.79
Ingroup prototypicality	-.03	.14	-.24	.33	.18	1.78
Outgroup prototypicality × type of superordinate category	-.37	.11	-3.45**	.18	.14	1.31

Note: Positive traits:  $F(4,35) = 3.38, p < .05$ ; Adj.  $R^2 = .19$ . Negative traits:  $F(4,35) = 1.81, p = .15$ ; Adj.  $R^2 = .07$

\*\*  $p < .01$



**Appendix B**  
**Study 2**

---



**Questionnaire (School condition, male version)**

**I'M DOING A PROJECT ON WHAT YOU THINK ABOUT YOURSELF  
AND ABOUT OTHER CHILDREN YOUR AGE**

**BEFORE YOU START, FILL THE FOLLOWING TABLE.**

<b>NAME:</b> _____
<b>DATE OF BIRTH:</b> _____
<b>NATIONALITY:</b> _____
<b>TEACHER:</b> _____

We all belong to several groups.

Which groups do you belong to?

To answer, put an  X

1. Boys



really important



very important



kind of important



a bit important



not important

I'm a boy, and that's

I'm not a boy

2. Black



really important



very important



kind of important



a bit important



not important

I'm black, and that's

I'm not Black

3. Girls



really important



very important



kind of important



a bit important



not important

I'm a girl, and that's

I'm not a girl

4. White



really important



very important



kind of important



a bit important



not important

I'm White, and that's

I'm not White

5. Pupil of school



really important



very important



kind of important



a bit important



not important

I'm a pupil in this school and that's

I'm not a pupil in this school

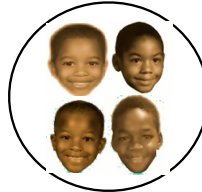
Think about your **School** and the people here.



At your School, there are White, Portuguese origin boys



and there are Black, African origin boys

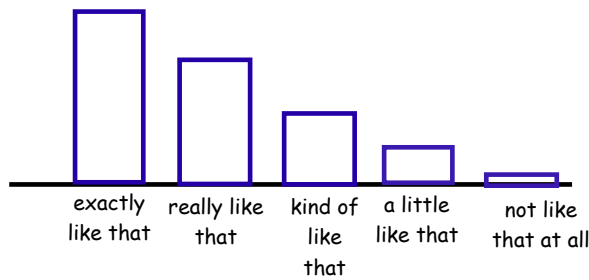


Read carefully the statements below. Say what you think about each statement.

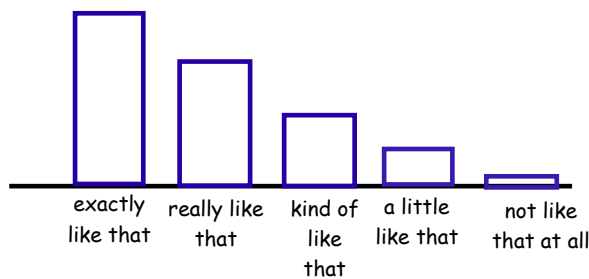
To answer, put an



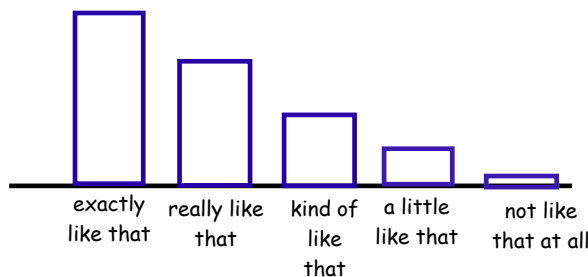
1. **White** and **Black** children are **similar**, so they all belong to the **School** group.



2. **White** and **Black** children are **different**, so they all belong to two **really different** groups.



3. **White** and **Black** children are **different**. so they belong to two **different** groups but, **at the same time**, they are also **similar**, so they also belong to the **School** group.



Children do not all live in the same way...

...some live in big, beautiful houses,



have big cars



and a lot of expensive toys



How many Black children live like that?

To answer, put an

X

none



a few



some

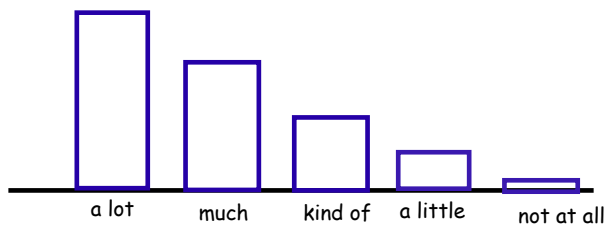


a lot

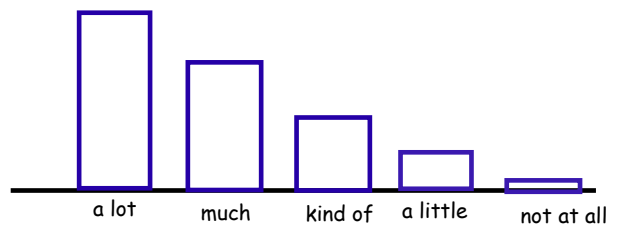


all

Do you think that is right , that it's fair?



Do you think that can change?





Children do not all live in the same way...

...some live in big, beautiful houses,



have big cars



and a lot of expensive toys



How many White children live like that?

To answer, put an



X

none



a few



some

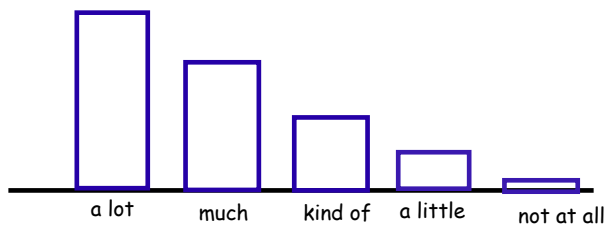


a lot

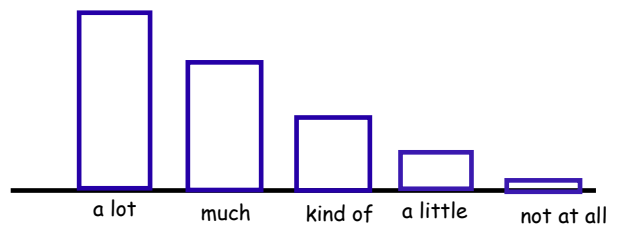


all

Do you think that is right, that it's fair?



Do you think that can change?



**Now think about your friends that are part of your classroom here at school.**

**In your class, who do you like more to play with?** Write the names below:

Friend 1. \_\_\_\_\_

Friend 2. \_\_\_\_\_

Friend 3. \_\_\_\_\_

**Who do you prefer to make project works with?**

Friend 1. \_\_\_\_\_

Friend 2. \_\_\_\_\_

Friend 3. \_\_\_\_\_

**And you can you tell your secrets to?**

Friend 1. \_\_\_\_\_

Friend 2. \_\_\_\_\_

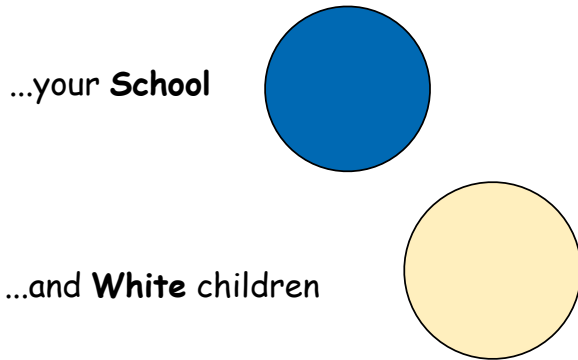
Friend 3. \_\_\_\_\_

**And what about outside of School? Who are your friends?**

Write the name of your **three best friends outside of the school** and say how they are like:

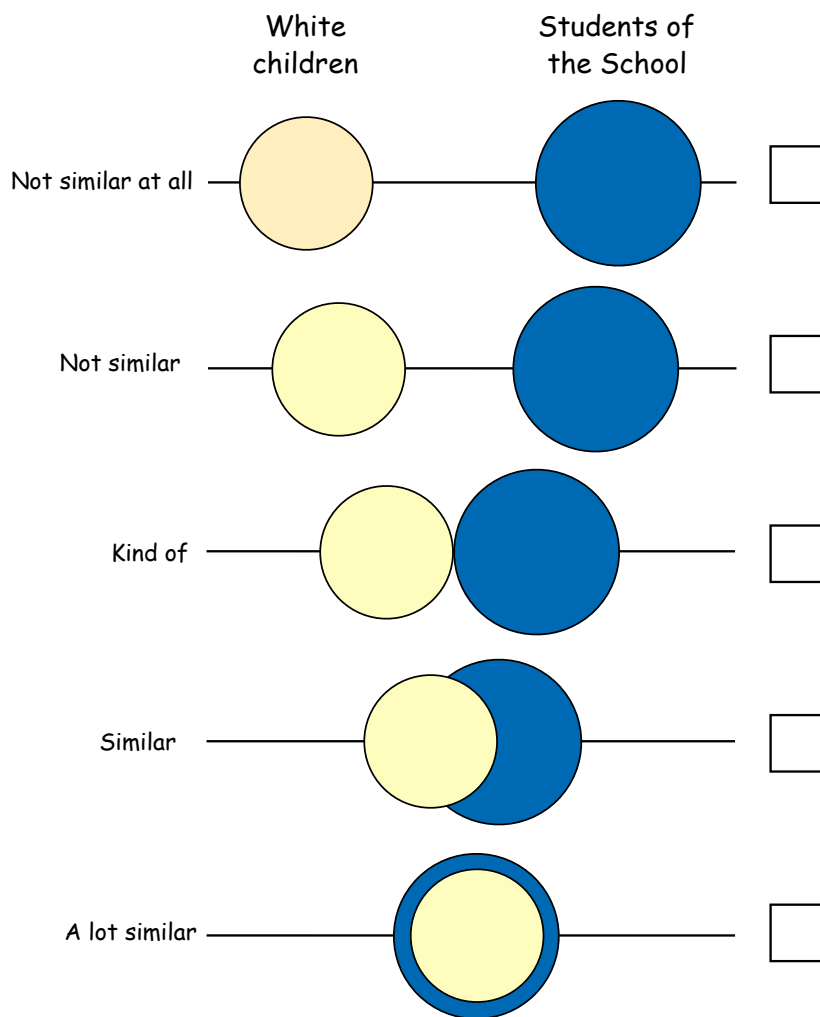
	Black	White	Mulatto	Other
Friend 1. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Friend 2. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Friend 3. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please think about ...



How similar are White children to the children of your School?

To answer, put an  X



## How are White children like?

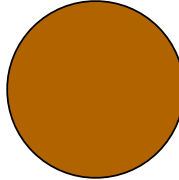
To answer, put an  X



They're <b>GOOD RUNNERS</b>					
They feel <b>LOVE</b> , they like people					
They're <b>COURAGEOUS</b>					
They're <b>POLITE</b>					
They feel <b>SHAME</b>					
They feel <b>RAGE</b>					
They're <b>NOISY</b>					
They're <b>LIARS</b>					

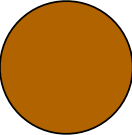
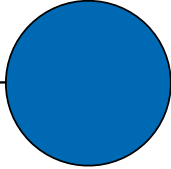
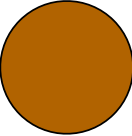
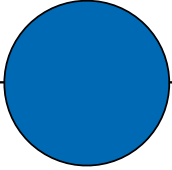
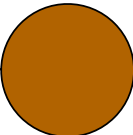
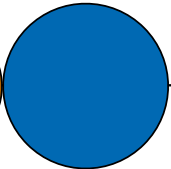
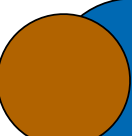
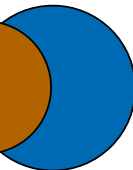
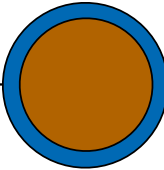
# Please think about ...

...your **School** 

...and **Black** children 

## How similar are Black children to the children of your School?

To answer, put an  X

	Black children	Students of the School	
Not similar at all			<input type="checkbox"/>
Not similar			<input type="checkbox"/>
Kind of			<input type="checkbox"/>
Similar			<input type="checkbox"/>
A lot similar			<input type="checkbox"/>

## How are Black children like?

To answer, put an  X




They're <b>NOISY</b>					
They feel <b>LOVE</b> , they like people					
They're <b>POLITE</b>					
They're <b>GOOD RUNNERS</b>					
They're <b>COURAGEOUS</b>					
They feel <b>SHAME</b>					
They're <b>LIARS</b>					
They feel <b>RAGE</b>					

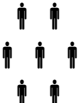
How many White children are like this?





To answer, put an X

X









none
a few
some
a lot
all

Nice					
Do things like me					
Friendly					
Are similar to me					
Selfish					
Can't do their homework					
Smart					
Kind					
Clean					
Bad					
Dirty					
Lazy					
Tidy					
Mean					



Think about how children of your age are like.



From the list below, choose the **4 most important things to you.**

Children of my age are...

1. ....

2. ....

3. ....

4. ....

A large circle containing several rectangular boxes with text inside. The text in the boxes includes: Fun, Friendly, Good students, Pretty, Friends, Unhappy, Polite, Happy, Cool, Happy, Bad students, Smart, and Unfriendly.


How many Black children are like this?



To answer, put an



X  
none

  
a few

  
some

  
a lot

  
all

Nice					
Do things like me					
Friendly					
Are similar to me					
Selfish					
Can't do their homework					
Smart					
Kind					
Clean					
Bad					
Dirty					
Lazy					
Tidy					
Mean					

**Thank you for your help!**



Table 10: Correlations between perceived cognitive representations of intergroup contact and ingroup evaluation, as a function of participants' ethnic status and type of superordinate category.

Type of Superordinate category	1.	2.	3.	4.	5.
<b>School</b>					
1. Categorization	—	-.230 <sup>†</sup>	.174	.130	.174
2. Recategorization	-.152	—	.139	-.008	-.249*
3. Dual Identity	.033	-.079	—	.144	.186
4. Ingroup Positive traits	-.015	-.165	-.338 <sup>†</sup>	—	-.126
5. Ingroup Negative traits	.175	.189	.001	-.479**	—
<b>Portugal</b>					
1. Categorization	—	-.150	-.155	-.164	.053
2. Recategorization	-.576***	—	.113	.130	.186
3. Dual Identity	-.059	.287 <sup>†</sup>	—	-.215 <sup>†</sup>	.172
4. Ingroup Positive traits	-.255 <sup>†</sup>	.120	.017	—	-.180
5. Ingroup Negative traits	-.242	.301*	.282 <sup>†</sup>	-.185	—

*Note:* Lower diagonal correlations for Black participants. Upper diagonal correlations for White participants.

\* $p < .05$ ; \*\*  $p < .01$ ; <sup>†</sup> $p < .10$

Table 11: Correlations between prototypicality measures

Type of Superordinate category	1.	2.	3.
<b>School</b>			
1. Ingroup prototypicality	—	.625***	.522***
2. Outgroup prototypicality	.379*	—	-.340**
3. Relative ingroup prototypicality (RIP)	.640***	-.468**	—
<b>Portugal</b>			
1. Ingroup prototypicality	—	.335**	.470***
2. Outgroup prototypicality	.289 <sup>†</sup>	—	-.675**
3. Relative ingroup prototypicality (RIP)	.580***	-.612**	—

Note: Lower diagonal correlations for Black participants. Upper diagonal correlations for White participants.

\*  $p < .05$ ; \*\*  $p < .01$ ; <sup>†</sup> $p < .10$

Table 12. Regression model for outgroup evaluation on negative traits

Variables	<i>b</i>	<i>SE</i>	<i>t</i>
Constant	2.652	.064	41.237***
Recategorization (Rec)	.076	.064	1.193
Participants' ethnic status (Status)	.119	.064	1.843 <sup>†</sup>
Type of superordinate category (Type CS)	.022	.064	0.350
REC × Status	-.084	.046	-1.841 <sup>†</sup>
REC × Type CS	.074	.046	1.617
Status × Type CS	-.085	.064	-1.327
Rec × Status × Type CS	.094	.046	2.049*

Note:  $F(7,209) = 2.343$ ,  $p < .05$ ; Adj.  $R^2 = .042$

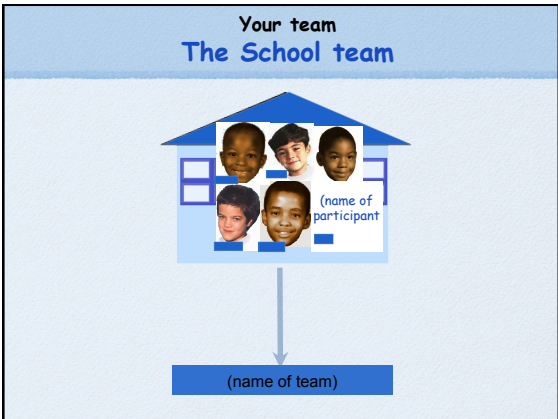
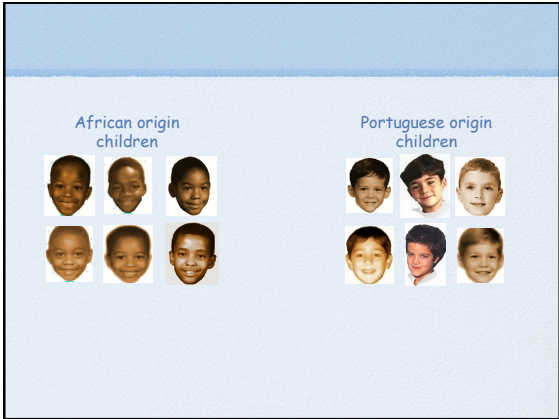
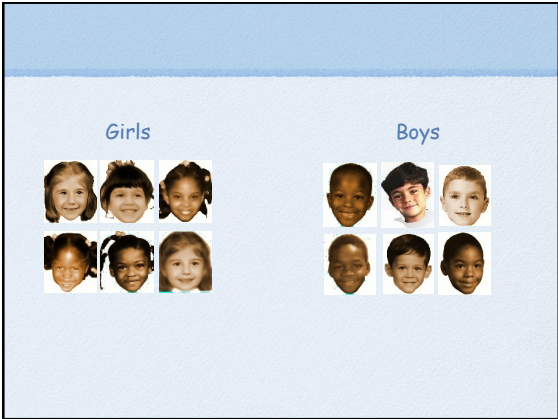
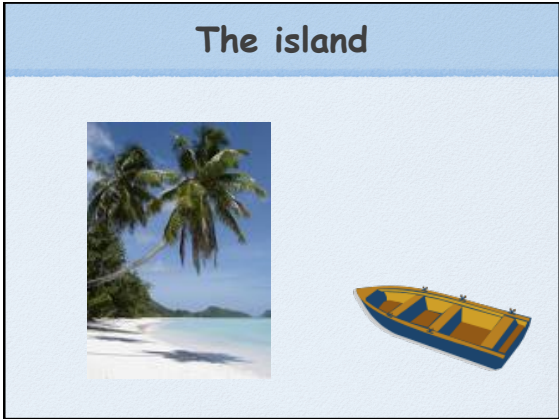
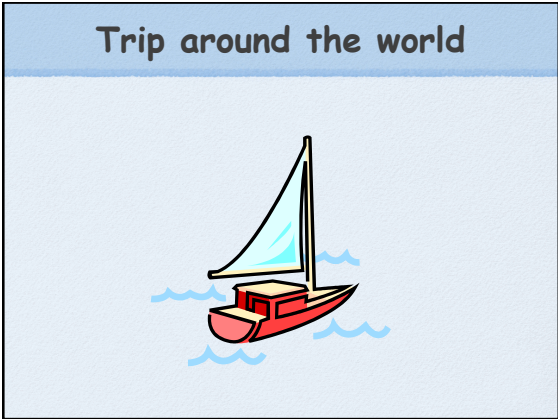
\*\*\*  $p < .001$ ; \*  $p < .05$

**Appendix C**  
**Study 3**

---







### The team

**My team was:**

1.  The Portuguese origin team.
2.  The African origin team.
3.  The School team.
4.  The School team, formed by the Portuguese origin group and by the African origin group.
5.  Only myself.

### During the game, I felt:

- A boy from African origin
- A boy from my school from African origin
- A boy from Portuguese origin
- A boy from my school from Portuguese origin
- A boy from my school

Category	Very much	Kind of	A little	Not at all
a) A boy from African origin	High	Medium-High	Medium-Low	Low
b) A boy from my school from African origin	Medium-High	Medium	Medium-Low	Low
c) A boy from Portuguese origin	Medium	Medium-Low	Low	Very Low
d) A boy from my school from Portuguese origin	Medium-Low	Low	Very Low	Very Low
e) A boy from my school	Low	Very Low	Very Low	Very Low

### How did The School team play?

- How well did he play? Did he choose like me?
- How well did he play? Did he choose like me?
- How well did he play? Did he choose like me?
- How well did he play? Did he choose like me?
- How well did he play? Did he choose like me?
- Me** Did I play well?

Player	Muito	Assim, assim	Pouco	Nada
1. Boy 1	High	Medium	Low	Very Low
2. Boy 2	Medium	Medium-Low	Low	Very Low
3. Boy 3	Medium-Low	Low	Very Low	Very Low
4. Boy 4	Low	Very Low	Very Low	Very Low
5. Boy 5	Very Low	Very Low	Very Low	Very Low
6. Me	Very Low	Very Low	Very Low	Very Low

### How did The School team play?

#### How many pencils would you give?

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- Me** \_\_\_\_\_

### How similar are Portuguese origin children to the children at your school?

Scale	Portuguese origin children	Children at school
1	Small orange dot	Small blue circle
2	Small orange dot	Medium blue circle
3	Small orange dot	Large blue circle
4	Small orange dot	Very large blue circle
5	Small orange dot	Extremely large blue circle

### How similar are African origin children to the children at your school?

Scale	African origin children	Children at school
1	Small red dot	Small blue circle
2	Small red dot	Medium blue circle
3	Small red dot	Large blue circle
4	Small red dot	Very large blue circle
5	Small red dot	Extremely large blue circle

### Who's going to be in your team?

- 
- 
- 
- 
- 
- 
- 
- 
- 
- 
- 

Me ? ? ? ? ?



**How are African origin children like?**

They're GOOD RUNNERS  
 They feel LOVE, they like people  
 They're COURAGEOUS  
 They're POLITE  
 They feel SHAME  
 They feel RAGE  
 They're NOISY  
 They're LIARS

Response Category	Frequency
A lot	High
A bit	Medium-High
Kind of	Medium
A little	Low-Medium
Not at all	Low

**How are Portuguese origin children like?**

They're NOISY  
 They feel LOVE, they like people  
 They're POLITE  
 They're GOOD RUNNERS  
 They're COURAGEOUS  
 They feel SHAME  
 They're LIARS  
 They feel RAGE

Response Category	Frequency
A lot	High
A bit	Medium-High
Kind of	Medium
A little	Low-Medium
Not at all	Low

**How are children at my school like?**

They're POLITE  
 They feel SHAME  
 They're COURAGEOUS  
 They're LIARS  
 They're NOISY  
 They feel RAGE  
 They're GOOD RUNNERS  
 They feel LOVE, they like people

Response Category	Frequency
A lot	High
A bit	Medium-High
Kind of	Medium
A little	Low-Medium
Not at all	Low

1.1) Do you consider yourself to be from Portuguese origin?  
 1.2) Do you like being from Portuguese origin?  
 1.3) Are you proud to be from Portuguese origin?  
 1.4) How important is it to you that you're from Portuguese origin?

Response Category	Frequency
A lot	High
A bit	Medium-High
Kind of	Medium
A little	Low-Medium
Not at all	Low

2.1) Do you consider yourself to be from your school?  
 2.2) Do you like being from your school?  
 2.3) Are you proud to be from your school?  
 2.4) How important is it to you that you're from your school?

Response Category	Frequency
A lot	High
A bit	Medium-High
Kind of	Medium
A little	Low-Medium
Not at all	Low

**Thank you!**



Table 13: One sample t-test for bias measures by condition and type of superordinate category for the higher-status group (White Children).

Conditon	Type of superordinate category		M	SD	t	df	p
Categorization	Competence		0.40	0.51	5.31	45	.000
	Similarity		0.42	0.66	4.28	45	.000
	Resource allocation		0.11	0.19	4.05	45	.000
	Contact intention		1.89	1.92	6.67	45	.000
	Positive evaluation		0.14	0.48	1.98	45	.054
	Negative evaluation		-	0.61	1.17	45	.248
Recategorization	Competence	School	0.31	0.70	2.23	24	.035
	Similarity		0.19	0.84	1.11	24	.280
	Resource allocation		-	0.09	0.28	24	.779
	Contact intention		1.28	2.15	2.98	24	.007
	Positive evaluation		0.04	0.35	0.50	24	.620
	Negative evaluation		0.23	0.62	1.84	24	.078
	Competence	Portugal	0.09	0.50	0.98	25	.338
	Similarity		0.33	0.63	2.70	25	.012
	Resource allocation		-	0.15	0.81	25	.421
	Contact intention		0.31	1.93	0.82	25	.425
	Positive evaluation		0.05	0.51	0.48	25	.635
	Negative evaluation		0.05	0.57	0.43	25	.669
Dual identity	Competence	School	0.07	0.43	0.79	23	.438
	Similarity		0.25	0.58	2.11	23	.046
	Resource allocation		0.08	0.19	2.10	23	.047
	Contact intention		1.00	2.04	2.39	23	.025
	Positive		-	0.49	-	23	.362

	evaluation	0.09		0.93		
	Negative evaluation	-	0.59	-	23	.674
	Competence	0.13	.54979	1.25	25	.223
	Similarity	0.45	.64251	3.56	25	.002
	Resource allocation	0.10	.21534	2.47	25	.021
Portugal	Contact intention	1.31	2.52617	2.64	25	.014
	Positive evaluation	0.20	.97984	1.05	25	.303
	Negative evaluation	0.00	.95394	0.00	25	1.00

Table 14: One sample t-test for bias measures by condition and type of superordinate category for the lower-status group (Black children).

<b>Conditon</b>	<b>Type of superordinate category</b>		<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Categorization	Competence		0.10	0.36	1.48	29	.148
	Similarity		0.17	0.52	1.82	29	.079
	Resource allocation		0.13	0.23	3.07	29	.005
	Contact intention		0.57	1.61	1.92	29	.064
	Positive evaluation		-0.26	0.46	-3.08	29	.004
	Negative evaluation		-0.36	0.56	-3.49	29	.002
Recategorization	School	Competence	0.04	0.81	.021	14	.835
		Similarity	-0.14	0.61	-0.91	14	.377
		Resource allocation	-0.04	0.15	-1.06	14	.308
		Contact intention	0.13	1.92	0.27	14	.792
		Positive evaluation	0.21	0.19	4.06	14	.001
		Negative evaluation	0.33	0.22	5.74	14	.000
	Portugal	Competence	-0.08	0.31	-0.89	12	.387
		Similarity	-0.06	0.71	-0.32	12	.749
		Resource allocation	0.01	0.11	0.33	12	.741
		Contact intention	1.38	2.63	1.89	12	.082
		Positive evaluation	0.13	0.79	0.61	12	.553
		Negative evaluation	0.02	1.10	0.06	12	.951
Dual identity	School	Competence	0.41	0.58	2.73	14	.016
		Similarity	0.69	0.82	3.28	14	.005
		Resource allocation	0.01	0.12	0.38	14	.706
		Contact intention	1.47	1.92	2.96	14	.010
		Positive	0.25	0.42	2.29	14	.038

	evaluation					
	Negative evaluation	0.05	0.94	0.198	14	.846
	Competence	-0.24	0.47	-2.00	14	.065
	Similarity	0.36	0.50	2.79	14	.014
	Resource allocation	0.15	0.19	2.90	14	.012
Portugal	Contact intention	1.20	1.82	2.55	14	.023
	Positive evaluation	0.27	0.73	1.45	14	.169
	Negative evaluation	0.11	0.55	0.80	14	.434



Table 15: Correlations of prototypicality measures and intergroup bias, as a function of participants' ethnic status and type of superordinate category (collapsing across recategorization and dual identity conditions).

Participants' ethnic status	Type of superordinate category	Bias measures					
		Competence	Similarity	Resource allocation	Contact intention	Positive evaluation	Negative evaluation
<b>Higher (White)</b>	<b>School</b>						
	Ingroup prototypicality	-.215	.065	.001	-.136	.153	-.046
	Outgroup prototypicality	-.207	-.009	.028	.020	-.199	.164
	Relative ingroup prototypicality	.064	.052	-.027	-.107	.295*	-.191
	<b>Portugal</b>						
	Ingroup prototypicality	.241 <sup>†</sup>	.134	.067	.088	.027	-.153
	Outgroup prototypicality	-.201	-.169	-.355*	-.171	-.376**	.298*
	Relative ingroup prototypicality	.347*	.253 <sup>†</sup>	.409**	.229	.346*	-.357**
	<b>Lower (Black)</b>	<b>School</b>					
Ingroup prototypicality		.129	.190	.002	.252	.106	-.233
Outgroup prototypicality		.010	.288	-.019	-.018	-.169	.118
Relative ingroup prototypicality		.116	-.093	.021	.264	.268	-.342 <sup>†</sup>
<b>Portugal</b>							
Ingroup prototypicality		-.196	.132	.038	.370 <sup>†</sup>	.123	-.211
Outgroup prototypicality		.014	-.021	.164	.347 <sup>†</sup>	.201	.195
Relative ingroup prototypicality		-.251	.178	-.083	.179	-.009	-.413*

Note: <sup>†</sup> $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

Table 16: Correlations of prototypicality measures and outgroup evaluation, as a function of participants' ethnic status and type of superordinate category (collapsing across recategorization and dual identity conditions).

Participants' ethnic status	Type of superordinate category	Outgroup evaluation measures					
		Competence	Similarity	Resource allocation	Contact intention	Positive evaluation	Negative evaluation
<b>Higher (White)</b>	<b>School</b>						
	Ingroup prototypicality	.318*	.019	-.097	.136	-.039	-.034
	Outgroup prototypicality	.118	.213	-.008	-.020	.221	-.124
	Relative ingroup prototypicality	.091	-.197	-.055	.107	-.243	.100
	<b>Portugal</b>						
	Ingroup prototypicality	-.006	.017	-.256 <sup>†</sup>	-.099	.033	.035
	Outgroup prototypicality	.272 <sup>†</sup>	.109	.292*	.177	.440**	-.212
	Relative ingroup prototypicality	-.241 <sup>†</sup>	-.084	-.416**	-.217	-.365**	.207
	<b>Lower (Black)</b>	<b>School</b>					
Ingroup prototypicality		-.138	-.379*	-.274	-.252	.069	.031
Outgroup prototypicality		.140	-.384*	-.434*	.018	.091	-.237
Relative ingroup prototypicality		-.271	.002	.153	-.264	-.021	.261
<b>Portugal</b>							
Ingroup prototypicality		.037	-.212	-.325 <sup>†</sup>	-.370 <sup>†</sup>	.152	-.064
Outgroup prototypicality		-.093	-.281	-.130	-.347 <sup>†</sup>	-.095	-.020
Relative ingroup prototypicality		.119	-.038	-.296	-.179	.261	-.062

Note: <sup>†</sup> $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

Table 17: Correlations of prototypicality measures and intergroup bias as a function of participants' ethnic status and type of superordinate category (recategorization condition).

Participants' ethnic status	Experimental Condition	Bias measures					
		Competence	Similarity	Resource allocation	Contact intention	Positive evaluation	Negative evaluation
Higher (White)	<b>Recategorization / School</b>						
	Ingroup prototypicality	-.133	.111	-.049	-.180	.318	-.080
	Outgroup prototypicality	-.086	-.027	-.096	.153	-.364 <sup>†</sup>	.314
	Relative ingroup prototypicality	-.017	.091	.044	-.232	.483*	-.295
	<b>Recategorization / Portugal</b>						
	Ingroup prototypicality	.152	.139	-.085	.105	-.027	-.230
	Outgroup prototypicality	-.093	.031	-.276	-.258	-.279	.155
	Relative ingroup prototypicality	.180	.051	.220	.314	.191	-.266
	Lower (Black)	<b>Recategorization / School</b>					
Ingroup prototypicality		-.117	-.036	-.216	.214	.038	-.268
Outgroup prototypicality		-.023	-.023	-.122	-.105	-.208	-.022
Relative ingroup prototypicality		-.081	-.010	-.079	.281	.221	-.215
<b>Recategorization / Portugal</b>							
Ingroup prototypicality		-.309	.054	-.321	.523 <sup>†</sup>	.172	-.293
Outgroup prototypicality		-.178	-.166	.077	.485 <sup>†</sup>	.368	.029
Relative ingroup prototypicality		-.244	.218	-.487 <sup>†</sup>	.252	-.103	-.407

Note: <sup>†</sup> $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

Table 18: Correlations of prototypicality measures and intergroup bias, as a function of participants' ethnic status and type of superordinate category (dual identity condition).

Participants' ethnic status	Experimental Condition	Bias measures					
		Competence	Similarity	Resource allocation	Contact intention	Positive evaluation	Negative evaluation
Higher (White)	<b>Dual Identity / School</b>						
	Ingroup prototypicality	-.236	-.131	-.246	.00	-.145	.008
	Outgroup prototypicality	-.176	-.077	-.276	-.065	-.059	.025
	Relative ingroup prototypicality	.047	.000	.164	.080	-.031	-.026
	<b>Dual Identity/ Portugal</b>						
	Ingroup prototypicality	.333 <sup>†</sup>	.114	.133	.034	.127	-.039
	Outgroup prototypicality	-.296	-.358 <sup>†</sup>	-.458*	-.119	-.474*	.441*
	Relative ingroup prototypicality	.514**	.463*	.585**	.152	.600**	-.515**
	Lower (Black)	<b>Dual Identity / School</b>					
Ingroup prototypicality		.506 <sup>†</sup>	-.239	.239	-.166	.424	-.385
Outgroup prototypicality		-.529*	.417	-.132	-.539*	-.212	.660**
Relative ingroup prototypicality		.771*	-.488 <sup>†</sup>	.276	.278	.474 <sup>†</sup>	-.779**
<b>Dual Identity / Portugal</b>							
Ingroup prototypicality		.097	-.260	-.057	.163	.102	-.183
Outgroup prototypicality		.487 <sup>†</sup>	.040	.133	.033	-.094	.677**
Relative ingroup prototypicality		-.202	-.219	-.118	.104	.130	-.519*

Note: <sup>†</sup> $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

Table 19: Correlations of prototypicality measures and outgroup evaluation, as a function of participants' ethnic status and type of superordinate category (recategorization condition).

Participants' ethnic status	Experimental Condition	Outgroup evaluation measures					
		Competence	Similarity	Resource allocation	Contact intention	Positive evaluation	Negative evaluation
Higher (White)	<b>Recategorization / School</b>						
	Ingroup prototypicality	.281	.043	-.017	.180	-.165	-.067
	Outgroup prototypicality	-.038	.450*	.158	-.153	.298	-.258
	Relative ingroup prototypicality	.206	-.323	-.134	.232	-.336	.159
	<b>Recategorization / Portugal</b>						
	Ingroup prototypicality	.117	-.082	-.333	-.094	.110	.080
	Outgroup prototypicality	.165	-.212	.151	.258	.512**	-.046
	Relative ingroup prototypicality	-.047	.105	-.331	-.254	-.311	.087
	Lower (Black)	<b>Recategorization / School</b>					
Ingroup prototypicality		.055	-.259	-.017	-.214	.240	-.121
Outgroup prototypicality		.162	-.310	-.330	.105	.055	-.234
Relative ingroup prototypicality		-.098	.054	.282	-.281	.160	.105
<b>Recategorization / Portugal</b>							
Ingroup prototypicality		.127	-.183	-.207	-.523 <sup>†</sup>	.188	-.182
Outgroup prototypicality		-.175	-.333	-.259	-.485 <sup>†</sup>	-.176	.094
Relative ingroup prototypicality		.321	.057	-.041	-.252	.401	-.319

Note: <sup>†</sup> $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

Table 20: Correlations of prototypicality measures and outgroup evaluation, as a function of participants' ethnic status and type of superordinate category (dual identity condition).

Participants' ethnic status	Experimental Condition	Outgroup evaluation measures					
		Competence	Similarity	Resource allocation	Contact intention	Positive evaluation	Negative evaluation
Higher (White)	<b>Dual Identity / School</b>						
	Ingroup prototypicality	.179	.027	-.246	.000	.223	.025
	Outgroup prototypicality	-.076	.039	-.184	.065	.236	.015
	Relative ingroup prototypicality	.222	-.029	.051	-.080	-.130	.000
	<b>Dual Identity/ Portugal</b>						
	Ingroup prototypicality	-.201	.206	-.008	-.034	-.100	-.040
	Outgroup prototypicality	.385 <sup>†</sup>	.542**	.473*	.119	.370 <sup>†</sup>	-.376 <sup>†</sup>
	Relative ingroup prototypicality	-.541**	-.494*	-.534**	-.152	-.469*	.399*
	Lower (Black)	<b>Dual Identity / School</b>					
Ingroup prototypicality		-.585*	-.103	-.446 <sup>†</sup>	.166	-.363	.516*
Outgroup prototypicality		.409	-.103	-.139	.539*	.291	-.479 <sup>†</sup>
Relative ingroup prototypicality		-.741**	.000	-.229	-.278	-.487 <sup>†</sup>	.742*
<b>Dual Identity / Portugal</b>							
Ingroup prototypicality		.267	.000	-.484 <sup>†</sup>	-.163	.189	.184
Outgroup prototypicality		.356	.181	.376	-.033	.049	-.296
Relative ingroup prototypicality		.000	-.102	-.577*	-.104	.115	.306

Note: <sup>†</sup> $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

Table 21: Regression results for moderated mediation analysis: indirect effect of the cognitive representation (recategorization vs. dual identity) on outgroup positive evaluation via outgroup prototypicality.

<i>Mediator variable model</i>				
<i>Predictor</i>	<i>b</i>	<i>se</i>	<i>t</i>	<i>p</i>
Constant	2.93	.065	4.506	.000
Recategorization vs. Dual identity (Rec vs. Di)	.239	.101	2.379	.019
Type of superordinate category (Type SC)	-.169	.097	-1.741	.085
Rec vs. Di × Type SC	-.285	.097	-2.927	.004
Ingroup prototypicality	.198	.139	1.415	.160
<i>Dependent variable model</i>				
<i>Predictor</i>	<i>b</i>	<i>se</i>	<i>t</i>	<i>p</i>
Constant	3.427	.401	8.553	.000
Outgroup prototypicality	.216	.057	3.796	.000
Rec vs. Di	.020	.057	0.351	.726
Type SC	.067	.055	1.218	.226
Rec vs. Di × Type SC	-.043	.056	-0.654	.514
Ingroup prototypicality	-.051	.079	-.654	.514
<i>Conditional effects</i>				
<i>Type of superordinate category (Mo)</i>	Indirect effect	<i>se</i>	<i>Z</i>	<i>p</i>
School	.113	.044	2.588	.009
Portugal	-.010	.030	-.323	.746

Notes: Independent variable = recategorization vs. dual identity (contrast coded: -1, 1); mediator = outgroup prototypicality; moderator = type of superordinate category (School vs. Portugal, contrast coded: -1,1); dependent variable = outgroup positive evaluation. Ingroup prototypicality was introduced in the regression model as a control variable. Normal theory tests to the conditional indirect effects are also provided in the last two rows.

