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The nature of negative contact

Studies on interethnic relations in western societies

De aard van negatief contact

Studies over interetnische relaties in westerse samenlevingen

(met een samenvatting in het Nederlands)

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Promotor: Prof. dr. F. van Tubergen
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Introduction

This dissertation focusses on negative experiences, in particular between people from different ethnic or racial backgrounds. Throughout the dissertation, different forms of negative experiences are studied. These include criminal offences, like assault or homicide, motivated by hate towards a racial group; more mundane nuisances between neighbours; harsh feedback on essays written by university students; and aggression, dislike, and active avoidance amongst high school pupils.

One of the main, recurrent questions that this dissertation addresses is whether these negative experiences are more likely to occur between people with a different ethnic background, and in neighbourhoods or municipalities where people from different ethnicities live together. As such, much of the work presented in this dissertation revolves around ethnic diversity and its consequences for modern societies.

Driven by international migration flows, almost all western societies have become considerably more ethnically diverse over the past few decades (Alesina & Glaeser, 2004; Castles & Miller, 2003). The four countries that are studied in this dissertation – i.e., the United States, England, the Netherlands, and Germany – are no exception. In the United States, the share of the population that is racially White dropped from 80% in 1990 to 72% in 2010 (U.S. Census, 2010). The non-White population in England increased between 2001 and 2011 by 74% while the White population only increased by 1.4% (Johnston, Poulsen & Forrest, 2014). In the Netherlands, the percentage of the population that has a migration background has increased to 22.1% in 2016, from 9.2% in 1972 (Jennissen et al., 2018), and in Germany this percentage increased from 18.6 in 2005 to 21.3 in 2017 (Statistisches Bundesamt, 2019). At the same time, these four countries are different in terms of their political landscape, economic situation, and history of intergroup relations. It is therefore interesting to see whether increasing ethnic diversity has had the same impact on the four countries.

One thing that is clear in all these countries is that the recent demographic changes continue to inform discussions – public, political, and academic – about how best to manage increasingly diverse populations. The salience of these debates, not uncommonly held by people voicing nearly diametrically opposed opinions, reflects how important increasing ethnic diversity is, and for how many aspects of modern, western societies it is thought to have consequences.

Some of the debates on the impact of ethnic diversity spring more easily to mind than others. For example, just a couple of years ago Europe's migration policy was critically evaluated as European media outlets spoke of a refugee crisis and meticulously covered the effects of immigration (The Guardian, 2014; De Volkskrant, 2015). New border restrictions were introduced, at least in part because international migration was perceived to form a threat to the national security of settler

societies (Castles & Miller, 2003). Further, increasing diversity has been mentioned as one of the driving forces behind shifts in the political landscapes of many western societies. This is noticeably in the rise of right-wing parties that have adopted an anti-migration rhetoric (Lubbers, Gijsberts & Scheepers, 2002), as well as the United Kingdom's recent decision to leave the European Union (Kahn, 2016). It has also been suggested that ethnic heterogeneity could undermine the sense of solidarity that is necessary to sustain a strong and generous welfare state, and that it is a source of fuel for polarization and the emergence of so-called parallel societies (Alesina & Glaeser, 2004).

Underlining these discussions is a similar question: can ethnically and culturally diverse societies flourish, or does growing diversity make living together more problematic? Given the negative sentiment apparent in most of the debates briefly touched upon in the previous paragraph, this question might almost seem rhetoric. There are so many concerns about growing ethnic diversity that, if anything, it should surely have adverse consequences for society.

At the same time, however, social scientific research has suffered from what has come to be known as an implicit positivity bias (Pettigrew & Tropp, 2011; Pettigrew, 2008). By focusing on positive contact experiences, such as interethnic friendships, scholars have unwittingly glossed over negative contact experiences, such as racial hate crimes. As a consequence, relatively little is currently known about negative contact, whether it is more common in ethnically diverse places, and how it affects other aspects of society. The main aim of this dissertation is therefore to fill these lacunae and single in on negative interethnic contact, its antecedents and its consequences.

The remainder of this chapter is structured as follows. To start off, I will define and demarcate negative contact. Then I will address the main contributions of this dissertation to the scientific literature, outline the theoretical approaches that have inspired this dissertation, and highlight how my work extends on the existing literature. Second, I will describe the main methodological advances of this dissertation, and detail the ways in which these advances align with the main contributions. I will also pay particular attention to the advantages of using different methods, such as experimental designs, multilevel models, and social network analysis; and different measures, including attitudinal and behavioural outcomes as well as a range of operationalizations of negative contact. Afterwards I will give a brief summary of the four empirical chapters that form the heart of this dissertation, before going on to present the key findings and conclusions. The final section of this synthesis will also reflect on some of the limitations of this dissertation and feature ways in which future research could improve upon the work that is presented here.

Theoretical background

In this section, I will first define the concept of negative contact, and reflect on the advantages of analysing different types of negative contact. Afterwards, I will focus on two possible consequences of negative interethnic contact, namely worsened relations between different ethnic groups, and worsened relations between people in general, irrespective of their ethnicity. Finally, I will discuss the antecedents of negative contact. There I will pay particular attention to the influence of the ethnic composition of municipalities and neighbourhoods, the interethnic nature of negative contact, and ultimately consider the influence of social status.

The nature of negative contact

What exactly do I mean when I talk about negative contact? Firstly, all forms of contact featured in this dissertation can be considered to be negative, because they are experiences that most people would deem undesirable if it were to happen to them. Some of them are simply unpleasant whereas others are downright violent. Secondly, all types of negative contact discussed in this dissertation have two other characteristics in common: they are encounters that are face-to-face and they are personally experienced. These characteristics are important to stress. They exclude, for example, encounters that people may have online, say on Facebook, Twitter, or Instagram. These are, of course, personally experienced but not face-to-face. The definition of negative contact used in this dissertation also excludes portrayals of other ethnic groups in the media or in accounts shared by friends or relatives, as these are not personally experienced.

Within this demarcation, this dissertation covers an array of different types of negative contact. The advantages of this are twofold. For one, very little is currently known about the nature of negative interethnic contact, and what experiences should fall under this umbrella term. By looking at various experiences, I hope to better appreciate the richness and complexity of negative interethnic contact. Further, by analysing several forms of negative contact I aim to explore how robust my findings are. Does it make sense, for instance, to expect the same explanations to hold true for hate crimes as for more mundane, every-day nuisances? Or would it be more prudent to formulate specific hypotheses for each experience? These are empirical questions, best answered by having a closer look at different types of negative contact.

In most cases, I look at concrete forms of negative contact. These include racial hate crimes, like simple assault or even homicide, harsh feedback on written assignments, and active avoidance, dislike, and verbal and physical aggression amongst high school pupils. Additionally, I also look at a more abstract form of negative

contact, where survey respondents could determine themselves what it should entail exactly.

To get some idea of the types of events people consider to be negative contact, it is interesting to look at some qualitative results from a small diary survey conducted in 2017 by my colleagues and I. For thirteen consecutive days, around 1500 people from England kept a diary. Every day these people could freely describe the negative interethnic contact experiences they had using open-ended questions. A qualitative content analysis of this diary data revealed several recurrent types of negative interethnic experiences. Respondents often reported on people behaving in a way that they considered to be rude or aggressive, like cutting in line, denying them help when having asked for it, or being ignored when smiling and trying to start a conversation. Other frequently cited instances of negative interethnic contact were receiving verbal abuse, typically with racial slurs, or being shoved aside or bummed into on the streets, especially when this was not followed by an apology. Finally, many respondents mentioned being stared at, often in an aggressive or intimidating manner.

Having defined negative contact, I will now discuss its consequences for prejudice, trust, and perceived cohesion. Afterwards I will offer some theoretical explanations as to where and between whom negative contact might be more likely to occur.

The consequences of negative interethnic contact

Prejudice, contact valence and intensity.

The first consequence of negative interethnic contact that I will consider pertains to interethnic relations. One of the most common ways in which this topic has been studied is by looking at people's attitudes towards other ethnic groups, typically referred to as prejudice or outgroup attitudes. These attitudes are often measured by asking people to indicate how they feel about a certain group or whether they think members of a specific group are, generally speaking, warm or competent (Fiske, Xu, Cuddy, Glick, 1999).

In his seminal work *The Nature of Prejudice*, Gordon Allport (1954) formally proposed that people's attitudes towards another ethnic group could best be improved if they share positive experiences with members of that ethnic outgroup. This relatively simple idea has inspired a wealth of research. By now there is quite some consensus that, overall, positive interethnic contact indeed results in less prejudice, typically because it alleviates feelings of anxiety and results in feelings of empathy (for reviews see Brown & Hewstone, 2005; Hodson & Hewstone, 2013; Pettigrew & Tropp 2006; Pettigrew & Tropp 2011). This holds true for both ethnic majority and

ethnic minority group members (Schmid, Al Ramiah & Hewstone, 2014). Moreover, positive interethnic contact, such as interethnic friendships, may help immigrants integrate better into the host societies. Natives may offer them a unique form of social capital, help them become acquainted with the country's language and institutions, and provide them with crucial information about the local labour market (De Vroome & Van Tubergen, 2010).

That said, research on interethnic contact has long suffered from an implicit positivity bias (Pettigrew & Tropp, 2011; Pettigrew, 2008). Driven by the contact hypothesis' promise to improve intergroup relations and integration, most research has investigated positive contact experiences, most notably interethnic friendships. This excluded the very plausible possibility that contact can be both positive and negative (Paolini, Harwood & Rubin, 2010). Moreover, negative and positive instances of intergroup contact are not two sides of the same coin. They are at most moderately correlated (Pettigrew, 2008). Being harassed, for instance, is not necessarily the mirror image of being helped.

Fairly recently, scholars have started to address the omission of negative contact experiences. By now, there is burgeoning empirical evidence to suggest that negative interethnic contact can increase prejudice, in particular because it results in feelings of anxiety and anger (Barlow et al., 2012; Hayward et al., 2017; Ten Berge, Lancee & Jaspers, 2017).

In addition, there may be important differences between positive and negative interethnic contact experiences. For one, it is far more common for people to have positive than negative experiences with people from another ethnic group (Graf, Paolini & Rubin, 2014). Yet others have also suggested a "positive-negative asymmetry", where negative experiences may have stronger detrimental consequences for prejudice than positive experiences have beneficial consequences (Barlow et al., 2012; Paolini et al., 2014). Summarized in two adages: "good has superior force in numbers" but "bad is stronger than good" (Baumeister, 2001).

To date however, the empirical results on the positive-negative asymmetry of contact are rather mixed. Some scholars indeed find negative contact to be more influential than positive contact (Paolini et al., 2010), while others find no differences (Árnadóttir, Lolliot, Brown, & Hewstone, 2018), and yet others find larger effects for positive than for negative contact (Meleady, Seger, & Vermue, 2017).

This dissertation aims to contribute to this discussion in two ways. First, to my knowledge, the research presented in this dissertation is the first to use experiments to examine negative contact between real groups. This makes for a more stringent, comparitive test of the effects of positive and negative contact on prejudice. Second, the experiments are not only designed to take the valence of contact into account, that is *whether* it is positive or negative, but also the intensity of contact,

that is *how* positive or negative it is (contribution #1, see Table 1.1). Before this dissertation, the intensity of positive and negative contact has remained overlooked. This is unfortunate, as the intensity of contact experiences may be critical in determining how consequential contact is for how prejudiced people are. If, for example, being harrassed by a member of an ethnic outgroup were to have a stronger effect on people's attitudes than having a pleasant conversation with a member of the same outgroup, this could be due to the former being a negative experience. Alternatively, it could be that harrassment is a more intense experience than chatting. I therefore take both the valence and the intensity of contact into account, by using experiments specifically designed for this purpose.

Generalized trust and cohesion

The second consequence of negative interethnic contact that I focus on relates to aspects of society more broadly, irrespective of ethnic group boundaries. Concerns about negative interethnic encounters do not only revolve around people from different ethnic backgrounds getting along or not, they also extend to how people in general live together.

I look at two concepts specifically: generalized trust and perceived social cohesion of the neighbourhood. The former refers to the extent to which people think that most people can be trusted (Nannestad, 2008). This is sometimes also referred as general trust, because it summarizes trust in a large and typically unspecified radius of people (Delhey, Newton & Welzel, 2011). Social cohesion, as it is used in this dissertation, refers to a sense of solidarity that is specific to a particular community (Chan & Chan, 2006) – in my case the neighbourhood. For example, social cohesion encompasses how close-knit people think their neighbourhood is and how helpful they perceive their neighbours to be.

There is some initial empirical evidence that positive interethnic contact may be beneficial to both generalized trust and perceived social cohesion of neighbourhoods (Schmid, Al Ramiah & Hewstone, 2014). However, nothing is as of yet known about how negative interethnic contact affects generalized trust and social cohesion. This dissertation therefore extends the emerging literature on negative interethnic contact (Barlow et al., 2012; Graf et al., 2014; Hayword et al., 2017) by testing whether negative interethnic contact also relates to how trusting people are in general, and how cohesive they perceive their local community to be (contribution #2, see Table 1.1).

With the broadest of brushstrokes it can be said that people learn to trust other people based on past experiences. The decision to put your trust in a specific person is informed by signs about the trustworthiness of that person, including experiences in the past that make you believe he or she will not abuse your trust

(Buskens & Raub, 2002; Gambetta & Hamill, 2005). This is what is known as dyadic trust, or trust between two individuals. However, the influence of an experience you have with one specific person may also spill over to how much trust you are willing to put in the group to which this person belongs. That is, one encounter may have an impact on the extent to which someone trusts a specific person, the ethnic group to which that person belongs, as well as people in general (Dinesen, & Sønderskov, 2012; Freitag & Traunmüller 2009; Glanville & Paxton 2007). Likewise, the extent to which one perceives their own community to be cohesive is likely to be informed by one's own experiences (Chan & Chan, 2006). Negative interethnic contact experiences may thus result in the perception that other people in general are not to be trusted and that neighbours are not helpful (Koopmans & Veit, 2014).

The antecedents of negative (interethnic) contact

Contextual ethnic composition

One of the more apparent antecedents of negative interethnic contact is the ethnic composition of spatial contexts, such as neighbourhoods and municipalities. Before I consider this relationship in more detail it is important to clarify what I mean by ethnic composition, and how ethnic diversity is different.

Ethnic diversity is a seemingly straightforward term. It commonly features in public debates, typically to call to mind the idea that most western societies have been witnessing demographic changes due to international migration flows. Whenever I refer to ethnic diversity in this dissertation, it is this idea that I wish to imply to as well. Because the meaning of ethnic diversity is relatively intuitive to many people, it is a useful term for introducing and highlighting the societal relevance of research on interethnic relations, as I have done in the beginning of this chapter.

However, it is important to stress that I do not look at ethnic diversity in the way it is commonly used in scientific literature. In academia, diversity typically refers to a statistical index (e.g., Herfindahl) which captures the probability that two individuals who are randomly drawn from a population belong to the same ethnic group. The index can be used to summarize the variety of ethnic groups that are present in, for example, a neighbourhood (Smith, Van Tubergen, Maas & McFarland, 2016). Yet for the purposes of this dissertation, such an index also suffers from some crucial shortcomings (for a more thorough discussion see Abascal & Baldassarri, 2015). First, diversity is calculated based on all ethnic groups that are present in a neighbourhood, making it impossible to say anything about the contacts between two specific ethnic groups. Further, in a municipality inhabited by 20% White and 80% Black Americans, the diversity index would be the same for Black and White inhabitants. This is problematic because the share of Black and White residents differs

strongly, influencing how likely it is that a Black person will meet a White person and vice versa. What is more, the index of diversity would be the same for a municipality inhabited by 80% White and 20% Black people, thus disregarding important differences between municipalities. Second, diversity considers all ethnic groups to be interchangeable, and thereby ignores the nature of specific ethnic cleavages. This too is a shortcoming because there is animosity between some groups while other groups live together more peacefully. It also overlooks historic status differences between ethnic majority and minority groups, that may very well be important for the way intergroup relations take shape (Allport, 1954).

To overcome the problems associated with the ethnic diversity index, I look at the *ethnic composition* of neighbourhoods and municipalities, operationalized in terms of the percentage of residents that belong to specific ethnic groups, as well as the extent to which these groups live segregated from one another, even if they live in the same area. This aligns better with theoretical arguments derived from opportunity structures. When people live amongst people with a different ethnicity, say in their municipality or their neighbourhood, they at least have the opportunity to meet them. Here too, a disproportionate amount of attention has been devoted to forms of positive interethnic contact. A number of empirical studies have found support for the idea that people who live in places with a higher percentage of ethnic outgroup members are more likely to have positive interethnic contact, form interethnic friendships, or even intermarry (Blau, Blum & Schwartz, 1982; Briggs, 2007; Kalmijn, 1998; Laurence & Bentley, 2018; Mouw & Entwisle, 2006).

However, we know very little about whether the opportunity for contact results in more negative interethnic contact too. The omission of negative contact has so far been particularly evident in research on the ethnic composition of municipalities and neighbourhoods (but see Koopmans & Veit, 2014; Laurence, Schmid & Hewstone, 2018). Consequently, little is known about the relationship between contextual ethnic composition and negative interethnic contact. Yet, a priori, it stands to reason that the same opportunity structure argument applies here, as it does in the case of positive interethnic contact. That is, it can be expected that negative interethnic contact is more likely in neighbourhoods or municipalities with a relatively high percentage of ethnic outgroup members (Laurence & Bentley, 2018; Pettigrew, 2008). This dissertations is one of the first studies to put this hypothesis to a stringent test (contribution #3, Table 1.1).

Considering negative and positive interethnic contact in unison may also help solve the puzzle formed by the inconsistent results on the nexus between ethnic composition and social cohesion and generalized trust. Over a decade ago, Putnam (2007) famously put forward a rather straightforward premise in his article *E Pluribus Unum*. He argued that living amongst ethnic outgroup members does not trigger

friction between ethnic groups, but rather undermines cohesion and trust, even amongst people of the same ethnicity. Or as Putnam put it himself (2007, p.149), "people living in ethnically diverse settings appear to 'hunker down' – that is, to pull in like a turtle". While the study by Putnam (2007) has often been scrutinized and criticized, most notably by Abascal and Baldassari (2015), the idea that living amongst people of a different ethnicity may result in anomie persists and continues to inspire researchers. And the jury is still out, as there is empirical support for both a positive and a negative effect of the percentage of ethnic outgroup neighbours on cohesion and trust (Cheong et al., 2007; Sturgis, Brunton-Smith, Kuha & Jackson, 2014). In fact, so many studies have been written that one could even speak of a 'cacophony' of results (Van der Meer & Tolsma. 2014).

By simultaneously looking at both positive and negative interethnic contact experiences, this dissertation investigates one possible solution for these inconsistent findings. The work presented here follows in the wake of a few recent studies that have gone beyond direct, macro-level tests of the effects of ethnic composition on trust and cohesion, and have started to examine how and under what conditions being exposed to people with a different ethnic background may have positive or negative consequences (Hewstone, 2015). At the heart of these contributions is the idea that sharing a neighbourhood with ethnic outgroup members does not undermine trust and cohesion if it results in more positive interethnic contact. Congruently, people who live in neighbourhoods with a relatively high percentage of ethnic outgroup members indeed report having relatively many positive interethnic experiences, and are in turn relatively trusting and perceive their neighbourhoods to be relatively cohesive (Schmid, Al Ramiah, & Hewstone, 2014).

Crucially, if negative interethnic contact can increase interethnic animosity and undermine social cohesion and trust, then living in the same neighbourhood as people from a different ethnicity may also worsen relations between people (Laurence & Bentley, 2018). This dissertation thus takes negative contact into account in an effort to disentangle the inconsistencies of previous research on the ethnic composition of neighbourhoods and municipalities, and explain why studies have found both positive and negative effects of living amongst people from a different ethnic background on social cohesion, trust, and prejudice alike.

Interethnic contact

For the second antecedent of negative contact, I will consider whether negative contact is more likely to be interethnic, between people with a different ethnic background, or intraethnic, between people with the same ethnic background.

One of the more prominent ideas in sociology is that people generally have a tendency for homophily. They prefer to interact with people that are similar to them,

especially when it comes to ethnicity. This notion is often summarized with the proverb "birds of a feather flock together", and certainly has received a lot of empirical support when it comes to positive relationships such as friendships (McPherson, Smith-Lovin & Cook, 2001).

However, we do not know whether people still prefer to interact with co-ethnics when things go awry, or when negative relationships are considered. To the contrary, there are reasons to expect that negative contact will be more likely to occur between people from different ethnic backgrounds than between co-ethnics (Tolsma et al., 2013). For one, prejudicial attitudes are not uncommon (Verkuyten & Steenhuis, 2005; Verkuyten & Thijs, 2002), and more prejudiced people are more likely to behave negatively towards people of a different ethnicity (Schültz & Six, 1996). A second reason for the idea that negative contact could more often be interethnic than intraethnic can be derived from social identity theory (Tajfel & Turner, 1979), which postulates that the groups to which people belong form a source of pride and self-esteem. One way in which people maintain the link between group membership and this sense of pride is by clearly distinguishing themselves from other groups and debasing them (Wittek, Kroneberg & Lämmermann, 2019). It has been argued that this strategy should also be observable in the prevalence of negative interethnic contact over negative intraethnic contact (Boday & Néray, 2015). This dissertation is one of the first studies to test whether negative contact is indeed more likely to be interethnic than intraethnic (contribution #4, see Table 1.1).

Status differences

Differences in status are considered as a third antecedent of negative contact. Status can be broadly defined as an individual's position in the social hierarchy of a group, or as a group's position in the hierarchy of society at large (Gould, 2002). Simply put, some individuals and groups occupy a relatively high status position and assert a certain level of dominance over others. This hierarchical ranking of people and groups is described as a universal feature of society, and already comes naturally to children (Callan, 1970).

Although status remains a relatively unexplored concept in the literature on interethnic relations, it has lingered in these lines of research for a while now. For one, status featured as one of the four optimal conditions in Allport's (1954) original formulation of the contact hypothesis. He argued that for interethnic contact to alleviate prejudice it should be characterized by equal status, and that the near fundamental hunger for status breeds prejudiced and negative behaviour. Furthermore, differences in status also implicitly underlie one of the more prominent theories on racial hate crimes. Part and parcel of the defended community theory is the idea that members of the dominant racial group resort to aggression to defend their group's

interests against racial minorities (Green, Strolovitch & Wong, 1998).

Status has also been gaining sway as an explanation for negative contact in the literature on social networks. Some scholars claim that aggressive behaviour is an effective way to achieve status (Faris & Ennett, 2012; Faris & Felmlee, 2014; Maynard, 1985). Others argue that purposefully disliking and avoiding certain individuals are ways to disassociate oneself from lower status people (Ball & Newman, 2013; Bond et al., 2014; Card & Hodges, 2007). Yet others recently proposed the far more general idea that all negative behaviour serves to show that one is of higher status than someone else (Harrigan & Yap, 2017; Leskovec, Huttenlocher & Kleinberg, 2010).

However, it remains largely unverified whether struggles over social status can explain all forms of negative relationships equally well. This dissertation aims to fill this gap by testing whether differences in status can explain three types of negative contact amongst Dutch high school pupils: aggression, avoidance, and dislike (contribution #5, see Table 1.1).

Table 1.1. Summary of the main contributions.

#	Contribution	Chapter
	Consequences of negative contact	
1.	Consider how intergroup contact affects prejudice differently based on its valence and intensity.	2
2.	Study negative interethnic contact in relation to generalized trust and social cohesion.	3
	Antecedents of negative contact	
3.	Research if the ethnic composition of neighbourhoods and municipalities explains negative interethnic contact.	3 & 4
4.	Study whether negative contact is more likely to be interethnic than intraethnic.	5
5.	Consider the effects of social status on various forms of negative contact.	5

Methodological approach

In this section I will describe the main methodological advances of this dissertation. The four empirical chapters all address negative interethnic contact from different perspectives (see Table 1.2 for an overview). In many ways, this dissertation is an exercise in triangulation. It covers several contexts and samples, including municipalities in the United Sates, White and Asian British adults living in various corners of England, young adolescents just enrolled in secondary schools in the Netherlands, and both German and Dutch university students. By analysing different types of data, methods, and measurements, I hope to better appreciate the richness and complexity of negative interethnic contact, and at the same time ensure a higher level of external validity of my findings. As any social scientist will readily admit, there is no such thing as perfect data. By themselves, each of these datasets come with their own set of pros and cons. But by looking at different types of data I intend to complement the disadvantages of one type with the advantages of another. Further, each dataset was analysed using a different statistical method, to capitalize on the main strengths of the different types of data.

In what follows, I will describe the datasets, methods, and measurements in more detail and point out how they complement each other. I will pay particular attention to how using these datasets and methods helps address the theoretical lacunae identified previously (see Table 1.1). All in all, four different types of data are used in this dissertation. Three datasets have been collected by me, the co-authors of the empirical chapters, and other affiliated researchers and assistants. The other dataset has been made available to me by another institution.

Indirect Collaboration Experiments (ORA)

The first dataset actually consists of three experiments, all pre-registered at the Open Science Framework, and collected as part of a broader research project funded by the Open Research Area (ORA). Two experiments were conducted by my colleagues at the FernUniversität in Hagen, Germany, and one was conducted by my research assistants and I at Utrecht University in the Netherlands.

The experiments were designed to test the effects of both the intensity and valence of intergroup contact on prejudice (contribution #1). The experiments consisted of situations that were designed to be objectively positive or negative, and could therefore be used to make inferences about the relative importance of positive and negative contact for outgroup attitudes. Further, by manipulating the intensity of both negative and positive feedback we could consider an additional hypothesis, namely that experiences of high intensity are more influential for people's attitudes than experiences of low intensity.

The three experiments are both replications and extensions of each other. In their core, they are all adaptations of the indirect collaboration task experiment (Fell, 2015; Wilder, 1984). Participants were asked to answer short, essay-like questions, which required them to provide persuasive arguments for or against topics such as animal testing. A research confederate, pretending to be another participant, gave feedback on the written assignments using standardized scales. There were four types of feedback: extremely negative, negative, positive, and extremely positive. Participants were randomly assigned to one of these four conditions.

All experiments created an intergroup experience by making use of two different groups of students (e.g., university students and students of a university of applied sciences). Using ethnic groups was deemed unethical, as some of the experimental conditions were designed to be unpleasant. The experiments thus more closely resemble a minimal group paradigm. In the classic case groups should only differ based on something very trivial, like a preference for paintings by Klee or Kandinsky (Diehl, 1990). The original aim of the minimal group paradigm was to demonstrate that categorizing people based on even the most superficial differences was enough to elicit an ingroup preference. Experiments based on minimal groups are sometimes seen as a bit of a benchmark. If such experiments already yield effects, one is bound to find them when distinguishing groups based on more meaningful characteristics, such as ethnicity.

Besides these common denominators, the experiments also differed from one another in two important ways. These variations were applied to improve the generalizability of the results and to take possible confounders into account. First, two experiments took place in an online environment. The other took place in person, on the university campus. Second, in two experiments the participants could be seen as members of a lower status group than the confederate, while in the other experiment it was the other way around. This approach was adopted to account for possible variations in effects due to status differences. Contact between groups of equal footing has been suggested to have stronger effects on outgroup attitudes (Allport, 1954).

The Positive-Negative Asymmetry of Contact Survey (ORA)

As part of a broader ORA project, the Positive-Negative Asymmetry of Contact (PNAC) data was collected in the United Kingdom from September to December 2017 (Hewstone, Jaspers, Christ, Fell, Schäfer & Kros, 2017). The research firm IPSOS conducted face-to-face surveys that allowed for the self-completion of more sensitive questions.

Compared to the experiments, this survey data can ensure higher levels of

external validity of the findings. The experiments were based on a relatively small group of very specific participants, namely Dutch and German university students, and did not look at ethnic groups. Our survey, on the other hand, included a range of questions that specifically revolve around people's ethnicity, and it was administered to a bigger group of people, from various walks of life. This helps to warrant that the results can be generalized to a larger population, including people who did not fill out the survey. Ultimately, 1564 White British participants and 1502 Asian British participants filled out the survey. The inclusion of Asian British people is important given that the perspective of ethnic minority groups is often overlooked in research on interethnic relations (Fieldhouse & Cutts, 2010).

This dataset is well-suited for this dissertation, in particular for testing the effects of negative interethnic contact on trust and cohesion (contribution #2), as well as the effects of contextual ethnic composition on negative interethnic contact (contribution #3). This is because the PNAC survey not only included a wide range of relevant information about the participants themselves, but also about the neighbourhoods in which they live. This combination of individual and neighbourhood-level data made it possible to explicitly test whether the ethnic composition of neighbourhoods explains how much negative interethnic contact people have. Further, by using the PNAC data I could also control for other neighbourhood characteristics, such as population density, residential instability, and socioeconomic deprivation, that might be important for how much people interact with one another and how cohesive neighbourhoods are perceived to be.

The mixture of individual and neighbourhood-level data, with respondents nested in neighbourhoods, has been analysed by employing multilevel structural equation modelling. Multilevel models are useful when the data are not completely independent, which is an important assumption of most standard statistical tests. By looking at respondents who live in the same neighbourhood, this assumption is violated. Neighbours tend to be more similar to one another than respondents who live in different neighbourhoods. Multilevel models take such dependencies into account and break the variance of variables down into two parts: the variance between individuals, based on the respondents' own scores, and the variance between neighbourhoods, based on an estimated latent mean for the respondents who live in the same neighbourhood. For example, the latter could entail the average amount of negative interethnic contact that people who reside in the same neighbourhood have. This average may vary between neighbourhoods. Subsequently, other neighbourhood characteristics such as ethnic composition may then be used to explain this variation.

Uniform Crime Reporting (FBI)

Information about racial hate crimes in the United States has been provided by the Federal Bureau of Investigation. Every year, the FBI collects incident reports on hate crimes from across the United States, as part of the Uniform Crime Reporting (UCR) program. For this dissertation, I have looked at the incident reports from 1991 to 2014, and have focused on the number of hate crimes committed by White people against Black people in over 3.500 places in the United States. The information on hate crime occurrence was combined with data from the United States Census Bureau (2017), which contained additional information about other characteristics of the geographical places, such as racial composition, residential instability, and unemployment rates.

Like the PNAC survey described before, the hate crime data is also used to test the effect of contextual ethnic composition on negative contact (contribution #3), but then by looking at racial instead of ethnic groups, a different country, and at municipalities instead of neighbourhoods. In addition, the hate crime data differs from the PNAC survey in two other important ways.

First, the information about hate crime incidents can be seen as 'hard data', whereas the PNAC survey heavily relies on 'soft data', such as people's self-reported opinions and attitudes. A commonly heard concern about self-reported data is that it may not always perfectly align with how people actually behave. Using official hate crime statistics can be seen as one way to circumvent this problem. Instead of asking people how they feel about a certain ethnic or racial group one could also observe whether people commit hate crimes. Furthermore, studying hate crimes offers a unique chance to pay heed to the common critique that research on intergroup relations too often looks at attitudes and beliefs, such as prejudice (Green & Spry, 2014). Hate crimes are concrete, albeit extreme, behavioural manifestations of prejudice.

The second important aspect of the hate crime data is that it is longitudinal and spans 25 years. In testing the consequences of contextual ethnic composition (contribution #3), one can take a cross-section of a sample of neighbourhoods at one point in time and see whether people who live in relatively diverse neighbourhoods have, on average, more negative interethnic contact. This is the approach taken with the PNAC survey data. Alternatively, one can look at the same municipalities at different points in time and see whether changes over time in the ethnic composition is associated with an increase or decrease in hate crimes. Doing so has two main advantages, one substantial and one methodological.

First, concerns about the consequences of living together with other ethnic groups often revolve around how increases over time in the number of ethnic outgroup members may affect society. Longitudinal data is better suited to investigate such dynamic processes.

Second, using longitudinal data requires fewer assumptions about unobserved differences between municipalities being unimportant for the effects that are being studied (Giesselmann & Schmidt-Catran, 2018; Te Grotenhuis et al., 2015). The generally accepted idea – extrapolated from panel research on individuals – is that there are fewer unobserved differences between a place in one year and that same place ten years later, than between two places in the same year (Fairbrother, 2013). As a result, comparing the same places across time limits the number of differences that were not measured and accounted for, and that thus have to be assumed to be irrelevant for the effects that are found (Gangl, 2010).

While this advantage of longitudinal data over cross-sectional data applies to research more generally, in the specific case of hate crimes it becomes all the more poignant. Longitudinal data can help circumvent some of the concerns surrounding the quality of the available crime statistics (Loftin & McDowall, 2010). Not only do official statistics underreport on the number of hate crimes that occur in places (Sandholtz, Langton & Planty, 2013), there is also reason to assume that the extent of underreporting varies systematically with other characteristics of those places, such as whether there is a history of lynching (King, Messner & Baller 2009). By not accounting for these differences, we might overlook important explanations as to why the number of annual hate crime incidents is higher in some places than in others. This is less of a problem with longitudinal data, because you analyse the same place over time – thereby keeping other important factors constant that do vary between places. Crucially, using longitudinal data therefore ultimately results in a more precise estimate of the relationship between contextual ethnic composition and hate crimes (contribution #3).

Social Networks in Dutch Schools (ORA)

The fourth dataset was again collected as part of the ORA research project. Two high schools in the Netherlands participated in the data collection during the schoolyear 2017-2018. Only first year pupils were sampled. Three waves of data were collected: in the first month of the schoolyear, right after the Christmas break, and in the last month before the summer holidays. For each wave, the pupils filled out an online survey for the duration of about 45 minutes (one lesson) at the end of their regular school day.

The social network data was used to test whether negative contact is more likely to be interethnic than intraethnic (contribution #4), and whether negative contact is governed by status struggles (contribution #5). There are several reasons why complete network data, especially collected in Dutch high schools, is well-suited for studying these ideas.

Firstly, the types of measures used in the network data are not predefined to measure interethnic contact. Pupils filled out a survey that consisted of peer nomination questions about who they interact with, and in what way. For example, pupils were asked to indicate which of their classmates they disliked, avoided during lunch, or were victimized and bullied by. Negative contact is thus operationalized in very concrete ways that fit well with the context of high school classes. All pupils were provided with a roster with the names of all the other kids in their class, and could select as many classmates as they saw fit.

Furthermore, the nomination questions do not emphasize the ethnicity of pupils' classmates in any way. In case of the experiments, the PNAC survey, and the hate crime data, contact could only ever be between people from a different ethnic or racial group.

A normal survey question may ask respondents to indicate how often they interact negatively with a native Dutch person. A nomination question, on the other hand, asks respondents to select the people with whom they interact negatively, but makes no mention of the ethnic group of either the respondent or the potential nominees. This limits the possibility that respondents curtail their prejudices in favour of a more socially desirable answer (Wölfer & Hewstone, 2017). After collecting the network data, the ethnic backgrounds of all the people in the network can be added and integrated. Crucially, this makes it possible to see whether the reported negative relationships were more likely to be interethnic than intraethnic (contribution #4).

Secondly, the data consists of complete networks, or networks that contain information about all pupils in a classroom. Complete networks can be used to observe status hierarchies, and thus test whether negative contact serves to achieve or maintain one's status (contribution #5). This is because an archetypical status hierarchy has two characteristics that can be defined in terms of network properties (Eder, 1985). First, a status hierarchy is asymmetrical, or not reciprocated: if pupil A is superior to pupil B, B cannot also be superior to A. Second, a status hierarchy is transitive: if pupil A is superior to pupil B and pupil B is in turn superior to pupil C, then pupil A must be superior to pupil C too (Chase et al., 2002). Both reciprocity and transitivity can be measured with complete network data.

Finally, it is worth emphasizing that young adolescents in Dutch high schools are a particularly interesting group of people to study when one is interested in interethnic relations. For one, adolescence is a time where ethnic identity starts to take shape (Phinney, Lochner & Murphy, 1990), and where new experiences are explored more readily than in adulthood (Steinberg & Morris, 2001). Further, high schools offer a lot of opportunity for pupils to meet peers who have a different ethnic background (Wölfer, Hewstone & Jaspers, 2018). This holds especially true in the case of Dutch high schools, as they are known for having pupils from a relatively

wide array of ethnic backgrounds.

Summary of the four empirical chapters

The intensity of positive and negative contact

Chapter 2 of this dissertation tests whether negative intergroup contact increases people's prejudice more than positive contact decreases it, and whether varying the intensity of an experience matters more for positive than for negative contact.

The lion's share of this chapter is based on three experiments, which were subsequently analysed in a joint internal meta-analysis. In addition, the results from the experiments were confirmed by a set of analyses on the PNAC survey using a larger sample and ethnic groups.

Consistent evidence was found for the idea that the intensity of an intergroup contact experience influences how effective positive contact is in reducing prejudice, with positive experiences of high intensity being more consequential than positive experiences of low intensity. However, the same effect was not found for negative contact. Negative intergroup experiences of high and low intensity were, by and large, equally detrimental for people's outgroup attitudes.

These results support the idea that "bad is stronger than good" (Baumeister et al., 2001). Although negative contact experiences tend to be rare, such experiences need not be intense to increase how prejudiced people are. For positive contact, on the other hand, rather than simply having superficial interactions with members of another ethnic group, more intense experiences (e.g., lasting integroup friendships) are likely necessary to improve people's outgroup attitudes as much as negative intergroup contact reduces it.

Ethnic composition, contact, trust, cohesion, and prejudice

In **Chapter 3** I seek to fulfil two goals. The first is to examine whether negative interethnic contact experiences influence how one feels about other ethnic groups, but also whether the impact of these experiences generalizes to how trusting one is of people in general and how cohesive one perceives their own community to be. The second goal is to test if negative interethnic contact, like positive interethnic contact, is more likely to occur in relatively diverse neighbourhoods.

Taking these two goals together opens up the possibility to consider a solution for the inconsistent findings in the literature on the nexus between ethnic neighbourhood composition and cohesion and trust (Van der Meer & Tolsma. 2014). While some find that living in neighbourhoods with a relatively high percentage of ethnic

outgroup members erodes trust and undermines a sense of community cohesion, others find the exact opposite (Cheong et al., 2007; Sturgis, Brunton-Smith, Kuha & Jackson, 2014). Crucially, these seemingly conflicting findings could be explained if living amongst outgroup members results in both positive and negative interethnic contact, and if both types of experiences in turn influence people's levels of prejudice, trust, and perceived cohesion.

The results based on the PNAC survey only support part of this story. I find evidence that both White and Asian people in England who have more positive interethnic contact score higher on perceived cohesion, general trust, and outgroup trust, and score lower on prejudice. The opposite holds true for White and Asian people who have more negative interethnic contact. But my results also suggest that negative interethnic contact, unlike positive interethnic contact, is not related to ethnic neighbourhood composition. Specifically, White British people who live in neighbourhoods with relatively many Asian British people appear to have more positive but not more negative interethnic contact. For Asian people, living in neighbourhoods with relatively many White people seems unrelated to both positive and negative interethnic contact. It must be noted that negative interethnic contact is rare and that our models may be statistically underpowered. That said, based on these results I cannot explain away the puzzling inconsistencies in previous research on the relationship between ethnic neighbourhood composition and cohesion and trust, as negative interethnic contact does not seem to mediate this link.

Racial composition and hate crimes

In **Chapter 4** I take another look at contextual ethnic composition, but then in relation to a rather extreme form of negative contact: anti-Black hate crimes committed by White people in the United States. This chapter takes as a vantage point the observation that the numerical predominance of White people in the U.S. has been eroding for decades (U.S. Census, 2010). I analyse whether this downward trend in the percentage of White Americans has resulted in an increase or a decrease in the number of hate crimes committed by White against Black Americans.

There is an argument to be made for both an increase and a decrease in the number of hate crimes. For one, the decline in numerical predominance of White people could result in a 'White fight': an increase in violent defensive reactions against racial minorities moving into areas previously dominated by White people (Meyer, 2001). These expectations fit the idea, more broadly carried in the public debate, that some White people in the U.S. feel that their political and economic power is increasingly challenged by racial minorities, leaving them with an aggrieved sense of entitlement (Gillon, 2017). On the other hand, there are reasons to expect

that the number of hate crimes committed against Black Americans has decreased over time, mirroring the downward trend in anti-black prejudice amongst White people since the early 1990s (Bobo, Charles, Krysan & Simmons, 2012). Increases in the percentage of Black Americans, the other side of the coin, could have been giving way to more integration and interracial contact (Allport, 1954; Blau, 1964), alleviating feelings of racial prejudice across the board (Bobo et al., 2012), and ultimately resulting in fewer White on Black hate crimes.

The results of the longitudinal multilevel models show support for the latter expectation. The number of anti-Black hate crimes committed by White people has been declining, and this can be attributed to decreases in the percentage of White inhabitants. Despite concerns that increasing racial diversity may lead to more interracial animosity and hate crimes this chapter suggests the opposite, at least in the specific case of White on Black hate crimes in the United States.

Negative networks in high schools

Chapter 5 serves to test two possible antecedents of negative contact by analysing why pupils in two Dutch high schools actively avoid, dislike, and victimize their classmates. First, I test whether these negative relationships are more likely to exist between two pupils who have a different ethnic background compared to two co-ethnic pupils. Second, I test whether negative behaviour amongst pupils can be seen as a way to achieve or maintain status. Both antecedents have remained largely unexplored in the existing literature.

Drawing inspiration from the well-known principle of homophily, or the tendency for people to like those who are similar to them, it can be expected that people have a tendency to dislike those who are dissimilar. Prejudicial attitudes are not uncommon amongst adolescents in the Netherlands (Tolsma et al., 2013), and prejudiced adolescents are more likely to behave negatively towards classmates of a different ethnicity (Schültz & Six, 1996). However, contrary to this expectation, the results from the stochastic actor-oriented models suggest that avoidance, dislike, and aggression are not more likely to be interethnic than intraethnic.

The ethnic background of the pupils is also used to analyse the impact of status on negative relationships. Belonging to an ethnic minority group has been argued to be an indicator of low status (Boda & Néray, 2015; Tolsma et al., 2013). If negative behaviour is indeed a way to disassociate oneself from lower status peers (Ball & Newman, 2013), then it can be expected that ethnic minority pupils are more likely to be avoided, disliked, and assaulted by their classmates. Yet the results from the stochastic actor-oriented models do not support this notion.

Instead, my results show that negative behaviour is governed by two

structural network properties: reciprocity and transitivity. First, pupils are more likely to avoid, dislike, and victimize classmates that avoid, dislike, and victimize them. They pay each other back in their own coin. Second, a pupil is more likely to treat a classmate negatively, if that classmate is treated negatively by a third classmate that is already treated negatively by the first pupil. In other words, an enemy of an enemy is considered to be an enemy too.

Table 1.2. Overview of the four empirical chapters, listing the countries, datasets, samples, and measurements of contact.

	Country	Dataset	Sample (N)	Measure of contact
Chapter 2	Germany & the Netherlands	ORA Experiments	Tertiary students (334)	Positive and negative feedback on written tasks
	England	ORA PNAC Survey	White and Asian British adults (2994)	Self-reported negative and positive interethnic contact
Chapter 3	England	ORA PNAC Survey	White and Asian British adults (2994) nested in neighbourhoods (206)	Self-reported negative and positive interethnic contact
Chapter 4	The United States	FBI Crime Reporting	Municipalities (3570) measured across 25 years	White on Black racial hate crimes
Chapter 5	The Netherlands	ORA School Networks	First year high school pupils (228)	Peer nominated avoidance, antipathy, and aggression.

Discussion and directions for future research

There has been somewhat of a mismatch between, on the one hand, the implicit concern in much of the public and political discussions that ethnic diversity breeds discord and conflict, and, on the other hand, the rather lopsided focus in social scientific research on positive interethnic experiences. At its core, this dissertation is an attempt to remedy this incongruity. It brings negative interethnic experiences more to the fore, shedding light on their nature, consequences, and antecedents.

One of my more striking yet easily overlooked findings, recurrent in all the research that I present here, is that negative contact is actually relatively rare. Most of people's day-to-day interactions are pleasant and light-hearted. And for exchanges between people with a different ethnic background this is no different (Graf, Paolini & Rubin, 2014).

At the same time, however, the few negative encounters that we do have might be more influential for our opinions of others than the many positive encounters that we have. Part of the explanation for the positive-negative symmetry of contact might be that every negative experience also tends to be quite an intense and memorable one, eliciting an immediate and strong emotional reaction. In contrast, positive experiences can be more mundane and fleeting. This is at least suggested by the findings reported in Chapter 2. Why negative contact is typically more intense remains an open question. One possible answer again lies in the fact that negative experiences are so uncommon, and thus unexpected. Perhaps it is this deviation from what we expect to happen that makes negative experiences so intense and influential (Austin & Walster, 1997).

In addition, the effects of negative experiences with members of another ethnic group are not limited to how prejudiced one is towards that specific ethnic group. They may also spill over to one's overall view of people and society. Chapter 3 supports this notion by showing that those who have more negative interethnic contact are less trusting of people in general and perceive their neighbourhood to be less close-knit and their neighbours to be less helpful.

Yet negative interethnic contact does not appear to be more common in neighbourhoods where people of different ethnicities live together. It therefore does not offer an immediate solution to the puzzling and inconsistent results on the relation between ethnic neighbourhood composition and cohesion and trust. Being exposed to ethnic outgroup members does not seem to undermine cohesion and trust because it results in more negative contact. In addition, having different ethnic backgrounds did not make adolescents more likely to form a negative relationship. However, it is important to note that these null findings could also be due to the limited statistical power of some of my models or the way certain concepts, such as ethnic background, have been operationalized. That said, I only find support for the

more positive sides of ethnic diversity. In neighbourhoods and municipalities where the percentage of ethnic outgroup members is relatively high, the amount of positive interethnic contact is relatively high, while prejudice is relatively low.

What could then be the missing piece to the puzzle that lies at the heart of the nexus between ethnic composition and cohesion? An often cited idea in the literature is that living in neighbourhoods with outgroup members causes people to hunker down and withdraw from all people, including people of their own ethnicity (Gijsberts, Van der Meer & Dagevos, 2012; Putnam, 2007; Savelkoul, Hewstone, Scheepers & Stolle, 2015). Diversity could thus erode social cohesion because it leads people to interact less with co-ethnics, not because it causes friction and negative encounters between ethnic groups. In Chapter 3, I do not find support for this "constrict" proposition either.

An alternative idea that future research could explore is that being exposed to neighbours of a different ethnicity may imply different things for different people. For some, it might be an opportunity to build interethnic friendships. But for others it may rather result in more negative encounters, perhaps because they are more authoritarian (Kauff, Asbrock, Thorner, & Wagner, 2013; Van Assche, Roets, Dhont & Van Hiel, 2014). The percentage of outgroup residents could thus drive cohesion down in neighbourhoods where relatively many residents take offence at sharing a neighbourhood with people from different ethnic backgrounds. In more statistical terms this would entail testing a cross-level interaction between the ethnic composition of the neighbourhood and individual-level predictors, such as right-wing authoritarianism.

Ideally, a test of this idea would also consider whether those who take offence at living next to people from a different ethnic background move out of neighbourhoods with a relatively high percentage of outgroup residents. An example of such a selection effect is the notion of a "White flight", where White Americans purposefully decide to move out of more racially diverse areas (Emerson, Chai & Yancey, 2001). A similar tendency can be seen in native Dutch parents who prefer to send their children to schools that are further away but have a higher percentage of native Dutch pupils, than to more ethnically mixed schools in their own neighbourhood (Karsten et al., 2006).

One limitation of this dissertation is that I have not been able to take such dynamic processes into account. Even though recent research suggests that such selection effects are of minor importance in England (Kaufmann & Harris, 2015), they still warrant caution in interpreting the results of this dissertation and Chapter 3 in particular. For example, the negative correlation between outgroup size and prejudice could also be due to prejudiced people moving out of neighbourhoods with a relatively high percentage of ethnic outgroup members, rather than the latter

promoting more positive interethnic contact.

Another fruitful avenue for future research is the comparison of various spatial units, such as municipalities, neighbourhoods and so-called egohoods, which draw a radius of about 80 meters around individuals' residencies (Dinesen & Sønderskov, 2015). Two reasons make this comparison particularly relevant. First, it offers a tentative solution to what is known in other fields of geographical research as the 'modifiable areal unit problem' (Openshaw, 1984). The problem arises when choosing one spatial unit over another produces statistical biases and influences how, for instance, ethnic composition is associated with social cohesion.

Second, a comparison of ethnic composition measured at various geographical levels could also prove to be theoretically interesting. It has been argued that living amongst ethnic outgroup members is more likely to result in opportunities for positive interethnic contact in small spatial units, like neighbourhoods, while it is more likely to be threatening when looking at larger spatial units, like municipalities (Schlueter & Scheepers, 2010). This line of thinking could be extended by looking at negative contact too. For example, if negative contact is a more intense and less fleeting experience than positive contact, it might require more than merely being exposed to other ethnic groups. Perhaps the ethnic composition of small areas, like egohoods, could thus be more relevant for the amount of negative interethnic contact that people have. Unfortunately I have not been able to look at such small geographical units in this dissertation.

In addition, it would be interesting to turn our gaze to entirely different contexts, other than neighbourhoods and municipalities, and consider negative interethnic contact that happens in the workplace. Amongst the participants of the diary survey, having altercations with colleagues was mentioned quite frequently. Negative interethnic contact online is another obvious possibility, as is negative vicarious contact in, for instance, media portrayals.

Besides studying these others contexts, and thus *where* negative interethnic contact takes place, there is also much to be learned still about *who* is more likely to have negative encounters with ethnic outgroup members. This also points at two issues left largely unaddressed by the empirical research of this dissertation: reversed causality and subjective valence. While research has shown that the effect of positive interethnic contact on prejudice is generally stronger than the reverse effect (Pettigrew, 2008), it stands to reason that people who are more prejudiced are less likely to have positive contact with people from a different ethnic background. An unexplored possibility is that prejudiced people are more likely to have negative interethnic contact. Further, the valence of an interethnic experience may also be a function of individuals' attitudes towards outgroups. For example, people who exhibit greater outgroup anxiety, authoritarian personality traits, or political

conservatism may experience contact with people from a different ethnicity to be relatively negative (Laurence & Bentley, 2018; Pettigrew, 2008; Van Zomeren, Fischer & Spears, 2007).

Finally, the findings presented in Chapter 5 suggest that negative contact may be a function of people trying to achieve or maintain their status position. We kiss up, kick down, and reciprocate negative behaviour with negative behaviour. In addition, negative relationships do not take shape in a vacuum. They are transitive, and depend on the animosity that exists between other people. Adolescents dislike the classmates that are disliked by the pupils they dislike. These ideas are worth pursuing more. They could even be applied to different enclosed contexts other than high schools, like organizations and work teams.

Before presenting the empirical chapters, a few concluding remarks are in order. This dissertation is about the bad and the ugly, the worst demons of our nature. There is no denying that. Hate crimes are being committed. There is conflict between ethnic groups. Adolescents are aggressive. People face verbal abuse and racial name-calling. All these experiences have far-reaching, adverse effects for the people involved, the perpetrators, the victims and the broader communities. These effects are not necessarily limited to prejudice, trust, and cohesion, the three outcomes studied here. Victims of hate crimes, for instance, generally report extreme emotional and psychological distress, even more so than victims of similar offences that are not motivated by hate (Levin & McDevitt, 2002). What is more, these consequences may extend to people who were not directly victimized themselves (Green & Rich, 1998; Perry & Alvi, 2012). Negative interethnic contact may thus harm how well we manage to live together in increasingly diverse societies.

However, there are also reasons to be a bit more optimistic. By focusing on the negative experiences that people have, we can see how rare they actually are. Man surely can be a wolf to another man, but more often he is not. What is more, man is also not necessarily a wolf to a stranger. Having different ethnic backgrounds does not inevitably make adolescents more likely to be verbally or physically aggressive towards each other. While there is ample empirical research in support of homophily, suggesting people like to interact with people who are similar, the opposite idea that people dislike those who are dissimilar seems less evidently true. Ingroup love does not necessitate outgroup hate (Brewer, 1999). Here too, the insights of Allport (1954, p.366) endure: "The prejudiced pattern, involving various degrees and kids of hatred and aggression, (...) falls considerably short of the dreams men have for themselves. At the bottom they still long for affiliation with life and peaceful and friendly relations with their fellow men."

The intensity of positive

anad negative contact

This chapter is based on a paper written by Schäfer, S.J., Kros, M., Hewstone, M., Schmid, Katherina, Fell, B.F., Jaspers, E. and Christ, O. Schäfer wrote the main part of the manuscript. Kros helped develop the idea and design of the study, wrote parts of the result section, conducted part of the analyses, and collected part of the experimental data.

Abstract

Research on intergroup contact has only recently begun to consider the effects of both positive and negative intergroup contact on intergroup attitudes, and little is known about what factors may differentially influence these effects. We propose that differentiating not only between positive and negative contact (i.e., its *valence)*, but also considering the *intensity* (i.e., low or high positivity/negativity) of contact valence is critical to understanding the impact of contact on attitudes. We specifically predict that intensifying positivity affects the impact of positive contact to a stronger degree than intensifying negativity affects the impact of negative contact. This hypothesis was supported by evidence from a survey of majority and minority members (N = 2994) including a self-reported measure of intensity, and three experiments (two online: N = 87; N = 169; one in-person: N = 78) including manipulations of intensity and valence. An internal meta-analysis summarizing our results confirmed that varying intensity adds to the effects of positive, but not of negative contact. Intensity of valenced intergroup contact may thus be a key factor to resolve inconsistencies in the current literature on valenced intergroup contact.

Introduction

Building on a long tradition of research on intergroup contact theory (Allport, 1954) previous research has found that intergroup contact reduces prejudice and increases cooperation (Brown & Hewstone, 2005; Lemmer & Wagner, 2015; Pettigrew & Tropp, 2006). While most of this research has focused on positive forms of contact, negative forms of intergroup contact have only recently received attention as a vital form of intergroup contact to be studied (Barlow et al., 2012; Paolini, Harwood, & Rubin, 2010). Examining negative intergroup contact is important, because encounters with outgroup members may not be exclusively positive, and because negative contact may undermine, or even prevent, the beneficial effects of positive intergroup contact (Barlow et al., 2012).

Despite this much-needed recent focus on both positive and negative contact, we emphasise that contact experiences may not only vary in their valence (i.e., whether they are positive or negative), but also in the intensity of this valence (i.e., high or low positivity/negativity; see also Hayward, Tropp, Hornsey, & Barlow, 2017), a feature that may critically determine the effectiveness of contact in bringing about attitude change. The relevance of intensity of valenced intergroup contact as a potentially important variable in the link between contact and attitudes is easily grasped if we think about real-world occurrences of intergroup contact: How can we compare intense negative events, such as being physically harmed, to relatively more mundane positive events, such as pleasant and comfortable conversations with members of an outgroup? Hayward et al. (2017) demonstrated that although in their sample negative contact was experienced less frequently and perceived as less intense than positive contact, the combination of negative contact intensity and infrequency nonetheless had a larger impact on negative intergroup attitudes for both majority and minority members than the combination of frequency and intensity of experiences of positive contact, although positive contact was more frequent and intense than negative contact. We agree that an increase in intensity of the valence of the contact experiences is important. However, while Hayward et al.'s work has opened up important first insights into the importance of the intensity of intergroup contact, we address two important points that are missing in their considerations, which might help explain their results.

First, research from other areas of psychology suggests that increasing valence intensity differentially affects the effects of positive and negative events (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Rozin & Royzman, 2001). Specifically, the effects of negative experiences should rise more steeply than their positive counterparts. For example, a negative event increases avoidance faster than a positive event increases approach-tendencies (Cacioppo, Gardner, & Bernston, 1997), resulting in relatively strong negative effects, even for only mildly negative events

(Rozin & Royzman, 2001). We thus propose that the increase in intensity of valenced contact experiences should primarily be relevant for effects of positive intergroup contact, since for negative contact even mildly negative experiences should yield strong effects.

Second, as pointed out above, Hayward et al. (2017) demonstrate that positive and negative contact differ in their frequency and intensity. To test our assumption that an increase in intensity influences the effects of positive intergroup contact more than the effects of negative contact, we need to be able to compare the effects of positive intergroup contact to the effects of negative contact of the same intensity. It is thus necessary to manipulate valence and intensity in an objective manner (Peeters & Czapinski, 1990). We used an adapted version of the indirect collaboration task (Fell, 2015; Wilder, 1984) to manipulate contact valence and intensity on an objective scale. An experimental examination of these effects additionally allows us to make causal claims.

To summarize, the aim of the present research is to examine whether intensity of valence moderates the effects of valenced contact on intergroup attitudes. Specifically, our aim is to test whether an increase in the intensity of valenced contact primarily affects the outcomes of positive, but not negative contact. Study 1 examines the effect of valence intensity of positive and negative contact experiences in a survey study using a large sample of British majority and ethnic minority members. We then move to an experimental framework in Studies 2 – 4. In Studies 2 and 3 we provide an objective manipulation of the intensity of the contact experience in an experimental setting online, while Study 4 implements the same paradigm in an offline setting. We subsequently summarize our experimental findings in an internal meta-analysis, to increase reliability and demonstrate robustness of our findings.

Theory

Positive and negative contact

While large-scale meta-analytic evidence finds strong support for the claim that positive contact is associated with lower levels of prejudice (Pettigrew & Tropp, 2006) – both under strict laboratory conditions, as well as in real world interventions (Lemmer & Wagner, 2015) – considerably less is known about the effects of negative contact. In recent years, however, significant advances have been made to address this gap. For example, we now know that negative contact is less frequent than positive contact (Graf, Paolini, & Rubin, 2014; Hayward et al, 2017). Negative contact is also associated with higher values on prejudice in survey researh, and first experimental evidence suggests a causal link with prejudice: as expected, negative

contact increases prejudice (Hayward et al., 2017, Study 3), just as positive contact decreases it. This is in line with prior work showing that negative experiences, such as higher perceived intergroup threat (Aberson & Gaffney, 2008; Stephan et al., 2002), are associated with more negative attitudes; similar effects have been found in research on interpersonal impression formation (Vonk, 1993).

Comparing the overall effects of positive and negative contact, Barlow et al. (2012) suggested the "positive-negative asymmetry effect" (p. 3), whereby negative contact increases prejudice more than positive contact decreases it. To date, however, evidence for this effect is inconclusive: several studies support this asymmetry (Alperin, Hornsey, Hayward, Diedrichs, & Barlow, 2014; Barlow et al., 2012; Dhont, Cornelis, & Van Hiel, 2010; Graf et al., 2014; Labianca, Brass, & Gray, 1998; Paolini et al., 2010; Paolini et al., 2014; Techakesari, Barlow, Hornsey, Sung, Thai, & Chak, 2015), but some studies do not find substantially different effects of positive and negative contact (Árnadóttir, Lolliot, Brown, & Hewstone, 2018; Mazziotta, Rohmann, Wright, De Tezanos Pinto, & Lutterbach, 2015), and others even find larger effects for positive than for negative contact (Mähönen, & Jasinskaja-Lahti, 2016; Meleady, Seger, & Vermue, 2017; Pruett, Lee, Chan, Wang, & Lane, 2008). To date, potential explanations for these diverse findings remain incomplete.

We suggest that it is important to consider conditions of the contact experience that influence positive and negative contact effects: The intensity of positive and negative contact is one crucial, previously overlooked dimension of contact, which will help to qualify the differences in positive and negative contact effects, as we expect that intensity should primarily increase the effects of positive, but to a lesser degree decrease the effects of negative contact.

Effects of intensity of positive and negative experiences

Contact can vary in terms of a wide range of conditions first enumerated by Allport (1954), including cooperation and equal status, as well as common goals and support of authorities, or even the majority's support for equal status (Becker & Wright, 2011). Yet, as Dixon, Durrheim, and Tredoux (2005) point out, most research to date does not explicitly address this large variation in the conditions under which intergroup contact may occur (but see Islam & Hewstone, 1993). Assessing the intensity of intergroup contact will help to close the gap between real-world contact and contact commonly assessed in psychological science (Hayward et al., 2017).

Hayward et al. (2017) therefore refer to the "participants' subjective perceptions of the *emotional intensity* of these [positive and negative contact] experiences" (p. 348). While valence of contact refers to whether a situation was perceived to be positive or negative, intensity of the valenced contact refers to whether intergroup

contact is perceived to be of high or low positivity (or negativity). A similar differentiation can be found in the work of Fiske (1980), who differentiates between negativity (i.e., valence) and extremity (i.e., intensity) in relation to person perceptions. Fiske's research demonstrates that an increase in intensity of the positivity or negativity of the description of a person's behaviour does not directly translate into the evaluation of the respective person. Reading a vignette depicting strongly negative behaviour had a larger impact on likeability of a fictional person and provoked the longest looking time, compared to reading vignettes that described behaviour of lesser negativity or of high and low positivity.

However, the research by Fiske did not concern perceptions in an intergroup setting and, in addition, relied on stimulus material that categorized low and high positivity[4] and negativity based on subjective ratings of valence and extremity. For the present work we choose to stay within the terminology used in the intergroup contact literature. We thus differentiate between the *valence of intergroup contact* (i.e., positive or negative) and *intensity of valence of intergroup contact* (i.e., contact of low or high positivity/negativity) as suggested by Hayward et al. (2017). In comparison to Hayward et al., we will not use the term emotional intensity, but rather intensity of valence, as the perceived intensity of valence (as operationalized by Hayward et al., 2017, as "how negatively they would rate the experience", p. 349) might not only be influenced by emotional factors. The interplay of different factors (including, but not limited to emotional aspects) in predicting the perceived intensity of valenced contact is an interesting question, but is not a focus of the current chapter.

To our knowledge, there has been no research explicitly examining the influence of the intensity of valenced intergroup contact on perceived intensity and intergroup attitudes. For positive contact, there is evidence that intimate intergroup contact (which might represent high positivity) has stronger effects on intergroup attitudes than superficial contact (which might represent low positivity): Cross-group friendship is a reliable predictor of prejudice reduction (Davies, Tropp, Aron, Pettigrew, & Wright, 2011; Pettigrew, 2008) and has stronger effects than other measures of positive contact (Pettigrew & Tropp, 2006). Moreover, measures of cross-group friendship which assess actual engagement with the friend (which included, for example, the feeling of closeness, self-disclosure and spending time with outgroup friends, which might represent high positivity) tend to have the strongest effect on prejudice reduction (Davies et al., 2011). While intimate intergroup contact, like friendship, typically fulfils most of Allport's conditions (with the exception of institutional support), friendship also tends to be an intense relation, comprising aspects like closeness and companionship (Bukowski, Hoza, & Boivin, 1994). In line with this argument, Van Dick et al. (2004) suggested that intimate intergroup

contact has stronger effects on prejudice, because it is perceived as more 'important' than superficial relations. Indeed, recent results from Graf et al. (Graf, Paolini, & Rubin, 2018) demonstrate that positive contact in intimate intergroup relationships leads to the most positive attitudes, compared to positive contact in more casual or formal relationships and negative contact in all forms of relationships. In the case of negative contact, intimacy even had a protective function, and negative contact in intimate relationships had smaller effects on intergroup attitudes than negative contact in nonintimate relations. We suggest that these results provide initial support for the idea that increased intensity in the case of positive contact leads to a stronger reduction of prejudice and that intensity differentially affects positive and negative contact.

To explain why increasing intensity should primarily increase effects of positive, but not of negative, contact we agree with Barlow et al. (2012) who argued that the "bad is stronger than good" hypothesis (Baumeister et. al, 2001; Rozin, & Royzman, 2001) is also relevant for intergroup contact research. This hypothesis refers to several phenomena in which a positive-negative asymmetry is observable. It should be noted, however, that most of these phenomena were not observed in an intergroup context, which might influence their generalizability to intergroup contact. Most prominently, research shows that across multiple domains, such as in impression formation (Peeters & Czapinski, 1990), negative information is weighted more heavily than positive information, even if it is of equal magnitude on an objective scale (Baumeister et al., 2001; Peeters, & Czapinski, 1990). Thus, negative information, even if of lower intensity, has stronger effects. Additionally, Rozin and Royzman (2001) elaborate on the "greater steepness of negative gradients" (p. 298), whereby an increase in intensity should differentially affect positive and negative experiences. In line with this reasoning, some authors argue that there is a steeper increase in the consequences of negative events when objective intensity increases (Cacioppo, Gardner, & Bernstson, 1997). For adaptive reasons (Taylor, 1991), negative events should thus evoke more urgent reactions than positive events. Indeed, negative cues, like angry faces, are detected faster than their positive counterparts (Fox et al., 2000; Hansen & Hansen, 1988; Öhman et al., 2001), and evoke more immediate and elevated physiological reactions (Ito et al., 1998; Northoff et al., 2000; Taylor, 1991). Additionally, evidence from the field of contagion research suggests a *relative dose insensitivity* for negative stimuli, such that even very brief contact with a small dose of a negative entity produces large effects (Rozin, Markwith, & Nemeroff, 1992). Following this line of thought, Rozin and Royzman (2001) argue that there might be a steeper increase in effects of negative compared to positive events, and that this increase should be very rapid, so that a maximum of negativity might be approached very fast. This idea receives support from research on diagnostic

decisions, where amount and intensity of positive information are shown to increase diagnostic ability gradually, while negative information of low intensity already has high diagnostic value (Czapinski, 1986; Leyens & Yzerbyt, 1992).

Extrapolating these ideas to intergroup contact, we would thus expect that even mildly negative contact should evoke immediate negative reactions, and, more specifically, a change in attitudes. In line with this reasoning, initial evidence suggests that even relatively mild negative contact, such as behaviour that leads one to feel rejected, relates to increased levels of racism and avoidance of outgroups (Barlow, Louis, & Hewstone, 2009; Barlow, Louis, & Terry, 2009).

Building on these considerations we suggest that while increasing intensity of positive contact (for example, greeting someone vs. making a friend) should add to the effects of positive contact on attitudes, increasing intensity of negative contact (for example, feeling rejected vs. getting bullied by an outgroup member) should not increase the explained variance in attitudes to the same extent.

The present research

The present research is, to our knowledge, the first to examine the influence of intensity of contact (i.e., high or low positivity/negativity) as a dimension of valenced (i.e., positive and negative) intergroup contact. Furthermore, to our knowledge, this research is the first to use experiments to examine negative contact between real groups.

Specifically, we expect that an increase of intensity will increase the effects of positive contact, while an increase of intensity of negative contact will not yield corresponding effects. We furthermore use our experiments to explore the relation between the intensity of valenced contact, manipulated in an objective way, and perceived contact quality (see Study 2).

In Study 1, we analysed the effect of perceived intensity of positive and negative contact experiences in a large cross-sectional sample of British majority and ethnic minority members. In Studies 2 and 3, we implemented a manipulation of intensity and valence on an objective scale in two online experiments, measuring perceived contact quality and intergroup attitudes. In Study 4, we implemented the same paradigm in an offline version of the experiment. As all three of our experiments were designed in a very similar manner we finally integrated their main findings in an internal meta-analysis.

Study 1

The primary aim of Study 1 was to provide initial evidence for the influence of the intensity of positive but not negative intergroup contact. Data for Study 1 comes from a larger survey conducted in the context of intergroup relations between White British and Asian British participants in the UK. British Asians (largest sub-groups: Indian 33%, Pakistani 27%, and Bangladeshi 10%) account for seven per cent of the UK population and constitute the largest ethnic minority group in Britain (ONS, 2011), and face discrimination across a wide range of measures (Social Mobility Commission, 2016). Previous research has shown that intergroup contact effects likely differ for majority and minority members (Tropp & Pettigrew, 2005b), which makes it necessary to consider majority and minority groups as a predictor in the analysis. As a manipulation of negative contact and contact intensity might be ethically questionable in a relevant intergroup context, we instead used participants' perception of contact intensity as a proximal indicator to examine our predictions.

Method

Respondents

Two thousand nine hundred and four people (49% women, 51% men; Mage = 45.39, SD = 18.88) participated in a larger twenty-minute survey involving White British (N = 1520) and Asian British (N = 1474, 35.3% Asian British Indian, 46.3% Asian British Pakistani, 15.3% Asian British Bangladeshi) participants. The survey was conducted by a survey company (Ipsos MORI) and used a face-to-face random location quota approach (Szolnoki & Hoffmann, 2013). The survey company maintains a database of people who regularly participate in surveys for remuneration. All interviews were conducted in English.

Measures

One item each assessed the *frequency of positive and negative contact*, respectively, asking how often respondents had positive/negative contact with the respective outgroup (Asian and Asian British / White British). The scale ranged from 1 (*never*) to 6 (*every day*).

Perceived intensity of positive and negative contact was measured with two items (1 = *not at all* to 5 = *a great deal*). These items referred to the contact frequency items, asking participants how positive or negative they would rate the respective contact[1, 2].

To indicate their *outgroup attitudes*, participants rated the respective outgroups' warmth (1 = *very cold* to 5 = *very warm*).

Results

Statistical analyses were conducted with SPSS Version 24.0 (IBM Corp., 2015). Only respondents who had reported at least some intergroup contact on the respective measures of positive and negative contact frequency were included for all analyses including perceived intensity of contact. Correlations between all scales are reported in the Appendix (Table A2.1 for the overall sample, and Table A2.2 for the majority and minority samples separately). These statistics support the idea that intensity and frequency are indeed different concepts. The frequency of positive contact and intensity of positive contact are correlated only to a moderate degree (r = .40, p<.001), as are frequency and intensity of negative intergroup contact (r = .33, p<.001). As expected from previous research, group-status indeed moderated some of the effects of interest. Status moderated the effects of positive contact frequency on outgroup attitudes (b = -0.07, SE = .03, p = .017, CI95% [-0.12, -0.01]) as well as the effect of negative intensity on warmth (b = 0.14, SE = 0.05, p =.003, CI95% [0.05, 0.23]). We thus report results for the majority and minority samples separately.

We first ran some preliminary analyses examining the frequencies of positive and negative contact. A paired-sample t-test confirmed that both majority and minority members had more positive (M = 5.03, SD = 1.19) than negative (M = 1.82, SD = 1.07, t(2978) = 108.53, p = .001, CI95% [3.16, 3.27], d_z = 1.99) contact. Positive and negative contact frequencies were not related, r(2978) = -.01, p = .55. Perceived intensity was also rated higher for positive (M = 3.59, SD = 0.09) than for negative (M = 2.32, SD = 0.97, t(1495) = 36.40, p<.001, CI95% [1.198, 1.335], d_z = 0.94) contact. For positive contact, minority members reported more contact (M = 5.23, SD = 1.05) than majority members (M = 4.83, SD = 1.28, t(2926) = -9.56, p<.001, CI95% [-0.49, -0.32], d = 0.34), but for negative contact, minority members' contact frequency (M = 1.81, SD = 0.99) did not significantly differ from majority members' contact frequency (M = 1.82, SD = 1.15, t(2946) = .26, p = .79, CI95% [-0.07, 0.09], d = -0.01). Minority members also reported more intense positive contact (M = 3.78, SD = 0.84) than majority members (M = 3.62, SD = 0.89, t(2914) = -5.06, p<.001, CI95% [-0.22, -0.10], d = .19), and slightly more intense negative contact (M = 2.39, SD = 0.99) than majority members(M = 2.28, SD = 0.97, t(1524) = -2.03, p = .043, CI95% [-0.20, -0.003], d = 0.11).

Table 2.1 displays results for the influence of perceived intensity of contact on outgroup attitudes, addressing our main hypothesis for this study. For this analysis, intensity was coded as 0 for people who had reported no positive or negative contact, to avoid large amounts of missing data[3]. All predictors were entered simultaneously for each group.

Table 2.1. Effects of frequency and perceived intensity of valenced contact on outgroup attitudes among majority and minority members.

	Contact frequency		Perceived intensity	
	b (s.e.)	CI 95%	*b* (s.e.)	CI 95%
Majority				
Positive contact	.13(.02)***	[.092,.172]	.22(.03)***	[.173,.271]
Negative contact	-.13(.03)***	[-.188,-.073]	-.03(.03)	[-.076,.023]
Minority				
Positive contact	.10(.03)***	[.052,.148]	.19(.03)***	[.134,.244]
Negative contact	-.09(.03)**	[-.159, -.029]	-.04(.02)	[-.084, .006]

***p<.001, ** p<.01

In line with previous research, for both majority and minority members an increase in the frequency of positive contact improved outgroups attitudes. For both groups an increase in the positivity of contact increased outgroup attitudes over and above the effects of positive contact frequency. For negative contact the frequency of negative intergroup contact decreased outgroup attitudes for majority as well as minority group members. In line with our predictions, increased negativity of contact had no significant effect on outgroup attitudes, beyond the effect of negative contact frequency, for both majority and minority members.

Discussion

Study 1 provides initial evidence in support of our main hypothesis, that increasing intensity primarily plays a significant role in positive, but not negative contact effects. For positive contact, intensity of contact valence was associated with increased positive attitudes, whereas for negative contact, perceived intensity of valence did not emerge as a significant predictor of attitudes. These results are in line with our theoretical reasoning, relying on findings of research from other fields which suggest that even minimally intense negative events can exert profound effects (Peeters & Czapinski, 1990; Rozin & Royzman, 2001). Furthermore, we found that positive contact frequency yielded larger effects for majority than for minority members, which is in line with previous findings (Tropp & Pettigrew, 2005b).

However, Study 1 only comprises cross-sectional data and, as such, we cannot make claims about causality. Moreover, respondents in this sample reported almost no negative events of very high intensity; potentially, more intense negative experiences might have changed the observed pattern of results. Nonetheless, this study was conducted in a context in which we might have expected to see such

experiences, as British Asians, the largest minority group in the United Kingdom, face considerable discrimination (Social Mobility Commission, 2016). It is additionally important to note, that in line with previous research (Hayward et al., 2018), we found that the negativity of negative events was lower, but varied more, than the positivity of positive events. For a thorough test of the effects of intensity of valence, it is thus necessary to manipulate valence and intensity in an objective and comparable manner (Peeters & Czapinski, 1990).

Study 2

In order to establish a thorough manipulation to compare the effects of intensity under different valence, one crucial element is not only to provide an objectively positive and negative situation, but also to keep intensity comparable on an objective scale (see also Peeters & Czapinski, 1990). To address this issue, we adapted the indirect collaboration task (Fell, 2015; Wilder, 1984), during which participants interact with a confederate, and receive bogus, differentially valenced, feedback on a task they have completed. Valence of the interaction in this task is varied on several feedback scales, which allows systematic manipulation of the two dimensions of valence (positive vs. negative) and intensity (low vs. high positivity/negativity) on an objective scale (see Procedure for details).

To explore potential mechanisms driving the effect of valenced contact of different intensity on outgroup attitudes, we included additional exploratory variables. One potential variable that could explain the effects of intensity is contact quality. Previous research shows that an increase in intensity differentially affects the evaluation of positive and negative persons (Fiske, 1980), which might also apply to the perceived quality of contact experiences. Additionally, perceived contact quality has since long been shown to predict outgroup attitudes (Barlow et al., 2012, Study 1; Paolini et al., 2010), and could be one mechanism underlying the effect of a combination of contact valence and intensity on outgroup attitudes.

Methods

Participants and design

Ninety students from Germany's only distance learning university took part in the study. At this university, students are older than typical non-distance learning university students, 80% are currently employed and only study part-time (Roth & Mazziotta, 2015). In a 2 (positive vs. negative) x 2 (low vs. high) between-subjects design participants were randomly assigned to one of four experimental conditions comprising differently valenced contact: high negativity, low negativity, low

positivity, and high positivity.

Three participants were excluded because they did not find the feedback credible at all (one from the highly positive, two from the highly negative condition). The final sample included 87 participants (66 females, 20 males, one person did not indicate their gender; *M*age = 37.02, *SD* = 10.51). The number of participants per condition was almost equal (high negativity = 23, low negativity = 22, low positivity = 22, high positivity = 20). Participants entered a raffle for money and could receive course credit after participating. Participants were fully debriefed after the end of data collection.

Procedure

We adapted the indirect collaboration task (Fell, 2015; Wilder, 1984) to an online environment (Adobe Connect, Copyright © 2018 Adobe Systems Inc.), which uses false feedback to manipulate valence and intensity of valence in a highly structured and objective manner. For a flow chart of the procedure see Figure 2.1. Participants were recruited via several online platforms related to the respective distance learning university. A short text invited students to participate in an online experiment on cooperation competence in virtual environments. Participants were told they would either be teamed up with a student of their own distance learning university or with a student from a traditional university (the outgroup). They first answered a small pre-test questionnaire, which was mainly used to establish the cover story,[5] before choosing individual appointments for the online meeting.

During this online meeting a confederate always acted out the role of an outgroup university student. A short introductory video explained the main properties of the online environment and the task to come. Subsequently, the confederate and participant were asked to introduce themselves to their partner by answering some questions about themselves. Participants were than told that they were randomly chosen to complete two small writing tasks in the first round, while their partner would give them feedback on these tasks – and that their turn to give feedback would come after they had finished these first two writing tasks. They continued with a short writing task about arguments that supported allowing smoking in bars and restaurants. Following this task, participants received the first bogus feedback from the confederate, which, according to one of the four possible conditions, was either of low or high positivity or of low or high negativity. After reading the feedback, participants continued with a second writing task, about arguments against smoking in bars and restaurants. Again, participants received bogus feedback in line with their respective condition. After this second round of feedback, participants were asked to answer some questions about their expectations and attitudes towards their partner's group. Subsequently, all participants received positive feedback from

the moderator. Following this final feedback, a false error message ended the experimental session, thus participants did not get to give feedback to the confederate.

The manipulation material consisted of two feedback sheets (see Appendices). This bogus feedback was symmetrically arranged around the midpoint of the scales, to provide a rigorous test of the influence of different levels of intensity. The scales on the feedback sheet stated, for example, the overall quality of the participant's answers, or whether the participant should put more effort into performing the tasks. All scales on the feedback sheet which differentiated between conditions used a 7-point scale, ranging from *very poor* (1) to *excellent* (7). To enhance the emotional impact on the participants in an online environment (Wang, Zhao, Qiu, & Zuhu, 2014), emoticons were used as additional, ordinal scales on the feedback sheet.

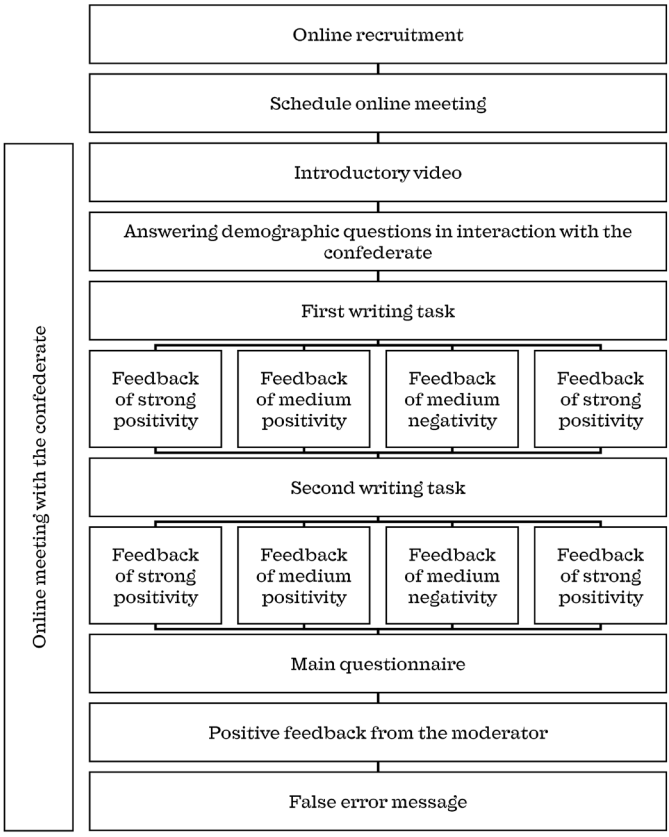

Figure 2.1. Flow chart depicting the procedure of Study 2.

Measures

All scales used a 7-point Likert-type scale ranging from 1 (0 *do not agree*) to 7 (6 *fully agree*), unless specified below. Means and standard deviations for all scales are reported in the Appendix (Table A2.3), as are the correlations between all scales (Table A2.4).

To assess *outgroup attitudes*, participants rated outgroup members on three items. Participants were asked to describe the group of students their interaction partner belonged to and to choose their impression of the partner's group on the dimensions likeable, warm and good natured ($\alpha = .88$, adapted from Asbrock, 2010).

Participants rated *perceived contact quality* (Paolini et al., 2010) on six items ($\alpha = .80$)[6]. These items asked them to rate how enjoyable, unpleasant, superficial, boring, pleasant and engaging the interaction in the online environment was. Instructions were adapted to match the given context and negative items were recoded. Higher scores indicate a more positive evaluation of the contact.

Results

We used SPSS Version 24.0 (IBM Corp., 2015) and the PROCESS Macro for SPSS (Hayes, 2017) to test our hypotheses in Studies 2 – 4. A detailed summary of the results on the main outcomes for all experimental studies, including forest plots and graphs for the overall interaction effects, can be found following Study 4 under Internal meta-analysis for Study 2–4.

Outgroup attitudes

For outgroup attitudes a two-way analysis of variance (ANOVA) revealed a significant main effect for valence, $F(1, 83) = 5.42$, $p = .022$, $\eta^2_p = .06$, as well as intensity, $F(1, 83) = 10.29$, $p = .002$, $\eta^2_p = .11$, while the interaction yielded a small, but not significant effect, $F(1, 83) = 2.73$, $p = .102$, $\eta^2_p = .03$. A subsequent examination of the simple effects revealed that an increase in intensity increased outgroup attitudes in the positive condition, $F(1, 42) = 10.51$, $p = .002$, $\eta^2 = .21$, but did not reduce outgroup attitudes in the negative condition, $F(1, 42) = 1.36$, $p = .249$, $\eta^2 = .03$.

Perceived contact quality

Using a two-way ANOVA we first tested whether intensity (0 = mild, 1 = more intense contact) moderated the effects of negative compared to positive contact (0 = positive, 1 = negative). There was a significant main effect of valence, $F(1, 83) = 13.43$, $p<.001$, $\eta^2_p = .14$, but not of intensity $F(1, 83) = 1.44$, $p = .233$, $\eta^2_p = .02$. Importantly, there was a significant interaction effect of valence and intensity, $F(1,83) = 9.48$, $p = .003$, , $\eta^2_p = .10$. An analysis of the respective simple effects revealed that an increase in

intensity increased perceived contact quality in the positive, $F(1, 42) = 6.79$, $p = .013$, $\eta^2 = .15$, but not the negative condition $F(1, 42) = 2.54$, $p = .118$, $\eta^2 = .06$. To examine whether intensity of perceived quality mediated the effects of intensity for positive and negative contact, we ran a moderated mediation (PROCESS, Model 7), with negative vs. positive contact as a moderator. This allowed us to examine the indirect effects of intensity mediated via perceived contact quality on outgroup attitudes. An examination of the conditional indirect effects for intensity on outgroup attitudes revealed a significant indirect effect for positive ($b = 0.38$, CI95% [0.06, 0.84]), but not for negative contact ($b = -0.17$, CI95% [-0.38, 0.05], index of moderated mediation = -.54, CI95% [-1.10, -0.14]).

Discussion

Study 2 provides first experimental evidence that varying the intensity of the contact experience primarily affects the effects of positive but not of negative contact. As expected, increasing intensity increased outgroup attitudes for positive contact, but did not decrease outgroup attitudes for negative contact. These results are in line with our assumptions and results from Study 1.

Additionally, the same pattern emerged for perceived quality of contact, which in turn mediated the effects of positive, but not negative, contact on outgroup attitudes. This finding is interesting, as it demonstrates that an increase in intensity, especially in the case of negative contact, is not necessarily related to the perceived quality of contact (Fiske, 1980). However, our findings do not show the same pattern demonstrated by Fiske, who found the most extreme evaluation of a target person when their behaviour was strongly negative. Instead our findings suggest that it takes rather strong positive contact to increase the perceived quality of intergroup contact.

Although our research included a minimum of 20 participants per cell (Simmons et al., 2011), power for this study was low, which might affect the reliability of the results. Moreover, while the simple effect analysis of the interaction effect on outgroup attitudes supported our hypotheses, the interaction effect itself only yielded a rather small effect, which did not reach significance. These results should thus be interpreted with caution, given the low power of this study which constrains the robustness of our findings. Furthermore, previous research demonstrates that having outgroup friends can influence both the perception of contact quality (Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001; Page-Gould, Mendoza-Denton, & Tropp, 2008), as well outgroup attitudes (Pettigrew & Tropp, 2006). As we did not assess previous intergroup experiences in Study 2, these might have influenced our results. To address this concern, results for Studies 3 and 4 were controlled for

previous experiences of positive intergroup contact. Moreover, interactions in an online environment might be experienced differently by distance learning students than by traditional university students, because the former are much more used to online evaluation. Study 3 thus aimed to increase generalizability of our findings by swapping in- and outgroup, and to increase the statistical power of our tests.

Study 3

Method

Participants and design

We used a similar experimental design as in Study 2 (Figure 2.1). Participants were 174 German-speaking students from traditional universities (i.e., non-distance learning universities) all over Germany and Austria; compared to Study 2. Thus, we swapped the in- and outgroup in this study, to consider students from distance learning universities as the outgroup[7]. Five participants were excluded across all conditions, because they did not find the feedback credible (high negativity: 1; low negativity: 2; low positivity: 1; high positivity: 1). The final sample for Study 3 was almost equally distributed over conditions (high negativity = 42, low negativity = 45, low positivity = 40, high positivity = 42) and included 169 participants (108 females, 59 males, one participant used an additional gender category, and one did not indicate gender; *M*age = 23.86, *SD* = 3.48). Again, participants entered a raffle for money after participating and this time had the chance of receiving a small monetary payment. Participants were fully debriefed at the end of data collection.

Procedure

We retained the same paradigm used in Study 2 but implemented small changes to increase plausibility of the manipulation. First, we slightly adapted the bogus feedback questionnaire to improve credibility of the feedback. Specifically, the anchors for the feedback sheet of Study 3 now ranged from very poor (-3) to excellent (3). Additionally, we chose slightly less intense emoticons. Again, participants were recruited on several online platforms, following the same procedure as implemented in Study 2.

Measures

All scales used a 7-point Likert-type scale ranging (0 *do not agree*) to 7 (6 *fully agree*) unless specified otherwise. Means and standard deviations for all scales are reported in the Appendix (Table A2.5), as are the correlations between all scales (Table A2.6).

Outgroup attitudes were assessed with the same three items, respectively,

that were used in Study 2 (likeable, warm and good natured). We included outgroup attitudes both as a pre-test measure (outgroup attitudes$_{pre}$ α = .93) and as a measure in the final questionnaire (outgroup attitudes$_{post}$ α = .97).

Again, participants rated *perceived contact quality* (Paolini et al., 2010) on the same six items (α = .92) as in Study 2. Negative items were recoded, such that higher scores indicate a more intense, positive evaluation of contact.

Additionally, *previous experience of positive contact* was measured with one item asking how many of participants' friends were outgroup members, ranging from 1 (*0 - none*) to 7 (*6 - all*).

Results

To ensure successful randomization, we first ran a two-way ANOVA for our pretest measures of outgroup attitudes and previous experiences of positive contact. We found no results indicating that the randomization had not been successful: we found neither a main effect for valence of contact on pretest attitudes, $F(1, 162) = 0.14$, $p = .705$, $\eta^2_p < .01$, nor for intensity of contact, $F(1, 162) = 1.97$, $p = .163$, $\eta^2_p = .01$. We also found no significant interaction effect for the pretest measure of outgroup attitudes, $F(1, 162) = 0.01$, $p = .925$, $\eta^2_p < .01$. The results regarding previous experiences of positive contact also supported a successful random assignment: We did not find a main effect for either valence of contact, $F(1, 163) = 0.54$, $p = .465$, $\eta^2_p < .01$, or for intensity of contact $F(1, 163) = 0.45$, $p = .451$, $\eta^2_p < .01$. We also found no significant interaction effect for the pretest measure of outgroup attitudes, $F(1, 163) = 1.39$, $p = .241$, $\eta^2_p = .01$. Additionally, all reported results are controlled for previous contact experiences in Study 3 and 4.

Outgroup attitudes

In a two-way ANOVA we found a main effect of valence on outgroup attitudes, $F(1, 161) = 5.25$, $p = .023$, $\eta^2_p = .03$, and a main effect of intensity, $F(1, 161) = 12.08$, $p = .001$, $\eta^2_p = .07$. There was a small, but non-significant interaction effect of valence and intensity, $F(1, 161) = 2.00$, $p = .158$, , $\eta^2_p = .01$. Examination of the simple effects revealed that an increase in intensity increased outgroup attitudes in the positive condition, $F(1, 78) = 14.29$, $p < .001$, $\eta^2 = .16$, but did not reduce outgroup attitudes in the negative condition $F(1, 82) = 1.69$, $p = .197$, $\eta^2 = .02$.

Perceived contact quality

We first tested whether intensity moderated the effects of negative compared to positive contact. A two-way ANOVA revealed a small main effect of valence, $F(1, 162) = 3.38$, $p = .068$, $\eta^2_p = .02$, and a main effect of intensity, $F(1, 162) = 11.69$, $p = .001$, $\eta^2_p = .07$.

Importantly, there was a significant interaction effect of valence and intensity, $F(1, 162) = 4.42$, $p = .037$, $\eta^2_p = .03$. Examination of the simple effects revealed that an increase in intensity increased perceived contact quality in the positive condition, $F(1, 79) = 14.86$, $p<.001$, $\eta^2 = .16$, but did not reduce perceived contact quality in the negative condition, $F(1, 82) = 0.80$, $p = .375$, $\eta^2 = .01$. Again, to examine whether perceived contact quality mediated the effects of intensity for positive and negative contact, we ran a moderated mediation (PROCESS, Model 7), with negative vs. positive contact as a moderator, additionally controlling for the baseline measure of warmth and previous contact. This allowed us to examine the indirect effects of intensity mediated via perceived contact quality on outgroup attitudes. An examination of the conditional indirect effects for intensity on outgroup attitudes revealed a significant indirect effect for positive ($b = 0.39$, CI95% [0.18, 0.64]), but not for negative ($b = 0.07$, CI95% [-0.17, 0.29]) contact. However, this difference was not significant (index of moderated mediation = -0.18, CI95% [-0.59, 0.23]).

Discussion

Results from this second experiment with an objective manipulation of contact valence (negative vs. positive) and intensity (low vs. high) replicated our main findings, suggesting that intensity of the contact experience differentially affects positive and negative contact experiences. Our results provide further evidence that positive contact in particular is affected by an increase in intensity, which is in line with our predictions, and with results from Study 2. As in Study 2, the interaction of valence and intensity had a significant effect on perceived contact quality and, again, perceived contact quality mediated the effects of contact on outgroup attitudes for positive, but not negative, contact. As in Study 2 the interaction effect on outgroup attitudes was small, yet again, inspection of the simple effects supported our hypothesis.

Overall our results suggest that the online version of the collaboration and communication task provides an effective and highly standardized way for studying positive and negative intergroup contact. Nonetheless, the online context might be considered a very specific one. It might limit the extremity of intensity the researcher is able to introduce, because there is no face to face interaction. Further research should consider ways to increase the intensity of the manipulation, without compromising the plausibility of the paradigm. We therefore sought to replicate this paradigm in the lab, in person, to address any potential peculiarities of interactions in online environments. This would ensure that the results obtained from the online interactions would also generalize to offline interactions, and would further confirm the validity of findings from experiments conducted in a purely online environment.

Study 4

Method

Participants and design

Eighty students from a Dutch university, and a total of 25 disciplines (most prominent: veterinary studies n = 14, psychology n = 14, and sociology n = 8) took part in the experiment. Two participants were excluded because of extreme outliers on studentized deleted residuals (with values >± 3)[8]. This left a final sample of 78 participants (69 female, 9 male; M_{age} = 20.71, SD = 2.18), assigned to one of the four conditions: high positivity (n = 21), low positivity (n = 19), low negativity (n = 19), and high negativity (n = 19).

Procedure

Overall, Study 4 followed the same procedure as Study 2 (see Figure 2.1). The same feedback manipulation as in Studies 2 and 3 was used, except that Study 4 did not include emoticons, which had been included specifically for the online environment. Participants were invited into the lab to perform the writing tasks and met a researcher and the confederate shortly before the experiment started. The confederate acted out the role of a student from a Dutch university of applied sciences. In this study, the group paradigm differentiated between students of a 'university' (the ingroup), and students of a 'university of applied sciences' (the outgroup). This paradigm was chosen to mirror the status difference in Study 2, as students from universities of applied sciences tend to be perceived as lower in status when it comes to written, academic tasks.

Participants were recruited on campus, mostly via flyers and by visiting lectures. The experiment was advertised as a study of cooperation and collaboration, with a specific focus on how to improve and standardize ways of giving feedback. Students who were willing to participate were able to sign up online, upon which they were asked to fill out the online pre-test survey, and to agree on a date for the experiment in an online calendar. Participants gave their written consent before the experiment started and were provided a full debriefing and small financial reimbursement after completion.

Measures

To assess *outgroup attitudes* participants rated the same three items as were used in Studies 2 and 3, except that items now ranged from 0 to 100 (α_{pre} = .91, α_{post} = .90,

Participants rated *perceived contact quality* on six items, which asked participants how they had experienced the interaction (Paolini et al., 2010)[9]. Participants again rated the extent to which they had found the interaction, for example,

enjoyable or pleasant (α = .76).

Previous experience of positive contact was measured with one item asking how many of participants' good friends were studying at a university of applied sciences (response options: '*None*', '*One*', '*Two to five*', '*Five to ten*', and '*More than ten*').

Results

Descriptive statistics for all the main variables, as well as the correlations between them, can be found in the Appendix (Tables A2.7 and A2.8, respectively). As in Study 3, we first ran a two-way ANOVA for our pretest measures of outgroup attitudes and previous experiences of positive contact. We found no evidence that pretest outgroup attitudes differed between the conditions: neither valence of contact, $F(1, 74) = 1.02$, $p = .316$, $\eta^2_p = .01$, nor intensity of contact, $F(1, 74) = 0.44$, $p = .510$, $\eta^2_p = .01$, had an effect on pretest attitudes. We also found no significant interaction effect for the pretest measure of outgroup attitudes, $F(1, 74) = 0.60$, $p = .441$, , $\eta^2_p = .01$. The results regarding previous experiences of positive contact also confirmed successful random assignment: We did not find a main effect for either valence of contact, $F(1, 76) = 0.01$, $p = .914$, $\eta^2_p < .01$, or intensity of contact, $F(1, 76) = 1.40$, $p = .240$, $\eta^2_p = .02$. Also, we found no significant interaction effect for the pretest measure of outgroup attitudes $F(1, 76) = 0.56$, $p = .456$, , $\eta^2_p = .01$.

Outgroup attitudes

In a two-way ANOVA a main effect of valence emerged, $F(1, 73) = 5.37$, $p = .023$, $\eta^2_p = .07$, but there was no significant main effect for intensity, $F(1, 73) = .19$, $p = .666$, $\eta^2_p < .01$. A significant interaction effect of intensity and valence did emerge, $F(1, 73) = 4.84$, $p = .031$, $\eta^2_p = .06$. Examination of the simple effects revealed that an increase in intensity increased outgroup attitudes in the positive condition, but only yielded a small effect that approached conventional levels of significance, $F(1, 37) = 3.68$, $p = .63$, $\eta^2 = .09$; it did not reduce outgroup attitudes in the negative condition $F(1, 36) = 2.01$, $p = .165$, $\eta^2 = .05$.

Perceived contact quality

In a two-way ANOVA a main effect of negative vs. positive valence emerged, $F(1, 73) = 4.78$, $p = .032$, $\eta^2_p = .06$, but there was no main effect of intensity, $F(1, 73) = 0.49$, $p = .484$, $\eta^2_p = .01$. The interaction of valence and intensity yielded a significant effect, $F(1, 73) = 13.91$, $p < .001$, $\eta^2_p = .16$. Examination of the simple effects revealed that an increase in intensity increased perceived contact quality in the positive condition, $F(1, 38) = 9.90$, $p = .003$, $\eta^2 = .21$, but also had a small effect that approached conventional levels of significance in the case of negative contact, $F(1, 36) = 3.37$, $p = .075$,

$\eta^2 = .09$. We ran a moderated mediation to test whether perceived contact quality mediated the effects of intensity on outgroup attitudes and whether this relation was different for positive and negative contact. The indirect effect via perceived quality was significant in the positive ($b = 5.70$, CI95% [1.50, 11.19]), but not the negative condition ($b = -3.15$, CI95% [-9.02, 0.39], index of moderated mediation = -8.85, CI95% [-17.80, -2.31]). This model included outgroup attitudes as a dependent variable and controlled for the pretest measure of outgroup attitudes as well as previous contact experiences.

Discussion

This third experiment replicated the results of Studies 1, 2, and 3 with direct interactions taking place in person. In line with our hypothesis, increasing intensity had a stronger impact on the effects of positive compared with negative contact, and perceived contact quality again mediated the effects of positive, but not negative contact. Due to difficulties in recruiting more participants in the preregistered time frame, and limited funding for further confederate hours, Study 4 also only included a rather small number of participants, which limited the power of this study. To address this issue, and to summarize the findings of our three experiments, we finally conducted an internal meta-analysis.

Internal meta-analysis for Studies 2 – 4

All three of our experiments were designed in a very similar manner and yielded results in the predicted direction. We subsequently integrated our results for outgroup attitudes, the main outcome variable, in an internal meta-analysis. This was done to provide a more accurate picture of the effects and circumvent issues of low power in some of our experiments. An internal meta-analysis yields an increase in power compared to the single studies, and thus increases reliability and demonstrates the robustness of our findings. A meta-analytic summary of results has the benefit of basing results on larger sample sizes and, while it cannot solve problems with methodically flawed studies (Nelson, Simmons, & Simonsohn, 2018), it still provides a good way to systematically summarize sound research with similar designs (Goh, Hall, & Rosenthal, 2016). We thus ran an internal meta-analysis to examine the overall results for the interaction of contact valence and intensity on outgroup attitudes. We computed Hedges' *g* for the respective interaction effects[10] and used R (R 3.5.2, The R Foundation for Statistical Computing, 2018) and the metafor (2.0-0) package to run fixed-effect models for an estimation of the summarized effects over all three experiments.

Results

As demonstrated by Figure 2.2, the interaction of valence and intensity also significantly predicted outgroup attitudes in the summary of all three studies, with a medium effect, $M\,g = 0.45$, $SE = 0.11$, $p<.001$, CI95% [0.23, 0.67].

To address our main hypothesis, the direction of this interaction was of particular interest. We therefore summarized the simple effects of intensity for positive contact, $M\,g = 0.37$, $SE = 0.16$, $p = .020$, CI95% [0.231, 0.668], and for negative contact, $M\,g = 0.15$, $SE = 0.15$, $p = .131$, CI95% [-0.145, 0.453] in an internal meta-analysis. As illustrated in Figure 2.3, outgroup attitudes did significantly change with an increase of positivity, but not of negativity.

Building on the merits of a much larger sample size, the results of the internal meta-analysis support the hypothesis that intensity (i.e., low vs high) and valence (i.e., positive vs negative) interact in their effects on outgroup attitudes. It should be noted that Study 3 yielded non-significant results, which still supported the overall direction of the effect. One possible explanation for this difference could lie in the small changes made in the manipulation material used in Study 3, where we tried to reduce extremity of the manipulation to increase plausibility of the feedback manipulation. The summary of the simple effects (Figure 2.3) demonstrated that, in line with our hypothesis, intensifying positivity had a larger effect than intensifying negativity.

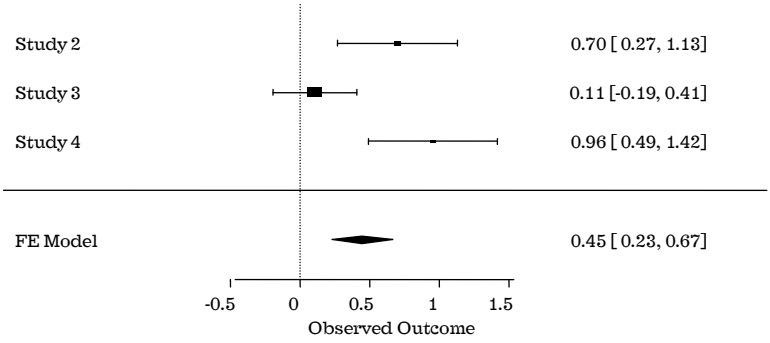

Figure 2.2. Forest plot for the results of the internal meta-analysis regarding the interaction effect of valence and intensity on outgroup attitudes. Shows Hedges' g (and SE) for all Studies 2 to 4, as well as the average effect (M g) in the fixed effect model (FE model).

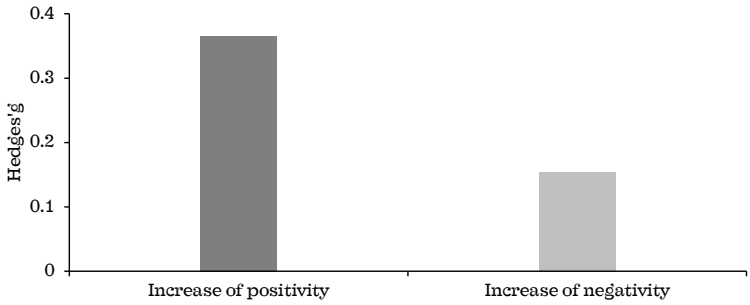

Figure 2.3. Bar chart for Hedges' g of the simple effects of an increase of positivity and negativity on outgroup attitudes, summarized for all experiments.

General discussion

The current research advances prior work on valenced intergroup contact, by including intensity of contact as a key factor influencing the effect of intergroup contact on outgroup attitudes. We provide consistent evidence from one large cross-sectional survey (Study 1), two online experiments (Studies 2 and 3), one experiment in person (Study 4), and an internal meta-analysis which provided a concise statistical integration of our main results. Our findings demonstrate that varying the intensity of contact influences the effects of contact on attitudes - though primarily those of positive, but not of negative contact. Intensity of the contact experience had a stronger influence on the effects of positive than of negative contact on outgroup attitudes, which is in line with our hypothesis. Our research thus supports the view that hypotheses derived from the notion that "bad is stronger than good" (Baumeister et al., 2001) are also relevant in the context of valenced intergroup contact (see Paolini et al., 2012): Our findings are in line with research from other fields of psychology, like impression formation (Peeters & Czapinski, 1990) and contagion (Rozin et al., 1992), suggesting that positive and negative experiences are differentially affected by an increase in intensity (Fiske, 1980; Rozin & Royzman, 2001).

The finding that the effects of positive and negative contact are differentially influenced by intensity provides a possible explanation for the mixed results of the literature to date. Our findings regarding the effects of objectively manipulated valenced contact on perceived contact quality yield interesting additional results. Again, an increase of valence mainly influenced the perception of positive contact, but to a much lesser degree of negative contact. Indeed, in our data, contact of strong positivity is required to result in a really positive perception of contact.

Of additional interest, when considering factors that might decrease or increase contact opportunities, is the fact that in our survey data frequency of positive and negative contact were not related (see Tables A2.1 and A2.2 in the Appendix).

This suggests that increasing contact opportunities per se does not necessarily increase positive and negative contact to a comparable extent. This leads us to conclude that policy makers interested in promoting intergroup tolerance should not only focus on measures that seek to increase the likelihood of intergroup contact (for example, through creating mixed housing areas), but should also pay attention to how positive contact within such shared spaces can be encouraged and negative contact reduced. Measures such as structured intergroup contact interventions, shared positive activities, as well as initiatives to foster interethnic friendships might help to support this aim.

To further increase the societal impact of this research, we suggest that future research should also consider outcomes other than outgroup attitudes. Especially when considering longitudinal effects of intergroup contact, which might change dynamically over time (Schäfer et al., *under review*), our results suggest that even small instances of low negativity might cause effects on other outcomes, such as avoidance of subsequent intergroup contact. This is in line with previous research demonstrating that even intergroup contact of low negativity, such as behaviour that leads one to feel rejected, relates to increased levels of avoidance of outgroups (Barlow et al., 2009). In the long run, avoidance could result in a lack of opportunities for positive contact, especially for contact of high positivity like making outgroup friends, and thus a lack of opportunities to improve first negative impressions.

Notwithstanding its contributions, we acknowledge some limitations of our research that should be addressed in future research. First, we had no objective measure of intergroup contact in Study 1. In addition to it being a subjective rating of valence, the contact measure in Study 1 assessed frequency of contact. This dimension was not available in the experiments, as we manipulated valence and intensity, but not frequency of intergroup contact. While all of our studies demonstrate evidence in line with our hypothesis, this difference in operationalization limits the comparability between the survey data and the subsequent experiments.

A further limitation pertains to the operationalization of perceived contact quality. Although this measure is well-established in the literature (Barlow et al., 2012; Paolini et al., 2010), and we want to emphasize that it is important to assess subjective contact quality separately from the objective manipulation of contact quality to avoid circularity (Dixon et al., 2005), it is also a continuous measure of subjective contact quality. Further studies should consider whether the measurement of perceived quality might have to assess positive and negative perception separately (Cacioppo et al., 1997). Including separate measures for positive and negative perceived quality would have improved the comparability between experimental Studies 2 – 4, on the one hand, and survey Study 1 on the other hand. Additionally, different measures of perceived positive and negative contact quality would have

allowed us to examine the impact of positive and negative intensity on perceived positivity and negativity more thoroughly.

It is important to point out that while our theoretical assumptions mostly build on findings from other fields of research, which did not consider an intergroup context, we found the hypothesized effects in the case of intergroup contact. This is not only true with regard to the evaluation of the respective contact situation (i.e., perceived contact quality), but also with regard to an attitude towards the interaction partner's group (i.e., outgroup attitudes), instead of the interaction partner herself.

However, we cannot determine whether our findings regarding the stronger effect of increased intensity for positive compared to negative contact are specific to intergroup situations or might also be true for intragroup interactions. Further research could address this by including interactions with ingroup members.

Furthermore, while older studies suggest that having past experiences of positive contact (i.e. having ingroup friends) is relevant for the perception of intergroup contact (Blascovich et al., 2001; Page-Gould et al., 2008) recent work suggests that not only positive but also negative contact experience might influence subsequent intergroup contact effects (Schäfer et al., *under review*). As we only controlled for outgroup friends in our experiments, further research should consider the effects of a full (positive and negative) history of intergroup contact, by controlling for positive and negative experiences in the past.

A further limitation concerns the very specific context in which the three experiments were set. All experiments involved a university context with participants receiving feedback from a peer, and although the manipulation of valence and intensity was realized in an objective manner, anchors of how positive and negative feedback would look like in this specific context might have affected our results (especially because, among students, the norm would be to expect rather positive feedback from their peers). Future research should therefore consider using other paradigms and contexts to examine effects of intensity.

Contexts in which people have more negative than positive experiences might be of special interest (e.g., police officers' contact with immigrants; see Dhont, et al., 2010) – as in such contexts, contact of low positivity might have a larger impact compared to environments where negative interactions are rare. It is important to keep in mind, however, that a manipulation of negative intergroup contact always has to consider ethical questions, especially in politically relevant contexts. In our own research we have recently proposed the use of behavioural games in order to observe positive and negative interactions between groups, without using manipulations that involve deception (Schäfer et al., *under review*). Behavioural games thereby provide an objective measure of valenced interactions (i.e. amount of cooperation), which

can be positive or negative and could thus also be used to address the influence of increased positivity and negativity for intergroup contact effects.

Finally, almost none of our participants reported negative events of high intensity, even in Study 1, which had high external validity as it dealt with positive and negative contact between White British and Asian British adults. This lack of extremely negative experiences might also explain why we do not find the same pattern of results as suggested by Fiske (1980), who finds the strongest effects in the case of person evaluations (rather than generalizations to outgroups) for extremely negative situations. Although it is heartening to find that intense negative events between members of these groups are rather scarce, a sample including, for example, victims of large-scale intergroup violence might change the presented results. Considering such contexts should be a goal for further research examining the relevance of intensity for positive and negative contact. Finally, although we acknowledge that the reliability of Studies 2 and 4 might be impaired by their rather low sample sizes, we replicated the same pattern of results across all studies.

To conclude, our research – which exploited the benefits of laboratory experiments allied to a large-scale, representative general population survey – shows that varying intensity of contact experiences has different effects for positive compared to negative contact experiences. Although negative contact experiences tend to be rare, such experiences might not need to be intese to cause strong negative effects. For positive contact, on the other hand, rather than simply having superficial intergroup contact, more intense positive experiences (such as making outgroup friends) are likely to yield greater benefits than merely having a few positive, but superficial interactions with outgroup members.

Endnotes

1. Participants additionally stated how much these positive or negative contact experiences with the other group typically affected them personally. These items yielded a similar pattern of results, but as the positivity/ negativity items are more similar to the items used by Hayward et al. (2017), results for these other items are available upon request.

2. Respondents only answered these questions if they had reported having some (i.e., more than none) of the respective type of contact (n=1523 for negative contact; n= 2914 for positive contact).

3. Participants were only asked this question if they reported at least some intergroup contact. To avoid the loss of data, we recoded the missing data for participants who reported no intergroup contact as 0. The pattern of results does not change if missing data is deleted.

4. In a simulation of data for moderated mediations, Preacher, Rucker and Hayes (2007) demonstrate that a sample size of 200 participants would provide sufficient power for a moderated mediation with medium sized regression coefficients. We had preregistered to stop data collection for Study 2 when 220 participants were recruited or on Christmas day 2016 with at least 20 participants per condition. On Christmas day the positive condition included fewer than 20 participants, therefore four further participants were recruited for this condition to reach a minimum of 20 participants per cell (Simmons, Nelson, & Simonsohn, 2011).

5. Due to large amounts of missing data on the code we had planned to use to match the pretest questionnaire in Study 2, the pretest data could only be matched to the participants‘ answers on the main outcomes for Study 3 and 4.

6. From the original eight items, we had already dropped the item “informal” from the scale during translation, and “formal”, was excluded from the analysis, to enhance reliability of the scale.

7. For Study 3, we had again preregistered to aim for a final sample of 200 participants or to finish data-collection before August 1st 2017. On the 1st of August 174 persons had participated.

8. We had preregistered to exclude extreme outliers, detected with studentized deleted residuals, for Studies 2 and 3 which did not include any outliers. To keep the method consistent, we excluded the respective outliers here. Including them does not change the pattern of results.

9. As in Studies 2 and 3, ‘formal’ was excluded. Additionally, ‘boring’ was also excluded. These two items did not load on the same factor.

10. We followed the procedure suggested by Borenstein, Hedges, Higgins and Rothenstein (2009).

Ethnic composition, contact,

trust, cohesion and prejudice

This chapter is based on a paper written by Mathijs Kros and Miles Hewstone. Kros has been involved with designing the survey, wrote the main part of the manuscript, and conducted the analyses. Hewstone contributed substantially to the manuscript. This chapter was presented at the conference of the Society of Australasian Social Psychologists (SASP) in Sydney, 2019, and the SASP-SPSSI conference, jointly organized by SASP and the Society for the Psychological Study of Social Issues (SPSSI), in Newcastle, 2019.

Abstract

This chapter extends the literature on the relationship between ethnic neighbourhood composition and cohesion, trust, and prejudice, by considering the influence of both positive and negative interethnic contact. We employ multilevel structural equation modelling, with individuals nested in neighbourhoods, using a unique dataset collected in England in 2017 amongst 1520 White British and 1474 Asian British participants. Our results show that negative interethnic contact, unlike positive interethnic contact, is not related to ethnic neighbourhood composition. Specifically, White British people who live in neighbourhoods with relatively many Asian British people have, as expected, more positive but, encouragingly, not more negative interethnic contact. For Asian people, living in neighbourhoods with relatively many White people is unrelated to both their positive and negative interethnic contact. Further, White and Asian people who have more positive interethnic contact score higher on perceived cohesion, general trust, and outgroup trust, and lower on prejudice. The opposite holds true for White and Asian people who have more negative interethnic contact.

Introduction

England has been witnessing substantial changes in the ethnic composition of its population. For example, between 2001 and 2011, the non-White population increased by 73.4% while the White population only increased by 1.3% (Johnston, Poulsen & Forrest, 2014). Asian British, mostly of Indian, Pakistani, and Bangladeshi heritage, form the largest group of ethnic minorities in England; and grew the most in absolute percentage points between 2001 and 2011, from 5.1% of the population to 7.8% of the population (ONS, 2011). Such demographic changes continue to inform debates about the consequences of ethnic neighbourhood composition for general social cohesion, the extent to which people trust one another, and how prejudiced people are, both in England (Cheong, Edwards, Goulbourne & Solomos, 2007; Laurence, 2014) and generally (Putnam, 2007; Savelkoul, Hewstone, Scheepers & Stolle, 2015; Stolle, Soroka & Johnston, 2008).

Despite the large body of academic literature that addresses whether cohesion, trust, and prejudice are affected by the ethnic composition of the population, empirical evidence remains largely inconclusive. In England, living amongst people from another ethnicity has been found in some research to alleviate prejudice toward people of that ethnicity (Schmid, Al Ramiah & Hewstone, 2014), and foster social cohesion (Sturgis, Brunton-Smith, Kuha & Jackson, 2014), while, in other research, it has been found to decrease the extent to which people trust one another, undermine social cohesion, and worsen interethnic relations (Cheong et al., 2007; Laurence, 2014).

In an important contribution to this 'cacophony' of results (Van der Meer & Tolsma. 2014), recent studies have sought to go beyond the direct effects of ethnic composition on aggregate levels of cohesion, trust, and prejudice, and started to disentangle and test the underlying theoretical mechanisms. For example, living amongst a higher share of ethnic outgroup members has been shown to result in more positive interethnic contact, and therefore improve social cohesion and outgroup attitudes (Gundelach & Freitag, 2014; Hewstone, 2015; Laurence, 2014; Schmid et al., 2014).

The current study further extends this line of research by including negative, as well as positive, interethnic contact. Although a wealth of research has shown that positive interethnic contact is beneficial to intergroup relations (for reviews see Brown & Hewstone, 2005; Pettigrew & Tropp, 2006), only recently has research examined negative contact. Studies find that negative contact is far less common than positive interethnic contact (Graf, Paolini & Rubin, 2014); that negative and positive contact are not two sides of the same coin, as they are at most moderately correlated (Pettigrew, 2008); and that negative interethnic contact can increase prejudice (Barlow et al., 2012; Hayward, Tropp, Hornsey & Barlow, 2017).

If negative interethnic contact can increase interethnic animosity, and undermine social cohesion and trust, then living in the same neighbourhood as people from a different ethnicity may also worsen intergroup relations and unravel an otherwise close-knit neighbourhood (Laurence & Bentley, 2018). Taking negative contact into account could thus help explain why previous studies have found both positive and negative effects of living amongst people from a different ethnic background on social cohesion, trust, and prejudice alike.

Following recent research we also take the level of ethnic segregation into account (Laurence, 2017). The extent to which outgroup size results in negative and positive interethnic contact, and thus affects cohesion, trust, and prejudice, depends not only on the number of outgroup neighbours (Rothwell, 2012). It could also depend on how they are distributed throughout the neighbourhood. Segregation may limit the extent to which the number of outgroup neighbours actually leads to interethnic contact (Uslaner, 2012). We operationalize ethnic composition as the extent to which people are spatially exposed to ethnic outgroup members, and thus account for both the number and the spatial distribution of ethnic outgroup members in the neighbourhood.

Alternatively, previous research could have yielded inconsistent results because different dependent variables have been used to make inferences about the consequences of the ethnic composition of neighbourhoods for the people residing in them (Gijsberts, Van der Meer & Dagevos, 2012). Scholars have looked at attitudes towards specific ethnic groups, at perceived cohesion in the neighbourhood, and at generalized forms of trust not bound to any specific location or ethnic group (Schmid et al., 2014; Sturgis et al., 2014; Van der Meer & Tolsma, 2014). Yet the ethnic composition of the neighbourhood may not relate to all these concepts in the same way. For instance, ethnic composition effects are more consistently found for neighbourhood-specific indicators of social cohesion than for general indicators, not defined in relation to a specific location (Tolsma & Van der Meer, 2018). We therefore study perceived social cohesion in the neighbourhood specifically, trust in people generally, and both trust in and prejudice towards ethnic outgroup members. Investigating these different dependent variables within one and the same sample allows us to test whether the inconsistencies of previous research on ethnic composition effects can be attributed to the use of different outcome variables.

As of yet we know very little about how ethnic neighbourhood composition relates to negative interethnic contact, whether negative interethnic contact takes place in the same type of neighbourhoods as positive contact, and what its consequences are for social cohesion in the neighbourhood, generalized trust, and prejudice alike. We aim to address these lacunae by answering the following overarching research question: To what extent can negative interethnic contact, in addition to

positive interethnic contact, explain the link between ethnic neighbourhood composition and social cohesion, trust, and prejudice?

In order to answer this question, we use multilevel structural equation modelling, with individuals nested in neighbourhoods, using a unique dataset collected in England in 2017 amongst 1520 White British and 1474 South Asian British participants. Analysing these two samples allows us to investigate to what extent our findings hold true for members of both an ethnic majority and an ethnic minority group. This is important given that the perspective of minority groups is often overlooked in research on ethnic neighbourhood composition (Fieldhouse & Cutts, 2010; Vervoort, Flap & Dagevos, 2011).

Theory

Ethnic neighbourhood composition and positive and negative interethnic contact

One of the consequences of living in a neighbourhood that is also inhabited by people of a different ethnic background is that one at least has the possibility to interact with them. Stated more formally, a neighbourhood populated by more than one ethnic group results in the structural opportunity for interethnic contact to take place (Blau, Blum & Schwartz, 1982; Blau & Schwartz, 1984). In support of this notion, individuals living amongst relatively high proportions of ethnic outgroup members are more likely to intermarry (Kalmijn, 1998), form interethnic friendships (Briggs, 2007; Mouw & Entwisle, 2006), and have more positive interethnic contact in general (Laurence & Bentley, 2018).

Yet the extent to which people are exposed to outgroup members, and thus the opportunity for interethnic contact to occur, does not just depend on how many outgroup members there are in the neighbourhood (Laurence, 2017). It also depends on the level of residential segregation in the neighbourhood (Rothwell, 2012; Uslaner, 2012). On one end of the spectrum, people from different ethnic groups can live in the same subareas within a neighbourhood, while on the other hand they can live completely isolated from one another, in ethnic enclaves. This dimension of residential segregation is typically referred to as exposure, or "the degree of potential contact, or the possibility of interaction, between minority and majority group members within geographic areas" (Massey & Denton, 1988, p.287). Even if a neighbourhood is co-inhabited by a large number of people from a different ethnic background, interethnic contact may still not take place if the majority and minority group members are distributed in such a way that they rarely share a common residential area. In short, what matters besides mere outgroup size is the extent to which people from

different ethnic backgrounds are actually exposed to one another.

Furthermore, the relationship between spatial exposure to outgroup members and the frequency with which people have interethnic contact can be expected to be curvilinear. Sharing a neighbourhood with at least some ethnic outgroup members, compared to not being exposed to them at all, may make quite a big difference for the amount of interethnic contact that people have in a neighbourhood. No exposure could entail never having interethnic contact, whereas some exposure may already result in meeting outgroup members on a monthly basis. Yet a further increase in spatial exposure might increase the frequency with which people have interethnic contact to a lesser degree. It may take quite a lot of additional exposure to outgroup neighbours to result in interethnic contact occurring on, for example, a daily instead of weekly basis. In other words, there could be diminishing returns to spatial exposure. There is some empirical evidence that the relationship between the ethnic composition of the neighbourhood and positive interethnic contact is indeed curvilinear (Briggs, 2007).

However, we do not know whether being more exposed to outgroup members results in more negative interethnic contact too. Research on interethnic contact has suffered from an implicit positivity bias (Pettigrew, 2008). Partially driven by the promise of the 'contact hypothesis' (Allport, 1954) to reduce prejudice, via positive contact, most research has investigated positive interethnic contact, most notably cross-group friendships. This excluded the very plausible possibility that contact can be both positive and negative (Paolini, Harwood & Rubin, 2010). The omission of negative contact has been particularly evident in research on the ethnic composition of neighbourhoods (but see Koopmans & Veit, 2014; Laurence, Schmid & Hewstone, 2018). Consequently, little is known about the type of neighbourhoods where negative interethnic contact is most likely to occur. Yet, *a priori*, we assume that the same spatial opportunity structure argument applies here, as it does in the case of positive interethnic contact. That is, experiencing negative interethnic contact is more likely in neighbourhoods with a relatively high percentage of ethnic outgroup members that do not live spatially segregated from other groups (Laurence & Bentley, 2018; Pettigrew, 2008). Thus, our first set of hypotheses reads as follows.

Hypothesis 1: At the neighbourhood level, spatial exposure to ethnic outgroup members is related to more positive interethnic contact, in a quadratic bell-shaped manner.

Hypothesis 2: At the neighbourhood level, spatial exposure to ethnic outgroup members is related to more negative interethnic contact, in a quadratic bell-shaped manner.

Positive and negative interethnic contact and prejudice, trust, and cohesion

Positive interethnic contact is most commonly used to explain outgroup attitudes. By now a vast body of empirical research, inspired by the seminal work of Allport (1954), supports the notion that interethnic contact reduces prejudice and increases outgroup trust, typically because it alleviates feelings of anxiety and results in feelings of empathy (for reviews see Brown & Hewstone, 2005; Hodson & Hewstone, 2013; Pettigrew & Tropp 2006; Pettigrew & Tropp 2011).

More generally it can be said that people learn to trust others based on past experiences. The decision to put your trust in someone is informed by signs about the trustworthiness of the trustee, including experiences in the past that make you believe someone will not abuse your trust (Buskens & Raub, 2002; Gambetta & Hamill, 2005). The influence of such past experiences may also spill over to more generalized forms of trust. That is, your encounters with one specific person may influence the extent to which you trust the ethnic group to which this person belongs, as well as how trusting you are of people in general (Dinesen, & Sønderskov, 2012; Freitag & Traunmüller 2009; Glanville & Paxton 2007).

Besides trust being a form of "social glue" that allows society to function (Uslaner, 2011), it is also put forward as being an intricate part of social cohesion (Lockwood, 1999). Yet most often social cohesion is defined with even broader brushstrokes, and also encompasses a sense of community solidarity and the willingness to help one another (Chan & Chan, 2006). The extent to which someone perceives their neighbourhood to be cohesive is likely to be informed by the experiences they have with other people, like receiving help or having pleasant encounters. We therefore expect that perceived social cohesion, like general trust, will be a function of past experiences, including contact with people of another ethnicity. These arguments about the consequences of positive interethnic contact are summarized by the third hypothesis.

Hypothesis 3: At the individual level, positive interethnic contact is (a) negatively associated with prejudice, and positively associated with (b) outgroup trust, (c) general trust, and (d) social cohesion.

Most of the recent studies on negative interethnic contact are concerned with its consequences. By now, there is burgeoning empirical evidence to suggest that negative interethnic contact can, not surprisingly, increase prejudice and reduce outgroup trust, in particular because it results in feelings of anxiety and anger (Hayward et al., 2017; Ten Berge, Lancee & Jaspers, 2017). Further, negative interethnic

contact, like its positive counterpart, can undermine trust in neighbours irrespective of their ethnicity (Koopmans & Veit, 2014). This suggests that the experiential perspective on the formation of trust also applies to negative experiences, as they may signal that people cannot be trusted. Unpleasant interactions can also inform expectations for the future, which may again generalize from one specific person to an ethnic outgroup and people in general. Similarly, having more negative encounters can also give way to the perception that people do not live together cohesively and are not willing to help one another. The arguments led us to hypothesis four:

Hypothesis 4: At the individual level, negative interethnic contact is (a) associated positively with prejudice, and negatively with (b) outgroup trust, (c) general trust, and (d) social cohesion.

All four hypotheses are summarized and presented in the path diagram depicted in Figure 3.1.

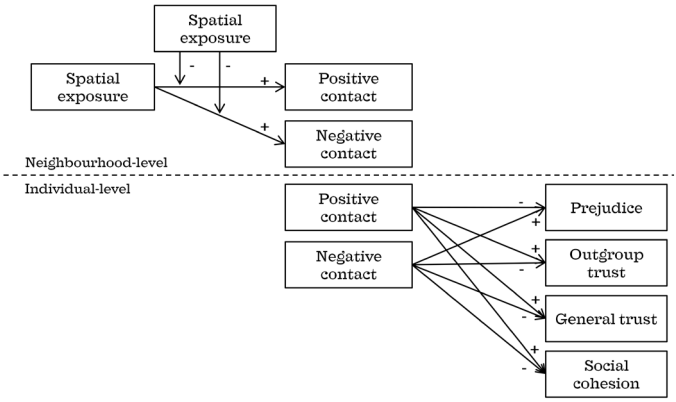

Figure 3.1. Path diagram depicting the main hypotheses. Note: for the purpose of readability, the control variables are not shown.

Methods

Data

This study makes use of the Positive-Negative Asymmetry of Contact (PNAC) dataset (Hewstone, Jaspers, Christ, Fell, Schäfer & Kros, 2017). IPSOS collected the data in England from September to December, 2017, by making use of face-to-face surveys that allowed for the self-completion of more sensitive questions. Neighbourhoods and respondents were sampled in two consecutive steps. First, the neighbourhoods were selected based on a stratified random probability, with the strata being defined by ethnic diversity and economic deprivation[11]. Second, within the selected neighbourhoods a quota sampling design was used. The quota were based on residents' gender, age, employment status, and ethnicity, and they were set to reflect to profile of the respondents living in each neighbourhood. In the case of ethnicity, the target quotas were set to systematically over-sample Asian participants and under-sample White participants. This was done to obtain approximately equal numbers of ethnic majority and minority respondents. It must finally be noted that our data consists of a sample of neighbourhoods that is relatively diverse, compared to England as a whole. On average, 30 percent of the inhabitants of the neighbourhoods included in our data are South Asian, yet South Asian people only make up 7.5% of the total national population (ONS, 2011). The potential implications of this sampling design are addressed in the discussion.

Initially, a total of 1564 White British people and 1502 South Asian British people participated in the survey. Of this sample, 44 participants were excluded because we did not know where they lived. After this selection, the final sample consists of 2994 participants: 1520 White British and 1474 South Asian people. The latter consisted of people of Pakistani (46.3%), Indian (38.5%), and Bangladeshi (15.1%) heritage. Throughout the remainder of the chapter the terms White and White British are used interchangeably, as are Asian and South Asian. Of all participants, 48.9% were female, and, on average, they were 45.4 years old (SD=18.9, minimum=16, maximum=97). The White respondents were spread over a total of 203 neighbourhoods (average cluster size = 7.5), while the Asian participants were spread over 206 neighbourhoods (average cluster size = 7.2).

Neighbourhoods are operationalized as middle layer super output areas (MSOAs), which are statistical areas defined by the Office for National Statistics (ONS) with a minimum population of 5000 residents and an average population of 7200. There is an ongoing debate about the geographical level at which to measure neighbourhoods (Kaufman & Harris, 2015). We opt to focus on MSOAs for several reasons. First, MSOAs have been argued to closely align with what people cognitively conceive of as their neighbourhood (Green & Farmer, 2003; Laurence & Bentley,

2016). Second, MSOAs are the smallest geographical unit at which the spatial index of exposure can be measured in our data. Third, MSOAs are commonly used to operationalize neighbourhoods in other studies on ethnic diversity in England (Bécares et al., 2011; Laurence, 2011; Schmid et al., 2014; Sturgis et al., 2014). Using the same measure as these previous studies makes our research more comparable with them, and thereby enables us to make a better contribution to the scientific debate on the consequences of ethnic neighbourhood composition for cohesion, trust, and prejudice.

Measures

Dependent variables

Prejudice was measured with two questions for each ethnic group. White participants were asked to what extent they generally felt that South Asian people are warm and competent, while Asian participants were asked the same two questions about White people[12]. Answer categories ranged from 1 'very cold' to 5 'very warm', and from 1 'very incompetent' to 5 'very competent' respectively. Outgroup warmth and outgroup competence are used as separate variables, following social psychological research that argues that the former measures dislike and the latter measures disrespect (Fiske, Xu, Cuddy, Glick, 1999).

For *outgroup trust*, White respondents were asked to what extent they thought South Asian people could be trusted, measured on a scale from 1 'none of them can be trusted' to 5 'all of them can be trusted'. Asian respondents were asked to what extent they thought White people could be trusted.

For *general trust*, respondents were asked to indicate to what extent they thought people in general can be trusted. General trust was measured using the same scale as outgroup trust.

Cohesion was measured by asking respondents to indicate the extent to which they agreed with two items: 'People around here are willing to help their neighbours' and 'This is a close-knit neighbourhood'. Answers could be given on 5-point Likert scales, ranging from 1 'disagree strongly' to 5 'agree strongly'. The two items are correlated for both the White (Spearman-Brown $r = .633$) and the Asian (Spearman-Brown $r = .655$) sample.

Mediator variables

For White people, *positive interethnic contact* was measured as ´In general, how often do you have positive contact with South Asian people´. Possible answers ranged from 1 'Never' to 6 'Every day'. For Asian people, the same question was asked about their positive contact with White people. *Negative interethnic contact*

was measured with the same two questions, one for each ethnic group, but referring to negative contact.

Independent variable

The *index of spatial exposure* was used as the main independent variable, and was calculated in line with the definitions and equations provided by Reardon and O'Sullivan (2004, p. 137)[13].

Crucially, this measure not only captures the relative sizes of White and South Asian people in the neighbourhood, but also the extent to which they live segregated from one another. It also helps solve what is known as the "checkerboard problem" (White, 1983), which arises when using the more traditional *aspatial* index of exposure because it does not take into account the racial composition of nearby subunits. To illustrate, the two hypothetical neighbourhoods depicted in Figure 3.2 each consist of a hundred subunits that are either exclusively inhabited by White people (the white squares) or by Asian people (the black squares). In the first neighbourhood (Panel A), these homogenous subunits are distributed evenly across the neighbourhood. In the second neighbourhood (Panel B), all the White subunits are moved to one side and the Asian subunits are moved to the other. Ideally, the second neighbourhood should score lower on the index of exposure, as the subunits are not only exclusively White (or Asian) themselves, but they are also surrounded by subunits that are equally homogenous. However, because in both hypothetical neighbourhoods the racial composition of the individual subunits is the same, the two neighbourhoods would receive the same score on an aspatial measure of exposure. Essentially, the spatial index of exposure solves this problem by adding weights proportional to the distance between the centroid of the neighbourhood and the centroid of the subunits, giving greater importance to the nearest subunits (Reardon & O'Sullivan, 2004).

Using LSOAs (lower layer super output areas) as subunits nested within the previously defined MSOAs as neighbourhoods, we calculated two indices, one for White British people's exposure to South Asians and one for South Asian people's exposure to White British people[14]. For the number of South Asians, we summed the residents of Pakistani, Indian, and Bangladeshi heritage, in line with our sample of Asian people and with the phrasing of the survey items. The two indices of spatial exposure vary between 0 and 1, and can be interpreted as the probability that a randomly drawn White (or Asian) person lives in an area with an Asian (or White) person.

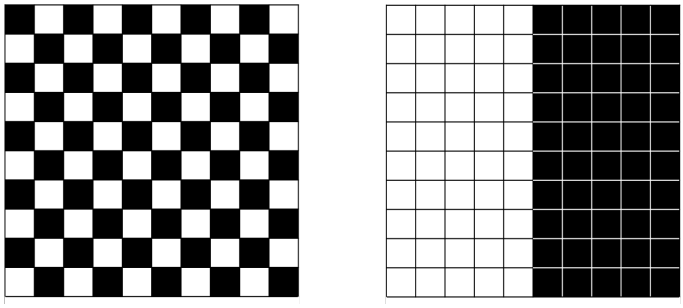

Figure 3.2. An illustration of the checkerboard problem.

Control variables

At the neighbourhood-level five variables were controlled for. First, *deprivation* was measured using the Index of Multiple Deprivation, which includes seven dimensions of socioeconomic disadvantage (income, employment, health and disability, skills and training, barriers to housing and services, living environment, and crime). We control for this variable, as previous research has shown that deprived neighbourhoods tend to be less socially cohesive (Abascal & Baldassari, 2015). Second, *residential stability* was measured as the percentage of people who lived in the same neighbourhood one year prior. Neighbourhoods with a lot of residential turnover have been shown to be less cohesive (Sampson, Raudenbush & Earls, 1997). Third, *age profile* was measured as the percentage of residents that were over 65 years of age. Neighbourhoods with a relatively old population may score lower on trust (Sturgis, Brunton-Smith, Read, & Allum, 2010). Fourth, *population density* was measured as the number of people per hectare, and served as an indicator of urbanization. Fifth, *Government Office Region*, was included to account for possible unobserved differences between the nine larger regions of England: South East, London, North West, East of England, West Midlands, South West, Yorkshire and the Humber, East Midlands, North East.

All neighbourhood-level control variables were included as additional independent variables on the neighbourhood-level, analogous to the way the spatial index of exposure is included (see Figure 3.1).

Ethnic threat perceptions were also controlled for. Based on conflict theory it can be expected that a sizeable ethnic outgroup in the neighbourhood may signify a political and economic threat (Blalock, 1967; Dixon, 2006); and people who feel threatened by an ethnic outgroup are typically more prejudiced toward and distrusting of ethnic outgroup members (Schlueter & Scheepers, 2010; Sidanius & Pratto, 1999). Ethnic threat is operationalized with 6 items, all measured on 5-point

Likert scales, ranging from 1 ´strongly disagree´ to 5 ´strongly agree´. These items are taken together and used as a latent variable (See Table A3.1 in the Appendices for exact wording of the items and the measurement statistics). Ethnic threat perception was included as an additional mediator variable, next to positive and negative interethnic contact.

Five individual-level control variables were included in relation to individuals' positive and negative interethnic contact, ethnic threat perceptions, prejudice, outgroup trust, general trust, and perceived cohesion. First, *educational attainment* was measured as the highest level of education that participants had completed, and ranged from people who left school with no qualifications (1) to people who completed at least a Master's degree (6). Second, in order to measure participants' *employment status* they were asked to pick one of ten categories: other, housewife/husband, disabled, student, retired, unemployed and not looking for a job, unemployed but looking for a job, self-employed, employed part-time, and employed full-time[15]. Third, *neighbourhood residency* was measured by asking respondents how long they have lived in their neighbourhood. Answers could be given on a 5-point scale, from 1 'All my life' to 5 'Less than a year'. The variable was reverse coded so a higher score indicated a longer neighbourhood residency. The fourth and fifth individual-level control variables were *gender* (female=1) and *age* (in absolute years).

Analysis

Several variables are rather skewed (see descriptive results), and the mixture of normally and non-normally distributed variables is taken into account by using the estimator MLR (Bryant & Satorra, 2012). Furthermore, the survey included missingness by design, which enabled us to measure more items. Ethnic threat, perceived cohesion, outgroup trust, and general trust were only measured in half of the sample. Simulation studies show that missing values, also when planned as part of the survey design, are best dealt with by estimating them using the full information maximum likelihood method (Asendorpf, Van de Schoot, Denissen & Hutteman, 2014; Graham, Hofer & Mackinnon, 1996). FIML uses all available raw data to estimate model parameters and standard errors for the missing values, and generally produces unbiased results (Enders, 2001).

To investigate whether explaining cohesion, trust, and prejudice requires multilevel modelling, we assessed intraclass correlations (ICCs), and model fit comparisons for these variables (see Table A3.2 in the Appendices). Multilevel modelling was deemed necessary when the model with a random intercept fit the data better than the model with a fixed intercept (Hox, Maas & Brinkhuis, 2005). For White participants, this was not the case for outgroup trust, warmth, and competence, while

for Asians this was not the case for general trust, and outgroup trust. As a consequence, these variables are only modelled on the within-level. For the other variables, the hierarchical nature of the data, with individuals nested in neighbourhoods, is taken into account by employing multilevel modelling. Essentially, multilevel models split the variables into a within and a between level variance component. The latter can be seen as a latent mean for the respondents who live in the same neighbourhood, capturing for instance how much positive and negative interethnic contact they have on average. The within level component captures individual respondents' scores. We further grandmean centered the predictors in order to accurately disaggregate the within and between-level effects (Raudenbusch & Bryk, 2002). All analyses are performed on the White and Asian British samples separately.

Results

Descriptive results

Table 3.1 summarizes the descriptive statistics, and Tables 3.2 and 3.3 show the correlations between the main variables, for the White and Asian samples respectively.

Table 3.1 also reports one-sample t-tests that test whether the group's average scores on the main variables are significantly different from the midpoints of their respective scales. Based on these tests, it can be concluded that, on average, both White and Asian people perceive each other as relatively warm and competent, feel relatively unthreatened by each other, think of their neighbourhoods as relatively cohesive, and are relatively trusting of people in general, as well as of ethnic outgroup members.

In line with previous research (Graf et al., 2014), positive interethnic contact is far more likely than negative interethnic contact, both for Whites and for Asians. The rounded means for both groups indicate that, on average, people have negative contact only 'a few times a year, or less', and positive contact 'several times a week'.

Furthermore, on the individual level, positive and negative interethnic contact are not correlated, suggesting that people who interact positively with people from another ethnicity more frequently, do not also interact negatively with them more often. Additionally, in contrast to what many previous researchers assumed, the absence of a correlation also suggests that negative and positive interethnic contact are not polar opposites (Pettigrew, 2008).

Similarly, on the neighbourhood-level, positive and negative interethnic contact are not correlated, indicating that they do not occur in the same type of neighbourhoods.

Table 3.1. Descriptive statistics for White and Asian participants.

	White				Asian			
	N	M	SD	Range	N	M	SD	Range
Individual-level								
General trust	675	3.28[h]	0.74	1-5	640	3.28[h]	0.75	1-5
Outgroup trust	673	3.24[h]	0.80	1-5	637	3.27[h]	0.74	1-5
Social cohesion	759	3.53[h]	0.92	1-5	747	3.83[h]	0.83	1-5
Outgroup warmth	1298	3.61[h]	0.86	1-5	1290	3.75[h]	0.84	1-5
Outgroup competence	1337	3.62[h]	0.79	1-5	1237	3.77[h]	0.78	1-5
Ethnic threat	689	2.79[l]	0.94	1-5	655	2.88[l]	0.77	1-5
Positive intereth-nic contact	1506	4.83[h]	1.27	1-6	1465	5.23[h]	1.05	1-6
Negative intereth-nic contact	1499	1.82[l]	1.15	1-6	1453	1.81[l]	0.99	1-6
Educational attainment	1506	2.89	1.63	1-6	1444	2.49	1.58	1-6
Employment status	1519	7.16	2.34	1-10	1471	7.40	2.53	1-10
Neighbourhood residency	1515	3.56	1.15	1-5	1469	3.36	1.18	1-5
Neighbour-hood-level								
% South Asian	203	30.43	14.23	5-74				
Exposure Whites to Asians	203	0.58	0.16	0.1-0.9				
% White					206	52.16	17.30	10-87
Exposure Asians to Whites					206	0.35	0.16	0.1-0.8
Deprivation	203	32.17	16.14	1-82	206	31.83	16.01	2-82
Population density	203	56.81	39.39	6-208	206	56.97	39.88	6-208
Age profile	203	11.87	4.20	5-27	206	11.89	4.26	5-27
Residential stability	203	86.85	6.05	49-94	206	86.77	6.05	50-94

[h] indicates that the mean is higher than the midpoint of the scale.

[l] indicates that the mean is lower than the midpoint of the scale.

Explanatory results

Tables 3.4 and 3.5 show the indirect, quadratic effects of the spatial index of exposure on cohesion, general trust, outgroup trust, and prejudice, via positive and negative interethnic contact, for White and Asian British people respectively[16].

For White British people[14], the spatial exposure to Asian people has a quadratic effect on positive interethnic contact, as can be seen in Figure 3.3. The frequency with which White people have positive contact with Asian people increases with the probability of being exposed to Asian residents in the neighbourhood, until this probability reaches about 0.5.

Table 3.2. White British sample. Correlations between the main variables. Individual-level is shown below the diagonal, neighbourhood-level is shown above the diagonal.

		1.	2.	3.	4.	5.	6.	7.	8.	9.
1.	General trust	/		-.204			-.383	.298	-.363	-.117
2.	Outgroup trust	.768***	/							
3.	Cohesion	.248***	.244***	/			.382	-.137	-.084	.117
4.	Outgroup warmth	.302***	.405***	.285***	/					
5.	Outgroup competence	.296***	.382***	.120**	.537***	/				
6.	Ethnic threat	-.303***	-.419***	-.177**	-.398***	-.319***	/	-.325	.154	-.022
7.	Positive interethnic contact	.132***	.202***	.233***	.357***	.230***	-.268***	/	.270	-.106
8.	Negative interethnic contact	-.198***	-.313***	-.140**	-.280***	-.193***	.342***	-.059	/	-.036
9.	Exposure Whites to Asians									/

**p<.01, ***p<.001

Table 3.3. Asian British sample. Correlations between the main variables. Individual-level is shown below the diagonal, neighbourhood-level is shown above the diagonal.

		1.	2.	3.	4.	5.	6.	7.	8.	9.
1.	General trust	/								
2.	Outgroup trust	.782***	/							
3.	Cohesion	.173***	.193***	/	.051	.267	-.286	.208	-.274	.016
4.	Outgroup warmth	.262***	.253***	.184***	/	.399	-.804	.709**	-.247	-.210
5.	Outgroup competence	.290***	.347***	.231***	.481***	/	-.672**	.729***	.329	-.089
6.	Ethnic threat	-.325***	-.386***	-.127*	-.260***	-.295***	/	-.658**	.331	.120
7.	Positive interethnic contact	.091*	.123**	.116**	.166***	.104**	-.106*	/	.286	-.172
8.	Negative interethnic contact	-.096*	-.156**	-.099*	-.167***	-.098**	.198***	.020	/	-.043
9.	Exposure Asians to Whites									/

*p<.05, **p<.01, ***p<.001

Further, for neither White nor Asian British people does the index of spatial exposure result in more negative interethnic contact. These results fail to lend support to hypothesis 2, for either ethnic group.

In sum, we only find one effect of spatial exposure to ethnic outgroup members in the neighbourhood, namely on the frequency with which White British people have positive contact with Asian British people.

Subsequently, White people who report having more positive interethnic contact, also score higher on outgroup warmth, outgroup competence, outgroup trust, general trust and social cohesion. While we do not find that ethnic neighbourhood composition affects White people's frequency of negative interethnic contact with Asians, we do find that White people who have more negative interethnic contact also score relatively low on outgroup warmth, outgroup competence, social cohesion, outgroup trust, and general trust.

Similarly, Asian individuals who report having more positive interethnic contact with White British people score higher on perceived cohesion, outgroup warmth, outgroup competence, and outgroup trust. Conversely, Asian people who have more negative interethnic contact score lower on outgroup warmth, outgroup competence, general trust, outgroup trust, and perceived cohesion. We thus find support for hypotheses 3 and 4 for both ethnic groups.

Finally, we used model constraint in Mplus (Muthén & Muthén, 2018) to estimate cross-level indirect effects in order to test whether White people's positive interethnic contact mediated the effect of the spatial exposure to Asian people in the neighbourhood on prejudice, outgroup trust, general trust, and perceived cohesion. Specifically, we tested for so-called 2-1-1 multilevel mediation pathways (Preacher, Zyphur & Zhang, 2010). In line with the quadratic effect depicted in Figure 3.3, the positive indirect effects of the spatial exposure of White people to Asian people on prejudice, trust, and cohesion, become weaker with further increases in exposure, signifying diminishing returns. Yet even at 2 standard deviations above the mean, the maximum score on the index of exposure of Whites to Asians in our data, there are positive, indirect effects of spatial exposure to Asians, via positive interethnic contact, on White people's outgroup trust (b=.193, p<.10), outgroup warmth (b=.457, p<.05), outgroup competence (b=.244, p<.05), general trust (b=.155, p<.10), and social cohesion (b=.388, p<.05). All in all, these results suggest that it is because the spatial exposure of White people to Asian people in the neighbourhood results in more positive interethnic contact that it subsequently affects White people's individual levels of outgroup warmth and competence, outgroup trust, general trust and perceived cohesion.

Figure 3.3. White British. Quadratic effect of spatial exposure of Whites to Asians on positive interethnic contact. The dotted, vertical lines represent the minimum and maximum exposure probabilities in our data, 0.1 and 0.9 respectively. All other variables are held constant at their grand mean.

Additional analyses and robustness checks

Given that we did not find support for the seemingly intuitive relationship between spatial exposure to ethnic outgroup members and negative interethnic contact, we ran several additional analyses to explore the robustness of this null finding. Specifically, instead of focusing on the index of spatial exposure, we tested whether we would arrive at a different conclusion when looking at the more commonly used percentage of outgroup members in the neighbourhood (see Tables A3.3 and A3.4 in the Appendices), or the absolute number of outgroup members in the neighbourhood (see Tables A3.5 and A3.6 in the Appendices). The results are remarkably similar. For neither White nor Asian British people is the presence of outgroup neighbours related to negative interethnic contact. Yet for White people, we again find a bell-shaped quadratic effect on positive interethnic contact of both the percentage and the absolute number of Asian people in the neighbourhood. Further, we tested whether a different picture would emerge when looking at the ethnic composition of a larger geographical unit than neighbourhoods, namely local authority districts (see Table A3.8 in the Appendices). In line with previous research that compared different geographical units, we no longer find an effect of exposure to ethnic outgroup members on positive interethnic contact when focusing on larger spatial units (Dinesen & Sønderskov, 2015). We also do not find that spatial exposure to ethnic outgroup members at the district level is related to more negative interethnic contact, either for White or Asian British people. All in all, the null finding regarding negative interethnic contact appears to be quite robust.

Table 3.4. White British sample. Results of the multilevel structural equation models testing the effects of the spatial exposure to ethnic outgroup members on social cohesion, trust, and prejudice, via positive and negative interethnic contact.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	General trust	Outgroup warmth	Outgroup competence	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
Exposure Whites to Asians	3.330(1.462)*	.562(1.381)	-1.074(1.575)	-1.921(1.818)	1.936(1.345)			
Exposure squared	-3.265(1.327)*	-.841(1.217)	1.063(1.462)	2.042(1.654)	-1.762(1.188)			
Deprivation	-.002(.003)	.003(.003)	-.001(.004)	-.003(.004)	-.002(.002)			
Population density	.001(.001)	-.002(.001)	-.001(.004)	.000(.002)	.001(.001)			
Residential stability	-.004(.007)	.009(.006)	.009(.013)	.007(.008)	.004(.005)			
Age profile	-.006(.007)	.018(.014)	.006(.074)	-.013(.013)	.003(.008)			
Government Office Region	.006(.021)	.003(.021)	.000(.033)	-.021(.024)	-.018(.012)			
Positive interethnic contact				-.013(.362)	.049(.145)			
Negative interethnic contact				-.036(.253)	-.091(.105)			
Individual-level								
Positive interethnic contact				.171(.028)***	.067(.025)**	.203(.023)***	.109(.023)***	.085(.026)**
Negative interethnic contact				-.091(.038)*	-.129(.030)***	-.124(.024)***	-.062(.025)*	-.187(.031)***
Ethnic threat						-.215(.045)***	-.197(.040)***	-.122(.028)***
Female	.053(.061)	-.186(.057)**	-.036(.077)	.047(.065)	.005(.059)	.130(.039)**	.061(.041)	.067(.062)
Age	-.006(.002)**	-.007(.002)***	.008(.003)*	.004(.002)*	.003(.002)	.002(.002)	-.001(.001)	.002(.002)
Educational attainment	.095(.020)***	-.004(.017)	-.259(.028)***	.003(.022)	.044(.018)*	-.031(.015)*	-.052(.017)**	.038(.018)*
Employment status	.065(.017)***	.006(.016)	.000(.019)	.000(.016)	.005(.011)	.009(.011)	-.001(.010)	.009(.012)
Neighbourhood residency	.085(.031)**	.014(.031)	-.006(.038)	.001(.031)	.001(.026)	-.008(.022)	.031(.020)	.004(.027)

*p<.05, **p<.01, ***p<.001. Note: results are based on 1520 White British individuals nested in 203 neighbourhoods.

Table 3.5. Asian British sample. Results of the multilevel structural equation models testing the effects of the spatial exposure to ethnic outgroup members on social cohesion, trust, and prejudice, via positive and negative intereth-nic contact. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	Outgroup warmth	Outgroup competence	General trust	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
Exposure Asians to Whites	-.561(.920)	-.599(.767)	-.227(1.207)	-1.175(1.408)	-.954(.843)	-.056(.019)		
Exposure squared	.672(1.066)	1.033(.896)	.410(1.432)	2.169(1.729)	.987(1.044)	.019(.956)		
Deprivation	-.005(.003)	-.001(.003	-.003(.003)	-.004(.004)	.004(.003)	.000(.003)		
Population density	-.002(.001)	-.002(.001)*	.001(.001)	-.003(.002)	.000(.001)	.000(.001)		
Residential stability	.002(.009)	.000(.005)	.002(.007)	-.003(.010)	.003(.005)	-.003(.009)		
Age profile	-.001(.013)	.003(.010)	.000(.012)	.012(.015)	.003(.009)	-.009(.009)		
Government Office Region	-.039(.021)	-.002(.015)	.009(.023)	-.026(.029)	.011(.017)	.009(.019)		
Positive intereth-nic contact				.146(.224)	.395(.270)	.039(.290)		
Negative intereth-nic contact				-.988(.760)	-.385(.548)	.654(.290)		
Ethnic threat					-.145(.356)	-.632(.328)		
Individual-level								
Positive intereth-nic contact				.096(.032)**	.121(.025)***	.059(.026)*	.048(.035)	.071(.032)*
Negative intereth-nic contact				-.071(.037)*	-.111(.026)***	-.049(.024)*	-.092(.035)**	-.114(.032)***
Ethnic threat					-.170(.051)**	-.178(.048)***		-.116(.032)**
Female	-.112(.053)*	-.205(.049)***	-.082(.080)	.126(.067)	.144(.046)**	-.005(.042)	-.064(.052)	-.093(.054)
Age	-.012(.002)***	-.008(.002)***	.000(.003)	.005(.002)*	.001(.002)	.003(.002)	-.002(.002)	.000(.002)
Educational attainment	.036(.020)	.014(.019)	-.056(.025)*	-.011(.022)	-.029(.017)	.018(.014)	.041(.021)*	.056(.021)**
Employment status	.062(.010)***	.032(.012)**	.012(.016)	.011(.012)	.025(.008)**	.019(.008)*	.001(.011)	-.013(.011)
Neighbourhood residency	.114(.023)***	.034(.022)	.007(.035)	.039(.026)	.062(.019)**	.029(.018)	.033(.027)	.054(.025)*

Control variables

With regards to the neighbourhood-level control variables it can generally be said that they do not affect any of our main variables, for either White or Asian people[17]. This holds true for deprivation, residential stability, age profile (%>65), and the larger governmental region. We only find that for Asian people, but not for White people, negative interethnic contact is less likely in more densely populated neighbourhoods. The null findings do not appear to be artefacts of multicollinearity, as the correlations between the neighbourhood-level variables are well within acceptable range (see Table A3.8 in the Appendices).

Further, we do not find that spatial exposure to ethnic outgroup members in the neighbourhood affects how threatened either White or Asian British people feel by the ethnic outgroup, in contrast to conflict theory. We concur that the actual number of ethnic outgroup members does not seem to matter for ethnic threat perceptions (Hjerm, 2007).

That said, White participants who feel more threatened by Asian people score lower on outgroup warmth, outgroup competence, and outgroup trust; and Asian participants who feel more threatened by White people score lower on outgroup warmth, outgroup competence, and outgroup trust. Both these effects are consistent with threat theory (Schlueter & Scheepers, 2010).

With regards to the individual-level control variables, it is worth noting that older White and Asian people perceive their neighbourhood to be more cohesive, while White and Asian women appear to be less prejudiced than men. Higher educated Whites and Asians are more trusting of other people in general and ethnic outgroup members specifically. Higher educated White people also score lower on outgroup warmth and outgroup competence; while the opposite holds true for Asian people who are employed versus those who are unemployed. How long people have lived in their neighbourhood appears to have no bearing on how cohesive they perceive it to be.

Discussion

Almost all western societies have become considerably more ethnically diverse over the past few decades (Alesina & Glaeser, 2004; Castles & Miller, 2003). In that sense, England is more of a case in point than an exception. In many western societies, there are ongoing discussions about how best to manage increasingly diverse populations. Some of the more recurrent concerns are that ethnic diversity may result in animosity between ethnic groups, that it may make societies less cohesive, and that living in ethnically diverse societies may make people less trusting. However, empirical research fails to consistently support (or refute) these concerns. By focussing on

negative interethnic contact, in combination with positive interethnic contact, we have a tested a possible explanation for the inconsistent results on the nexus between ethnic diversity and cohesion and trust (Van der Meer & Tolsma, 2014). Both the positive and negative effects of living in neighbourhoods with ethnic outgroup members could be explained if it results in both positive and negative interethnic contact, and if both types of contact in turn influence people's levels of prejudice, trust, and cohesion.

First of all, we do not find evidence to support the claim that being exposed to ethnic outgroup members in the neighbourhood directly increases prejudice or undermines social cohesion and trust, either for White or Asian British people.

In fact, we only find one effect of living in a neighbourhood with people from a different ethnicity: for White British people spatial exposure to South Asian people in the neighbourhood is related to more frequent positive interethnic contact, but with diminishing returns.

Further, spatial exposure to ethnic outgroup neighbours is not related to the frequency with which Asian people have positive interethnic contact with White people; nor to the frequency with which either Asian or White people have negative interethnic contact with one another. Thus Hypothesis 1 is supported for White but not Asian British people; and Hypothesis 2 is refuted for both ethnic groups.

One reason that we do not find that Asian British people have more interethnic contact if they live in a neighbourhood where they are exposed to relatively many White British people could be that most minority group members have a relatively high degree of contact with majority group members. Thus most Asian British people interact with White people frequently, irrespective of the neighbourhood in which they live, simply because of the differences in group size and opportunities for contact (Dinesen & Sønderskov, 2015). This is also apparent in our data, as Asian British people have, on average, more positive interethnic contact than White British people (see Table 3.1). However, there is no difference between the two ethnic groups in the frequency with which they have negative interethnic contact.

Furthermore, since a relationship between the spatial exposure to ethnic outgroup members in the neighbourhood and negative interethnic contact is also absent for White British people, there appear to be important differences in how spatial exposure relates to positive compared with negative contact. The robust null effect on negative interethnic contact, for both White and Asian British people, could suggest that the negative interethnic contact that people have does not take place in their neighbourhood, and is therefore not a function of the spatial exposure to ethnic outgroup members in the neighbourhood. It might therefore be a fruitful endeavour to consider other contexts in which negative contact may take place, such as the workplace (Fox & Stallworth, 2005).

Future studies could also consider whether the differences between positive and negative interethnic contact arise because being exposed to ethnic outgroup neighbours might imply different things for different people. For some, it might be an opportunity to build interethnic friendships. But for others, perhaps because they are more authoritarian (Kauff, Asbrock, Thorner, & Wagner, 2013; Van Assche, Roets, Dhont & Van Hiel, 2014), it may result in more negative encounters. Further, sharing a neighbourhood with ethnic outgroup members may only drive down cohesion and trust for those people who have negative interethnic contact. Stated in more statistical terms, these ideas would entail testing cross-level interactions between neighbourhood-level exposure and individual-level predictors, such as negative contact or personality traits like right-wing authoritarianism.

Another null finding requires extra attention. We do not find that sharing a neighbourhood with ethnic outgroup members erodes cohesion that is informal and spatially bound to the neighbourhood. Previous research suggests that if the presence of outgroup members systematically has an adverse effect on a specific type of cohesion then it is this 'intraneighbourhood' type (Van der Meer & Tolsma, 2014). Why do we not replicate this finding? One potential answer lies in the fact that we grouped different South Asian people together. This was done to make sure that our operationalization of spatial exposure would align with the measures of interethnic contact that are at the heart of this chapter. Yet there is empirical evidence to suggest that White British people think more positively of people of Indian heritage than of people of Pakistani heritage (YouGov, 2018). We therefore ran additional analyses where we regressed cohesion and general trust on the spatial exposure of White people to people of Indian, Pakistani, and Bangladeshi heritage separately (see Table A3.9 in the Appendices). We find that White people who share a neighbourhood with people of Indian heritage actually perceive their neighbourhood to be more cohesive, while the opposite holds true for White people who are exposed to neighbours of Pakistani heritage. Further, our results suggest that this negative effect is U-shaped and levels off with further increases in exposure to Pakistani-heritage people. These effects could be due to familiarization and interethnic contact processes. Unfortunately, we could not test these mechanisms with the current data as it contains no items about the contact people have with specific subgroups of Asians. Interpretations of these effects are therefore necessarily tentative. Yet these additional findings underline the suggestion to look at more fine-grained classifications of ethnic groups in future research on neighbourhood composition (Van der Meer & Tolsma, 2014).

A third null finding that is rather surprising is that neighbourhood deprivation does not negatively affect cohesion or trust. Perhaps this could be explained by considering that the neighbourhoods included in our data score relatively high

on deprivation. Compared to other research on neighbourhoods in England (Schmid et al., 2014), our range of IMD indeed seems to be skewed towards more deprived neighbourhoods.

It is further worth emphasizing that some of the dependent variables did not vary significantly between neighbourhoods. This made testing some of the neighbourhood-level effects impossible, and complicated comparisons between ethnic groups, as the variables that did vary sufficiently across neighbourhoods were not the same for the two ethnic groups. The lack of variation could also indicate that the neighbourhood in which people live is not as important for how cohesive they perceive their neighbourhood to be, or how trusting, and prejudiced they are, as is sometimes assumed. Generally speaking, the strongest and most robust effects in our study relate to differences between individuals, independent of where they live.

This can also be seen in the consistent support for Hypotheses 3 and 4, for both ethnic groups. In support of contact theory, White and Asian British people who have more positive interethnic contact generally perceive their neighbourhood to be more cohesive, are more trusting of others, and are less prejudiced. The opposite holds true for White and Asian people who have more negative interethnic contact. Our results extend the recent but burgeoning literature on negative interethnic contact (Barlow et al., 2012; Graf et al., 2014; Hayward et al., 2017) by showing that the influence of negative contact is not limited to people's attitudes towards ethnic outgroup members, but also generalizes to other people. We show that negative interethnic contact also relates to how trusting people are in general, and how cohesive they perceive their neighbourhood to be.

Notwithstanding the strengths of the current study, we acknowledge some limitations of our study, namely the non-representative sample of neighbourhoods, selection effects, reverse causality between contact and prejudice; and the subjective nature of valence assessments. We now comment on each of these issues.

First, and perhaps most importantly, our data consists of a sample of neighbourhoods with a relatively high number of South Asian residents. A consequence of this is that our analyses are biased towards comparing slightly diverse neighbourhoods with even more diverse neighbourhoods.

Relatedly, it has been argued that it is especially the initial transition from a homogenous to a slightly more diverse neighbourhood that breeds interethnic conflict (Green, Strolovitch & Wong, 1998), and undermines cohesion (Putnam, 2007). We sought to explore this possibility by utilizing the fact that some of the sampled neighbourhoods were inhabited by fewer South Asian people ten years prior to the moment of data collection. Additional analyses show that neighbourhoods that witnessed an increase from below to above 10 percent South Asian residents scored higher than other neighbourhoods in terms of ethnic threat perceptions

(Table A3.10 in the Appendices). This is congruent with previous research on the effects of sudden increases in ethnic outgroup size (Coenders & Scheepers, 2008). Yet these neighbourhoods did not differ from the others in terms of positive and negative interethnic contact, prejudice, trust, or cohesion. Still, caution is warranted in generalizing our results to the whole of England, as our sample of neighbourhoods remains relatively diverse.

Second, the cross-sectional nature of the data prevented us from considering selection effects. For example, living amongst ethnic outgroup members may reduce people's prejudice, but it could also be that prejudiced people choose to move out of diverse neighbourhoods. Even though recent research on England suggests that such selection effects are of minor importance (Kaufmann & Harris, 2015), it is prudent to keep reverse causal paths in mind. That said, we tried to account for selection processes over time by running additional analyses. Specifically, we tested whether longitudinal trends in spatial exposure to ethnic outgroup members affected levels of interethnic contact, and subsequently prejudice, trust, and cohesion. We did not find evidence for such processes (see Tables A3.11 and A3.12 in the Appendices).

Third, and in similar vein, the cross-sectional nature of our data also prevented us from testing whether prejudice predicts interethnic contact, rather than the other way around. While research has shown that the effect of positive interethnic contact on prejudice is generally stronger than the reverse effect (Pettigrew, 2008), it stands to reason that people who are more prejudiced are also less likely to have positive contact with people from a different ethnic background. An unexplored possibility is that prejudiced people are more likely to have negative interethnic contact.

Fourth, the valence of interethnic contact may also be a function of individuals' attitudes towards outgroups. For example, people who exhibit greater outgroup anxiety, authoritarian personality traits, or political conservatism may experience contact with people from a different ethnicity more negatively (Laurence & Bentley, 2018; Pettigrew, 2008; Van Zomeren, Fischer & Spears, 2007). In short, our understanding of the type of people who experience more negative interethnic contact could still be improved.

In sum, and notwithstanding these limitations, the current study makes several important contributions to the ongoing debate on the consequences of ethnic neighbourhood composition for social cohesion, trust, and prejudice. Using multilevel structural equation modelling and a unique, high-quality dataset, we went beyond mere direct, macro-level effects of ethnic neighbourhood composition. Instead, we sought to explain why and under what conditions the neighbourhoods in which people live might affect their levels of prejudice, trust, and cohesion. Specifically,

we investigated to what extent positive and negative interethnic contact mediate the effects of the spatial exposure to ethnic outgroup members. Further, we took economic deprivation into account, considered competing theoretical approaches such as conflict theory, and discussed important differences in results between White and South Asian British people. Most importantly, we showed that sharing neighbourhoods with relatively many ethnic outgroup members is associated with more positive but not negative interethnic contact for White British people, and not with either positive or negative interethnic contact for South Asian British people. While our study is on England, we believe that the merits of its contributions extent to other Western societies that have been witnessing similar increases in ethnic diversity.

Endnotes

11. We also calculated sample weights based on the levels of deprivation and diversity in our sample of neighbourhoods compared to all neighbourhoods in the population. We decided against using the results from these weighted models. First, the weight variable did not correlate with the dependent variables. To our understanding, this is a prerequisite for using sample weights (Stapleton, 2002; Winship & Radbill). Second, and more importantly, the results from the weighted models did not change anything for our hypotheses. However, these analyses did have a poorer model fit. This is yet another reason why we decided to focus on the unweighted models.

12. For all items that make specific mention of Asians as an ethnic group, the participants were reminded that we meant South Asian British people, defined as people whose ethnic background is Indian, Pakistani, or Bangladeshi.

13. We used the R package called 'seg' to calculate the spatial index of exposure (see Hong, O'Sullivan & Sadahiro, 2014).

14. We also calculated the indices of spatial exposure with OAs nested in MSOAs and found the same results when using these in the multilevel regressions. They are available upon request.

15. In the main analyses, employment status was included as a continuous variable. Using nine dummy variables quickly resulted in too many parameters to be estimated for the number of available clusters in the more complicated multilevel models. We did run additional tests to more fully appreciate the categorical nature of the employment status variable. Whenever deemed relevant, these described in the results section. They are also available upon request..

16. We also tested the same models without the quadratic term of the spatial exposure to ethnic outgroup members. These additional analyses fail to lend support for linear effects (see Tables A3.13 and A3.14 in the Appendices).

17. We ran additional analyses to test for interaction effects between spatial exposure, both linear and quadratic, and the four neighbourhood-level control variables (age profile, density, deprivation, and stability). None of the effects of spatial exposure on positive and negative interethnic contact, prejudice, cohesion, and trust were conditional on the neighbourhood-level control variables. These additional results are available upon request.

Racial composition

and hate crimes

This chapter is based on a paper written by Mathijs Kros, Eva Jaspers, and Frank van Tubergen. Kros has been in contact with the FBI to gain access to the hate crime statistics, wrote the main part of the manuscript, and conducted the analyses. Jaspers and Van Tubergen contributed substantially to the manuscript. This chapter was presented at the European Consortium of Sociological Research Conference (ECSR) in Milan, in 2017.

Abstract

Our main objective is to explain longitudinal trends in White on Black hate crimes in the United States, between 1990 and 2014, with changes in racial composition. By studying changes within places over time, we aim to address concerns related to the cross-sectional nature of hate crime research and the systematic heterogeneity between places in the underreporting of hate crimes. We employ longitudinal multi-level modelling, with years nested in places, using data that spans 25 years and 3.570 places. The results show that the number of anti-Black hate crimes committed by White people has been declining, and that this can be attributed to decreases in the percentage of White inhabitants. These results are net of any unobserved, and potentially confounding, heterogeneity between places. Despite concerns that increasing racial diversity may lead to more interracial animosity and hate crimes, our study suggests the opposite. As the numerical predominance of White people in the U.S. erodes, the number of White on Black hate crimes decreases.

Introduction

This chapter aims to explain longitudinal trends in White on Black racial hate crimes in the United States. Previous cross-sectional research shows that White on Black hate crimes are more numerous in places that are predominantly inhabited by White people (Gladfelter, Lantz & Ruback, 2017; Lyons, 2007). In line with the defended turf theory, it has been argued and shown that White people living in such racially homogenous places are more likely to defend their turf against other racial groups (Green, Strolovitch & Wong, 1998; Lyons, 2007).

However, the numerical predominance of White people in the U.S. has been eroding for decades (U.S. Census, 2010). While it is true that levels of segregation in the U.S. are high (Massey, Rothwell & Domina, 2009), and that the proportional decline in White people is not equally dispersed throughout the country, nearly all American municipalities and cities have become more racially diverse (U.S. Census, 2010). In fact, 99.5% of the 3.570 places included in the current study witnessed a decrease in the percentage of White people between 1990 and 2010. Racial diversity in the U.S. has received quite some scholarly attention, and has been studied in relation to social cohesion (Abascal & Baldassari, 2015), violent crimes (Sampson, Raudenbush & Earls, 1997), and racial prejudice in the U.S. (Oliver & Wong, 2003).

Yet while there are several high-quality cross-sectional studies on the relationship between racial composition and hate crimes in the United States (Green et al., 1998; Lyons, 2007), little is known about the consequences of longitudinal changes in racial composition for racial hate crimes. This is unfortunate for several reasons. The first reason is substantive: scientific and political concerns about interracial conflict and prejudice often revolve around consequences of changes over time in racial composition, observed in many places in the United States. However, most research is cross-sectional in nature and is therefore not apt at testing whether such demographic changes result in more or less hate crimes (Fairbrother, 2013).

Second, our longitudinal research on the relationship between changes over time within places in racial composition and changes in the number of committed hate crimes, requires fewer assumptions about unobserved differences between places (Giesselmann & Schmidt-Catran, 2018; Te Grotenhuis et al., 2015). Using data from the FBI and the U.S. Census Bureau, covering a timespan from 1990 to 2014 and 3.570 places, we estimated multilevel models with within-place differences between years (level 1), nested in places as clusters (level 2). These models allowed us to test the effect of changes over time in racial composition on changes in White on Black hate crime occurrence, while controlling for unobserved differences between places (Fairbrother, 2013). The generally accepted advantage of such longitudinal multilevel models is that controlling for unobserved heterogeneity between places helps to validate that the relationship between racial composition and hate crime is

not merely correlational, and potentially spurious, but causal (Gangl, 2010).

In the specific case of hate crimes there is an additional advantage of longitudinal multilevel models. They can help circumvent some of the concerns surrounding the quality of the available crime statistics (Loftin & McDowall, 2010). Not only do official statistics underreport on the number of hate crimes that occur in places (Sandholtz, Langton & Planty, 2013), there is also reason to assume that the extent of underreporting varies systematically with other characteristics of those places. For instance, previous studies show that anti-Black hate crimes committed in the United States are less likely to be reported in places with a history of lynching (King, Messner & Baller 2009), and are more likely to be reported in places with relatively resourceful civil rights organizations (McVeigh, Welch & Bjarnason 2003). We control for these confounding differences between places by focusing on changes within places over time.

In short, we aim to extend previous research by making use of longitudinal multilevel models, thereby addressing concerns related to the correlational nature of cross-sectional research generally, as well as the unobserved yet systematic heterogeneity between places in hate crime statistics specifically. We intend to do so by answering the following research question: Did the changes in racial composition, due to the percentage of White people generally decreasing and the percentage of Black people generally increasing, result in an increase or a decrease in the number of hate crimes committed by White against Black Americans?

There is an argument to be made for both an increase and a decrease in the number of hate crimes. First of all, the decline in numerical predominance of White people could result in a 'White fight': an increase in violent defensive reactions against racial minorities moving into areas previously dominated by White people (Meyer, 2001). These expectations fit the idea, more broadly carried in the public debate, that some White people in the U.S. feel that their political and economic power is increasingly challenged by racial minorities, leaving them with an aggrieved sense of entitlement. This has, for example, also been used to explain the recent violent protests in Charlottesville (Gillon, 2017).

On the other hand, there are reasons to expect that the number of hate crimes committed against Black Americans has decreased over time, mirroring the downward trend in anti-Black prejudice amongst White people since the early 1990s (Bobo, Charles, Krysan & Simmons, 2012). Increasing racial diversity, the other side of the coin, could have been giving way to more integration and interracial contact (Allport, 1954; Blau, 1964), alleviating feelings of racial prejudice across the board (Bobo et al., 2012), and ultimately resulting in fewer hate crimes committed by White people. Further, it could be argued that the numerical predominance of White people has dropped to such an extent that, by and large, there is less of a racial homogeneity to defend against racial minorities (Green et al., 1998).

Finally, studying hate crimes allows us to pay heed to the common critique that research on prejudice too often looks at attitudes and beliefs (Green & Spry, 2014). Racial hate crimes are behavioural manifestations of racial prejudice. They are defined as criminal offences motivated by a hostility towards the victim´s racial group. In the United States the most common racial hate crimes are intimidation, simple assault and aggravated assault (FBI, 2014). Further, hate crimes have far-reaching, adverse effects for victims and communities alike, making it important to understand their occurrence. Victims of hate crimes generally report extreme emotional distress, even more so than victims of similar offences that are not motivated by hate (Levin & McDevitt, 2002), and hate crimes are often symbolic and ultimately directed at groups, not individuals. This is also apparent in the finding that the psychological effects of hate crimes, such as fear and anxiety, extend to people who were not directly victimized (Green & Rich, 1998; Perry & Alvi, 2012).

Theory

Defended turf & interracial conflict

The first theoretical approach that we turn to in explaining the occurrence of hate crime is commonly referred to as the defended turf theory (Green et al., 1998). In broad brushstrokes, it is argued that people commit hate crimes to fend off the perceived threat of racial outgroups to their community's identity and way of life (Suttles, 1972). Two aspects underlie this argument. The first is that racial groups may claim a territory to be theirs, linking it to a collective racial identity (Horowitz, 2000). Such a claim is more often made in places that are predominantly inhabited by people of one racial group, because the 'community identity' is more likely to be rooted in ideals of longstanding racial homogeneity (Lyons, 2007). Committing a racial hate crime is seen as a way to defend this claim to territory against people who belong to a different racial group. Further, it has been suggested that, at least in the United States, White people are most likely to feel entitled to such defensive reactions (Grattet, 2009). All in all, it can be expected that a decrease in the percentage of White people in a place is negatively related to the number of anti-Black hate crimes committed by White people in that place (Hypothesis 1).

The second aspect of the defended turf theory postulates that defensive acts of violence are especially likely when people of a different racial background appear to threaten one group's claim to soil (Lyons, 2008). When members of racial minorities start to move into a place otherwise predominantly inhabited by White people, their in-migration is believed to challenge the racial homogeneity, resulting in more hate crimes (Green et al., 1998). In other words, an increase over time in the

percentage of Black people in a place is expected to result in more White on Black hate crimes in a place, especially if a relatively high percentage of White people lives there (Hypothesis 2).

Slightly different from to the contention that hate crimes are driven by an increase in the presence of racial minorities in predominantly White places, conflict theory is usually concerned with the direct consequences of the presence of racial minorities. According to conflict theory, the presence of racial minorities implies a competition between racial groups over scarce resources, both material and immaterial, such as jobs, housing, and power (Olzak, 2013). This competition over economic and political resources consequently results in hostility and animosity between groups (Blalock, 1967), including racial violence (Bonacich, 1972). In line with these arguments, an increase in the percentage of Black Americans in a place can be expected to be positively related to the number of anti-Black hate crimes committed by White people in that place (Hypothesis 3).

Interracial contact

Third, based on contact theory (Allport, 1954) it could be argued that a relatively high percentage of racial minority group members results in more interracial contact for White people. An increase in the size of the Black populations also increases the opportunity for White people to meet Black people (Blau, Blum & Schwartz, 1982). Such opportunity effects have for instance been shown in relation to interracial marriages (Kalmijn, 1998), and interracial friendships (De Souza Briggs, 2007; Mouw & Entwisle, 2006).

Subsequently, interracial contact alleviates perceptions of racial threat and competition (Schlueter & Wagner, 2008), promotes interethnic tolerance and trust, results in more positive norms about interracial contact (DeTezanos-Pinto, Bratt & Brown, 2010; Christ et al., 2014), and reduces hostility and prejudice towards racially others (Pettigrew, 2008). Prejudiced people are, in turn, more likely to commit actual violent acts against the people they are prejudiced against (Parrott & Peterson, 2008). Further, people who have relatively little interracial contact have also been shown to have a relatively strong tendency towards interracial aggression (Schmid, Hewstone, Küpper, Zick & Tausch, 2013).

In short, an increase in the amount of interracial contact on the micro-level may result in lower levels of prejudice and fewer hate crimes. This would in turn translate into lower hate crime occurrence rates aggregated to the macro-level. It can thus be expected that an increase in the percentage of Black people in a place is negatively related to the number of White on Black hate crimes in that place (Hypothesis 4)

Methods

Data

Hate crime data was taken from the Uniform Crime Reporting (UCR) program of the FBI (FBI, 2014). Every year, this program collects incident reports from around 18.000 agencies. The current study looked at the incident reports from 1991 to 2014. Whether an incident constitutes a hate crime was decided based on a two-tier process (UCR, 2015). First, the law enforcement officer determined whether there was any indication that the offender was motivated by bias towards the victim's racial group. Second, either a local officer trained in hate crime matters or a local special hate crime unit reviewed the facts of the incident and determined whether the incident indeed constituted a hate crime. If so, the incident was reported as such to the FBI, using uniform offence and bias definitions, for instance stipulating that a crime was committed because of a racial prejudice. By using data that was collected by one institute, which uses a standardized collection methodology, we sought to reduce the impact of jurisdictional differences in reporting hate crimes (Jennes & Grattet, 2005).

However, there are some limitations to this type of hate crime data that need to be considered in interpreting the results of this study. First, official statistics often underreport on hate crime (Sandholtz, Langton & Planty, 2013). This could be because it can be quite difficult to identify the bias motivation that is necessary to label an incident as a hate crime (Sullaway, 2004), and because incidents might not be reported to the police or other governmental institutions. There is research that suggests that such a 'dark figure' in hate crimes, or a discrepancy between the number of reported and recorded hate crimes and the number of actual hate crimes, is not problematically large. For example, there is a positive relationship between the number of incidents that get reported and the extent to which people perceive hate crime to be a problem in their locality (Wickes, 2016). Simulation studies also suggest that "the statistician who chooses to ignore the underrecording problem completely would not be misled to any important degree" (Pudney, Deadman & Pyle, 2000, p.96; also see Myers, 1980). However, other studies on racial hate crimes in the United States show that underreporting varies systematically with certain characteristics of places, like history of lynching (King, Messner & Baller 2009), and the strength of local civil rights movements (McVeigh, Welch & Bjarnason 2003). In order to control for the influence of such systematic heterogeneity between places, we estimated longitudinal multilevel models and focused on changes within places over time.

Demographic and economic measures were taken from the U.S. census data as well as the American Community Survey (ACS) (U.S. Census Bureau, 2017). Specifically, the decennial census data from 1990, 2000, and 2010 were used for 100%

population profiles in terms of race. Moreover, the sample surveys included in the decennial census data collections in 1990 and 2000 were used to measure unemployment rate. From 2000 onwards, the decennial census no longer included the so-called long questionnaire, which contained indicators of unemployment and residential instability. Instead, these measures became part of a separate data collection program run by the U.S. census bureau called the American Community Survey. We used this survey for information about economic deprivation and residential instability for the period 2006-2015. Specifically, the 5-year estimates from the ACS 2006-2010 and 2011-2015 were used because these datasets included the most geographical places, including those that have relatively low numbers of inhabitants (i.e. below 20.000). In short, the measure of unemployment rate used in this study was taken first from the decennial census survey for the period between 1990 and 2000, and then from the American Community Survey for the period between 2006 and 2014.

The current study only included the geographical places that are measured at any point during the period between 1990 and 2014 in each of the three datasets: UCR, U.S. Census, and ACS. Ultimately, this resulted in a sample of N = 3.570 unique geographical places. Places were defined by the FIPS codes for places (U.S. Census Bureau, 2017), and refer to municipalities or county subdivisions.[18] Our final sample includes places from 49 states, excluding only Hawaii, as well as the District of Columbia. Averaged across the period from 1990 until 2014, these places range in population size from 43 to 7.8 million inhabitants (Mean=38,004, SD=173,662).

Measures

Dependent variables

The dependent variable is the number of racially motivated hate crimes committed by White people against Black people. From 1991 until 2014, the FBI recorded a total of 122.382 unique hate crime incidents in the 3.570 places included in this study. Of these incidents, 65.259 (53.3%) were motivated by race.[19] Within this subset of hate crimes, several incidents were subsequently excluded. First, only incidents committed by White people were selected. Second, incidents were excluded if the racial group of the victim could not be precisely identified as Black. These selections were made because we are only interested in hate crimes committed by White people against Black people. Ultimately, these selections resulted in a total of 24.436 White on Black hate crimes. The dependent variable in this study is a count variable, capturing the number of White on Black hate crimes in a place and year.

It is important to note that while the UCR data does treat anti-Hispanic crime as a separate category of hate crime incidents, motivated by ethnicity rather than race, they do not consider Hispanics as a separate racial group in identifying

the race of the perpetrator. Instead, a Hispanic perpetrator was either coded as belonging to an unknown racial group or as being White.[20] The crimes committed by people whose race was unknown were already excluded as part of the selections described earlier. That being said, some caution is warranted with regards to hate crimes committed by Whites against Blacks, as they might include incidents committed by people who are racially White but ethnically Hispanic. This limitation in the UCR dataset was dealt with by accurately defining the racial groups in the U.S. census data, and by controlling for the number of people who are racially White yet ethnically Hispanic. A similar approach has been adopted in previous research on interracial friendships and racial segregation in the United States (De Souza Briggs, 2007), as well as in research on hate crimes (Lyons, 2008).

Independent variables

Based on the decennial census data, we calculated the percentage of people that was racially White and Black, yet not ethnically Hispanic. In order to explain the number of White on Black hate crimes, two percentages were included as main predictors: the percentage of non-Hispanic White people and the percentage of non-Hispanic Black people.

Control variables

Racial composition is not the only possible explanation for the geographical variation in hate crime. Previous research has also looked at the influence of social cohesion, arguing that areas that are less cohesive are less effective at prohibiting and sanctioning criminal behavior (Shaw & McKay, 1942). We controlled for two indicators of social cohesion.

First, social cohesion is often lower in areas that are economically deprived (Sampson et al., 1997). Economic deprivation was therefore controlled for in all analyses. This was measured as unemployment rate, defined as the number of unemployed people as a percentage of the civilian labor force, limited to people that were 16 years old and over. This variable was measured in the decennial census from 1990 and 2000, as well as in the ACS for 2006-2010 and 2011-2015.

Second, social cohesion is generally lower in areas that are residentially instable (Sampson et al., 1997). ACS was used to measure residential instability, defined as the percentage of people that did not live in the same housing unit one year ago. Residential instability has been used before as an indicator of social disorganization in research on racial hate crimes in the U.S. (Gladfelter et al., 2017).

Finally, following previous research on hate crime that used Poisson models (e.g. Gladfelter et al., 2017), the natural logarithm of population size was controlled for in all analyses (also see Osgood, 2000).

Analysis

The number of White on Black hate crimes was treated as a count variable. It is impossible for a count to be negative. Thus count data always have a lower bound at zero, and there are often several extreme values. As a result, count data are typically not normally distributed. When the counted events are rare, as is the case with hate crimes, they can be analyzed using a zero-inflated Poisson model (Hox, 2010).

The hierarchical nature of the data, with years nested in places, was taken into account by employing multilevel modelling. Following recent studies, we decomposed the macro-level variables into within and between level components (Fairbrother, 2013; Schmidt-Catran & Spies, 2016). For the between level component, we calculated the means of the independent and control variables across years for each place. These coefficients capture enduring time-invariant differences between places. The within level component is calculated by subtracting the time-variant scores in each year from the between level means (Fairbrother, 2013). Our models are thus group mean centered, as has been advocated for in the case of longitudinal multilevel models (Fairbrother & Martin, 2013; Giesselmann & Schmidt-Catran, 2018; Moller et al., 2009). We further included a variable for time on the within level to control for the possibility of simultaneous but unrelated and spurious time trends in hate crimes and in any of the independent variables (Fairbrother, 2013).

Table 4.1 presents the descriptive statistics, averaged across the years 1990-2014, of the main independent variables as well as the control variables. Two variables were non-normally distributed, as confirmed by skewness tests also reported in Table 4.1. Values between -2 and 2 were considered evidence of sufficiently normal distributions (George & Mallery, 2012). This mixture of normally and non-normally distributed variables was taken into account by using the estimator MLR (Bryant & Satorra, 2012). Finally, all missing values were estimated using the full information maximum likelihood method (Asendorpf et al., 2014).

Table 4.1. Descriptive statistics of all the independent and control variables.

	N	Min	Max	Mean	SD	Skewness
1. %White	3570	1.10	99.13	75.49	20.47	-1.27
2. %Black	3570	0.00	97.62	9.01	14.16	2.57
3. %Hispanic white	3570	0.00	79.47	5.28	7.58	3.67
4. Residential instability	3570	0.00	58.70	17.27	6.66	1.38
5. Unemployment	3570	0.45	15.66	5.00	1.82	0.93

Note: The percentages of Whites and Blacks only include people that are also ethnically non-Hispanic. All values are based on the mean aggregates across 1990-2014.

Results

Descriptive results

Of the 24.436 hate crimes included in the analyses, the most common offenses were intimidation (41.0%), simple assault (27.3%), aggravated assault (19.4%), and vandalism (9.0%). Furthermore, most hate crimes occurred at a road/alley (30.6%), residence (27.5%), parking lot/garage (7.2%), school/college (6.8%), restaurant (2.7%), and bar/nightclub (2.7%).

The total number of White on Black hate crimes, aggregated over the period between 1991 and 2014, and controlled for population size, is broken down by state in the map of the United States depicted in Figure 4.1. The five states with the highest absolute number of hate crimes, divided by number of inhabitants, are Maine, Delaware, Massachusetts, New Jersey, and Oregon respectively. Of these states, Delaware is the only state that also ranks amongst the top ten states when looking at the number of violent crimes in general between 1991 and 2014, divided by the number of inhabitants (FBI, 2014). The other four states have comparatively more hate crimes than general violent crimes (ibid.).

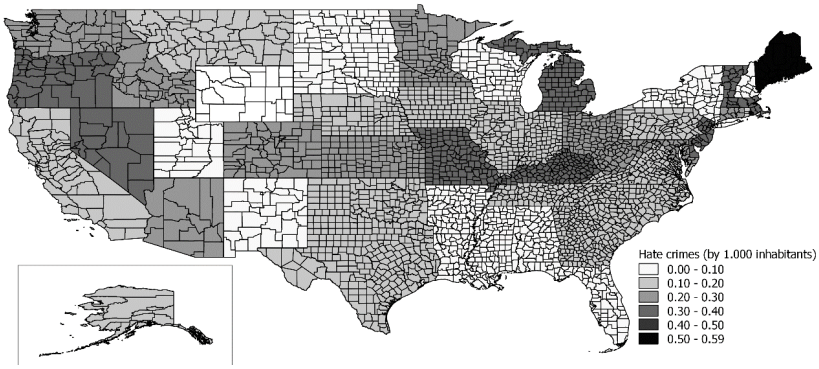

Figure 4.1. Total number of White on Black hate crimes (by 1.000 inhabitants) by state, 1991-2014. Note: Hawaii is not included in the data, and Alaska is depicted in the box in the bottom-left cornor.

Figure 4.2 shows the number of White on Black hate crimes for each year from 1991 to 2014, controlled for population size. Overall it can be said that the number of anti-Black hate crimes committed by White people has steadily declined from 1996 onwards. Moreover, this downward longitudinal trend does not only apply to the national level, but also to hate crimes at the local level. Specifically, the number of White on Black hate crimes declined in about 90% of the places included in the current study. Although these trends are telling in and of itself, it remains to be seen whether they are attributable to the changing racial composition of the United States.

Figure 4.3 depicts longitudinal trends, from 1990 to 2010, in the average percentage of White and Black people in the places included in our study. First, there is a downward trend over time in the percentage of White inhabitants, dropping from 79 to 71. In fact, 99.5% of the places included in the current study witnessed a decrease in the percentage of White people between 1990 and 2010. Further, while in 1990 White people made up more than 80 percent of the population in 61.3% of the places, in 2010 this is only the case for 46.1 of the places. In other words, there are fewer and fewer places that can be considered predominantly White. Second, there is a slight overall increase in the percentage of Black people.

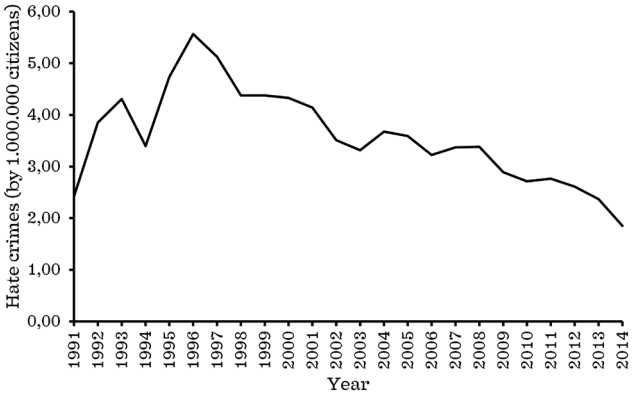

Figure 4.2. Trend in White on Black hate crimes (by 1.000.000 citizens) in the U.S.

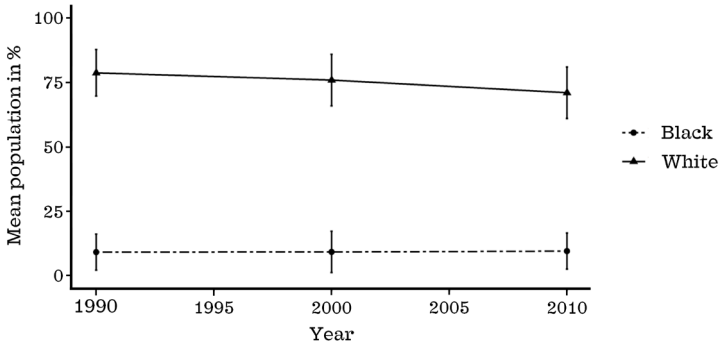

Figure 4.3. Trends in the mean percentage of the population that is White or Black, 1990-2010. Note: standard deviations are shown as error bars.

Explanatory results

Table 4.2 reports the results of the multilevel regressions explaining White on Black hate crimes. Model 1 includes place-specific averages across years on the between-level, to control for cross-sectional differences between places, and the time-variant deviations from those averages on the within-level, as well as a linear effect of time. This model analyzes the influence of changes in the percentages of White and Black inhabitants on White on Black hate crimes, necessary to test Hypotheses 1, 3, and 4. Hypothesis 2 is tested by the cross-level interaction in Model 2, where the effect of the percentage of Black inhabitants on White on Black hate crimes is allowed to vary across places, and is regressed on the mean percentage across years of White people in a place.

First of all, a decline in the percentage of White people in a place is negatively related to White on Black hate crimes.[21] A one percent decrease over time in the percentage of White people in a place results in a decrease in White on Black hate crimes, multiplied by exp(0.080)=1.08. For places that witnessed an average decrease over time in White people between 1990 and 2010 of approximately 8 percent (see Figure 4.3), this would imply a decrease of 8.7 in the number of White on Black hate crimes (per year per location). This effect is quite sizeable given that, across all place-year combinations, the maximum number of White on Black hate crimes is 123, and the average number is $= \frac{\text{Total White on Black hate crimes}}{\text{Total years*Total places}} = \frac{24.436}{(25*3.570)} = 0.27$. These findings suggest that a decrease in the percentage of White inhabitants results in fewer White on Black hate crimes, thereby supporting Hypothesis 1. Or, stated conversely and in line with defended turf theory (Green et al., 1998), White on Black hate crimes are most common in places that are still predominantly inhabited by White people.

Second, and not in support of Hypothesis 2 also derived from defended turf theory, an increase over time in the percentage of Black inhabitants is not associated with a higher number of White on Black hate crimes in places that have a relatively high percentage of White people compared to places where this percentage is relatively low. This is evidenced by the insignificant cross-level interaction between the percentage of White people in a place, averaged across years, and the change over time in the percentage of Black inhabitants. This finding is not congruent with the idea that hate crimes, as defensive acts, are especially likely where Black people move into otherwise predominantly White places (Green et al., 1998).

Further, and irrespective of the percentage of White people already living in a place, an increase over time in the percentage of Black people is not associated with the number of White on Black hate crimes (see Table 4.2, Model 1). This finding does not support Hypothesis 3, derived from conflict theory, nor Hypothesis 4, derived from contact theory. One reason for this null finding could be that the theoretical mechanisms assumed to play a role at the micro-level – threat and contact – are not mutually exclusive but rather cancel each other out (Tolsma, Van der Meer & Gesthuizen, 2009; Hooghe, Reeskens, Stolle & Trappers, 2009).

Table 4.2. The results of the multilevel regressions explaining White on Black hate crimes (WoB). Unstandardized coefficients, standard errors, and p-values shown.

	Model 1	Model 2	
	White on Black hate crimes	White on Black hate crimes	Slope (WoB on %Black)
	b (s.e.)	b (s.e.)	b (s.e.)
Within-level (longitudinal)			
Main variables			
% White	.080(.010)***	.041(.007)***	
% Black	.003(.016)		
Control variables			
Time	-.019(.007)*	-.026(.009)**	
Population (ln)	1.740(.312)***	-.838(.474)	
Residential instability	-.124(.015)***	-.070(.017)***	
Unemployment	-.118(.021)***	-.112(.050)*	
% Hispanic Whites	.139(.014)***	.210(.017)***	
Between-level (cross-sectional)			
Main variables			
% White (Mean)	.003(.004)	.003(.005)	.001(.001)
% Black (Mean)	-.008(.005)	-.010(.006)	.000(.001)
Residential instability (Mean)	-.003(.004)	-.003(.005)	
Control variables			
Population (ln) (Mean)	.598(.038)***	.641(.049)***	
Unemployment (Mean)	.083(.018)***	.095(.019)***	
% Hispanic Whites (Mean)	-.013(.007)	-.015(.009)	.003(.002)
Residual variance (σ^2)			.007(.000)***

*p<.05, **p<.01, ***p<.001.
Note: WoB stands for White on Black hate crimes.

With regards to the control variables it can generally be said that White on Black hate crimes occur more often in places that are relatively populated.

The results on unemployment are less straightforward. On the one hand, we find that White on Black offences are more likely in places with a relatively high unemployment rate. This finding is in line with the idea, derived from social disorganization theory, that economically deprived areas are less effective at prohibiting and sanctioning delinquent behavior (Sampson et al., 1997). On the other hand, we

find that an increase over time in the percentage of unemployed people within a place is associated with fewer hate crimes. This could be attributed to the criminal opportunity theory (Cantor & Land, 1985). In short, unemployed people spend more time in and around their homes. Because more people are present throughout the day, there is more surveillance and control ('guardianship') and therefore fewer opportunity to commit crimes. Congruently, previous research on violent crimes in general, not hate crimes specifically, suggests that a negative association effect of unemployment is not uncommon, especially when looking at time-series analyses (Kapuscinski, Braithwaite & Chapman, 1998; Perry & Simpson, 1987; Raphael & Winter-Ebmer, 2001).

While social disorganization and criminal opportunity theory both argue that criminal behaviour is less likely in places with more social control, they disagree on how that is affected by unemployment. From a social disorganization perspective a higher unemployment rate implies more deprivation and less social control, while from an opportunity perspective it implies more people at home and more social control. Unfortunately we cannot distinguish between these two mechanisms, as our data does not contain a direct measure of social cohesion or control. That said, our results show that distinguishing between differences between municipalities and differences within municipalities over time might be crucial for understanding the relationship between unemployment rate and hate crimes. Taken together, our findings suggest that the average difference in unemployment rate between municipalities signifies economic deprivation and disorganization. But an increase in unemployment rate within a municipality over time might indicate that more people stay at home, rather than that the municipality is becoming more economically deprived and more disorganized.

Further, and only when looking at differences within places over time, residential instability is negatively related to White on Black hate crimes. This is not in line with research on social disorganization theory and violent crimes (Sampson et al., 1997). Yet this result was found in at least one earlier, cross-sectional study on anti-Black violence in Chicago by Lyons (2007), who argued that a negative effect of residential instability on hate crime is in line with the defended turf theory. When it coincides with racial homogeneity, social cohesion can encourage violent behavior against people not included in the racial ingroup, rather than prohibit violent behavior in general. In such cases, social cohesion may not extent to racially others, and instead could facilitate exclusionism and violent outgroup antagonism (Putnam, 2000). Our results further extend on this line of research by showing that this negative association between residential instability and hate crimes is not unique to Chicago and also holds true when looking at differences within places over time.

Discussion

The numerical predominance of White people in the United States has been eroding and, conversely, racial diversity has been increasing. The current study examined the consequences of these longitudinal trends in racial composition for anti-Black hate crimes committed by White people. On the one hand, it was expected that the decline in the numerical predominance of White people could result in a 'White fight': an increase in an aggrieved sense of entitlement, resulting in more violent defensive reactions against Black Americans. On the other hand, the decline in numerical predominance and increase in racial diversity was expected to result in long-term integration, less prejudice, and fewer hate crimes committed by White people.

In line with this latter expectation, a decrease in the percentage of White people over time was found to be related to fewer White on Black hate crimes. This relationship also holds when controlling for common correlates of social disorganization, the most prominent explanation for other types of violent crime. So although the downward trend in hate crimes is largely analogous to the decline in the rate of violent crimes in general (Blumstein & Wallman, 2006), explanations specific to intergroup relations appear to be important in explaining hate crimes specifically. With that in mind, it is also illustrative that the overall decline in White on Black hate crimes is in line with the downward trend in anti-Black prejudice amongst White people in the U.S. since the early 1990s (Bobo, Charles, Krysan & Simmons, 2012).

By estimating longitudinal multilevel models, and focusing on changes within places over time, we have sought to address concerns related to the cross-sectional nature of hate crime research and the systematic underreporting in hate crime statistics. By controlling for unobserved heterogeneity between places, we have tested the relationship between racial composition of places and hate crimes in a more convincing manner (Te Grotenhuis et al., 2015). Encouragingly, our main findings are largely in line with previous cross-sectional research on the defended turf theory (Green et al., 1998; Lyons, 2007).

Future research could also consider other unexamined explanations for longitudinal variations in hate crimes, including the possibility that hate crimes are retaliatory, following the adage that hate begets hate. Or, as Martin Luther King Jr. (1967, p.67) famously put it: "Through violence you may murder the hater, but you do not murder hate. In fact, violence merely increases hate". For instance, White people could be more likely to commit hate crimes against Black people in retaliation to Black people committing hate crimes against White people, and vice versa (Lyons, 2008). The trend described in Figure 4.2 would not support such a cascading effect. If anything it suggests the opposite. Yet retaliation could still occur within smaller periods of time, like days or weeks.

Similarly, research suggests that short-term increases in hate crimes could also be triggered by certain events, like contentious criminal trials involving hate crimes (King & Sutton, 2013). In similar vein it has been suggested that hate crimes have recently increased again, triggered for instance by the violent protests in Charlottesville or president Donald Trump being elected into office (Williams, 2018). Whether such short-term peaks will also be discernable in a reversal of the overall downward trend in hate crimes across recent years remains to be seen.

One limitation of the current study is that, despite its relevance in the U.S., we could not take racial segregation into account (Massey, Rothwell & Domina, 2009). Doing so could result in a more fleshed out picture of the racial composition of geographical areas, appreciating that people from different racial groups may inhabit the same area without encountering each other, due to segregation. Taking this into account could also help to disentangle when the presence of a racial outgroup may imply interracial conflict, and when it may imply interracial contact. For instance, interracial contact is less likely in racially diverse areas that are also segregated (Lawrence, 2017).

Future research could also try to include more micro-level measures of the mechanisms that inform the hypotheses in this study. Our understanding of the occurrence of hate crimes would greatly benefit from studies that include more direct, micro-level measures of contact and conflict theory, such as perceived threat, intergroup anxiety, and interracial friendships (Scheepers, Gijsberts & Coenders, 2002; Pettigrew & Tropp, 2006). Such research could also more accurately test whether the mechanisms described by contact and conflict theory are opposing but not mutually exclusive, as the presence of a racial outgroup could lead to both conflict and contact (Tolsma, Van der Meer & Gesthuizen, 2009; Hooghe, Reeskens, Stolle & Trappers, 2009). If these two mechanisms indeed play a role at the same time, this could help explain why we did not find an overall effect of the percentage of Black inhabitants on White on Black hate crimes.

Notwithstanding these limitations, the current study provides crucial contributions to the literature on hate crimes. Using data that spans 25 years and over 3.500 geographical places, we have shown that the number of anti-Black hate crimes committed by White people has declined, and that this trend can be explained by longitudinal changes in the racial composition of places in the United States. By focusing on changes within places over time, we have controlled for unobserved and potentially confounding differences between places. We encourage researchers to continue down this road, as it may greatly advance our understanding of hate crime occurrence. This is important given the far-reaching, adverse effects of hate crimes for victims and communities alike.

Endnotes

18. Datasets on crime often use different identifiers of geographical locations than, for instance, the U.S. census data. Matching the UCR and Census bureau data was made possible by making use of the Law Enforcement Agency Identifiers Crosswalk (LEAIC) data (United States Department of Justice, 2012), which includes the identifiers common to both census and crime datasets.

19. The three other most common bias motivations are sexuality, with a total of 21.558 (17.6%) incidents of which 14.309 were against male homosexuals, religion, with a total of 19.362 (15.8%) incidents of which 13.536 were against Jewish people, and ethnicity, with a total of 15.487 (12.7%) incidents of which 8.487 were against Hispanics.

20. Personal correspondence with the FBI, April 13th 2017.

21. To be clear, the coefficient in Table 4.2 is positive, but given the overall decline in the percentage of White inhabitants, it is more meaningful to interpret the coefficient in in line with such a decrease. To reiterate, in only 0.5% of the places included in the current study was there an increase in the percentage of White people between 1990 and 2010.

Negative networks

in high schools

This chapter is based on a paper written by Mathijs Kros, Eva Jaspers, and Maarten van Zalk. Kros designed the survey, collected the data, wrote the main part of the manuscript, and conducted the analyses. Jaspers and Van Zalk contributed substantially to the manuscript. This chapter was presented at the 2018 Sunbelt Conference in Utrecht, and at the 2018 ISA World Congress of Sociology in Toronto.

Abstract

Our aim is to explain negative networks in Dutch high schools, using three-wave stochastic actor oriented models (SAOMs). We differentiate between avoidance, antipathy, and aggression based on how costly and visible these behaviours are. Our results show that pupils' ethnicity does not explain negative ties. Instead, negative ties are governed by status struggles. All three negative networks are reciprocated and transitive. Adolescents behave negatively towards classmates to ascertain dominance over them. However, these superior-inferior relations do not go uncontested, as negative behaviour is often reciprocated. We further suggest that aggression is a particularly effective yet costly way to gain status.

Introduction

This study is concerned with explaining negative ties, using three waves of social network data collected in secondary schools in the Netherlands. There is a growing interest in negative networks. Despite being relatively rare compared to positive ties, negative ties may be more likely to drive attitudes, behaviours, and network dynamics than positive ties (Labianca & Brass, 2006). Only fairly recently have scholars begun to explore how negative networks may differ from positive networks. Based on research on dislike relationships amongst university students, it has been suggested that negative networks generally are less dense, less transitive, and less reciprocal than positive networks (Everett & Borgatti. 2014; Harrigan & Yap, 2017; Yap & Harrigan, 2015).

Notwithstanding the burgeoning empirical research on negative networks, much remains to be learned about the antecedents of negative ties. In addition, previous research has typically not considered how different types of negative ties may differ from one another, and whether the same theoretical mechanisms explain why people dislike, avoid, or assault someone. To tackle this, we study three categories of negative ties within one and the same sample: avoidance, antipathy, and aggression. We argue that these three types of negative ties differ from one another in how costly and observable they are, with implications for how common, transitive, and reciprocal these negative ties can be expected to be. We subsequently use longitudinal multiplex network data with these three types of networks to test hypotheses, derived from ideas about status and interethnic relations, that are specific to avoidance, antipathy and aggression.

First, status theory is used, in one form or another, in most if not all research on negative networks. Some scholars claim that aggressive behaviour is an effective way to achieve status (Faris & Ennett, 2012; Faris & Felmlee, 2014; Maynard, 1985). Others argue that disliking and avoiding classmates are ways to disassociate oneself from lower status peers (Ball & Newman, 2013; Bond et al., 2014; Bothner et al., 2010; Card & Hodges, 2007). Yet others proposed the far more general idea that all negative behaviour serves to show that one is of higher status than someone else (Harrigan & Yap, 2017; Leskovec, Huttenlocher & Kleinberg, 2010; Yap & Harrigan, 2015).

However it remains unclear whether status theory can explain all forms of negative relationships amongst adolescents equally well. For one, dislike and avoidance are often found to be reciprocated (Berger & Dijkstra, 2013; Boda & Néray, 2015; Ellwardt, Labianca & Wittek, 2012; Fujimoto, Snijders & Valente, 2017; Huitsing et al., 2012; Pál et al., 2016; Rambaran et al., 2015). In fact, several studies specifically look at mutual, or reciprocated, antipathies (Abecassis et al., 2002; Card, 2007; Card, 2010; Card & Hodges, 2007; Erath et al., 2009; Murray-Close & Crick, 2006; Witkow et al., 2005). Furthermore, dislike and avoidance are sometimes found not to be

transitive (Harrigan & Yap, 2017). Both findings can be seen as contradictory to an informal status hierarchy (Everett & Krackhardt, 2011; Krackhardt, 1994). Using our typology of avoidance, antipathy, and aggression we aim to offer an explanation for the inconsistent results of recent empirical studies on negative networks and status.

Our second contribution to the literature on negative networks is to have a closer look at the role of the migration background of pupils. Ethnicity is a particularly important sorting tool in classrooms, influencing who becomes friends with whom (McPherson, Smith-Lovin & Cook, 2001), and possibly also who dislikes, avoids, and victimizes whom (Tolsma et al., 2013; Verkuyten, 2003). Ethnicity is particularly relevant for high school pupils as their ethnic identity starts to take shape during adolescence (Phinney, Lochner & Murphy, 1990), and the school setting offers many opportunities for interethnic relationships to form (Wölfer, Hewstone & Jaspers, 2018). The latter is also apparent in research showing that interethnic friendships are more likely to be formed in early adolescence than at other ages, like adulthood (Wölfer, et al., 2016).

We consider the influence of migration background on avoidance, antipathy, and aggression amongst adolescents in two ways. First, pupils with a migration background tend to have a lower status when they are in the minority (Tolsma et al., 2013). Following the logic that pupils send negative ties to classmates of lower status, this could imply that pupils with a migration background are more likely to be avoided, disliked, and assaulted than their native classmates (Boda & Néray, 2015; Rubineau, Lim & Neblo, 2019). Second, by applying the well-known principle of homophily to negative networks, we test whether negative ties are governed by heteromisos, or a dislike for dissimilar people, and are thus more likely to exist between pupils who are not alike in terms of migration background. Following the suggestions from previous research (Hagendoorn, 1995) we further examine whether pupils with a non-western migration background are considered more dissimilar from natives than pupils with a western-migration background, and are therefore avoided, disliked, and victimized more often.

All in all, we seek to answer the following main research question: Can status theory and the migration background of pupils explain avoidance, antipathy, and aggression amongst adolescents?

In order to answer this question we make use of a unique dataset collected in two Dutch high schools in the schoolyear 2017-2018, amongst a total of 227 first year pupils. Three waves of data were collected: in the first month of the schooly-ear (September), right after the Christmas break, and in the last month before the summer holidays (June). Our sample consists of first year pupils who typically do not know one another before entering high school, and we control for pupils who were already acquainted before becoming classmates.

We used RSiena to perform meta-analyses on the results obtained from the individual classrooms. Doing so allowed us to study network dynamics as they unfold longitudinally, while controlling for any heterogeneity in effects between classes. Finally, in order to capture different sides of the same types of negative relationships, we measured several types of negative ties that we subsequently collapsed into the three overarching negative networks of avoidance, antipathy, and aggression. This was done in accordance with the steps of dimension reduction recently proposed by Vörös & Snijders (2017).

Theory

The theory section is structured as follows. First, status theory will be described as an explanation for negative behaviour between classmates. Particular attention will be devoted to the concepts of reciprocity and transitivity. Subsequently, a typology of negative ties will be outlined, which distinguishes between avoidance, antipathy, and aggression in terms of cost and visibility. This typology is then used, in combination with status theory, to derive specific hypotheses about reciprocity and transitivity for the three types of negative ties. Afterwards, the influence of pupils' migration background on negative relationships will be considered.

Status hierarchies: aggressive dominance and peer rejection

Status has long been recognized as an important concept in sociology, particularly for adolescents in high schools (Coleman, 1961; Faris, 2012), and can be be broadly defined as an individual's position in the social hierarchy of a group, based on superior-inferior relationships (Gould, 2002; Linton, 1936). The hierarchical ranking of people is described as a universal feature of social groups (Emerson, 1962; Gould, 2002), and already comes naturally to young children (Callan, 1970). Status differences between pupils serve to add stability to their relationships, and being of high status comes with its own set of rewards, like scarce resources, disproportionate influence over group decisions, attention and approval of peers, and self-esteem (Savin-Williams, 1979).

One way in which pupils can climb the informal social hierarchy is to be aggressive towards others, thereby showing they are superior (Cheng et al., 2012). Congruently, aggression in adolescents is often viewed as instrumental for status attainment (Faris & Ennett, 2012; Faris, 2014; Maynard, 1985; Pelligrini & Long, 2002; Veenstra et al., 2007; Hawley, Little & Card, 2007; Rodkin & Berger, 2008; Kreager, 2007; Sijtsema et al., 2009). In short, aggression may serve to secure adolescents' position in a social dominance hierarchy.

Status has also been used to explain why pupils avoid and dislike one another. Based on research on preferential attachment (Ball & Newman, 2013), status leakage (Bothner et al., 2010), and peer rejection (Card & Hodges, 2007; Bond et al., 2014), it can be argued that people prefer to be associated with higher-status peers, to try and establish or maintain one's own status, and avoid or reject lower-status peers, in order to protect one's own status against the stain of being associated with lower-status peers. In congruence with this idea of disdain, pupils have been shown to dislike classmates that they look down upon (Pál et al, 2016). In short, it can be expected that dislike and avoidance "travel down the hierarchy", from high-status pupils to low-status pupils (Rubineau et al., 2019; Berger & Dijkstra, 2013; Daniel et al., 2016).

Finally, informal social hierarchies can be operationalized by two network characteristics: transitivity and reciprocity. First, an archetypical social hierarchy, or "pecking order" (Eder, 1985), is asymmetrical (not reciprocated): if pupil A is superior to pupil B, B cannot also be superior to A. Second, an archetypical social hierarchy is transitive: if A is superior to B, and B is superior to C, then A must also be superior to C (Martin, 2009).

Therefore, if aggression, avoidance, and antipathy all serve to achieve and maintain social superiority over other pupils in the classroom, then we can expect these three negative networks to be transitive but not reciprocated (Krackhardt, 1994).

A typology of negative ties: avoidance, antipathy, and aggression

So far we have argued that avoidance, antipathy, and aggression may all be governed by struggles between classmates over status positions. Yet they may also differ from one another in ways that are important for reciprocity and transitivity. In order to structure our expectations regarding the distinct types of negative ties, we will now sketch out a typology of negative networks. We distinguish between avoidance, antipathy, and aggression on the basis of two characteristics: cost and visibility. We will then use this typology, in combination with status theory, to derive hypotheses for the three types of ties.

First, we argue that aggression is more costly than both antipathy and avoidance. Aggressive behaviour is particularly costly because it is non-normative behaviour (Ellwardt, Labianca & Wittek, 2012; Rose, Swenson & Waller, 2004). The perpetrator can thus be sanctioned by his or her classmates for being aggressive. Further, the aggressor always runs the risk of being beaten at his or her own game. Even the strongest pupil might be physically hurt, a cost in and of itself, and subsequently loose face in front of the other pupils in the class as well (Gambetta, 2009).

Antipathy, or the mental state of disliking someone, can be seen as less costly than aggression, if only for the simple reason that, unlike aggressive behaviour, antipathy does not imply direct or physical harm for the actor. Similarly, avoiding a classmate excludes – almost by definition – the possibility of being physically harmed by that classmate. For these reasons we argue that avoidance and antipathy are less costly forms of negative behaviour than aggression.

The difference between avoidance and antipathy in terms of costs are less immediately clear. Disliking someone that you have to interact with on a day-to-day basis, like a classmate, can be psychologically stressful (Card, 2007). Antipathies between pupils have been shown to be related to several indicators of poor psychological well-being (Abecassis et al., 2002; Witkow et al., 2005). In contrast, avoidance could be a sign of indifference, and could therefore be less psychologically demanding than disliking someone. At the same time however, actively avoiding a classmate could also be indicative of psychological stress, as this might be the very reason why a pupil would prefer not to interact with a specific classmate. We therefore do not formulate a strict expectation regarding the difference in costliness of avoidance and antipathy. Instead, the comparison between the costs involved in avoiding and disliking a classmate is more exploratory in nature.

From a rational choice perspective costly behaviour can be expected to be less common, as people tend to prefer options that are less costly (Smith, 1982). Given our ranking of the three negative ties, we would therefore anticipate aggressive behaviour to be least common, followed by antipathy and avoidance. In our dataset, this indeed holds true (see the results section for more information).

All in all, we have argued that i) costly behaviour is less common and reciprocated less often, and ii) that aggression is most costly, followed by antipathy and avoidance. Combining these two arguments we can expect the following:

Hypothesis 1: The negative effect of reciprocity is stronger for aggression than for antipathy and avoidance.

Second, it can be argued that aggression is more visible than both antipathy and avoidance, and that avoidance is in turn more visible than antipathy. By visibility we mean the extent to which not only ego (i) is aware of the negative tie, but the alter (j); and a third person (h) are as well.

For one, aggressive behaviour is intended to inflict damage, be it physical or psychological, upon another person. Consequently, the victim will know when someone is being aggressive towards him or her. Further, aggression is a communicative act that can be used to convey, not only to the victim but also the wider audience, that the aggressor is willing to stand up for him or herself (Gambetta, 2009). Aggression

is thus more effective if observed by third parties as well.

In contrast, avoidance and antipathy are less readily observed by others. For one, it is very well possible to avoid or dislike someone without communicating this overtly to that person, or to a third party (Rambaran, et al., 2015). If pupil A were to dislike and actively avoid pupil B, it becomes difficult for A to know what other pupils B dislikes and avoids. In fact, the lack of visibility in avoidance and dislike relationships is one of the things that has been used to distinguish negative networks from positive networks. For instance, Everett and Borgatti (2014) doubted that information would diffuse in dislike networks as it does in friendship networks, and did not expect "things to flow along paths of length greater than one" (p. 112). This is also the explanation Harrigan and Yap (2017) give for the absence of triadic closure in their avoidance and dislike networks amongst university students.

Although the distinction between aggression on the one hand and avoidance and antipathy on the other is clearer, we believe there is reason to expect that avoidance is more visible for other pupils than antipathy. Dislike, as defined in the current study, is a mental state while avoidance is active behaviour. We assume that behaviour is more readily observed than an affective state of mind.

Finally, we argue that less visible negative ties hamper information flow, thereby making transitivity less likely (Everett & Borgatti, 2014; Harrigan & Yap, 2017). Transitivity, in turn, can be seen as a sign of an informal social hierarchy (Krackhardt, 1994). Further, since status is inherently social, more visible negative relationships are arguably more effective at achieving or maintaining status, as other pupils in the classroom need to 'confirm' these superior-inferior relationships.

In sum, we have argued that i) visible behaviour is more likely to be transitive, and ii) that aggression is most visible, followed by avoidance, and then antipathy. Tying these two arguments together, we can expect transitivity to be least likely for antipathy, then avoidance, then aggression.

Hypothesis 2: The positive effect of transitivity is strongest in aggression, then in avoidance, and then in antipathy.

Migration background: indicating low status and dissimilarity

In this section we consider whether negative relationships between classmates might also be governed by characteristics of the pupils involved. In particular, we will look at the influence of migration background in two ways: as an indication of low status, and as an important sign of dissimilarity, fueling heteromisos.

First, everyone – including other pupils with a migration background – might avoid, dislike, and victimize classmates with a migration background. Pupils

with a migration background might have a lower status position as they come into the school, when they are in the minority.

Their status in the classroom does not likely exist in a vacuum but can be expected to be influenced by what occurs outside of the classroom, and outside of the school. In the Netherlands, people with a migration background are more likely to be discriminated against and looked down upon (Kleinpenning & Hagendoorn, 1993). Migrant adolescents might therefore start off with a status disadvantage as they enter their high school (Verkuyten & Thijs, 2002). If it is true that all negative behavior is directed at low-status peers, either to assert dominance or to protect against status leakage, then migrant pupils may attract more negative behavior than native pupils.

This idea is supported by two recent empirical findings. First, Boda & Néray (2015) show that Roma minority pupils dislike one another more often than pupils who belong to the ethnic majority. This can be interpreted as ethnic minority pupils trying to distance themselves from one another in order to prevent being tainted by associating with low-status, migrant peers. Second, Boda & Néray (2015) also found that ethnic majority pupils are likely to dislike Roma minority pupils, while the opposite is not true. This suggests that the higher status kids reject the lower status kids (Rubineau et al., 2018), and is in line with research by Fiske (2011) indicating that privileged groups respond to stigmatized groups with pity and distancing. We therefore formulate the following hypothesis:

Hypothesis 3: (a) Aggression, (b) antipathy, and (c) avoidance are more likely to be directed at pupils with a migration background than at native pupils.

Yet migration background can also play a different role in negative relationships amongst classmates. The tendency for homophily – or the like of similar people – is well documented, and ethnicity is particularly important in informing whether people are similar and therefore become friends with one another (McPherson, Smith-Lovin & Cook, 2001). Applied to negative networks, we will test whether there is also a tendency for heteromisos and consider whether dissimilarity in terms of ethnicity breeds dislike or even animosity.

The idea that negative behaviour is more likely to occur between two pupils from a different ethnic group than between two co-ethnic pupils can be expected based on research on prejudice amongst adolescents (Tolsma et al., 2013). For example, previous research on Dutch schools suggests that one in three ethnic minority children experienced racist name-calling or were excluded from play because of their ethnic background (Verkuyten & Thijs, 2002). Prejudice thus appears to be

relatively common amongst adolescents in the Netherlands. This may result in adolescents behaving more negatively towards peers of a different ethnicity than towards same-ethnicity peers (Schültz & Six, 1996).

Furthermore, the idea that negative behaviour could more often be interethnic than intraethnic can also be derived from social identity theory (Tajfel & Turner, 1979). This theory postulates that the groups to which people belong form a source of pride and self-esteem. One way in which people maintain the link between group membership and this sense of pride is by clearly distinguishing themselves from other groups and debasing them (Wittek, Kroneberg & Lämmermann, 2019). It has been argued that this strategy should also be observable in the prevalence of negative interethnic contact over negative intraethnic contact (Boday & Néray, 2015). We therefore expect the following:

Hypothesis 4: (a) Aggression, (b) antipathy, and (c) avoidance are more likely between a native pupil and a pupil with a migration background, than between two native pupils or two pupils with a migration background.

We do not assume there will be differences between the three negative ties when it comes to the influence of the migration background of the pupils (Hypotheses 3 and 4), because of two reasons. First, if migration background is an indicator of low status, and aggression, avoidance, and antipathy are all ways to gain or maintain status, then they can all be expected to be directed at migrant pupils more often than at native pupils. Second, if migration background is a sign of dissimilarity, and it is dissimilarity that results in avoidance, dislike, and aggression, then heteromisos can be expected in all three types of negative relationships.

Methods

Data

For this study, we have made use of a unique dataset collected in the schoolyear 2017-2018. Two Dutch high schools participated in the study. Only the first year pupils were sampled. Most of them were not acquainted before entering high school, and we control for pupils who did know each other from before. It is therefore possible to study the negative networks amongst these pupils as they take shape. Three waves of data were collected: in the first month of the schoolyear (September), right after the Christmas break, and in the last month before the summer holidays (June). For each wave, the pupils filled out an online survey for the duration of about 45 minutes

(one lesson) at the end of their regular school day. All pupils were given their own login name and password. A team of researchers visited the schools on the day of the data collection to administer and explain the surveys, and make sure everyone could login.

The total number of first-year pupils enrolled in the two schools between September 2017 and July 2018 was 233, spread out over nine classes. In the case of two of the pupils consent was withdrawn. They did not participate in the study and could not be nominated in the sociometric questions by their classmates. Three other pupils joined the high schools later on in the year, and could only be nominated by their classmates in the third wave. They are therefore excluded from the analyses. Ultimately, 228 first-year pupils participated in the surveys. They were 12-13 years old and 43.0% of them was a girl.

Table 5.1 further reports per school and for each wave the number of pupils that could have filled out the survey, the number that actually did, and the percentage of pupils who were absent at the time of data collection. There was some attrition, as the percentage of absentees increased over the waves. The highest percentage of missing pupils was 16.2 for the overall sample, and 23.5 when looking at the two schools separately. Although this amount of missingness warrants some caution, it has been deemed manageable in network analyses using RSiena (Krause, Huisman & Snijders, 2018).

Table 5.1. Absolute and actual sample sizes, and missings per wave, per school.

		Wave 1		Wave 2		Wave 3	
	Sample	*N*	Missing (%)	*N*	Missing (%)	*N*	Missing (%)
School 01	142	133	9 (6.3)	122	20 (14.1)	115	27 (23.5)
School 02	86	84	2 (2.3)	77	9 (10.5)	76	10 (11.6)
Total	228	217	11 (4.8)	199	29 (12.7)	191	37 (16.2)

Measures

Dependent variables

The negative networks were measured with peer nomination questions. For each nomination question, the pupils were presented with a roster with the names of all their classmates. They could nominate as many classmates as they liked.

All in all, six peer nomination questions were asked to measure three types of negative social relations: antipathy, avoidance, and aggression (see Table 5.2 for

the labels, phrasing, and expected categorization of the network items). We thus measured the overarching negative relationships with more than one item, in order to capture different sides of the relationships and construct more valid measures (Vörös & Snijders, 2017). For example, both kicking and insulting a classmate can be thought of as aggressive behaviour. By asking about both verbal and physical violence, we can get a better and more layered measure of aggression.

In order to test whether the six nomination questions could be classified in line with our typology of avoidance, antipathy, and aggression, we followed the steps of dimension reduction proposed by Vörös and Snijders (2017).

First, using Jaccard indices we measured how much overlap there was between the six network items, in each wave and each class separately, and using Kendall's W we examined how consistent the pairwise similarities were across the nine classes (Jaccard, 1908; Legendre, 2005). From these statistics, reported in Table 5.3, we can conclude that the two avoidance ties show most overlap with one another. Antipathy is more similar to the two avoidance items than the three indicators of aggressive behaviour. Finally, the three items measuring aggression show more similarities with one another, than with any of the other items. Roughly the same classification emerges in all three waves and nine classes.

Table 5.2. The labels, phrasing, and expected categorization of the nomination items.

Label	Nomination question	Categorization
Dislike	Which of your classmates do you dislike?	Antipathy
Avoid lunch	Which of your classmates do you avoid so they don't sit next you during lunch?	Avoidance
Avoid project	Which of your classmates do you avoid working with on a school project?	Avoidance
Verbal aggression	Which classmates have insulted you, yelled at you, called you names, or insulted you?	Aggression
Physical aggression	Which classmates have hit, kicked, or pushed you?	Aggression
Bullying	Which classmates bully you?	Aggression

This typology was further confirmed by the Ward hierarchical clustering, used to explore the cluster structures of the network items. Figure 5.1 shows the global cluster structure obtained from the mean similarity matrices. The two avoidance items cluster together, and the three items measuring bullying and verbal and physical aggression cluster together. Again, antipathy is distinct from both the avoidance and the aggression items, although it clusters more with the former than with the latter. Based on the Rand Indices (Rand, 1971) reported in Figure 5.2 for

the three waves separately, it can generally be said that the global cluster structure would be a good fit to the individual classrooms. In most classes and waves, at least 87 percent of the pairs of network items are classified in the same way as in the global cluster structure. The second wave measured in class 4 shows the least similarity (53%) with the overall structure than the other class-wave measures, but can still be deemed acceptable (Vörös & Snijders, 2017).

Based on these statistics, we concluded that we could construct three composite network measures out of the six items, in line with the categorization outlined in Table 5.2. Antipathy was measured with one item, avoidance with two, and aggression with three. The latter two composite networks were constructed by collapsing the separate items into one adjacency matrix, where a value of 1 implies that a classmate was nominated in any of the questions. Finally, for aggression the adjacency matrix was transposed (rows and columns were switched), so the aggressor became the sender of the tie. This was done because this is more in line with the way the other two negative networks were operationalized, where the sender of the tie is also the actor, or the pupil 'doing' the avoiding and disliking. We initially measured aggressive behaviour as perceived by the victim, as the aggressor might not be willing to admit he or she has been aggressive towards someone.

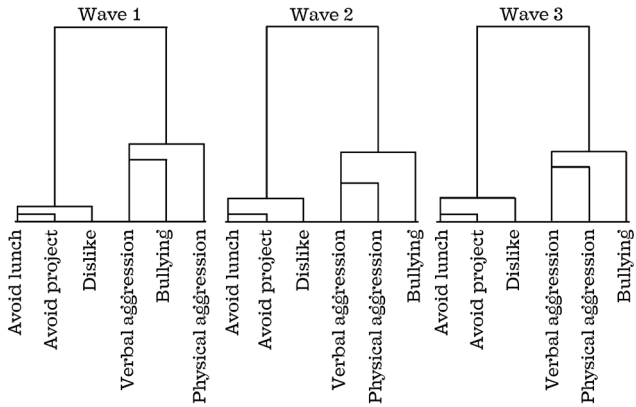

Figure 5.1. Cluster dendrograms from the average similarities in all three waves based on the Ward hierarchical clustering.

Table 5.3. Jaccard indices, averaged across the nine classrooms, and Kendall's W for each wave separately.

		Jaccard Index					Kendall's W
		1.	2.	3.	4.	5.	
Wave 1							
1.	Dislike	/					0.9
2.	Avoid lunch	0.35	/				0.9
3.	Avoid project	0.35	0.38	/			0.9
4.	Verbal aggression	0.09	0.06	0.05	/		0.6
5.	Physical aggression	0.03	0.05	0.03	0.09	/	0.5
6.	Bullying	0.02	0.01	0.01	0.10	0.04	0.8
Wave 2							
1.	Dislike	/					0.9
2.	Avoid lunch	0.37	/				0.9
3.	Avoid project	0.39	0.48	/			0.8
4.	Verbal aggression	0.14	0.11	0.09	/		0.5
5.	Physical aggression	0.08	0.06	0.06	0.25	/	0.7
6.	Bullying	0.07	0.05	0.04	0.16	0.09	0.7
Wave 3							
1.	Dislike	/					0.8
2.	Avoid lunch	0.37	/				0.9
3.	Avoid project	0.32	0.43	/			0.9
4.	Verbal aggression	0.13	0.12	0.13	/		0.3
5.	Physical aggression	0.09	0.06	0.07	0.18	/	0.4
6.	Bullying	0.06	0.04	0.06	0.16	0.09	0.6

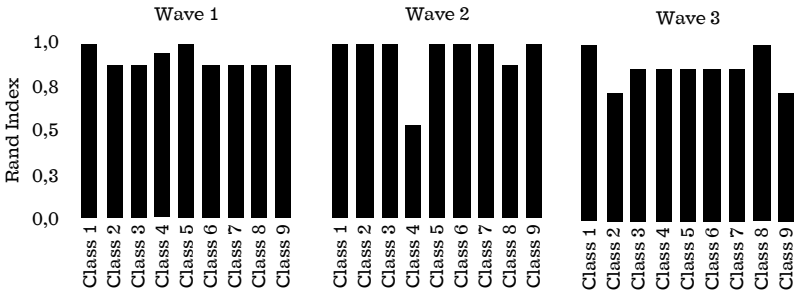

Figure 5.2. Comparison of class-level cluster structures to the global solution in all three waves. The Rand Index quantifies the percentage of pairs of network items that are classified in the same way in specific classes as in the global cluster structure depicted in Figure 5.1.

Predictor variables

Reciprocity was included in the models in order to test Hypothesis 1. Figure 5.3 depicts the configuration of this effect which, in short, measures the likelihood that pupil *i* will nominate pupil *j*, if pupil *j* has nominated pupil *i*.

Transitivity was operationalized with the gwespFF effect (see Figure 5.3), as this best matches the archetypical dominance hierarchy described in the theory section. This network effect indicates the likelihood that pupil *i* will nominate pupil *j*, if pupil *i* has nominated a third pupil *h* who has in turn nominated pupil *j*.

Migration background was constructed based on the self-reported country of birth of the pupils' parents. We used the definitions of Statistics Netherlands to define migration background. First, pupils were considered to be native Dutch if both their parents were born in the Netherlands, irrespective of where the pupils were born. We also considered pupils to be native Dutch if one of their parents was born in the Netherlands and the country of birth of the other parent was not reported. All other pupils were considered non-native. Further, and following previous research on migration background in Dutch schools (Geerlings, Thijs & Verkuyten, 2018), if a pupil only had one non-Dutch parent we used that parent's country of birth as a more fine-grained ethnic background for the pupil. If both parents were born outside of the Netherlands but in different countries, the mother's country of birth was used. Ultimately, this resulted in 26 different ethnic backgrounds, including native Dutch. For the main analyses, the ethnic backgrounds were subsequently collapsed into one binary variable which distinguished between natives and non-natives. In addition, we collapsed the ethnic backgrounds into three categories: native, non-native with a western migration background, and non-native with a non-western migration background. This was done to explore the possibility that pupils with a non-western western migration background are more distant from natives than

non-native pupils with a western migration background (Hagendoorn, 1995). Table A5.1 in the Appendix shows the full list of ethnic backgrounds as well as the way we categorized them. The ethnic composition of all the classrooms can be found in Table A5.2 in the Appendix.

Control variables

Known prior was used as a dyadic covariate and controlled for in all the analyses to take prior and unobserved relationships between the pupils into account (t-1), and was measured with a peer nomination question: 'Which classmates did you know before coming to this school?'. Dyad, ego, and alter effects of *gender* (boy=1) were controlled for in all the analyses, as gender has been shown to be particularly relevant for aggression and status amongst adolescents (Faris, 2012). Further, the ego effect of migration background was included in all the models. Finally, we controlled for three-cycles, specifically the inverse configuration of the transitivity effect described above (gwespBB in RSiena; see Figure 5.3). This was done to get a better fitting triad census in the stochastic actor oriented models.

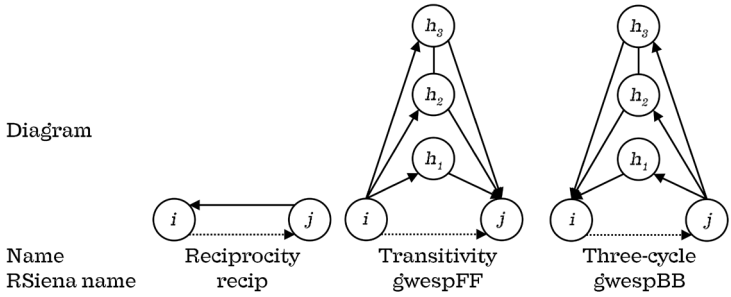

Figure 5.3. Diagrams, names, and RSiena names of the three network effects included in the models.

Analysis

RSiena (version 1.2-16) was used for all the analyses, which were performed in the nine classes individually, for each of the three negative networks separately. Siena-TimeTest was used to examine heterogeneity within classes across the two periods (between wave 1 and wave 2; and between wave 2 and wave 3). Whenever necessary, such heterogeneity was taken into account by including interactions between the specific effect and a dummy distinguishing between the two time periods. All 27 models (three negative networks * nine classes) were finetuned until the overall test of time heterogeneity was not significant (p>.05), the overall maximum convergence ratio was at least below 0.25, and the t-ratios of all individual effects were below 0.1

(Ripley, Snijders, Boda, Vörös & Preciado, 2019).

Subsequently, the results from these models were combined in a meta-analysis (siena08). This approach was chosen to control for heterogeneity in effects between the different classes. We present the results from the iterative weighted least squares method (IWLS hereafter; Snijders & Baerveldt, 2003) to investigate the average effects of the parameters across the classes. Since our data only contains nine classes and thus consists of a rather small number of random samples to assume to represent a population of freshmen classes in Dutch secondary schools, we also report results from the Fisher's combination of *p*-values (Fisher, 1932). The null hypothesis is that no effect is found in any of the classes. The alternative hypothesis is that an effect is found in *at least one* of the classes (Snijders & Bosker, 2012, p. 36). The Fisher's method can therefore be seen as a double test which detects whether a parameter is positive in any of the classes and whether a parameter is negative in any of the classes (Ripley et al., 2019). Finally, we used independent sample t-tests in order to statistically compare the effects of reciprocity and transitivity across the three negative networks, necessary for testing Hypotheses 1 and 2 (see RSiena manual section 8.5, Ripley et al., 2019).

Results

Descriptive results

Table 5.4 reports the density and average degrees of the avoidance, antipathy, and aggression networks, averaged across the nine classes in each wave separately. First, it is worth noting that in every wave the avoidance network is most dense, followed by antipathy and then aggression. This is congruent with the idea that costly behaviour is less common (Smith, 1982), and our typology with aggressive behaviour being most costly, followed by antipathy and avoidance. Throughout the schoolyear pupils are, on average, aggressive towards 1.5 classmates, antipathic towards 2 classmates, and actively avoided 5 classmates.

Table 5.4 also lists the density and degrees, averaged across the nine classes, of the networks indicating which of the pupils knew their classmates before entering their new high school. At the beginning of their first schoolyear pupils already knew, on average, 4.3 of their classmates (*s.d.*=2.9). This was likely because in the Netherlands it is not uncommon for children who went to the same primary school to then go to the same secondary school as well.

Finally, a total of 149 (65.4%) pupils were native Dutch and 74 (32.5%) pupils were non-native. Of the non-native pupils, 54 (73.0%) had a non-western migration background (see Table A5.2 in the Appendix).

Explanatory results

The results from the meta-analyses, based on both the IWLS and Fisher's methods, are presented in Tables 5.5, 5.6, and 5.7, for avoidance, antipathy, and aggression respectively.

Status hierarchies

First of all, we found a positive effect of reciprocity in all three negative networks. Expressed in terms of odds ratios, calculated based on the IWLS estimated mean parameters: If pupil *j* avoided, disliked, and victimized pupil *i*, pupil *i* was, respectively, exp(0.558)=1.75, exp(0.733)=2.08, and exp(1.081)=2.95 times more likely to avoid, dislike, and victimize pupil *j* in return. This is in contrast to a archetypical social hierarchy, which is defined as asymmetrical, and thus not reciprocated (Martin, 2009). Based on the idea that negative networks serve to ascertain dominance and status, we argued that if pupil A was superior to pupil B, exemplified by negative behaviour, pupil B could not be superior to pupil A. We therefore expected a negative effect of reciprocity on avoidance, antipathy, and aggression. Evidently, this was not supported by our results.

Table 5.4. Density and degrees for the avoidance, antipathy, and aggression networks, averaged across the nine classes, in each wave separately.

		Wave 1		Wave 2		Wave 3	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
Avoidance	Density	0.198	0.061	0.240	0.115	0.235	0.156
	Degree	4.760	1.115	5.430	2.028	5.229	2.881
Antipathy	Density	0.071	0.020	0.105	0.062	0.090	0.067
	Degree	1.680	0.425	2.409	1.307	2.005	1.253
Aggression	Density	0.048	0.028	0.084	0.044	0.075	1.714
	Degree	1.096	0.546	1.916	0.920	0.065	1.171
Known prior	Density	0.091	0.053				
	Degree	4.265	2.904				

Further, in Hypothesis 1 we expected the negative effect of reciprocity to be stronger for aggression than for antipathy and avoidance. Our results suggest the exact opposite ranking: the positive effect of reciprocity was smallest for avoidance, then antipathy, and then aggression. However, only the difference between the effect of reciprocity on aggression (M=1.081, s.e.=0.147) and on avoidance (M=0.558, s.e.=0.122) was statistically different from zero, $t(14)=2.730$, $p<.01$.

Second, transitivity had an overall positive effect on avoidance and

aggression. Expressed in terms of odds ratios: if pupil *i* avoided pupil *h*, and pupil *h* avoided pupil *j*, then pupil *i* was exp(1.038)=2.82 times more likely to avoid pupil *j* as well; and if pupil *i* victimized pupil *h*, and pupil *h* victimized pupil *j*, then pupil *i* was exp(1.627)=5.09 times more likely to victimize pupil *j* as well (see Figure 5.3 for an illustration). While we did not find an overall effect of transitivity on antipathy, the results of the Fisher's tests supported the idea that, if anything, transitivity had a positive effect on antipathy as well. Assuming that disliking, avoiding, and victimizing someone shows superiority, these findings support the idea that if pupil *i* is superior to pupil *h*, and *h* is in turn superior to pupil *j*, pupil *i* is more likely to be superior to pupil *j* as well.

Moreover, and in support of Hypothesis 2, the positive effect of transitivity was stronger for aggression (M=1.627, s.e.=0.320) than for avoidance (M=1.038, s.e.=0.231), $t(16)=1.492$, $p<.10$), and then followed by antipathy. This is in line with our ranking based on how visible the three types of negative behaviour are, with aggression being the most noticeable for the alter as well as other pupils in the classroom, and antipathy being the least noticeable.

Table 5.5. Avoidance. Results of the iterative weighted least squares method (IWLS) and Fisher's tests.

	IWLS			Fisher's positive test			Fisher's negative test		
	Mean	*SD*	*p* (2-sided)	X^2	d.f.	*p* (1-sided)	X^2	d.f.	*p* (1-sided)
Density	-1.282	0.973	0.004	4.079	18	1.000	182.3427	18	<.001
Reciprocity	0.558	0.367	0.002	68.532	18	<.001	1.2301	18	1.000
Transitivity	1.038	0.693	0.002	208.080	18	<.001	1.0817	18	1.000
Three-cycles	-0.432	0.373	0.014	3.339	16	1.000	65.5052	16	<.001
Migration background alter	0.031	0.177	0.612	21.160	18	0.271	11.0752	18	0.891
Migration background ego	-0.191	0.494	0.279	11.117	18	0.889	34.9032	18	0.010
Migration background same	-0.094	0.203	0.204	13.541	18	0.759	23.2849	18	0.180
Known prior	-0.203	0.418	0.183	8.269	18	0.974	34.1536	18	0.012
Gender alter	0.151	0.246	0.102	42.613	18	<.001	11.0282	18	0.893
Gender ego	0.083	0.511	0.640	60.503	18	<.001	33.8876	18	0.013
Gender same	v0.517	0.501	0.015	3.385	18	1.000	118.7596	18	<.001

Table 5.6. Antipathy. Results of the iterative weighted least squares method (IWLS) and Fisher's tests.

	IWLS			Fisher's positive test			Fisher's negative test		
	Mean	*SD*	*p* (2-sided)	X^2	d.f.	*p* (1-sided)	X^2	d.f.	*p* (1-sided)
Density	-1.840	2.141	0.033	6.486	18	0.994	129.556	18	<.001
Reciprocity	0.733	1.025	0.040	66.965	18	<.001	10.979	18	0.895
Transitivity	0.725	1.902	0.317	51.999	16	<.001	11.712	16	0.764
Three-cycles	-0.384	0.845	0.240	12.165	16	0.733	31.064	16	0.013
Migration background alter	-0.025	0.752	0.924	25.765	18	0.105	25.418	18	0.114
Migration background ego	-4.014	1.062	0.397	6.436	12	0.893	30.314	12	0.003
Migration background same	0.063	0.377	0.631	24.860	18	0.129	11.831	18	0.856
Known prior	0.195	0.349	0.133	23.356	18	0.177	10.813	18	0.902
Gender alter	0.067	0.955	0.838	39.166	18	0.003	34.348	18	0.011
Gender ego	-0.349	0.844	0.281	9.537	16	0.890	33.183	16	0.007
Gender same	-0.146	0.624	0.503	17.902	18	0.462	35.269	18	0.009

Table 5.7. Aggression. Results of the iterative weighted least squares method (IWLS) and Fisher's tests.

	IWLS			Fisher's positive test			Fisher's negative test		
	Mean	*SD*	*p* (2-sided)	X^2	d.f.	*p* (1-sided)	X^2	d.f.	*p* (1-sided)
Density	-2.659	1.633	0.001	0.982	18	1.000	137.689	18	<.001
Reciprocity	1.081	0.390	0.001	56.808	16	<.001	2.304	16	1.000
Transitivity	1.627	0.960	<.001	99.942	18	<.001	2.167	18	1.000
Three-cycles	-0.467	0.507	0.050	4.385	14	0.993	24.879	14	0.036
Migration background alter	0.200	0.330	0.107	27.140	18	0.076	9.313	18	0.952
Migration background ego	-0.062	0.706	0.810	13.743	16	0.618	20.752	16	0.188
Migration background same	0.088	0.320	0.436	20.129	18	0.326	11.775	18	0.859
Known prior	0.573	0.357	0.001	56.593	18	<.001	2.640	18	1.000
Gender alter	0.140	0.836	0.650	38.471	16	0.001	21.170	16	0.172
Gender ego	0.203	1.703	0.730	29.655	18	0.041	26.519	18	0.088
Gender same	0.447	0.272	0.001	42.374	18	<.001	4.082	18	1.000

Migration background

Third, in none of the negative networks did we find alter effects of migration background. Out of step with Hypothesis 3, non-native pupils were not more likely to be avoided, disliked, or victimized than their native classmates. Previous studies suggest that non-native pupils with a non-western migration background are more distant from natives than non-native pupils with a western migration background, and are more often discriminated against in the Netherlands (Hagendoorn, 1995). We therefore also performed the analyses while distinguishing between natives, western non-natives, and non-western non-natives (see Table A5.3, A5.4, and A5.5 in the Appendix). The results of these additional analyses show that neither pupils with a western nor pupils with a non-western migration background were more likely to be avoided, disliked, or victimized than native pupils in their classes.

Finally, we did not find any dyadic effects of migration background. Hypothesis 4 was therefore not supported, as avoidance, antipathy and aggression were not more likely between a native and a non-native pupil than between two native pupils and two non-native pupils. The same held true when differentiating between natives, western non-natives, and non-western non-natives (see Table A5.3, A5.4, and A5.5 in the Appendix). While homophily, or the tendency to like people who are similar, is often empirically supported, we did not find evidence for ethnic heteromisos, or the tendency to dislike people who are dissimilar in ethnicity.

Control variables

With regards to the control variables, it is worth noting that pupils who knew each other before becoming classmates in their new high school were less likely to avoid each other in at least one of the classes; and they were more likely to be aggressive towards one another. Whether pupils knew each other from before had no effect on whether they disliked each other.

Furthermore, pupils with the same gender were generally less likely to avoid and dislike one another than pupils with a different gender. This can be interpreted as in line with the tendency for homophily, where boys prefer to interact with other boys and girls prefer to interact with other girls. Similarly, these results are congruent with research in developmental psychology that suggests that early adolescents avoid their opposite sex peers at first but later on start seeking them out for romantic purposes (Dunphy, 1963). In contrast, the same did not hold true for aggressive behaviour, as this was more likely to occur between pupils of the same gender. This is in line with previous research on aggression in early adolescence (Faris, 2012).

On average there were no alter or ego effects of gender on any of the negative networks. That said, the Fisher's tests suggested that at least in some classes boys were more likely to be avoided than girls. For antipathy and aggression the results

were less straightforward, as there were some classes in which boys were more often disliked and victimized than girls, and some classes where the opposite was true.

With regards to the ego effects of gender, the Fisher's tests showed that there were some classes where boys were less likely to be antipathetic towards their classmates than girls, and some in which boys were more likely to be aggressive than girls. Whether boys or girls were more likely to avoid other pupils seemed to depend at least to some extent on the specific classroom, as there were some classes in which boys were more likely to actively avoid their peers, and some in which the opposite was true.

Discussion

We set out to explain the existence of negative relationships amongst first year pupils in high schools in the Netherlands, and sought to make two overarching contributions to the academic literature on negative networks.

First, we tested whether status theory can explain all negative relationships equally well, or whether appreciating differences between different types of negative ties can help explain inconsistent results of previous research. We argued that status hierarchies can be operationalized in terms of reciprocity and transitivity; and that avoidance, antipathy, and aggression can be distinguished from one another based on cost and visibility.

In line with our expectations, all three negative networks were transitive in a way that matches an archetypical status hierarchy. If pupil A dominated pupil B, and pupil B dominated pupil C, then pupil A was more likely to dominate pupil C as well. Pupils who are treated negatively, and are thereby deprived of status, possibly treat other pupils negatively in order to feel powerful themselves. Or, in the words of Allport (1954, p. 153): "Pecked at by those higher in the pecking order, one may, like a fowl in the barnyard, peck at those seen as weaker and lower than oneself."

In support of our hypotheses, the more visible types of negative behaviour were more transitive, with aggression being most transitive and antipathy being least transitive. Considering that antipathetic behaviour is less easily observed by the alter and other people in the classroom might thus explain why a positive effect of transitivity was not found in previous studies on negative networks that focused on dislike (Harrigan & Yap, 2017). Our findings suggest that this has, at least partially, to do with the specific type of negative tie that is being studied.

Furthermore, the avoidance and antipathy networks were more dense than the aggression network (see Table 5.4). This ranking is in line with the assumption that costly behaviour is less common. However, not only did we expect reciprocity to have a negative effect on negative behaviour, we also expected reciprocity to have a

stronger negative effect on more costly forms of behaviour. Both expectations were contradicted by our findings.

A positive effect of reciprocity was expected based on the idea that an archetypical social hierarchy is asymmetrical: if pupil A is superior to pupil B, B cannot also be superior to pupil A. Yet pupils do reciprocate negative behaviour, as is suggested by our results, but also by other recent studies (Berger & Dijkstra, 2013; Boda & Néray, 2015). Perhaps rather than allowing themselves to be dominated by their classmates, pupils fight back and reciprocate. This is at least suggested by anecdotal evidence from a more qualitative study on antipathetic relationships in high schools from Card (2007, p.45): "If she won't like me, I'm going to not like her back".

The other surprising finding is that costly behaviour is *more* likely to be reciprocated. This also seems to be supported by the results from another recent study on violence and dislike networks, where the positive effect of reciprocity appeared to be stronger for violence than for dislike (Wittek, Kroneberg & Lämmermann, 2019). These findings could suggest that not reciprocating costly behaviour might also be more costly to one's own status position. Being victimized without fighting back might be worse in terms of losing face than being avoided without avoiding in return. Future research could thus consider whether certain types of negative behaviour are more effective ways to gain status, and also more detrimental to pupils' social position if they find themselves at the receiving end of this negative behaviour.

More broadly speaking, the consistent positive effects of both reciprocity and transitivity on negative networks require us to reconsider what status hierarchies should look like. The simple idea of a transitive and asymmetrical pecking order is not supported by our data. There appears to be some consensus on which pupils are on the lower side of the social order, but these pupils don't just accept their position without questioning or fighting back. The pecking order is not set in stone. There are still status struggles. Previous research suggests that status, including the hunger to climb and the fear to fall down the social ladder, is particularly important and volatile during adolescence (Coleman, 1961; Faris, 2012; Savin-Williams, 1979). This also confirms the usefulness of our dynamic and longitudinal approach to studying negative relationships amongst high school pupils.

In addition, unsettled status struggles might be particularly common amongst pupils who feel the need to resort to negative behaviour for social climbing. Previous research suggest that pupils who already find themselves at the top of the social ranking do not use aggression as a means to achieve status (Faris & Felmlee, 2011). For them, being nice to others is a better way to consolidate their position. Perhaps our singular focus on negative behaviour has put emphasis on those pupils who are not the most popular, and are still struggling to gain or maintain their status position.

Our second contribution to the literature on negative networks was to have a closer look at the role of the migration background of pupils. We have done so in two ways. First, we tested whether migration background can be seen as an indicator of low status, explaining why non-native pupils might be avoided, disliked, and victimized more than their native classmates. We did not find any evidence for this notion. Second, we tested whether negative relationships in high school classes are governed by heteromisos, and are thus more likely to be interethnic than intraethnic. This was not supported by our data either. While homophily – or the like for similar people – is an often found aspect of friendships, it does not seem to translate into a dislike for dissimilar people. Attraction to similar people seems to be more important than repulsion of dissimilar people in governing who interacts with whom (Chen & Kenrick, 2002). Moreover, even though the ethic group to which someone belongs may form a source of pride and self-esteem (Tajfel & Turner, 1979), this does not necessarily translate into the need to devalue other ethnic groups or resort to negative behaviour directed at pupils with a different ethnic background. Further distinguishing between non-native pupils with a western and a non-western backgrounds did not matter for our conclusions on the influence of migration background.

Besides these more general conclusions, it must also be noted that there was some heterogeneity in effects between the nine classes. Typically, as was the case for the effects testing our main hypotheses, this heterogeneity boiled down to a given parameter being significantly different from zero in one class but not in another. Yet there were some parameters that had opposing effects, depending on the class one looked at. In some classes, boys were more likely to avoid and victimize their classmates, while in other classes girls were more likely to do so. Similarly, in some classes boys were more likely to be disliked and victimized by their peers, while in other classes girls were more often disliked and victimized. We could only control for such differences between classes. Unfortunately our data consisted of too few classes to actually test what drove these differences. Future studies could consider looking at a larger sample of classes (20 or more) to make it possible to try to explain this heterogeneity.

More generally, the fairly small number of classes and schools included in this study also warrants some caution in generalizing our findings to all secondary school pupils in the Netherlands, or even abroad. We do think status struggles are so fundamental to negative behaviour between classmates that our results should also hold in other samples, but this remains to be seen. The small number of classes could also offer an explanation as to why some of the differences between the three negative networks in terms of the effects of reciprocity and transitivity were not found to be significant.

Besides our relatively small sample size, there are a few other limitations

to our study that should be mentioned. First of all, our data did not include an alternative measure of status. Previous research has also operationalized status in terms of an attribute, such as winning a yearbook award (Faris, 2012), or looked at status as perceived by the pupils themselves (Lease, Musgrove & Axelrod, 2002). Such measures could have been used to validate our operationalization of an informal hierarchy in terms of reciprocity and transitivity. Futures studies could also measure status as an attribute to follow up on the suggestion that more extreme or costly behaviour, like aggression, may be more effective at attaining status than more benign negative behaviour, like avoidance. That said, we still think that a sociometric approach to status has its merits. Status hierarchies inferred from dyadic behaviour have been found to be largely similar to the self-reported or perceived hierarchies (Savin-Williams, 1979).

Second, we did not account for the influence of positive ties, such as friendships. This omission could be important in two ways. For one, having many friends and being liked by many classmates is another way to attain status and climb the social ladder (Faris, 2012). Further, friendships could also explain negative behaviour amongst pupils. For example, adolescents tend to dislike whoever their friends dislike (Pál, 2015). This interplay between positive and negative networks offers many interesting puzzles that remain unsolved. Yet these questions are beyond the scope of this chapter. Negative networks in and of themselves are still largely understudied. Perhaps a better appreciation of the different types of negative ties could even help our understanding of the ways in which positive and negative networks relate to one another.

Third, our measure of migration background is limited, as it is based on the rather crude distinction between native pupils, pupils with a western migration background, and pupils with a non-western migration background. Although this classification is commonly used in research in the Netherlands (Geerlings, Thijs & Verkuyten, 2018), and by Statistics Netherlands, it might not align perfectly with how ethnicity is experienced by the pupils themselves. However, our null findings are congruent with other recent research on interethnic bullying in the Netherlands that used a slightly more detailed measure of ethnic background (Tolsma et al., 2013). That said, the way in which we operationalized migration background could offer an alternative explanation as to why we do not find evidence for an effect of migration background on negative networks, as other recent studies do (Wittek, Kroneberg & Lämmermann, 2019). Future research could include self-report measures of ethnicity and analyse a bigger sample of adolescents. The latter would enable researchers to make more fine-grained distinctions based on ethnicity, as it reduces the chance at empty or severely underrepresented categories.

Notwithstanding the importance of these limitations, the current study

makes some crucial contributions to the burgeoning literature on negative networks. Using three waves of network data collected in Dutch high schools, we have shown that not all types of negative behaviour are the same. By employing novel methods of dimension reduction in networks (Vörös & Snijders, 2017), we studied three distinct types of negative behaviour: avoidance, antipathy, and aggression. These types of ties have been argued to differ from one another in terms of their cost and visibility. The migration background of the pupils did not explain negative relationships between classmates. Instead, negative behaviour was governed by reciprocity and transitivity. Combined, these network properties suggest that avoidance, antipathy, and aggression are means to achieve status, but also that pupils do not just settle for an inferior position in the social hierarchy.

Appendices

Appendix Chapter 2

Study 1

Table A2.1. Correlations between all variables of Study 1, overall sample (N=2994)

		1.	2.	3.	4.
1.	Positive contact frequency	-			
2.	Negative contact frequency	-.01	-		
3.	Positive contact intensity	.40**	-.18**	-	
4.	Negative contact intensity	-.07**	.33**	-.07	-
5.	Outgroup attitudes	.29**	-.23**	.32**	-.31**

** $p<.01$

Table A2.2. Correlations between all variables of Study 1, minority sample (N=1474) below the diagonal, majority sample (N=1520) above the diagonal

		1.	2.	3.	4.	5.
1.	Positive contact frequency	-	-.04	.41**	-.13**	.35**
2.	Negative contact frequency	-.03	-	-.24**	.44**	-.28**
3.	Positive contact intensity	.37**	-.12**	-	-.15**	.35**
4.	Negative contact intensity	-.03	.22**	-.02	-	-.22**
5.	Outgroup attitudes	.21**	-.17**	.27**	-.07	-

** $p<.01$

Study 2

Table A2.3. Means and standard deviations for all main variables of Study 2 (N=87), split by condition

	Negative contact				Positive contact			
	High negativity (n=23)		Low negativity (n=22)		Low positivity (n=22)		High positivity (n=20)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Contact quality	3.38	1.00	3.81	0.78	3.94	0.99	4.92	1.41
Outgroup attitudes	3.88	1.06	3.50	1.14	3.67	1.17	4.87	1.23

Table A2.4. Overall means, standard deviations and correlations for the main variables of Study 2 (N=87)

		M	*SD*	1.
1.	Contact quality	3.99	1.18	-
2.	Outgroup attitudes	3.96	1.24	.39**

** $p<.01$

Example templates for the manipulations

Legend

——————— Negative contact of high intensity

..... Negative contact of low intensity

- - - - - - - - - - - - - Positive contact of low intensity

——————— Positive contact of high intensity

Feedback after the first task

How would you rate the quality of your partner's answer to the first question?

Very bad — Average — Very good

1 2 3 4 5 6 7

Which of the following statements best fits the impression you now have of your partner?

☐ My partner should put a lot more effort in this task

☐ My partner should put more effort in this task

𝕏 𝕏 𝕏 𝕏 ☐ My partner should put a bit more effort in this task

☐ My partner does not have to put a lot more effort in this task

☐ My partner does not have to put more effort in this task

How convincing did you find the arguments provided by your partner?

Not at all convincing — Very convincing

1 2 3 4 5 6 7

Feedback after the second task

How convincing did you find the arguments provided by your partner?

Not at all convincing — Very convincing

1 2 3 4 5 6 7

How serious do you think your partner is about this task?

Not at all serious — Very serious

1 2 3 4 5 6 7

How would you rate the quality of your partner's answer to the second question?

Very bad — Average — Very good

1 2 3 4 5 6 7

To what extent do you think the quality of your partner's work was typicaly of the students of his or her type of university (distance learning or brick and mortar)?

Not at all typical — Very typical

1 2 3 4 5 6 7

Study 3

Table A2.5. Means and standard deviations for all main variables of Study 3 (N = 169), split by condition

	Negative contact				Positive contact			
	High negativity (n=42)		Low negativity (n=45)		Low positivity (n=40)		High positivity (n=42)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Contact quality	4.20	1.71	3.92	1.58	4.23	1.76	4.83	1.37
Outgroup attitudes (pre)	5.04	1.11	4.80	1.15	4.86	1.32	5.13	0.99
Outgroup attitudes (post)	4.33	1.70	3.89	1.69	4.35	1.54	4.97	1.24
Prior positive contact	2.49	1.83	2.36	1.82	2.93	2.14	2.36	1.79

Table A2.6. Overall means, SDs, and correlations for all main variables of Study 3 (N=169)

		M	*SD*	1.	2.	3.
1.	Contact quality	4.29	1.63	-		
2.	Outgroup attitudes (pre)	4.95	1.14	.64**	-	
3.	Outgroup attitudes (post)	4.37	1.59	.79**	.73**	-
4.	Prior positive contact	2.53	1.89	.70**	.56**	.63**

** $p<.01$

Study 4

Table A2.7. Means and SDs for all main variables of Study 4 (N=78), split by condition.

	Negative contact				Positive contact			
	High negativity (n=19)		Low negativity (n=19)		Low positivity (n=19)		High positivity (n=21)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Contact quality	3.59	0.92	4.10	0.63	3.85	0.72	4.56	0.63
Outgroup attitudes (pre)	67.78	12.94	68.60	14.80	69.47	15.16	73.83	12.85
Outgroup attitudes (post)	60.53	18.13	66.84	16.12	67.54	15.75	76.19	11.42
Prior positive contact	1.63	0.83	1.68	0.89	1.89	0.94	1.48	0.81

Table A2.8. Overall means, SDs, and correlations for all main variables of Study 4 (N=78).

		M	*SD*	**1.**	**2.**	**3.**
1.	Contact quality	4.04	0.80	-		
2.	Outgroup attitudes (pre)	70.00	13.40	.08	-	
3.	Outgroup attitudes (post)	67.99	16.18	.40**	.48**	-
4.	Prior positive contact	1.67	0.86	.02	.12	.05

** $p<.01$

Appendix Chapter 3

Ethnic threat perceptions was measured with 6 items, all measured on 5-point Likert scales, ranging from 1 ´strongly disagree´ to 5 ´strongly agree´. For White participants, the items read as follows: 'The more power South Asian people have in this country, the more difficult it is for White people'; 'More good jobs for South Asian people means fewer good jobs for White people'; 'South Asian people are trying to get ahead economically at the expense of White people'; 'South Asian people sometimes do things that White people would never do'; 'South Asian and White people have very different values'; 'South Asian people threaten White people's way of life'. For South Asian participants, the same questions were asked, but instead referred to South Asian people as the ingroup and White people as the outgroup. These items are taken together and used as a latent variable. See Table A3.1 below for the measurement statistics.

Table A3.1. Fit statistics of measurement models for latent variable ethnic threat, for both White and Asian participants.

	$\chi 2$	df	p	CFI	TLI	RMSEA	SRMR within	SRMR between	SB $\Delta\chi 2$	Δdf	p
White											
M1:	257.590	18	<.001	.891	.818	.140	.050	.729			
M2:	41.582	17	<.001	.989	.980	.046	.022	.117	74.773	1	<.001
M3:	23.619	10	<.010	.993	.985	.045	.018	.045	18.941	7	<.010
Asian											
M1:	124.388	18	<.001	.906	.843	.096	.060	.527			
M2:	30.878	17	<.050	.988	.978	.036	.018	.142	28.683	1	<.001
M3:	16.936	10	<.100	.993	.985	.033	.018	.052	16.977	7	<.050

M1: initial CFA; same 6-item factor structure on the within and between-level.
M2: freed error covariance on within-level between the items referring to 'values' and 'behaviour'. M3: items referring to 'values' and 'behaviour' do not load significantly on the between-level factor; no longer included as between-level items.

Table A3.2. Intraclass correlations (ICC) and model fit comparisons (fixed intercept vs. random intercept) for both White and Asian participants.

	Social cohesion	General trust	Outgroup trust	Outgroup warmth	Outgroup competence
White					
ICC	.063	.075	.053	.031	.025
Deviance fixed intercept	1,997.922	1,517.124	1,604.030	3,346.344	3,057.492
Deviance random intercept	1,987.044	1,512.448	1,601.830	3,342.622	3,055.654
Difference in deviance	10.878	4.676	2.200	3.722	1.838
Asian					
ICC	.141	.034	.006	.053	.051
Deviance fixed intercept	1,791.880	1,447.076	1,408.476	3,164.712	2,850.916
Deviance random intercept	1,774.058	1,445.666	1,408.846	3,155.896	2,844.010
Difference in deviance	1.7822	1.410	-0.370	8.816	6.906

Note: Wald test of difference in deviance significant at cut-off of 3.84 ; for all fit tests, difference in df is 1 (3-2); Deviance = -2*Loglikelihood.

Table A3.3. White British. Results of the multilevel structural equation models testing the effects of the percentage of ethnic outgroup members in the neighbourhood on social cohesion, trust, and prejudice, via positive and negative interethnic contact. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	General trust	Outgroup warmth	Outgroup competence	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
% South Asian	.035(.012)**	.017(.012)	.000(.026)	-.025(.016)	.017(.010)			
% South Asian squared	-.005(.002)**	-.002(.002)	.000(.004)	.003(.002)	-.003(.001)			
Deprivation	-.002(.003)	.003(.003)	-.001(.004)	-.003(.003)	-.002(.002)			
Population density	.001(.001)	-.002(.001)	-.001(.004)	.000(.002)	.001(.001)			
Residential stability	-.003(.007)	.009(.006)	.010(.014)	.006(.008)	.005(.005)			
Age profile	-.009(.014)	.016(.016)	.003(.089)	-.009(.013)	.001(.008)			
Government Office Region	.004(.021)	.002(.022)	-.002(.038)	-.019(.024)	-.019(.012)			
Positive interethnic contact				.046(.370)	.036(.146)			
Negative interethnic contact				-.049(.249)	-.086(.103)			
Individual-level								
Positive interethnic contact				.168(.027)***	.067(.025)**	.203(.023)***	.109(.023)***	.084(.026)**
Negative interethnic contact				-.091(.038)*	-.129(.030)***	-.124(.024)***	-.062(.025)*	-.187(.031)***
Ethnic threat						-.213(.044)***	-.196(.041)***	-.112(.029)***
Female	.054(.061)	-.186(.057)**	-.037(.077)	.048(.064)	.005(.059)	.130(.040)**	.060(.041)	.066(.062)
Age	-.006(.002)**	-.007(.002)***	.008(.004)	.004(.002)*	.003(.002)	.002(.002)	-.001(.001)	.002(.002)
Educational attainment	.096(.020)***	-.004(.017)	-.258(.030)***	.003(.022)	.044(.018)*	-.031(.015)*	-.051(.018)**	.038(.019)*
Employment status	.065(.017)***	.006(.016)	.000(.019)	.001(.016)	.004(.011)	.008(.011)	-.001(.010)	.009(.012)
Neighbourhood residency	.086(.031)**	.014(.030)	-.007(.037)	.001(.031)	.001(.026)	-.008(.022)	.031(.020)	.004(.027)

*p<.05, **p<.01, ***p<.001.

Note: results are based on 1520 White British individuals nested in 203 neighbourhoods.

Table A3.4. Asian British. Results of the multilevel structural equation models testing the effects of the percentage of ethnic outgroup members in the neighbourhood on social cohesion, trust, and prejudice, via positive and negative interethnic contact. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion		Outgroup competence	General trust	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
% White	.005(.010)	-.006(.008)	-.004(.014)	-.009(.015)	.001(.010)	.005(.008)		
% White squared	.000(.001)	.000(.001)	.000(.001)	.001(.001)	.000(.001)	-.001(.001)		
Deprivation	-.005(.003)	-.001(.003)	-.003(.004)	-.003(.004)	.004(.003)	.000(.003)		
Population density	-.001(.001)	-.002(.001)*	.001(.001)	-.002(.002)	.000(.001)	.000(.001)		
Residential stability	.005(.009)	.002(.005)	.002(.007)	.000(.009)	.002(.005)	-.003(.009)		
Age profile	-.007(.014)	.002(.011)	.000(.013)	.011(.015)	.004(.010)	-.008(.010)		
Government Office Region	-.039(.022)	-.003(.015)	.008(.024)	-.030(.028)	.011(.018)	.006(.019)		
Positive interethnic contact				.174(.230)	.408(.302)	.038(.301)		
Negative interethnic contact				-.843(.679)	-.369(.557)	.665(.301)		
Ethnic threat					-.130(.374)	-.621(.325)		
Individual-level								
Positive interethnic contact				.097(.032)**	.121(.025)***	.059(.026)*	.049(.035)	.072(.032)*
Negative interethnic contact				-.070(.037)*	-.111(.026)***	-.049(.023)*	-.091(.035)*	-.113(.032)***
Ethnic threat					-.172(.050)**	-.179(.048)***		-.116(.032)***
Female	-.111(.053)*	-.208(.049)***	-.084(.080)	.124(.068)	.140(.046)**	-.008(.041)	-.063(.052)	-.093(.054)
Age	-.012(.002)***	-.007(.002)***	.000(.003)	.005(.002)*	.001(.002)	.003(.002)	-.002(.002)	.000(.002)
Educational attainment	.036(.020)	.014(.019)	-.056(.025)*	-.012(.022)	-.031(.017)	.017(.014)	.041(.021)*	.072(.032)*
Employment status	.061(.010)***	.032(.012)**	.012(.016)	.011(.012)	.025(.008)**	.019(.008)*	.001(.011)	.054(.025)*
Neighbourhood residency	.112(.023)***	.034(.022)	.006(.035)	.038(.026)	.063(.019)**	.029(.019)	.033(.027)	-.014(.011)

*$p<.05$, **$p<.01$, ***$p<.001$.

Note: results are based on 1474 Asian British individuals nested in 206 neighbourhoods.

Table A3.5. White British. Results of the multilevel structural equation models testing the effects of the absolute number of ethnic outgroup members in the neighbourhood on cohesion, trust, and prejudice, via positive and negative interethnic contact. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	General trust	Outgroup warmth	Outgroup competence	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
# South Asian	.257(.105)*	.096(.106)	-.080(.155)	-.151(.129)	.080(.066)			
# South Asian squared	-.314(.139)*	-.099(.135)	.068(.189)	.162(.166)	-.146(.092)			
Deprivation	-.002(.003)	.003(.003)	-.001(.004)	-.003(.004)	-.002(.002)			
Population density	.001(.001)	-.001(.001)	-.001(.003)	.000(.001)	.001(.001)			
Residential stability	-.004(.007)	.011(.006)	.011(.011)	.007(.008)	.006(.004)			
Age profile	-.005(.014)	.015(.014)	.000(.068)	-.013(.013)	.000(.007)			
Government Office Region	.013(.021)	.003(.021)	-.006(.032)	-.026(.023)	-.018(.011)			
Positive interethnic contact				.007(.364)	.051(.142)			
Negative interethnic contact				-.040(.243)	-.084(.102)			
Individual-level								
Positive interethnic contact				.170(.028)***	.068(.025)**	.202(.023)***	.109(.023)***	.084(.026)**
Negative interethnic contact				-.092(.037)*	-.131(.030)***	-.124(.024)***	-.063(.024)*	-.187(.031)***
Ethnic threat						-.215(.044)***	-.195(.040)***	-.112(.029)***
Female	.053(.061)	-.185(.057)**	-.038(.077)	.046(.064)	.001(.059)	.130(.039)**	.060(.040)	.066(.062)
Age	-.006(.002)**	-.007(.002)***	.008(.003)*	.004(.002)*	.003(.002)	.002(.002)	-.001(.001)	.002(.002)
Educational attainment	.095(.020)***	-.003(.017)	-.258(.027)***	.002(.022)	.043(.018)*	-.031(.015)*	-.051(.017)**	.038(.019)*
Employment status	.066(.017)***	.006(.016)	-.001(.019)	.000(.016)	.004(.011)	.008(.011)	-.001(.010)	.008(.012)
Neighbourhood residency	.087(.031)**	.014(.031)	-.006(.036)	-.001(.031)	.001(.026)	-.008(.021)	.031(.020)	.004(.026)

*p<.05, **p<.01, ***p<.001.

Note: results are based on 1520 White British individuals nested in 203 neighbourhoods.

Table A3.6. Asian British. Results of the multilevel structural equation models testing the effects of the absolute number of ethnic outgroup members in the neighbourhood on cohesion, trust, and prejudice, via positive and negative interethnic contact. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	Outgroup warmth	Outgroup competence	General trust	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
# White	.015(.095)	-.093(.072)	-.084(.129)	-.097(.161)	.169(.085)*	.090(.085)		
# White squared	.026(.086)	.080(.071)	.042(.127)	.091(.164)	-.158(.086)	-.103(.082)		
Deprivation	-.005(.003)	-.001(.003)	-.004(.004)	-.003(.004)	.004(.003)	.000(.003)		
Population density	-.001(.001)	-.002(.001)**	.000(.001)	-.002(.002)	.000(.001)	.000(.001)		
Residential stability	.006(.009)	.002(.005)	-.002(.008)	.003(.009)	.004(.005)	-.004(.008)		
Age profile	-.005(.013)	.002(.010)	.004(.012)	.005(.015)	.001(.008)	-.009(.009)		
Government Office Region	-.034(.022)	-.004(.015)	.002(.025)	-.027(.027)	.008(.017)	.004(.019)		
Positive interethnic contact				.164(.236)	.402(.268)	.047(.293)		
Negative interethnic contact				-.851(.695)	-.332(.516)	.654(.413)		
Ethnic threat					-.098(.315)	-.582(.306)		
Individual-level								
Positive interethnic contact				.097(.032)**	.122(.025)***	.059(.026)*	.048(.035)	.071(.032)*
Negative interethnic contact				-.089(.037)*	-.112(.027)***	-.050(.024)*	-.092(.036)*	-.115(.033)***
Ethnic threat					-.172(.051)**	-.177(.048)***		-.116(.032)***
Female	-.109(.053)*	-.207(.049)***	-.088(.079)	.127(.068)	.137(.045)**	-.010(.041)	-.063(.052)	-.094(.054)
Age	-.012(.002)***	-.007(.002)***	.000(.003)	.005(.002)*	.001(.002)	.003(.002)	-.002(.002)	.000(.002)
Educational attainment	.035(.020)	.014(.018)	-.055(.025)*	-.012(.021)	-.031(.017)	.018(.014)	.041(.021)*	.056(.021)**
Employment status	.062(.010)***	.032(.012)**	.012(.016)	.010(.012)	.025(.009)**	.018(.008)*	.001(.011)	-.013(.011)
Neighbourhood residency	.113(.023)***	.033(.022)	.007(.035)	.037(.026)	.063(.019)**	.029(.018)	.033(.027)	.055(.025)*

*$p<.05$, **$p<.01$, ***$p<.001$.

Note: results are based on 1474 Asian British individuals nested in 206 neighbourhoods.

Table A3.7. Results of the multilevel structural equation models using local authority districts as clusters instead of neighbourhoods. Unstandardized coefficients shown.

	Model 1: White British		Model 2: Asian British	
	Positive interethnic contact	Negative interethnic contact	Positive interethnic contact	Negative interethnic contact
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
District-level				
Exposure Whites to Asians	-.768(1.787)	-1.065(1.963)		
Squared exposure Whites to Asians	.745(1.264)	.437(1.391)		
Exposure Asians to Whites			1.520(1.552)	-.710(1.416)
Squared exposure Asians to Whites			-4.227(2.840)	.732(2.773)
Deprivation	-.005(.003)	.002(.004)	.002(.004)	-.002(.003)
Population density	.004(.002)*	-.004(.003)	.000(.002)	-.001(.002
Residential stability	-.014(.014)	.019(.018)	.014(.017)	.025(.012)*
Age profile	.010(.027)	-.019(.026)	.010(.022)	-.011(.019)
Individual-level				
Female	.051(.067)	-.173(.060)**	-.121(.057)*	-.188(.050)***
Age	-.007(.002)**	-.007(.002)**	-.012(.002)***	-.006(.001)***
Educational attainment	.085(.016)***	.004(.018)	.037(.023)	.026(.023)
Employment status	-.064(.016)***	-.009(.018)	.063(.009)***	.035(.012)**
Neighbourhood residency	-.081(.033)*	-.021(.038)	.107(.031)**	.026(.023)

*p<.05, **p<.01, ***p<.001.

Note: results of Model 1 are based on 1520 White British individuals nested in 55 districts; and the results of Model 2 are based on 1474 Asian British individuals nested in 55 districts. The number of outcome variables had to be limited to make sure that the number of estimated parameters did not exceed the number of clusters, which resulted in issues of model nonidentification. We focused on positive and negative contact because these additional results mainly serve to check the robustness of the null finding of exposure to ethnic outgroups on negative contact. The district-level variables were newly calculated for these analyses. For spatial exposure, LSOAs were again used as subunits.

Table A3.8. Correlations between the neighbourhood-level variables. White British is shown below the diagonal, Asian British above the diagonal.

		1.	2.	3.	4.	5.
1.	Spatial exposure	/	.234***	.430***	.046	-.443***
2.	Deprivation	-.292***	/	.256***	-.172**	-.482***
3.	Population density	-.365***	.217***	/	-.333***	-.576***
4.	Residential Stability	-.024	-.166*	-.350***	/	.487***
5.	Age profile	.453***	-.442***	-.570***	.507***	/

*p<.05, **p<.01, ***p<.001

Table A3.9. Results of the multilevel structural equation models measuring spatial exposure of White people to Indian, Pakistani, and Bangladeshi people. Unstandardized coefficients shown.

	Model 1: Linear effects		Model 2: Quadratic effects	
	Social cohesion	General trust	Social cohesion	General trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level				
Exposure Whites to Indians	.589(.211)**	-.168(.167)	1.029(1.311)	.931(1.177)
Exposure Whites to Pakistani	-.208(.256)	.083(.231)	-4.326(1.336)**	.866(1.301)
Exposure Whites to Bangladeshi	-.355(.385)	-.084(.307)	1.342(2.618)	2.376(1.600)
Squared exposure Whites to Indians			-.347(1.010)	-.768(.869)
Squared exposure Whites to Pakistani			3.047(0.968)**	-.540(.932)
Squared exposure Whites to Bangladeshi			-.899(1.704)	-1.683(1.066)
Deprivation	-.006(.004)	-.001(.001)	-.004(.004)	-.001(.003)
Population density	-.001(.002)	.001(.001)	-.001(.002)	.001(.001)
Residential stability	.005(.006)	.001(.007)	.005(.006)	.002(.007)
Age profile	-.008(.012)	.009(.012)	-.007(.012)	.010(.012)
Government Office Region	-.013(.025)	.017(.017)	-.015(.025)	.012(.018)
Individual-level				
Female	.054(.062)	.027(.058)	.048(.062)	.022(.058)
Age	.003(.002)	.002(.002)	.004(.002)	.002(.002)
Educational attainment	.015(.023)	.037(.018)*	.019(.023)	.037(.018)*
Employment status	.007(.017)	.007(.012)	.007(.017)	.005(.012)
Neighbourhood residency	.021(.033)	.011(.027)	.022(.033)	.012(.027)

*p<.05, **p<.01.

Note: results are based on 1520 White British individuals nested in 203 neighbourhoods.

Table A3.10. White British. Results of the multilevel structural equation models comparing neighbourhoods that witnessed a sudden increase (from below to above 10%) in the percentage of South Asian residents to the other neighbourhoods. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	General trust	Outgroup warmth	Outgroup competence	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
Exposure Whites to Asians	3.470(1.474)*	.797(1.433)	-.387(1.667)	-2.047(1.837)	2.054(1.365)			
Exposure squared	-3.439(1.353)*	-1.138(1.296)	.229(1.558)	2.194(1.690)	-1.906(1.225)			
Surpass threshold (1/0)	.060(.119)	.102(.125)	.238(.105)*	-.043(.103)	.040(.061)			
Deprivation	-.002(.003)	.003(.003)	-.001(.004)	-.003(.004)	-.002(.002)			
Population density	.001(.001)	-.002(.001)	-.002(.002)	.000(.002)	.001(.001)			
Residential stability	-.005(.007)	.008(.006)	.007(.007)	.008(.008)	.004(.005)			
Age profile	-.007(.014)	.015(.013)	-.006(.047)	-.012(.013)	.002(.007)			
Government Office Region	.007(.020)	.005(.021)	.003(.028)	-.021(.024)	-.017(.012)			
Positive intereth-nic contact				-.009(.347)	.046(.146)			
Negative intereth-nic contact				-.026(.241)	-.097(.104)			
Individual-level								
Positive intereth-nic contact				.171(.027)***	.066(.025)**	.204(.023)***	.109(.023)***	.085(.026)**
Negative intereth-nic contact				-.092(.038)*	-.129(.030)***	-.123(.024)***	-.062(.024)*	-.188(.032)***
Ethnic threat						-.214(.043)***	-.196(.041)***	-.111(.029)***
Female	.054(.061)	-.185(.057)**	-.032(.077)	.046(.065)	.006(.059)	.131(.039)**	.061(.040)	.067(.062)
Age	-.006(.002)**	-.007(.002)***	.008(.003)*	.004(.002)*	.003(.002)	.002(.001)	-.001(.001)	.002(.002)
Educational attainment	.095(.020)***	-.003(.017)	-.258(.027)***	.003(.022)	.044(.018)*	-.031(.015)*	-.051(.018)**	.039(.019)*
Employment status	.065(.017)***	.006(.016)	.001(.019)	.000(.016)	.005(.011)	.009(.011)	.000(.010)	.009(.012)
Neighbourhood residency	.085(.030)**	.013(.031)	-.006(.035)	.000(.031)	.002(.026)	-.008(.021)	.031(.020)	.004(.027)

*$p<.05$, **$p<.01$, ***$p<.001$.

Note: results are based on 1520 White British individuals nested in 203 neighbourhoods.

Table A3.11. White British. Results of the multilevel structural equation models testing the effects of longitudinal trends in the spatial exposure to ethnic outgroup members on cohesion, trust, and prejudice, via positive and negative interethnic contact. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	General trust	Outgroup warmth	Outgroup competence	Outgroup trust
	b (s.e.)	b (s.e.)	b (s.e.)	b (s.e.)	b (s.e.)	b (s.e.)	b (s.e.)	b (s.e.)
Neighbourhood-level								
Exposure Whites to Asians	3.522(1.502)*	-.015(1.399)	-1.394(1.560)	-1.811(1.953)	2.017(1.382)			
Exposure squared	-3.477(1.381)*	-.195(1.260)	1.427(1.441)	1.923(1.801)	-1.856(1.231)			
Δ Exposure (10 years)	.254(.504)	-.831(.552)	-.492(.605)	.141(.543)	.133(.303)			
Deprivation	-.002(.003)	.004(.003)	-.001(.004)	-.003(.004)	-.002(.002)			
Population density	.001(.001)	-.001(.001)	-.001(.003)	.000(.002)	.001(.001)			
Residential stability	-.003(.007)	.006(.006)	.007(.011)	.008(.008)	.004(.005)			
Age profile	-.006(.014)	.017(.013)	.005(.060)	-.018(.018)	.003(.007)			
Government Office Region	.007(.020)	.001(.021)	.000(.032)	-.020(.024)	-.017(.012)			
Positive interethnic contact				-.020(.359)	.046(.142)			
Negative intereth-nic contact				-.026(.257)	-.083(.107)			
Individual-level								
Positive interethnic contact				.171(.028)***	.066(.025)**	.203(.023)***	.109(.023)***	.085(.026)**
Negative intereth-nic contact				-.091(.037)*	-.130(.030)***	-.123(.024)***	-.062(.024)*	-.187(.031)***
Ethnic threat						-.214(.044)***	-.198(.040)***	-.122(.028)***
Female	.053(.061)	-.186(.057)**	-.036(.077)	.046(.065)	.004(.059)	.131(.039)**	.061(.040)	.067(.062)
Age	-.006(.002)**	-.007(.002)***	.008(.003)*	.004(.002)*	.003(.002)	.002(.001)	-.001(.001)	.002(.002)
Educational attainment	.095(.020)***	-.004(.017)	-.259(.027)***	.003(.022)	.044(.018)*	-.032(.015)*	-.052(.017)**	.038(.018)*
Employment status	.065(.017)***	.006(.016)	.000(.019)	.000(.016)	.005(.011)	.008(.011)	-.001(.010)	.009(.012)
Neighbourhood residency	.086(.031)**	.012(.030)	-.007(.037)	.001(.031)	.001(.026)	-.009(.022)	.031(.020)	.003(.026)

*p<.05, **p<.01, ***p<.001.

Note: results are based on 1520 White British individuals nested in 203 neighbourhoods.

Table A3.12. Asian British. Results of the multilevel structural equation models testing the effects of longitudinal trends in the spatial exposure to ethnic outgroup members on cohesion, trust, and prejudice, via positive and negative interethnic contact. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	Outgroup warmth	Outgroup competence	General trust	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
Exposure Asians to Whites	-.621(.994)	-.527(.795)	-.451(1.296)	-1.474(1.518)	-.791(.892)	-.623(.894)		
Exposure squared	.718(1.111)	.979(.910)	.599(1.478)	2.390(1.783)	.863(1.068)	.492(1.031)		
Δ Exposure (10 years)	.094(.577)	-.113(.381)	.290(.474)	.440(.759)	-.238(.380)	.777(.446)		
Deprivation	-.005(.003)	-.001(.003)	-.003(.003)	-.003(.004)	.004(.003)	.000(.003)		
Population density	-.002(.001)	-.002(.001)**	.001(.001)	-.003(.002)	.000(.001)	.001(.001)		
Residential stability	.001(.010)	.001(.005)	.001(.007)	-.005(.010)	.004(.005)	-.007(.009)		
Age profile	-.001(.014)	.003(.010)	-.001(.012)	.012(.015)	.003(.009)	-.009(.010)		
Government Office Region	-.039(.021)	-.002(.015)	.008(.023)	-.026(.029)	.011(.017)	.006(.018)		
Positive interethnic contact				.148(.225)	.408(.262)	.028(.239)		
Negative intereth-nic contact				-.972(.740)	-.398(.528)	.622(.336)		
Ethnic threat					-.129(.347)	-.654(.284)*		
Individual-level								
Positive interethnic contact				.096(.032)**	.121(.025)***	.059(.026)*	.048(.035)	.072(.032)*
Negative intereth-nic contact				-.071(.037)*	-.111(.026)***	-.048(.024)*	-.093(.035)**	-.114(.032)***
Ethnic threat					-.170(.051)**	-.177(.048)***		-.115(.032)***
Female	-.112(.053)*	-.204(.049)***	-.084(.080)	.125(.068)	.143(.046)**	-.006(.042)	-.064(.052)	-.093(.054)
Age	-.012(.002)***	-.008(.002)***	.000(.003)	.005(.002)*	.001(.002)	.003(.002)	-.002(.002)	.000(.002)
Educational attainment	.035(.020)	.015(.019)	-.057(.025)*	-.012(.022)	-.029(.018)	.016(.015)	.041(.021)*	.056(.021)**
Employment status	.062(.010)***	.032(.012)**	.012(.016)	.011(.012)	.025(.008)**	.019(.008)*	.001(.011)	-.013(.011)
Neighbourhood residency	.115(.024)***	.033(.023)	.010(.036)	.042(.027)	.062(.019)**	.033(.018)	.033(.027)	.055(.025)*

*$p<.05$, **$p<.01$, ***$p<.001$.

Note: results are based on 1474 Asian British individuals nested in 206 neighbourhoods.

Table A3.13. White British. Results of the multilevel structural equation models testing the linear effects of the spatial exposure to ethnic outgroup members on social cohesion, trust, and prejudice, via positive and negative interethnic contact. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	General trust	Outgroup warmth	Outgroup competence	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
Exposure Whites to Asians	-.228(.319)	-.353(.277)	.082(.329)	.313(.232)	-.014(.171)			
Deprivation	-.001(.003)	.003(.003)	-.001(.004)	-.003(.004)	-.002(.002)			
Population density	.001(.001)	-.002(.001)	-.001(.003)	.000(.002)	.001(.001)			
Residential stability	-.006(.007)	.008(.006)	.009(.011)	.008(.008)	.003(.005)			
Age profile	-.006(.014)	.018(.013)	.004(.066)	-.014(.013)	.004(.007)			
Government Office Region	.012(.021)	.004(.021)	-.002(.031)	-.023(.024)	-.016(.011)			
Positive interethnic contact				-.045(.320)	.083(.137)			
Negative interethnic contact				-.020(.247)	-.105(.107)			
Individual-level								
Positive interethnic contact				.169(.027)***	.068(.025)**	.202(.023)***	.108(.023)***	.085(.026)**
Negative interethnic contact				-.094(.038)*	-.127(.030)***	-.124(.024)***	-.062(.024)*	-.187(.031)***
Ethnic threat						-.215(.044)***	-.197(.040)***	-.112(.028)***
Female	.055(.061)	-.185(.057)**	-.037(.077)	.043(.065)	.009(.059)	.130(.039)**	.060(.041)	.067(.062)
Age	-.006(.002)**	-.007(.002)***	.008(.003)*	.004(.002)*	.003(.002)	.002(.002)	-.001(.001)	.002(.002)
Educational attainment	.096(.020)***	-.003(.017)	-.258(.028)***	.002(.022)	.045(.018)*	-.031(.015)*	-.051(.017)**	.038(.018)*
Employment status	.066(.017)***	.006(.016)	.000(.019)	-.001(.016)	.006(.011)	.008(.011)	-.001(.010)	.009(.012)
Neighbourhood residency	.089(.031)**	.014(.031)	-.006(.036)	-.003(.031)	.003(.026)	-.008(.021)	.031(.020)	.003(.026)

*$p<.05$, **$p<.01$, ***$p<.001$.

Note: results are based on 1520 White British individuals nested in 203 neighbourhoods.

Table A3.14. Asian British. Results of the multilevel structural equation models testing the linear effects of the spatial exposure to ethnic outgroup members on social cohesion, trust, and prejudice, via positive and negative interethnic contact. Unstandardized coefficients shown.

	Positive interethnic contact	Negative interethnic contact	Ethnic threat	Social cohesion	Outgroup warmth	Outgroup competence	General trust	Outgroup trust
	b (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)	*b* (s.e.)
Neighbourhood-level								
Exposure Asians to Whites	-.020(.257)	.244(.185)	.116(.316)	.574(.332)	-.157(.234)	-.042(.228)		
Deprivation	-.005(.003)	-.001(.003)	-.003(.004)	-.004(.004)	.004(.003)	.000(.003)		
Population density	-.002(.001)	-.002(.001)**	.001(.001)	-.003(.002)	.000(.001)	.000(.001)		
Residential stability	.002(.009)	.001(.005)	.002(.007)	-.002(.009)	.003(.005)	-.003(.009)		
Age profile	-.001(.013)	.003(.010)	.000(.012)	.012(.015)	.003(.009)	-.009(.009)		
Government Office Region	-.040(.021)	-.003(.015)	.008(.023)	-.029(.029)	.010(.018)	.008(.019)		
Positive interethnic contact				.154(.223)	.401(.286)	.042(.292)		
Negative interethnic contact				-.901(.702)	-.352(.564)	.655(.415)		
Ethnic threat					-.138(.359)	-.611(.313)		
Individual-level								
Positive interethnic contact				.097(.032)**	.121(.025)***	.059(.026)*	.048(.035)	.071(.032)*
Negative interethnic contact				-.071(.036)*	-.111(.026)***	-.049(.024)*	-.090(.035)*	-.113(.032)***
Ethnic threat					-.171(.051)**	-.179(.048)***		-.116(.032)***
Female	-.112(.053)*	-.209(.049)***	-.085(.080)	.124(.067)	.140(.045)**	-.007(.041)	-.063(.052)	-.093(.054)
Age	-.012(.002)***	-.007(.002)***	.000(.003)	.005(.002)*	.001(.002)	.003(.002)	-.002(.002)	.000(.002)
Educational attainment	.035(.020)	.013(.019)	-.056(.025)*	-.011(.022)	-.030(.017)	.018(.014)	.041(.021)*	.056(.021)**
Employment status	.062(.010)***	.032(.012)**	.012(.016)	.011(.012)	.025(.008)**	.019(.008)*	.001(.011)	-.014(.011)
Neighbourhood residency	.115(.023)***	.035(.023)	.007(.035)	.039(.026)	.063(.019)**	.029(.018)	.033(.027)	.055(.025)*

*p<.05, **p<.01, ***p<.001.

Note: results are based on 1474 Asian British individuals nested in 206 neighbourhoods.

Appendix Chapter 5

Table A5.1. The 26 ethnic backgrounds categorized as native, western migration background, and non-western migration background.

Native	Western migration background	Non-western migration background
The Netherlands	Belgium	Turkey
	Italy	Morocco
	United States of America	Suriname
	Germany	Antilles
	Portugal	Iraq
	United Kingdom	Iran
	Indonesia	Kosovo
	Poland	Pakistan
		Peru
		Somalia
		Tunis
		'Africa'
		Brazil
		China
		Russia
		Philippines
		Namibia

Note: Categorization made based on the definitions of Statistics Netherlands.

Table A5.2. The ethnic composition of the nine classrooms

	Native Dutch	Western migration background	Non-western migration background	Missing	Total
	N	*N*	*N*	*N*	*N*
School 1					
Class 1	23	3	2	0	28
Class 2	21	1	5	0	27
Class 3	20	3	3	2	28
Class 4	28	1	0	1	30
Class 5	27	0	1	1	29
Subtotal	119	8	11	4	142
School 2					
Class 1	10	3	8	0	21
Class 2	9	1	11	0	21
Class 3	3	5	12	0	20
Class 4	8	3	12	1	24
Subtotal	30	12	43	1	86
Total	149	20	54	5	228

Table A5.3. Avoidance. Separating western and non-western non-natives. Results from the iterative weighted least squares method (IWLS) and Fisher's tests.

	IWLS			Fisher's positive test			Fisher's negative test		
	Mean	*SD*	*p* (2-sided)	X^2	d.f.	*p* (1-sided)	X^2	d.f.	*p* (1-sided)
Density	-1.194	1.028	0.008	4.675	18	0.999	138.221	18	<.001
Reciprocity	0.525	0.374	0.003	61.913	18	<.001	2.148	18	1.000
Transitivity	0.961	0.620	0.002	146.644	18	<.001	0.676	18	1.000
Three-cycles	-0.439	0.428	0.015	5.511	18	0.998	61.389	18	<.001
Known prior	-0.122	0.276	0.223	8.726	18	0.966	26.438	18	0.090
Gender alter	0.116	0.311	0.297	36.890	18	0.005	16.220	18	0.577
Gender ego	0.080	0.560	0.680	65.823	18	<.001	42.490	18	<.001
Gender same	-0.533	0.528	0.016	3.175	18	1.000	123.657	18	<.001
Migration background same	-0.081	0.216	0.295	16.006	18	0.592	21.233	18	0.268
Western alter	-0.042	0.274	0.682	14.628	16	0.552	15.354	16	0.499
Western ego	-0.264	0.616	0.264	13.089	16	0.670	32.502	16	0.009
Nonwestern alter	-0.006	0.115	0.886	13.486	16	0.637	11.531	16	0.776
Nonwestern ego	-0.220	0.285	0.066	5.571	16	0.992	33.053	16	0.007

Table A5.4. Antipathy. Separating western and non-western non-natives. Results from the two meta-analyses: iterative weighted least squares method (IWLS) and Fisher's tests.

	IWLS			Fisher's positive test			Fisher's negative test		
	Mean	*SD*	*p* (2-sided)	X^2	d.f.	*p* (1-sided)	X^2	d.f.	*p* (1-sided)
Density	-1.763	2.129	0.038	7.693	18	0.983	117.341	18	<.001
Reciprocity	0.906	1.026	0.029	67.210	18	<.001	8.557	18	0.969
Transitivity	0.679	1.710	0.298	45.850	16	<.001	12.151	16	0.734
Three-cycles	-0.238	0.847	0.486	11.959	14	0.610	22.876	14	0.062
Known prior	0.193	0.330	0.119	21.501	18	0.255	11.107	18	0.890
Gender alter	-0.040	0.971	0.904	38.945	18	0.003	38.200	18	0.004
Gender ego	-0.114	0.789	0.675	18.189	18	0.443	28.888	18	0.050
Gender same	-0.204	0.570	0.315	14.633	18	0.687	36.354	18	0.006
Migration background same	0.071	0.287	0.478	23.798	18	0.162	9.862	18	0.936
Western alter	-0.104	0.995	0.792	16.209	14	0.301	21.458	14	0.090
Western ego	-0.135	1.192	0.775	13.974	14	0.452	22.647	14	0.066
Nonwestern alter	-0.105	0.335	0.405	14.786	16	0.540	16.711	16	0.405
Nonwestern ego	-0.275	0.297	0.073	5.453	12	0.941	20.323	12	0.061

Table A5.5. Aggression. Separating western and non-western non-natives. Results from the two meta-analyses: iterative weighted least squares method (IWLS) and Fisher's tests.

	IWLS			Fisher's positive test			Fisher's negative test		
	Mean	*SD*	*p* (2-sided)	X^2	d.f.	*p* (1-sided)	X^2	d.f.	*p* (1-sided)
Density	-2.600	1.473	<.001	0.743	18	1.000	124.040	18	<.001
Reciprocity	1.152	0.514	<.001	50.436	16	<.001	2.521	16	1.000
Transitivity	1.541	1.226	0.009	62.570	16	<.001	2.751	16	1.000
Three-cycles	-0.362	0.677	0.207	7.089	14	0.931	20.117	14	0.127
Known prior	0.603	0.455	0.004	48.837	18	<.001	4.507	18	0.999
Gender alter	0.156	1.052	0.687	40.946	16	<.001	19.347	16	0.251
Gender ego	0.277	1.452	0.583	30.929	18	0.029	18.249	18	0.439
Gender same	0.418	0.318	0.004	36.846	18	0.005	5.350	18	0.998
Migration background same	0.224	0.245	0.025	26.286	18	0.093	6.530	18	0.994
Western alter	0.112	0.557	0.614	16.441	14	0.287	10.924	14	0.692
Western ego	0.250	0.809	0.445	13.686	14	0.473	13.210	14	0.510
Nonwestern alter	0.126	0.477	0.480	22.233	16	0.136	9.721	16	0.881
Nonwestern ego	-0.361	1.096	0.416	12.516	14	0.565	30.403	14	0.007

Nederlandse samenvatting

Inleiding

Deze dissertatie focust op negatieve ervaringen, in het bijzonder tussen mensen met verschillende etnische achtergronden. Verscheidene vormen van negatieve ervaringen worden onder de loep genomen. Enkele voorbeelden zijn misdrijven, zoals mishandeling of moord, gemotiveerd door haat jegens een specifieke groep mensen; meer alledaagse onenigheden tussen buren; kritische feedback op essays geschreven door studenten; en agressie, antipathie, en ontwijkingsgedrag onder middelbare scholieren.

Een drietal vragen keert vaker terug in deze dissertatie. Vinden negatieve ervaringen vaker plaats in etnisch diverse wijken en gemeenten? Komen negatieve ervaringen vaker voor tussen mensen van een andere etniciteit dan tussen mensen van dezelfde etniciteit? En welke consequenties heeft negatief interetnisch contact voor de beeldvorming van mensen over andere etnische groepen, het vertrouwen dat mensen hebben in hun medemens, en de algehele sociale cohesie van een samenleving? Veel van het onderzoek dat wordt gepresenteerd in deze dissertatie gaat dus in op de gevolgen van etnische diversiteit voor moderne, westerse samenlevingen.

Als gevolg van internationale migratiestromen is de etnische diversiteit van veel westerse samenlevingen de afgelopen decennia sterk toegenomen. De vier landen die in deze dissertatie worden onderzocht, te weten Nederland, Duitsland, Engeland, en Amerika, vormen hier geen uitzondering op. Bovendien worden er in alle vier deze landen soortgelijke discussies gevoerd over hoe het beste om te gaan met gemêleerde populaties. Vaak komen deze publieke en politieke discussies voort uit zorgen dat etnische diversiteit het samenleven bemoeilijkt. Bijvoorbeeld omdat diversiteit leidt tot politieke polarisatie, omdat het resulteert in criminaliteit, of omdat het een bepaalde vorm van solidariteit en vertrouwen ondermijnt die, onder andere, nodig is voor het onderhouden van de verzorgingsstaat.

Tegelijkertijd heeft het wetenschappelijk onderzoek naar interetnische relaties de laatste decennia hoofdzakelijk gekeken naar positieve ervaringen, zoals interetnische vriendschappen. Als gevolg daarvan is er momenteel weinig bekend over negatief interetnisch contact, hoe het zich verhoudt tot etnische diversiteit, en hoe het van invloed is op andere aspecten van moderne samenlevingen. Het hoofddoel van deze dissertatie is dan ook om dit gat in de wetenschappelijke kennis te vullen door juist te focussen op negatief interetnisch contact, inclusief de aard, de gevolgen en de oorzaken.

Het eerste gevolg van negatief interetnisch contact dat wordt behandeld betreft de vooroordelen die mensen over andere etnische groepen hebben. In 1954 formuleerde Gordon Allport het idee dat iemands attitude ten opzichte van een andere groep het beste bevorderd kan worden door positieve ervaringen te delen met leden van die groep. Dit relatief eenvoudige idee heeft veel onderzoek

geïnspireerd. Inmiddels is er behoorlijk wat consensus dat positief interetnisch contact inderdaad een effectieve remedie is tegen negatieve vooroordelen. Echter hebben onderzoekers lange tijd een andere mogelijkheid over het hoofd gezien, namelijk dat interetnisch contact ook slecht kan uitpakken. Recent onderzoek wijst uit dat negatief interetnisch contact nadelige consequenties kan hebben voor het beeld dat mensen van andere etnische groepen hebben. Bovendien lijken er belangrijke verschillen te bestaan tussen positieve en negatieve ervaringen. Zo komt positief contact veel vaker voor dan negatief contact. Tegelijkertijd kunnen de paar negatieve ervaringen die mensen hebben van grotere invloed zijn op hun beeldvorming dan de vele positieve ervaringen die ze hebben. In deze dissertatie wordt deze suggestie experimenteel getoetst. Verder is het onderzoek dat hier gepresenteerd wordt uniek omdat het ook de intensiteit van zowel positief als negatief contact in ogenschouw neemt.

Het tweede gevolg van negatief interetnisch contact dat ik onderzoek heeft te maken met attitudes ten op zichten van mensen in het algemeen, dus niet gekoppeld aan specifieke etnische groepen. Zorgen over interetnische relaties hebben niet alleen betrekking op het al dan niet door een deur kunnen van verschillende etnische groepen, maar gaan ook over de samenleving als geheel. In deze dissertatie kijk ik naar het vertrouwen dat mensen in anderen hebben en de veronderstelde cohesie van de wijken waarin men woont. De hamvraag die daarbij wordt beantwoord is: heeft negatief interetnisch contact ook negatieve gevolgen voor gegeneraliseerde vormen van vertrouwen en sociale cohesie?

Wat betreft de oorzaken van negatief contact onderzoek ik een drietal mogelijke factoren. Ten eerste kijk ik naar de etnische compositie van wijken en gemeenten. Daarbij onderzoek ik in het bijzonder of negatief interetnisch contact en *hate crimes* vaker voorkomen in wijken en gemeenten waar verschillende etnische of raciale groepen samenwonen. Alhoewel eerder onderzoek aantoont dat zulke ontmoetingsmogelijkheden resulteren in meer positief interetnisch contact, zoals vriendschappen, is het nog vrijwel niet onderzocht of hetzelfde geldt voor negatief interetnisch contact.

Ten tweede analyseer ik of negatief contact vaker voorkomt tussen mensen met een andere etnische achtergrond dan tussen mensen met dezelfde achtergrond. Een van de prominentere ideeën binnen de sociologie wordt in het Engels aangeduid met de term *homophily*, en beschrijft de voorkeur die mensen hebben voor mensen die hetzelfde zijn. Zo komen vriendschappen tussen mensen die op elkaar lijken, bijvoorbeeld in termen van geslacht of etnische achtergrond, vaker voor dan vriendschappen tussen mensen die van elkaar verschillen. Hoe dit precies tot uiting komt in negatieve relaties is echter veel minder vaak onderzocht. Het is dus niet bekend of de voorkeur voor de eigen groep ook een afkeer voor een andere groep betekent.

In deze dissertatie onderzoek ik daarom of negatief gedrag vaker voorkomt tussen mensen met een andere etniciteit dan tussen mensen met dezelfde etniciteit.

De derde oorzaak van negatief contact die in deze dissertatie wordt onderzocht is status, ofwel iemands positie binnen de sociale hiërarchie van een groep. Het ordenen van mensen in een hiërarchische pikorde wordt wel eens beschreven als een fundamenteel onderdeel van samenlevingen, inclusief de wil van velen om elke keer net iets hoger op de sociale ladder te komen. Anderen naar beneden trappen is één van de manieren om dit voor elkaar te krijgen. Zo wijst onderzoek op middelbare scholen bijvoorbeeld uit dat agressieve scholieren vaak relatief hoog in aanzien staan bij hun klasgenoten. Door middel van negatief gedrag kan iemand laten zien aan het slachtoffer, maar ook aan derden, dat hij of zij dominant is, en dus een hogere sociale positie inneemt. In deze dissertatie onderzoek ik aan de hand van netwerkdata of verschillende vormen van negatief gedrag onder middelbare scholieren inderdaad gezien kunnen worden als een effectieve manier om status te verkrijgen.

Samenvatting per hoofdstuk

Deze dissertatie bestaat uit vier empirische hoofdstukken. Elk hoofdstuk benadert negatief interetnisch contact vanuit een ander perspectief. Zo bekeken is deze dissertatie een oefening in triangulatie. Verscheidene contexten en populaties worden onderzocht, waaronder gemeenten in de Verenigde Staten; Witte en Aziatische Britten uit verschillende wijken in Engeland; Nederlandse adolescenten net begonnen aan hun eerste jaar op de middelbare school; en Duitse en Nederlandse universiteitsstudenten. Door verschillende typen data te analyseren, middels verschillende statistische methoden, hoop ik een rijker en meer gevalideerd beeld te krijgen van negatief interetnisch contact. In wat volgt zullen de vier empirische hoofdstukken kort worden samengevat. Extra aandacht zal daarbij uitgaan naar de bijdragen die worden geleverd aan de wetenschappelijk literatuur, en de wijzen waarop de gebruikte data en methoden uiterst geschikt zijn voor het maken van deze bijdragen.

Hoofdstuk 2: de intensiteit van positief en negatief contact

In het tweede hoofdstuk wordt getoetst of negatieve ervaringen een groter, negatief effect hebben op het beeld dat mensen erop nahouden van een andere groep dan positieve ervaringen een positief effect hebben. Hierbij wordt in het bijzonder bekeken of het variëren van de intensiteit van het contact belangrijker is voor positieve dan voor negatieve ervaringen.

Het leeuwendeel van dit hoofdstuk is gebaseerd op drie experimenten, uitgevoerd in laboratoria in Duitsland en Nederland. Participanten beantwoordden

korte, essayachtige vragen, waarbij ze argumenten moesten geven voor en tegen onderwerpen zoals dierproeven. Een onderzoeksassistent deed zich voor als een andere participant, tevens lid van een andere groep, en voorzag de participanten van feedback, daarbij gebruik makende van gestandaardiseerde schalen. Er waren vier typen feedback: extreem negatief, negatief, positief, en extreem positief. Participanten werden gerandomiseerd toegewezen aan één van deze vier condities. De condities waren specifiek ontworpen om onderscheid te kunnen maken tussen positieve en negatieve ervaringen, en tussen meer en minder intense ervaringen.

Uit alle drie de experimenten kwam hetzelfde resultaat naar voren. De intensiteit van een ervaring tussen mensen van verschillende groepen beïnvloedt hoe effectief positief contact is in het verminderen van vooroordelen. Hoe intenser de positieve ervaring hoe groter deze vermindering. Echter ging dit niet op voor negatief contact. Intense en minder intense negatieve ervaringen met leden van een andere groep waren even nadelig voor het beeld dat mensen hebben van de andere groep. Deze experimentele resultaten werden ook bevestigd door analyses uitgevoerd op een grotere dataset, bestaande uit een enquête verzameld in Engeland. Deze additionele analyses vergrootten de validiteit en generaliseerbaarheid van de resultaten.

Al met al zijn deze bevindingen in lijn met het Engelse adagium *bad is stronger than good*. Alhoewel negatieve ervaringen schaars zijn, kunnen ze verregaande consequenties hebben voor hoe bevooroordeeld mensen zijn – ook wanneer de ervaringen niet eens zo heel intens zijn. Alledaagse en oppervlakkige vormen van positief contact zijn misschien niet afdoende om vooroordelen in een zelfde mate te verbeteren. Daarvoor zijn intensere, positieve ervaringen nodig, zoals langdurige interetnische vriendschappen. Dit onderzoek vormt een unieke bijdrage aan de wetenschappelijke literatuur over interetnische relaties, omdat het voor het eerst de invloed van de intensiteit van ervaringen in ogenschouw neemt en aan een experimentele test onderwerpt.

Hoofdstuk 3: etnische compositie, contact, vertrouwen, cohesie, en vooroordelen

Het derde hoofdstuk kent twee doeleinden. Het eerste doel is om te onderzoeken of negatief interetnisch contact niet alleen gevolgen heeft voor groep-specifieke vooroordelen, maar ook voor het vertrouwen dat men heeft in mensen in het algemeen en hoe saamhorig men denkt dat hun wijk is. Het tweede doel is om te bekijken of negatief interetnisch contact, net als positief interetnisch contact, vaker voorkomt in etnisch diverse wijken.

Samengenomen kunnen deze twee doelen een oplossing bieden voor de

inconsistente resultaten van recent onderzoek naar de gevolgen van de etnische compositie van wijken voor vertrouwen en sociale cohesie. Sommigen vinden dat de inwoners van wijken waar mensen van verschillende etnische achtergronden samenwonen relatief laag scoren op vertrouwen en sociale cohesie, terwijl anderen precies het tegenovergestelde vinden. Beide consequenties kunnen mogelijk verklaard worden als zowel negatief als positief interetnisch contact vaker voorkomt in etnisch diverse wijken, en als beide vormen van contact vervolgens een positieve en respectievelijk negatieve invloed hebben op vertrouwen en cohesie. Door deze optie op systematische wijze te onderzoeken levert dit hoofdstuk een cruciale bijdrage aan de wetenschappelijke literatuur.

In hoofdstuk 3 maak ik gebruik van een unieke dataset die bestaat uit een enquête die speciaal werd ontworpen voor het behalen van de twee onderzoeksdoelen. Veel verschillende, relevante concepten worden erin gemeten. De data is verzameld in Engeland, en maakt het bovendien mogelijk om het perspectief van een etnische meerderheid te vergelijken met dat van een etnische minderheid, in dit geval Witte Britten en Aziatische Britten. Deze data is geanalyseerd middels zogeheten hiërarchische modellen, waarbij gegevens over zowel de wijken als de inwoners gebruikt kunnen worden.

De resultaten laten zien dat negatief interetnisch contact van negatieve invloed is op vertrouwen en sociale cohesie. Dit geldt voor zowel Witte als voor Aziatische Britten. Maar de resultaten wijzen ook uit dat de hoeveelheid negatief interetnisch contact die iemand heeft niet afhangt van het percentage wijkinwoners met een andere etnische achtergrond. Ook dit geldt voor beide etnische groepen. Ik vind slechts één effect van de etnische compositie van wijken: Witte Britten die in wijken wonen met een hoger percentage Aziatische Britten hebben meer positief interetnisch contact, en zijn daardoor minder bevooroordeeld, hebben meer vertrouwen in hun medemens, en zien hun wijk als meer saamhorig.

Hoofdstuk 4: raciale compositie en hate crimes

In hoofdstuk 4 kijk ik wederom naar de etnische compositie van geografische plekken, maar dan naar die van Amerikaanse gemeenten en in relatie tot een vrij extreme vorm van negatief contact: *hate crimes* gepleegd door Witte Amerikanen tegen Zwarte Amerikanen. Dit hoofdstuk neemt als vertrekpunt de observatie dat het percentage van de Amerikaanse bevolking dat Wit is al decennia lang daalt. Ik analyseer of deze demografische trend geresulteerd heeft in een toename of afname in het aantal *hate crimes* gepleegd door Witte tegen Zwarte Amerikanen.

Voor beide verwachtingen is een argument te maken. Aan de ene kant kan de daling in het percentage Witte Amerikanen geleid hebben tot het gevoel dat de

politieke en economische macht van Witte Amerikanen steeds meer in het gedrang komt. Dit kan geresulteerd hebben in een toename aan defensieve reacties en geweld gericht aan etnische minderheden. Aan de andere kant kunnen de demografische veranderingen waaraan Amerika onderhevig is hebben geleid tot meer interraciaal contact en integratie. Dit in lijn met de neerwaartse trend in racisme sinds de vroege jaren '90.

In hoofdstuk 4 maak ik gebruik van data verkregen van de FBI, die meer dan 25 jaar en 3500 gemeenten bevat. Jaarlijks houdt de FBI bij hoeveel hate crimes er in welke gemeenten worden gepleegd. Deze informatie heb ik gekoppeld aan census data, en andere gegevens over de gemeenten zoals het werkloosheidcijfer en de grootte van de populatie. Deze data heb ik vervolgens geanalyseerd middels longitudinale hiërarchische modellen, met jaartallen genesteld in gemeenten.

De resultaten van deze modellen wijzen uit dat het aantal *hate crimes* gepleegd door Witte Amerikanen tegen Zwarte Amerikanen de laatste jaren is afgenomen, en dat deze trend ten delen toe te schrijven is aan de afname in het percentage Witte Amerikanen. Ondanks zorgen dat toenemende raciale diversiteit leidt tot meer animositeit en geweld tussen groepen, suggereren de bevindingen gepresenteerd in hoofdstuk 4 juist het tegenovergestelde.

Hoofdstuk 5: negatieve netwerken in middelbare scholen

In hoofdstuk 5 worden twee mogelijke oorzaken van negatief contact onderzocht: de etnische achtergrond van individuen enerzijds en hun statusposities anderzijds. Ten eerste bekijk ik of middelbare scholieren eerder geneigd zijn hun klasgenoten te ontwijken, onaardig te vinden, en te pesten wanneer ze een andere etniciteit hebben dan wanneer ze dezelfde achtergrond hebben. Ten tweede onderzoek ik of negatief gedrag onder klasgenoten gezien kan worden als een manier om een statuspositie te verkrijgen of te behouden. Beide oorzaken zijn vooralsnog weinig tot niet onderzocht in de wetenschappelijke literatuur.

Voor hoofdstuk 5 is unieke netwerkdata verzameld op twee Nederlandse middelbare scholen. Gedurende het schooljaar 2017-2018 hebben alle eerstejaars scholieren drie keer een vragenlijst ingevuld: aan het begin van het schooljaar, net na de kerstvakantie, en aan het einde van het schooljaar. Hierdoor was het mogelijk om te onderzoeken hoe negatieve relaties tussen klasgenoten gedurende een schooljaar vorm krijgen, en welke dynamische processen daaraan ten grondslag liggen. In elke vragenlijst hebben de scholieren aangegeven met wie ze liever niet samenwerken of lunchen, wie ze onaardig vinden, en wie er fysiek en verbaal agressief tegen ze is. De scholieren kregen hierbij een rooster met de namen van al hun klasgenoten te zien en konden zoveel scholieren aanvinken als ze wilden. De vragen refereerden

dus niet aan de etniciteit van de klasgenoten, waardoor de kans op zelfcensuur en sociaal wenselijke antwoorden kleiner is. Achteraf is de etniciteit van alle scholieren aan deze data gekoppeld.

Allereerst, de resultaten van de stochastic actor-oriented models wekken niet de suggestie dat negatieve relaties vaker voorkomen tussen klasgenoten met een andere etniciteit dan tussen klasgenoten met dezelfde etniciteit. Verder wordt er ook geen bewijs gevonden voor het idee dat kinderen met een migratieachtergrond vaker het slachtoffer zijn van negatief gedrag in het klaslokaal dan kinderen zonder migratieachtergrond.

In plaats daarvan worden alle drie de typen negatief gedrag – ontwijken, onaardig vinden, en agressie – verklaard door twee netwerkkarakteristieken: reciprociteit en transitiviteit. Ten eerste zijn scholieren eerder geneigd om klasgenoten te ontwijken, onaardig te vinden, te slaan of uit te schelden wanneer zij door diezelfde klasgenoten reeds worden ontweken, onaardig gevonden, en geslagen of uitgescholden. Ze betalen elkaar dus in gelijke munt terug. Ten tweede is een scholier eerder geneigd een andere scholier negatief te behandelen wanneer die tweede scholier negatief behandeld wordt door een derde scholier die reeds negatief behandeld wordt door de eerste scholier. Met andere woorden, de vijand van een vijand is ook een vijand. Een dergelijke transitieve piramide neemt al snel de vormen aan van een status hiërarchie, waarbij de ene scholier dominant is over een volgende scholier, die op zijn of haar beurt weer hoger op de sociale ladder staat dan een derde scholier.

Conclusies

Er is een discrepantie tussen, aan de ene kant, de zorg, impliciet in veel publieke en politieke debatten, dat etnische diversiteit frictie en animositeit in de hand werkt en, aan de andere kant, de onevenredige focus binnen de sociaal wetenschappelijke literatuur op positief interetnisch contact. In de kern is deze dissertatie een poging om dit gat in de wetenschappelijke kennis te vullen door juist te focussen op negatief interetnisch contact, inclusief de aard, de gevolgen en de oorzaken.

Een van de meer consistente bevindingen, die tevens makkelijk over het hoofd kan worden gezien, is dat negatief contact eigenlijk behoorlijk zeldzaam is. Het merendeel van de ervaringen die mensen hebben is plezierig en positief, ook wanneer het gaat om contact met mensen van een andere etnische achtergrond.

Tegelijkertijd kunnen de paar negatieve interetnische ervaringen die men heeft invloedrijker zijn dan de vele positieve ervaringen voor de meningen die men er op na houdt over andere groepen. Deze asymmetrie is ten delen toe te schrijven aan het feit dat negatieve ervaringen vaak intens en memorabel zijn, en een snelle en hevige emotionele reactie oproepen. Een reden hiervoor zou kunnen zijn dat

negatieve ervaringen juist zo spaarzaam zijn, en daarmee onverwachts en dus invloedrijk.

Bovendien laat deze dissertatie zien dat negatieve interetnische ervaringen niet alleen gevolgen hebben voor het beeld dat mensen van andere etnische groepen hebben, maar ook voor het beeld dat ze hebben van mensen en de samenleving in het algemeen. Mensen die vaker negatief interetnisch contact hebben, hebben relatief weinig vertrouwen in hun medemens en zien hun wijk als weinig saamhorig en hun buren als relatief onbehulpzaam.

Echter lijkt negatief interetnisch contact niet vaker voor te komen in wijken waar mensen van verschillende etnische achtergronden samenleven. Een hoger percentage inwoners van een andere etnische groep hangt niet samen met meer hate crimes noch met meer alledaagse vormen van onplezierige of vervelende interacties. Een focus op negatief interetnisch contact biedt dan ook niet een-tweedrie een oplossing voor de inconsistente resultaten in eerder wetenschappelijk onderzoek naar de gevolgen van de toenemende etnische diversiteit van wijken en gemeenten voor, bijvoorbeeld, de sociale cohesie van wijken. De resultaten die in deze dissertatie worden gepresenteerd bevestigen enkel de positieve kanten van diversiteit. In wijken waar het percentage inwoners van een andere etniciteit relatief hoog is, hebben mensen over het algemeen meer positief interetnisch contact, en zijn mensen vervolgens minder bevooroordeeld ten opzichte van andere etnische groepen, minder wantrouwig, en minder ontevreden over de wijken waarin ze wonen.

Bovendien vond ik ook geen bewijs voor het idee dat scholieren op middelbare scholen vaker op negatieve wijze met elkaar omgaan, bijvoorbeeld door elkaar te pesten, wanneer ze een andere etnische achtergrond hebben. In plaats daarvan lijkt het veel belangrijker hoe andere adolescenten in dezelfde klas met elkaar omgaan. Negatief gedrag wordt beantwoord met negatief gedrag. Scholieren zijn bijvoorbeeld eerder geneigd agressief te zijn tegen klasgenoten die agressief tegen hen zijn. Verder kan negatief gedrag gezien worden als een manier om dominantie te tonen of afstand te nemen van minder populaire scholieren, en zodoende een hogere positie in de sociale pikorde binnen een schoolklas te verkrijgen.

Al met al gaat deze dissertatie over het slechte in de mens. Dat staat buiten kijf. *Hate crimes* worden gepleegd. Er is conflict tussen etnische en raciale groepen. Adolescenten zijn agressief naar elkaar. Mensen worden verbaal mishandeld en krijgen racistische opmerkingen naar hun hoofd geslingerd. Al deze gebeurtenissen hebben verregaande, nadelige gevolgen voor de daders, de slachtoffers, en de samenleving in bredere zin. Deze gevolgen beperken zich niet enkel en alleen tot vooroordelen, vertrouwen, en sociale cohesie – de drie uitkomsten die in deze dissertatie aan bod komen. Slachtoffers van *hate crimes*, bijvoorbeeld, ondervinden veelal ernstige vormen van emotionele en psychologische stress, meer nog dan slachtoffers

van soortgelijke misdrijven die niet gemotiveerd waren door haatgevoelens ten opzichte van een specifieke groep. Negatieve interetnische ervaringen kunnen dus wel degelijk nadelig zijn voor hoe goed men in staat is om samen te leven ten tijde van toenemende etnische diversiteit.

Tegelijkertijd biedt deze dissertatie ook redenen om wat meer optimistisch te zijn. Door te focussen op negatieve ervaringen wordt het duidelijk hoe zeldzaam ze eigenlijk zijn. Hate crimes worden zelfs almaar zeldzamer. De mens kan zeker een wolf zijn voor zijn medemens, maar is dat meestal niet. Bovendien is de mens ook niet per definitie een wolf voor vreemden. Genoeg empirisch onderzoek wijst uit dat mensen liever omgaan met mensen van dezelfde etniciteit. Tegelijkertijd lijkt het tegenovergestelde idee dat mensen vaker in de clinch liggen met mensen van een andere etniciteit minder evident. Een voorkeur voor de eigen etnische groep vertaalt zich niet zonder meer in een afkeer tegen andere etnische groepen.

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Curriculum Vitae

Mathijs Kros was born in Asten, the Netherlands, on January 19, 1990. At Utrecht University he completed his bachelor degree in cultural anthropology and developmental sociology (2012), cum laude and with an additional honours programme. After two years of working as a project manager and independent researcher, Mathijs returned to Utrecht University to obtain his research master degree in Migration, Ethnic Relations and Multiculturalism (2016), cum laude and with an additional honours programme. He won the best student award based on his GPA, and his thesis was shortlisted for the Peter G. Swanborn Research Master Thesis Award. In September 2016, Mathijs started working as a PhD candidate at the Interuniversity Center of Social Science Theory and Methodology (ICS) in Utrecht, and wrote this dissertation under the supervision of Frank van Tubergen and Eva Jaspers. As part of his PhD, Mathijs was an academic visitor at the University of Oxford. He further supervised bachelor theses, and taught two bachelor courses: Social Networks and Policy & Politics. His work has appeared in *European Sociological Review*, *European Journal of Social Psychology*, and *Ethnic and Racial Studies*.

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There has been somewhat of a mismatch between, on the one hand, the implicit concern in much of the public and political discussions that ethnic diversity breeds discord and conflict, and, on the other hand, the rather lopsided focus in social scientific research on positive interethnic experiences. At its core, this dissertation is an attempt to remedy this incongruity by focussing on negative experiences, in particular between people from different ethnic or racial backgrounds. Throughout this dissertation, different forms of negative experiences are studied, including criminal offences, harsh feedback, nuisances between neighbours, and aggression amongst high school pupils. By using state-of-the-art statistical methods, Kros analyses largescale surveys, network data, hate crime statistics, and laboratory experiments to gain insights about the nature of negative contact. Kros considers the consequences of negative interethnic contact for how prejudiced and trusting people are, and how cohesive they perceive their neighbourhoods to be. He further studies several antecedents of negative contact, including the ethnic composition of neighbourhoods and municipalities, the ethnic background of high school pupils, and informal status hierarchies in classrooms.

Studies on interethnic relations in western societies

Mathijs Kros obtained his Research Master's degree in Migration, Ethnic Relations, and Multiculturalism at Utrecht University (cum laude). He conducted the present study as part of his Ph.D. research at the Interuniversity Center for Social Science Theory and Methodology (ICS) and the Department of Sociology of Utrecht University.