REDUCING PREJUDICE THROUGH COGNITIVE INTERVENTION: MECHANISMS OF IMAGINED AND RECALLED INTERGROUP CONTACT

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MEMORANDUM

The research for this doctoral thesis was conducted while the author was a full-time postgraduate student in the School of Psychology at the University of Kent at Canterbury (September 1008 – September 2011) on a studentship from the School of Psychology.

The theoretical and empirical work herein is the independent work of the author. Intellectual debts are acknowledged in the text. The experiments reported in this thesis were conducted with minimal assistance from other people.

The author has not been awarded a degree by this university or any other university for the work included in this thesis.

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ABSTRACT

Over 500 studies have shown that intergroup contact is an effective and robust way of reducing prejudice. Recent research has extended the power and scope of contact theory further, demonstrating that the simple act of imagining a positive intergroup encounter can promote more positive intergroup relations. In 14 experiments this thesis investigates the moderating potential and underlying mechanisms of imagined contact, and related cognitive processes associated with recalled contact experiences. The first part of the thesis establishes the *compensatory power* of imagined contact in mitigating the detrimental effects of high intergroup anxiety and low prior outgroup contact on intergroup attitudes, intentions and behavioural tendencies. Furthermore, individual differences in the ability to generate vivid mental images moderate the effectiveness of the approach. In the second part I draw upon established principles in *psychotherapy*. Imagining a negative contact experience with an outgroup member before a positive one resulted in larger reductions in intergroup anxiety, and stronger future contact intentions, than two positive contact experiences. In the third part I extend the imagined contact research to the domains of *memory and cognition*. Recall of a positive contact experience enhanced positive outgroup evaluations and contact self-efficacy via reduced anxiety. Consistent with the ease-of-retrieval effect, recalling a larger number of contact memories was more difficult for individuals low in prior outgroup contact, leading to lower contact self-efficacy, whereas this was not the case for participants who had had high levels of prior outgroup contact. I conclude that cognitive interventions, especially those that make use of mental imagery and its special link to emotions, are highly valuable techniques for educators and policy makers in preparing individuals for direct contact, increasing the likelihood of achieving long-lasting harmony in intergroup relations.

CHAPTER 1

INTRODUCTION AND OVERVIEW

1 INTRODUCTION

"Since wars begin in the minds of men, it is in the minds of men that the defenses of peace must be constructed." (UNESCO, 1945)

"No one is born hating another person because of the color of his skin, or his background, or his religion. People must learn to hate, and if they can learn to hate, they can be taught to love, for love comes more naturally to the human heart than its opposite." (Nelson Mandela, 1995)

"Do not build walls, build bridges. Bridges connect, walls divide; bridges enhance communication, walls obstruct communication; bridges promote friendship, while walls cause isolation." (Unknown)

1.1 Intergroup Conflict

In today's multicultural world, in which very different groups live together, diversity is often blamed for violent and non-violent conflict, whether on the basis of ethnicity, religion, politics, culture, gender, age, or sexual orientation. New and emerging conflicts serve as vivid reminders of the importance of the need to tackle this pervasive social problem; immigration and globalization underscore the need for

informed policies that encourage cooperation and tolerance. Prejudice as a social problem that can take many forms – against Muslim "terrorists", Christian "fundamentalists", Black "criminals", "xenophobic" Germans, against people who are homosexual, disabled, "fat" or "old".

a) Prejudice in the United Kingdom

The United Kingdom's ethnic minority population has grown over 50% since 1991 and lay around 4.9 million in 2003. At the same time, people reported more feelings of racial prejudice in 2003, the BBC reported. Although no link between the number of people belonging to a minority who settled down and the level of prejudice was found (BBC, 2003), an increase in prejudice in today's multicultural world is only worrying. A nationwide polling across the UK including 1,183 adults aged 15+ years was carried out with the aim to investigate how common prejudice is among British people (MORI, 2001). 64% of the respondents reported that they were prejudiced against at least one minority group, representing 25 million adults across the country.

Prejudice is not only confined to race and religion, there are many other types of prejudice. Being discriminated against because of one's gender, age, disability, social orientation, weight, or social class can be as stressful as being discriminated against because of one's race. The poll found further that the most frequently cited groups are travellers/gypsies (35%, or 14 million people), and refugees/asylum seekers (34%, 13.6 million people). Around one in five people experience less positive feelings towards ethnic minorities (18%, or 7 million people), and one in six people feel less positive towards gay and lesbian people (17%, or 6.8 million

people). But also groups like religious minorities (5%), disabled people (2%), and older people (2%) were cited as targets of prejudice. In contrast, 95% of the Britons are aware of the existence of prejudice towards minority groups.

b) Blatant and subtle prejudice

Conflicts can take violent forms like wars, murder, or assaults. Prejudice can also take subtle forms, for example preferring Whites to Blacks, men to women or non-disabled to disabled people when searching for a job candidate. What is prejudice exactly?

> "Heaven is a place with an American house, Chinese food, British police, a German car, and French art. Hell is a place with a Japanese house, Chinese police, British food, German art, and a French car." (Anonymous, reported by Lee in 1996, as cited in Myers, 1999)

This message about the view on the life quality in different countries was received by the psychologist Yueh-Ting Lee (Myers, 1999). These observations describe 10 familiar stereotypes. Stereotypes are beliefs about the personal attributes of a group of people, and they can be positive or negative. They are used to simplify the world, to categorize people into social groups on the basis of race, gender or other common attributes. Stereotypes become a problem when they are overgeneralized, inaccurate, and resistant to new information. The consequences are prejudice and discrimination.

Prejudice is defined as an "aversive or hostile attitude towards a person who belongs to a group, simply because he belongs to that group, and is therefore presumed to have the objectionable qualities ascribed to that group" (Allport, 1954,

p. 7). Prejudice is more than just a simple negative attitude towards a group, it is influencing behaviour towards that outgroup. Prejudice expresses itself in contact avoidance, negative verbal and non-verbal behaviour. As a result, the outgroup experiences discrimination and hostility (Stephan & Stephan, 1985). Prejudice is the combination of negative affect, derogatory cognitive beliefs (stereotypes), and negative/hostile behaviour (discrimination).

For this reason, to build harmonious intergroup relations, different types of interventions have been developed to reduce conflict between groups. A large amount of research has established that contact between different groups is a key means to combat prejudice. However, how can we intervene if conflict and segregation are too high and direct contact too challenging or even impossible? In this thesis, the focus is on cognitive interventions to reduce prejudice in order to improve intergroup relations, namely through interventions based on mentally simulating or recalling intergroup contact.

1.2 Building Peace

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has the aim to "build peace in the minds of men and women". Wars begin in the minds of men, and peace must be constructed in the minds (UNESCO, 1945). The cognitive interventions reported in this thesis, imagined intergroup contact and recalled intergroup contact, target the minds of people. Imagining or recalling a positive imagery of an intergroup encounter creates a positive mindset, i.e., it reduces concerns about the contact situation and enhances individuals'

confidence and intentions for a future contact, which can be a foundation of harmonious intergroup relations, of peace between conflicting groups.

People are not born hating each other, and they can learn to love one another (Mandela, 1995). The cognitive interventions reported in this thesis "teach" people a positive "view" on interactions with members from other groups, that contact can be enjoyable instead of fear-evoking.

Building bridges instead of walls enhances communication and friendship. The cognitive interventions based on mental imagery encourage communication and contact. They can build this bridge across segregation, across the walls that conflicting groups build.

In this thesis, I will present research that demonstrates that a simple cognitive intervention based on mental imagery has the great potential to reduce prejudice and discrimination. Across 14 experiments targeting a wide range of social groups, and using multiple measures, I demonstrate important moderating and mediating mechanisms to improve the effectiveness of imagined intergroup contact and two derivations – an exposure therapy approach of imagined contact and recalled intergroup contact. The following section will give a brief overview of the theory and research reported in this thesis.

2 Overview

This thesis will begin with a review of current theory and research on the value of intergroup contact in reducing prejudice. *Chapter 2* will present an overview of Allport's (1954) original *contact hypothesis*, mediating and moderating

processes to explain the contact-prejudice relationship, as well as reformulations of intergroup contact theory and its applications in real-life settings. *Chapter 3* will discuss current developments of intergroup contact interventions which make use of indirect forms of contact: extended and imagined contact. A great body of previous research has shown that mental simulation in general (for reviews see Crisp, Birtel, & Meleady, 2011; Crisp, Husnu, Meleady, Stathi, & Turner, 2010) and mental simulation of social contact in particular, i.e., *imagined intergroup contact*, effectively improve attitudes, intentions and behaviour in and outside intergroup context (e.g., Crisp & Turner, 2009; Husnu & Crisp, 2010a; Turner & West, 2011).

Chapters 4 – 7 seek empirical evidence for the effectiveness of imagined contact and two further derivations that are developed: one based on an integration of imagined contact with principles established in *clinical psychology*, and one based on cognitive processes of *recalling* contact. In *Chapter 4*, I report my investigations into the *compensatory* potential of imagined contact to assuage the negative relationship between a) intergroup anxiety and prejudice, and b) prior outgroup contact and prejudice. I tested the hypothesis that imagined contact can compensate negative pre-contact outgroup experiences. In this chapter I further explore the *facilitating* potential of imagined contact, looking at whether the ability to generate mental images is a moderator of its effectiveness. Finally, I test mediating processes and meta-cognitive processes involved in imagined contact. I argue that imagined contact can compensate the detrimental effects of high anxiety on tolerance (Experiments 1, 2) and intergroup communication tendencies (communication quality and difficulty; Experiments 3, 4). At the same time, these efforts require cognitive resources which do not deflect from the effectiveness of imagined contact.

In *Chapter 5*, I show that imagined contact involves meta-cognitive processes: Individuals perceive themselves as more tolerant because they perceive lower difficulty in communicating with an outgroup member (Experiment 5). I further argue that imagined contact can compensate the negative effects of low prior contact on outgroup evaluation (Experiment 6), and on intentions because of reduced uncertainty (Experiment 7). Low-contact individuals found the imagined contact task particularly challenging, these individuals reported higher difficulty in creating a mental imagery. Furthermore, the effectiveness of imagined contact was facilitated by a high ability to generate mental images, leading to a more vivid imagined contact scenario and reducing intergroup anxiety (Experiment 8).

Chapter 6 explores a new variant of imagined contact, drawing upon the special link between imagery and emotions (Holmes & Mathews, 2005), and the principles of exposure in the psychotherapeutic treatment of anxiety disorders (e.g., Foa, Rothbaum, Riggs, & Murdock, 1991). Exposing participants to a negative mental imagery before activating a positive one resulted in a greater anxiety reduction (Experiments 9, 10) and more positive affective evaluation (Experiment 11) and therefore in greater intentions to engage in future outgroup contact.

Since mechanisms of memory and imagery are linked, *Chapter 7* investigates the role of contact memories in improving intergroup relations, and whether, like with imagined contact, incorporating insights from social cognition research can provide new dimensions, and potential for reducing prejudice. Research on episodic memory suggests that imagining future scenarios and remembering past events have overlapping psychological and neural processes. Having demonstrated that imagining contact with a new, unknown outgroup member successfully reduces

prejudice, I tested whether recalling contact with an outgroup member from the past can reduce prejudice and enhance meta-cognitive perceptions. Research on nostalgia and ease of retrieval indicates that meta-cognition plays a role in memory. Based on the literature on imagined contact, I found that recalling a positive contact memory (compared to a negative) results in higher outgroup evaluation and self-efficacy because of anxiety being reduced (Experiment 12). Based on the literature on ease of retrieval (e.g., Schwarz et al., 1991), I found that the quantity of recalled contact influences meta-cognitive perceptions of one's contact self-efficacy, and that this relationship was moderated by previous outgroup contact. Low-contact people asked to recall more contact memories rated themselves as lower in contact self-efficacy (Experiment 13) and they perceived recalling a larger amount as more difficult (Experiment 14). In contrast, high-contact people profited from recalling a larger amount, they perceived themselves as more tolerant.

Chapter 8 will summarize the aims and findings of this thesis, and discuss limitations, theoretical and practical implications. *Chapter 9* will suggest future research to improve the effectiveness of imagined contact and to shed light on underlying processes.

CHAPTER 2

LITERATURE REVIEW: INTERGROUP CONTACT

In this chapter, I present an overview of the literature on intergroup contact theory (Allport, 1954) which is the most influential theory in combating prejudice and hostility between conflicting groups. It is the theoretical basis for imagined intergroup contact. First, I review literature on intergroup contact and the original contact hypothesis, focussing on mediating and moderating processes of contact to explain how and when contact is reducing prejudice. Second, I discuss reformulations of intergroup contact theory. Third, I explain emotional and cognitive costs in intergroup interactions. Finally, I present examples of effective cognitive contact interventions in real-life settings.

1 INTERGROUP CONTACT THEORY

1.1 Prejudice

Prejudice can be divided into three forms of prejudice which correlate with each other. *Affective* prejudice expresses itself in emotions towards the outgroup, i.e., what individuals like and dislike about the outgroup. *Cognitive* prejudice expresses itself in beliefs about what is true. *Conative* prejudice expresses itself in tendencies of behaviour towards the outgroup (Farley, 2005). Intergroup contact reduces affective and cognitive forms of prejudice. Affective prejudice is reduced so that

feelings and emotional responses towards the outgroup become more positive. Cognitive prejudice is reduced so that judgements become more positive and the outgroup is seen as a group of highly varying members (Tropp & Pettigrew, 2005a; Wolsko, Park, Judd, & Bachelor, 2003).

There are different perspectives on how to explain the existence of prejudice, for example in form of intergroup bias as the tendency to systematically evaluate one's own group as more favourably as other groups (Hewstone, Rubin, & Willis, 2002): Earlier theories are psychodynamic approach (Dollard, Miller, Doob, Mowrer, & Sears, 1939), personality approach (e.g., Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950), and learning theories (e.g., Bandura, 1973). More recent approaches are social identity theory (Tajfel & Turner, 1979), optimal distinctiveness theory (Brewer, 2000), terror management theory (Solomon, Greenberg, & Pyszczynski, 1991), social dominance theory (Sidanius & Pratto, 1999), and subjective uncertainty reduction theory (Hogg, 2000).

This thesis focuses on the intergroup approach. Specifically, it uses a classical theory of this approach, the *intergroup contact theory* of prejudice (Allport, 1954), as a theoretical basis to explain how intergroup relations can be improved through various forms of contact.

1.2 Direct Intergroup Contact

Since the Second World War, there has been a hugely growing amount of research on improving intergroup relations and reducing prejudice through intergroup contact (Watson, 1947; Williams, 1947). Allport's (1954) *The Nature of prejudice* is regarded as the cornerstone of theories about how to best bring opposing

groups together to achieve harmonious intergroup relations (Brown & Hewstone, 2005; Pettigrew, 1998). Since 1954, intergroup contact researchers like N. Miller and Brewer (1984), Gaertner and Dovidio (Gaertner, Mann, Murrell, & Dovidio, 1989; Gaertner & Dovidio, 2000), Pettigrew (1998), and Hewstone and Brown (Brown & Hewstone, 2005; Hewstone & Brown, 1986) have further developed Allport's original contact hypothesis to find the most effective way to reduce prejudice, stereotyping, and discrimination, and to enhance intergroup relations. Furthermore, there is emerging evidence that the concept of contact is even more powerful than previously thought – direct contact is not necessary to achieve positive effects on intergroup relations. More indirect forms of contact have shown to effectively reduce prejudice: extended contact (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997) and imagined intergroup contact (Crisp & Turner, 2009), both discussed in more detail in Chapter 3.

Allport's (1954) *intergroup contact hypothesis* is regarded as the most influential theory in reducing prejudice because of both its careful attention to theory in specifying optimising conditions to enhance the effect of intergroup contact on intergroup attitudes and behaviour, as well as its usefulness in applied settings (Brown & Hewstone, 2005; Pettigrew, 1998). In his original formulation of the contact hypothesis, Allport defined four social conditions under which the positive effect of intergroup contact is facilitated. He argued that intergroup prejudice would be effectively reduced if opposing groups (1) perceive *equal status* in the intergroup situation, (2) actively working towards achieving *common goals* on a (3) *cooperative basis* without elements of intergroup competition, (4) *supported by authorities, law, or custom* which create a norm of acceptance (Allport, 1954; Pettigrew, 1998).

Sherif (1966) placed emphasis on cooperation between conflicting groups, as one of the four optimal conditions of intergroup contact (Allport, 1954). In his Robbers' Cave field experiment, prejudice was reduced when the two conflicting groups worked together on a task towards a common goal. Prejudice can be reduced by increasing the quantity and quality of positive intergroup contact (Hewstone et al., 2002).

a) Meta-analysis (Pettigrew & Tropp, 2006)

The most impressive evidence for the effectiveness of intergroup contact in reducing prejudices comes from Pettigrew and Tropp's (2006) meta-analysis. They collected over 500 studies which were carried out between 1940 and 2000 in various contact settings, and with various outgroup targets, and which included a total of over 250,000 participants of various nationalities. The main result of their meta-analysis was that intergroup contact has a *robust* effect in reducing prejudice (mean r = -.215), and that the positive effect of contact *generalizes* beyond the immediate contact situation. Contact not only reduces prejudice towards the outgroup member present in the contact situation, but also towards the entire outgroup, across contact situations, and even towards outgroups not involved in the initial contact. This means that the intergroup contact theory (Allport, 1954) can be applied not only to racial and ethnic groups but to other groups as well. Although Allport's optimal conditions are enhancing positive outcomes in intergroup situations, they are rather seen as facilitating than essential conditions for intergroup contact to achieve positive outcomes (Pettigrew & Tropp, 2006).

Pettigrew and Tropp therefore proposed that other factors than Allport's optimal conditions such as uncertainty reduction (Lee, 2001) or reduction of intergroup anxiety and threat (Blair, Park, & Bachelor, 2003; Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001; Islam & Hewstone, 1993; Paolini, Hewstone, Cairns, & Voci, 2004; Stephan & Stephan, 1985) through intergroup contact may be essential to achieve a reduction of prejudice.

1.3 Mediators: How Does Contact Reduce Prejudice?

Pettigrew and Tropp's (2006) meta-analysis showed that a huge amount of research has established the basic assumption that contact typically reduces prejudice. Research has also focused on answering the question *how* contact reduces prejudice and several mediators have been proposed. Pettigrew and Tropp (2008) tested three mediators of the relationship between contact and prejudice. Contact reduces prejudice because it a) enhances general knowledge about the outgroup (based on Allport, 1954), b) increases empathy (based on Batson, Polycarpou et al., 1997; Batson, Early, & Salvarani, 1997) and c) reduces anxiety about intergroup contact (based on Stephan & Stephan, 1985).

a) General outgroup knowledge

The results of 17 studies of Pettigrew and Tropp's (2006) meta-analysis showed that intergroup contact enhances general knowledge about the outgroup which in turn reduces prejudice. However, enhanced general knowledge only has a limited effect on the contact-prejudice relationship (5%, Pettigrew & Tropp, 2011).

b) Empathy

Research has shown that inducing empathy for targets of stigmatized groups (Batson, Polycarpou et al., 1997; Batson, et al., 1997) and perspective-taking (Vescio, Sechrist, & Paolucci, 2003) reduces prejudice. Especially cross-group friendships provide the opportunity to develop empathy. The meta-analysis revealed that empathy is a much stronger mediator than knowledge (30% of the contact-prejudice relationship, Pettigrew & Tropp, 2011).

c) Intergroup anxiety

Negative expectations of rejection or discrimination during cross-group interactions or because of fears that the interaction partner, or the respondents themselves, may behave in an incompetent or offensive manner can arouse *intergroup anxiety* (Islam & Hewstone, 1993; Plant & Devine, 2003; Plant & Devine, 2009; Stephan & Stephan, 1985; Vorauer, Hunter, Main, & Roy, 2000; Vorauer & Kumhyr, 2001). Anxiety regarding negative consequences of intergroup contact in form of rejection, embarrassment or discrimination inhibits interest in cross-group contact and even can lead to hostility (Plant & Devine, 2003; Stephan & Stephan, 1985; Vorauer et al., 2000). This psychological reaction is reflected in a physiological state of threat in individuals facing interracial interactions (Blascovich et al., 2001). Particularly strong evidence for anxiety as an important mediator comes from Blascovich. They found anxiety and threat responses to an interaction with a physically stigmatized partner on subjective, physiological *and* behavioural measures.

Intergroup anxiety plays a key role in intergroup relations and is the major mediator of the contact-prejudice relationship (e.g., Blascovich et al., 2001; Page-Gould, Mendoza-Denton, & Tropp, 2008; Paolini et al., 2004; Pettigrew, 1998; Stephan, Stephan, & Gudykunst, 1999; Stephan et al., 2002; Voci & Hewstone, 2003). Anxiety has the strongest effect compared to general knowledge and empathy, 31% of the contact-prejudice relationship is mediated by anxiety (Pettigrew & Tropp, 2011).

Pettigrew and Tropp (2011) suggested a sequence of mediators. Intergroup anxiety might be a crucial factor during initial contact, in which decategorization may be the most useful strategy for contact to reduce anxiety. Once intergroup anxiety is reduced, empathy could be enhanced, for which group categorization may be the best approach.

d) Further mediators

Pettigrew and Tropp (2011) also described four new potential mediators of the contact-prejudice relationship that future research should put its focus on: (1) learning about the outgroup's culture, (2) changing intergroup behaviour, (3) restructuring the intergroup relationship, and (4) perceiving shifts in intergroup norms.

1.4 Moderators: When Does Contact Reduce Prejudice?

Pettigrew and Tropp's (2006) meta-analysis showed that contact has a *robust* effect in reducing prejudice. Pettigrew and Tropp (2008) showed *how* contact combats prejudice: because intergroup anxiety is reduced, empathy increased and

general knowledge about the outgroup enhanced. Researchers also focussed on *when* contact reduces prejudice.

a) Universality of contact effects

Pettigrew and Tropp (2006) looked at moderators of contact in terms of target group, age, gender, geographical area in which the study was conducted, contact setting, and date of publication of study. The effect size for the contact-prejudice effect depended on the type of *target group*. Contact had a large effect for gay men and lesbians and physically disabled people as outgroups, a medium effect for racial and ethnic groups and mentally disabled people, and a small effect for mentally ill people and older adults. Regarding *age*, contact effects for younger people were stronger than for adults. Looking at *contact setting* and *time*, larger effects were found in laboratory settings compared to tourism and travel, as well as in recent research compared to studies prior to 1980. There were no *gender* differences. The contact effect was not limited to a *geographical area*: Contact reduced prejudice in many parts of the world (USA, Europe, Israel, Canada, Australia, New Zealand, Africa, Asia, Latin America). Although there was some variability in effect sizes, the contact-prejudice effects remained significant across different target groups, age groups, contact settings, and geographical areas.

b) Differences in group status

Tropp and Pettigrew (2005b) have shown that differences in group status moderate the strength of the relationship between intergroup contact and prejudice. In general, greater intergroup contact is related to less prejudice (Pettigrew & Tropp,

2006), but the effect of intergroup contact on reduced prejudice was found to be weaker for members of minority groups. Furthermore, while Allport's (1954) optimal conditions facilitate the positive contact effects and lead to a stronger prejudice reduction for members of majority groups, this was not found to be the same for members of minority groups. Tropp and Pettigrew (2005b) argued that anticipation of prejudice influences the intergroup attitudes of minorities, while own beliefs and values influence the intergroup attitudes of majorities (see Monteith & Spicer, 2000). Moreover, minorities find it harder to believe that Allport's (1954) optimal conditions are successfully implemented (Robinson & Preston, 1976).

c) Maximizing the contact effect

To maximise the prejudice reduction effect of contact, Allport proposed four optimal conditions: equal status, common goals, intergroup cooperation and institutional support. Pettigrew and Tropp (2011) proposed that focus should be shifted from these *objective*, facilitating but not essential, conditions of contact to *subjective* responses to contact. Group members bring different concerns into intergroup interactions (Devine & Vasquez, 1998; Shelton, Richeson, & Vorauer, 2006), e.g., members of dominant groups experience intergroup anxiety (Stephan & Stephan, 1985). Molina and Wittig (2006) showed that greater perceptions of *acquaintance potential* predicted lower prejudice. Pettigrew and Tropp (2011) concluded from these findings that reducing prejudice might be more effective if, beyond objective conditions, subjective experiences would be targeted, in form of reducing concerns and enhancing perceptions of openness and acceptance in an intergroup encounter.

d) Generalization of contact effects

Brown and Hewstone (2005) held the position that *group membership salience* moderates the contact-prejudice relationship, i.e., the positive effects of contact on prejudice are more likely to generalize when one's group membership is salient within the contact situation. The next section discusses the different views on the role of salience of group membership within the contact situation. The question whether and when contact generalizes beyond the immediate situation has inspired the development of a range of cognitive models derived from the original contact hypothesis. These reformulations are forerunners of imagined contact and will be outlined in the next section.

2 REFORMULATIONS OF INTERGROUP CONTACT THEORY

Since Allport's original formulation, further models have evolved (see Table 1): N. Miller and Brewer's (1984) *decategorization model*, Hewstone and Brown's (1986) *mutual intergroup differentiation*, and Gaertner et al.'s (1989) *common ingroup identity model*. These models draw upon a common theory, i.e., *social identity theory* (Tajfel & Turner, 1979), however, they come to different conclusions about the role of cooperative contact in generalizing intergroup attitudes within and beyond the contact situation, more specifically when and how cooperative contact should be introduced (Brown & Hewstone, 2005). Social identity theory assumes that one's group memberships are part of one's self-concept. When one's social identity is activated within a situation, processes like intergroup differentiation and intragroup assimilation lead to favouring one's ingroup over the outgroup, also

called *ingroup bias* (Hewstone et al., 2002). *Salience of group membership* plays a different role in these three intergroup contact models. Group salience can be operationalized as the extent to which individuals are aware of group memberships or of group differences, as perceived typicality of the outgroup members or as perceived homogeneity of outgroup (Brown & Hewstone, 2005). Low salience leads to an *interpersonal* encounter, high salience to an *intergroup* encounter.

2.1 Decategorization Model (Brewer & Miller, 1984)

According to N. Miller and Brewer (1984), generalization from individual member to entire outgroup takes place when social categories are *not salient* (e.g., atypical group members) and category boundaries are dissolved. Contact should take place at an *interpersonal* level. Group categories lose their significance, outgroup members are regarded as less homogenous, and greater attention is paid to individual information. Prejudice is reduced by less positive evaluations towards the ingroup.

2.2 Mutual Intergroup Differentiation (Hewstone & Brown, 1986)

In contrast to the decategorization model, according to Hewstone and Brown (1986), contact effects generalize to the whole group when group membership is *salient*. Contact should take place at an *intergroup* level (e.g., typical group members). The mutual intergroup differentiation model has two central ideas. First, contact should take the form of an intergroup mode with salient category memberships. Second, contact should take the form of mutual acknowledgement of both ingroup and outgroup strengths and weaknesses.

2.3 Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner, Mann, Murrell, & Dovidio, 1989)

According to Gaertner et al. (1989), intergroup contact is most effective when ingroup and outgroup members recategorize themselves into one shared, larger superordinate group, an inclusive category which emphasizes similarities rather than differences ("we" and "they") between individuals. Contact should take place at an *intragroup* level. Prejudice is reduced by more positive evaluations towards the outgroup.

Gaertner and Dovidio (2000) have further developed their common ingroup identity model (CIIM) into their dual identity model. Former ingroup and outgroup members should adopt a *dual identity* by recategorizising themselves into a common ingroup, a superordinate identity, while their former subgroup identities remain salient simultaneously within this inclusive identity. Recent research provided longitudinal evidence for Gaertner and Dovidio's CCIM (Eller & Abrams, 2003; Eller & Abrams, 2004).

2.4 Pettigrew's (1998) Model of Longitudinal Contact

Allport's original hypothesis only addresses *when* contact works, and that learning about the outgroup is the major way of contact reducing prejudice. However, it does not state through which processes contact works and when contact effects generalize. Therefore, Pettigrew (1998) extended Allport's contact hypothesis in proposing four interrelated, mediating *processes* to explain *how* and *why* intergroup contact works: (1) learning about the outgroup, (2) behaviour change, (3) affective ties, and (4) ingroup reappraisal. Furthermore, Pettigrew (1998) combined

the three central reformulations of intergroup contact theory (Gaertner et al., 1989; Hewstone & Brown, 1986; N. Miller & Brewer, 1984) into a time sequence to describe when and how contact effects *generalize*. These processes inform an understanding of the affective and cognitive processes underlying direct intergroup contact, which in turn has implications for the affective and cognitive processes involved in indirect forms of contact, for example imagined intergroup contact.

a) Four processes of intergroup contact

First, *learning new information* about the outgroup improves negative attitudes. Second, attitude change often proceeds behaviour change, but sometimes *behaviour change* proceeds attitude change: Dissonance between old negative attitudes and new positive intergroup behaviour can produce positive attitudes by revising one's attitudes to resolve dissonance. Repetition and reward of intergroup behaviour strengthens its positive effects. Third, since prejudice involves cognition and affect, *emotions* are critical in contact situations. Positive or optimal contact can reduce negative emotions (e.g., intergroup anxiety) and enhance positive emotions (e.g., empathy). Fourth, contact makes ingroup members aware that ingroup norms are not the only way to structure relationships, which leads to *reappraisal* of one's ingroup and to deprovincialization of outgroups. Intergroup friendship has the potential to activate all four processes. In light of the complex interaction of these four processes, Pettigrew (1998) reformulated Allport's (1954) contact hypothesis.

b) Three strategies of individual-to-outgroup-generalization

In his model, Pettigrew (1998) combined three stages of intergroup contact which are based on the three research traditions on group categorization (Gaertner et al., 1989; Hewstone & Brown, 1986; N. Miller & Brewer, 1984). His reformulation of intergroup contact theory is a longitudinal model of intergroup contact. The three strategies to generalize contact effects from the outgroup individual to the entire outgroup are: decategorization, salient group categorization and recategorization; they are sequentially organized. This time dimension is crucial for intergroup contact to maximise positive intergroup relations in terms of prejudice, stereotypes and discrimination.

First, *decategorization* should take place at initial contact, resulting in more positive feelings towards the outgroup. Second, *salient group categorization* should take place when contact is established, resulting in generalized prejudice reduction. Third, *recategorization* should take place into a group with a common ingroup identity, maximising positive intergroup relations. Individual differences (e.g., prior attitudes and experiences, intergroup anxiety and threat) as well as norms by social institutions and societies (e.g., discrimination, harmony) influence the likelihood with which intergroup contact is established as well as its effects (Pettigrew, 1998).

Furthermore, the model contains *essential situational factors* (i.e., Allport's four optimal conditions as well as the potential for friendship) and *facilitating situational factors* (i.e., equivalent group status outside the situation) which need to be met in the contact situation. Furthermore, the model takes into account *participants' experiences and characteristics*.

According to Pettigrew (1998), intergroup contact is optimal when it allows *time* to develop long-term close relationships such as cross-group friendships, compared to a short encounter, so that processes of decategorizaion, salient categorization, and recategorization have time to take place. He proposed that Allport's optimal conditions need to be extended by a fifth one – the potential for *cross-group friendship*. Recent research provided longitudinal evidence for Pettigrew's model (Eller & Abrams, 2003; Eller & Abrams, 2004).

2.5 Integrative Model of Intergroup Contact (Brown & Hewstone, 2005)

Since 1986, more than 40 studies have been carried out to test the central assumption of Hewstone and Brown's original model that some amount of group salience is necessary for intergroup contact effects to generalize beyond the immediate situation. Brown and Hewstone (2005) revised their model from 1986 by not only emphasizing the *intergroup* but also *interpersonal* dimension of contact, by identifying *mediators*, and by *integrating* their view and alternative research traditions on group categorization into one model; similarly to Pettigrew (1998) who integrated all three models on a temporal continuum.

Their revised model contained four components: (1) dimensions of contact, (2) group salience, (3) mediators, and (4) generalized outcomes. Compared to Allport (1954), their model rather emphasizes mutually recognising group *differences* rather than similarities. First, they suggested that research on intergroup contact should use measures such as opportunities for contact, contact quantity and quality, cross-group friendships, extended contact, and social networks. Second, *group salience* moderates the relationship between contact and intergroup relations.

When group salience is high, contact leads to more positive intergroup relations and to stronger individual-to-group generalization. Third, *affective factors* (intergroup anxiety, empathy, perspective-taking, self-disclosure) are seen as stronger factors compared to cognitive factors (knowledge about group differences, individuation of outgroup members) that mediate the relationship between contact and intergroup relations. Forth, outcome measures should not only include stereotype and attitude change, but also intergroup affect, trust, forgiveness, indirect and implicit attitudes.

They linked their model to N. Miller and Brewer's (1984) decategorization model by acknowledging the importance of interpersonal factors (e.g., friendship, self-disclosure). However, they argued, intimate relationships lead to greater generalization when some group salience (intergroup factor) is present. Optimal contact is high in both interpersonal and intergroup dimension.

They also linked their model to Gaertner et al.'s (1989) common ingroup identity model by emphasizing the importance of category salience. In Gaertner and Dovidio's (2000) model revision, a dual identity strategy is considered as more effective than a single common identity for minority groups. Both the subordinate and the superordinate category should be salient simultaneously.

This review of theoretical developments of intergroup contact theory shows that a focus on *cognitive representations* is key to understanding contact effects and to develop new interventions that go beyond direct contact, i.e., interventions that make use of these representations for example when using mental imagery. The next section will shed light into the *cognitive processes* in intergroup interactions.

3 INTERGROUP INTERACTIONS

People bring evaluative concerns into intergroup interactions. The objective contact situation differs from people's subjective experiences of intergroup contact and their construction of the contact situation, as well as the roles they take in intergroup interactions. The main focus in this thesis is the majority group members' concerns in intergroup interactions, for example British people. In order to develop effective cognitive interventions like imagined contact, one not only needs to know about optimal cognitive representations as described in the previous section but also about cognitive processes that are instigated in actual interactions. Imagined contact interventions, which concern the *representation of interactions*, can be successful when combining the knowledge about optimal representation and cognitive processes in interactions. Intergroup interactions can have emotional and cognitive costs. First, they can lead to intergroup anxiety. Second, intergroup interactions can involve a great deal of self-regulation which comes at a cognitive cost.

3.1 Emotional Costs of Intergroup Interactions

Majorities and minorities differ in their evaluative concerns in intergroup interactions (Richeson & Shelton, 2007). Majority group members are concerned about *appearing* prejudiced by minority group members, minority group members are concerned about being the *target* of prejudice by majority group members, and about confirming negative stereotypes majorities hold of them. In this thesis, I focus on the majority group's perspective and interventions to tackle their feelings of

intergroup anxiety. Majorities experience *intergroup anxiety*, i.e., the concern about appearing prejudiced and behaving incorrectly (Plant & Devine, 2003; Shelton, 2003; Vorauer & Kumhyr, 2001), as a major predictor of prejudice against minorities. Intergroup anxiety has cognitive consequences.

3.2 Cognitive Costs of Self-Regulation and Anxiety

There is a strong contemporary norm that prejudiced behaviour is not acceptable. As a consequence, independently of one's prejudice level, individuals control thoughts and behaviour in order to appear non-prejudiced (Crandall & Eshleman, 2003; Monteith, 1993; von Hippel, Silver, & Lynch, 2000). The extent of this self-regulation during interracial interactions is a function of racial bias (Richeson & Shelton, 2003; Richeson et al., 2003). Majority group members high in racial bias make greater efforts to control their non-verbal behaviour, e.g., less movements of body, eyes and hands (Richeson & Shelton, 2003), show more positive behaviours (Vorauer & Turpie, 2004), and higher activation in brain areas associated with self-regulation (Richeson et al., 2003).

a) Self-regulation

However, efforts to control for the expression of prejudice backfire. In order to prevent the expression of stereotypes, individuals engage in stereotype suppression during an intergroup interaction (Monteith, Sherman, & Devine, 1998) which in turn leads to impaired executive attentional resources after interracial but not after same-race interactions for high-prejudiced both majority (Richeson &

Shelton, 2003; Richeson & Trawalter, 2005; Trawalter & Richeson, 2006) and minority (Richeson, Trawalter, & Shelton, 2005) group members.

Individuals are cognitively depleted after an interracial interaction (Richeson & Shelton, 2007). Self-regulatory focus moderates the negative impact of interracial interactions on executive function (Trawalter & Richeson, 2006). Richeson and Trawalter's (2005) results suggest that activated prejudice concerns lead to self-regulation during an interracial interaction which in turn leads to impaired executive function. They argued that since executive attention is limited (Muraven & Baumeister, 2000), suppression of stereotypes leads to lowered performance in a subsequent task that requires the same executive attentional resources (such as the Stroop (1935) colour-naming task).

b) Anxiety

Self-regulation can also lead to anxiety. Avoiding appearing prejudiced resulted in anxiety for Whites during an interaction with Blacks (Shelton, 2003). Shelton (2003) argued that efforts to appear non-prejudiced require cognitive resources and evoke anxiety therefore individuals enjoy an interaction less. Avoiding appearing prejudiced resulted in anxiety for Whites during an interaction with Blacks (Shelton, 2003).

Anxiety reduces cognitive resources (Easterbrook, 1959; Kahnemann, 1973) and narrows attention (Wilder & Shapiro, 1991; Wilder, 1993). Research has found that anxiety has a strong negative correlation with the quality of communication in intergroup contexts (Gudykunst & Shapiro, 1996; Hubbert, Gudykunst, & Guerrero, 1999). If anxiety is too high, individuals fall back on stereotypes to guide their

behaviour (Gudykunst, 1988; Gudykunst, 1995). High anxiety promotes stereotype usage (Wilder & Shapiro, 1989) by reducing the focus of attention (Wilder & Shapiro, 1991; Wilder, 1993). It causes biases in information processing (Stephan & Stephan, 1985) and reliance on automatic processing (Ingram & Kendall, 1987), both leading to increased stereotyping. If anxiety is reduced, individuals rely less on stereotypes (Aberson & Haag, 2007).

3.3 Cognitive Representations and Cognitive Processes in Intergroup Contact

There are two key points to keep in mind when developing imagined contact interventions. First, the knowledge about cognitive representation of groups and cognitive processes in interactions needs to be combined.

In the previous section, new cognitive models of intergroup contact theory were described to show that the optimal cognitive representation of ingroup and outgroup, the social categorization of one's self, in various stages of contact determines when contact effects generalize (Pettigrew, 1998). We have further seen that in order to enhance intergroup contact effects, one needs to understand the processes of contact – how and why it is reducing prejudice (Pettigrew, 1998). Intergroup anxiety and empathy are affective mediators of the contact-prejudice relationship (Pettigrew & Tropp, 2008). In this section, we have seen that intergroup anxiety is a major concern of majority group members that inhibits smooth and enjoyable intergroup interactions free from stereotypes (Shelton, 2003). Cognitive processes involved in an actual interaction determine whether contact is successful. The knowledge of both cognitive representation in contact situations and cognitive

processes in an interaction will be combined in imagined contact interventions which are about the representation of interactions.

Second, it is equally important to consider affective and cognitive processes. The self-regulation of affect, i.e., concerns about appearing prejudiced, during intergroup interactions involves cognitive processes (Trawalter & Richeson, 2006). Affective and cognitive processes are intertwined, clearly shown by research on imagined contact (see Chapter 3), which is a cognitive intervention driven by reduced anxiety (Turner, Crisp, & Lambert, 2007).

4 Cognitive Contact Interventions in Real-Life Settings

Since the great potential of contact in reducing prejudice is widely known, interventions based on contact have to be developed and improved for real-life settings. The first interventions employed to improve intergroup relations were designed based on Allport's (1954) intergroup contact theory (e.g., Sherif, 1966) and its reformulations (e.g., Gaertner & Dovidio, 2000; Pettigrew, 1998). Since then, new methods of reducing prejudice have evolved which are based on more cognitive techniques, for example priming, mindsets, simulation or perspective taking. Social-cognitive psychologists have emphasized that prejudice reduction and stereotype change can be achieved effectively by providing stereotype-disconfirming information which could be interpreted as a cognitive analysis of Allport's contact hypothesis (Hewstone, 2000).

We have seen that cognitive representations (e.g., social categorization) and cognitive processes in interactions (e.g., self-regulation) can be very powerful, and

this power can be used to go beyond direct contact and develop cognitive interventions based on these findings. There is much evidence about the use and effectiveness of cognitive interventions (for a detailed overview see Table 1) which use a range of different cognitive methods and are applied in a range of contexts. The following section briefly summarizes the main methods and outcomes.

4.1 Positive Framing

Polish migrants. Polish migrants in Northern Ireland suffer from prejudice not only because they are Polish but also because they are Catholic. Van Rijswijk, Hopkins, and Johnston (2009) showed that the social categorization of Polish migrants as either European or Catholic determines how they are evaluated. When Poland's Catholicism was emphasized, Northern Irish Protestants reported less welcoming attitudes towards Polish migrants compared to when Poland was described as European.

4.2 Role Play and Perspective Taking

Disabled people. In Germany, anxiety about interacting with disabled people as well as false stereotypes are common. Ninth-graders received a cognitive-behavioural intervention which provided information about disability and discrimination, rectified false stereotypes, and included discussions about scenarios in which participants engaged in thinking about appropriate behaviour. This intervention decreased negative attitudes towards physically disabled people both immediately post-intervention and at a three months follow-up (Krahé & Altwasser, 2006).

Aboriginal Australians. Aborigines are a minority group in Australia which experiences extensive social and economic disadvantages as well as discrimination. A three day Cross-Cultural Awareness Programme was employed that focussed on information about the negative effects of prejudice and discrimination, and discussions of incidents as well as thinking about and role-plays on anti-racist strategies. The intervention increased positive attitudes, and decreased negative attitudes, immediately post-intervention (Hill & Augoustinos, 2001).

Jewish in Israel. There is a longstanding and violent conflict between Jewish and Arabs in Israel. A school-based intervention was employed which included story-telling to include the Israeli nationality into Arabs' social identity, and role-play to increase understanding of the Arab-Jewish conflict from a Jewish perspective. The intervention reduced anxiety and endorsement of aggression, and increased empathy (Shechtman & Tanus, 2006).

4.3 Extended Contact

Refugees in the UK. British people are expressing a greater concern against immigrants and refugees in the United Kingdom (MORI, 2001). An intervention based on the extended contact hypothesis, which states that the mere knowledge of ingroup members having outgroup friends can reduce prejudice (Wright et al., 1997), was employed. Children read friendship stories about English children who were friends with refugees, followed by a post-story group discussion. The intervention increased English children's attitudes towards refugees. Inclusion of others (other outgroup members) in the self mediated the effect (Cameron, Rutland, Brown, & Douch, 2006).

4.4 Summary Cognitive Contact Interventions

The described cognitive contact interventions show that prejudice can be reduced by changing the mindsets of ingroup members through categorization, perspective-taking, and extended contact. Interventions using cognitive methods were demonstrated to be effective in conflicts with various groups like Polish migrants in Northern Ireland, disabled people and refugees in school settings, Jewish people in Israel, and Aboriginal Australians. Cognitive interventions promoted promising outcomes such as decreased affective and cognitive prejudice, reduced threat, and enhanced empathy. The methods contained positive framing of the interactive context (Van Rijswijk et al., 2009), challenging existing negative stereotypes through information, role-play and perspective-taking (Hill & Augoustinos, 2001; Shechtman & Tanus, 2006), and vicarious experiences of friendship (Cameron et al., 2006).

Interventions based on extended contact as a form of indirect contact have demonstrated that they have the potential to reduce conflict in real-life settings. In this thesis, I will investigate a new form of indirect contact: *imagined intergroup contact*. The next chapter will present the imagined contact intervention in detail, discussing the theory behind this indirect form of intergroup contact theory as well as promising research looking into the mechanisms of indirect contact.

Table 1

Cognitive interventions to reduce prejudice in real-life settings

Study	Outgroup	Conflict	Method	Outcome
Van Rijswijk et al. (2009)	Polish migrants in Northern Ireland	In 2004, several Eastern European countries joined the European Union, e.g., Poland. Many people migrated from Eastern to Western European countries and have been facing discrimination there. Polish migrants in Northern Ireland not only suffer from anti-Polish migrant prejudice but also anti-Catholic prejudice as a result of a pre-existing intergroup tension. Northern Ireland is affected by strong conflicts between Catholic and Protestant communities, and both communities identify highly with their religion. With Poland being traditionally Catholic, Protestants' social identity is not only threatened by Northern Irish Catholics but also by Polish migrants.	Social categorization determines how the same group of migrants is evaluated. The status of the current sectarian conflict was manipulated through news headlines that either presented it as resolved or as ongoing, and the salience of Polish migrants' Catholicism through a fact sheet that either portrayed Poland as European or Catholic.	When Poland's Catholicism was emphasized, Northern Irish Protestants reported less welcoming attitudes towards Polish migrants because they perceived Polish migrants as more of a threat to their in-group's social and cultural traditions – the negative effect of salient Catholicism on attitudes was mediated by increased perceived symbolic threat – compared to when Poland was described as European. There were no effects of conflict status. Conclusion: The degree of prejudice the same group of people experiences is modifiable through how a context is framed.
Krahé and Altwasser (2006)	Physically disabled people	In Germany, the amount of physically disabled people reached 4.5 million in 2001 (Statistisches Bundesamt, 2001). Even though there are laws to protect the rights of disabled people and an open dislike is not socially accepted, anxiety about interacting with disabled people as well as false stereotypes are still common.	An intervention containing cognitive as well as behavioural elements can increase attitudes towards physically disabled people in a school setting. Ninth-graders received a cognitive intervention, a combined cognitive and behavioural intervention, or no intervention. Attitude change was measured three times, i.e., before, immediately after and three months after the intervention. The cognitive intervention provided information about	The cognitive-behavioural intervention (compared to only cognitive intervention or no intervention) decreased negative attitudes towards physically disabled people both immediately post-intervention and at a three months follow-up. This was because the combined intervention was evaluated more positively compared to the cognitive only intervention. The authors emphasized that a "behavioural only" intervention was considered

			physical disability, discrimination of disabled people through society, and it rectified false stereotypes. Furthermore, it included discussions on interactions between non-disabled and physically disabled person based on scenarios in which participants engaged in thinking about their own behaviour in a similar situation and in finding different appropriate ways of responding in such an encounter. The behavioural intervention contained cooperative, equal-status activity (see Allport, 1954) in three paralympic disciplines through physically disabled athletes.	as inappropriate due to ethical reasons but also because without any cognitive preparation it may have had negative effects on ninth graders.
Hill and Augoustinos (2001)	Aboriginal Australians	Aborigines are a minority group in Australia with representing only 2% of the Australian population. Since the colonization in 1788, Aboriginal Australians experience extensive social and economic disadvantages (Hill & Augoustinos, 2001) as well as discrimination (Walker, 1994).	Australian employees took part in the Cross-Cultural Awareness Programme which is an applied three-day intervention to reduce prejudice against Aboriginal Australians. It focussed on information about discrimination against Aboriginal Australians, research on prejudice and its negative effects, and discussions of incidents as well as thinking about and role-plays on anti-racist strategies to challenge beliefs and feelings associated with prejudice.	In the short term, the intervention increased positive attitudes, i.e., knowledge of Aboriginal culture and positive stereotyping, and decreased negative attitudes, i.e., prejudice and negative stereotyping, immediately post-intervention. In the long term, knowledge remained higher, and high-prejudiced employees showed decrease in old-fashioned racism compared to pre-intervention at a three months follow-up.

Shechtman and Tanus (2006)	Jewish people in Israel	The longstanding and violent conflict between Jewish and Arabs in Israel is not only a conflict between one minority and one majority. Arab Israelis consist of three ethnic groups – Muslims, Christians, and Druze – who differ in religion, language, tradition, social norms, and attitudes (Abu-Nimer, 2004).	A school-based intervention was tested which included story-telling as a method that aimed at including the Israeli nationality into Arabs' social identity, and role-play as a method of increasing understanding of the Arab-Jewish conflict from a Jewish perspective and with this empathy towards Jewish. Due to the violence in the conflict, the intervention had to include counselling methods.	The intervention had differential effects. Israeli identity was increased in Christians and Duze and decreased in Muslims, anxiety was reduced in Christians and Muslims, empathy was increased and endorsement of aggression was reduced in Christians.
Cameron et al. (2006)	Refugees in the United Kingdom	British people are expressing a greater concern against immigrants and refugees in the United Kingdom (MORI, 2001). At the same time, the British Government is reducing the number of refugees allowed in the country, especially since the change of government in 2010, while trying to integrate the remaining refugees into society better.	An intervention based on the extended contact hypothesis was used which states that the mere knowledge of ingroup members having outgroup friends can reduce prejudice (Wright et al., 1997). Children read friendship stories about English children who were friends with refugees, followed by a post-story group discussion. Three types of the extended contact intervention were employed based on decategorization, common ingroup identity, and dual identity.	The extended contact interventions increased English children's attitudes towards refugees compared to a control condition, with the dual identity approach being most effective in which a common identity as well as the children's own subgroup identity was emphasized in the stories. Inclusion of others in the self mediated the effect extended contact on outgroup attitudes. Comparing the three types of extended contact, low English identifiers showed higher outgroup intended behaviour after the dual identity approach.

CHAPTER 3

LITERATURE REVIEW: EXTENDED AND IMAGINED CONTACT

In this chapter, I present research on indirect forms of contact: extended contact and imagined contact. Extended contact is the vicarious experience of cross-group friendship. Imagined contact is the mental simulation of social contact with an outgroup member. Imagined contact as a new concept of intergroup contact theory and as a cognitive intervention to reduce prejudice is the main focus of this thesis. Research on the power of mental imagery in general, as well as on the positive effects of imagined contact on intergroup attitudes, intentions and behaviour in particular will be reported. The chapter closes with the aims of the experiments reported in this thesis.

1 CROSS-GROUP FRIENDSHIP AND EXTENDED CONTACT

The previous chapter has shown that direct contact between conflicting groups can reduce prejudice. Furthermore, cognitive interventions based on categorization, perspective-taking, and extended contact have been described. Cognitive interventions are especially useful when opportunities for direct contact are difficult. Extended contact is an indirect form of contact which does not require direct contact with an outgroup member. It is partly a cognitive intervention as it is based on the knowledge of an ingroup member having an outgroup friend. First, the

role of cross-group friendship in intergroup relations will be discussed. Then, the concept of extended contact as a cognitive intervention based on vicarious experiences of cross-group friendship will be explained.

1.1 Cross-Group Friendship

Pettigrew (1997, 1998) highlighted the pivotal role of intergroup friendship potential in intergroup situations. Friendship with an outgroup member especially reduces affective prejudice, leads to greater support for pro-outgroup policies, and to generalization of positive attitudes across a wide range of outgroups. Cross-group friendship is regarded as high quality contact because it is characterized by factors such as self-disclosure, repeated and intensive contact, across various social contexts. Furthermore, it is likely to meet all four of Allport's (1954) optimal conditions of contact. A considerable amount of work has shown a positive association between cross-group friendships (especially self-disclosure and time spent) and intergroup attitudes (for a recent meta-analysis see Davies, Tropp, Aron, Pettigrew, & Wright, 2011).

Ideally, contact should have the potential for cross-group friendship which involves important mechanisms like self-disclosure (Paolini et al., 2004; Pettigrew, 1998). Research has shown that intergroup friendships reduce prejudice, and prejudice reduces intergroup friendships. Although both causal paths operate, the path between contact and prejudice was stronger (Pettigrew, 1997).

1.2 Extended Contact

There is evidence that direct contact is not necessary to achieve positive effects on intergroup relations. More indirect forms of contact have been shown to reduce prejudice effectively: extended contact and imagined contact. Wright et al., (1997) have shown in four studies that even indirect cross-group friendship can reduce prejudice, which they name *extended contact*. The mere knowledge that an ingroup member has a close relationship with an outgroup member can improve intergroup attitudes. Participants who learnt of an interaction between cross-groups friends showed enhanced outgroup evaluation and reduced ingroup bias (Wright et al., 1997). In comparison to extended contact, vicarious contact reduces prejudice by individuals observing a cross-group interaction (Mazziotta, Mummendey, & Wright, 2011).

The effectiveness of extended contact in reducing prejudice is now well established (Cameron et al., 2006; Paolini et al., 2004; Turner, Hewstone, & Voci, 2007; Turner, Hewstone, Voci, Paolini, & Christ, 2007; Turner, Hewstone, Voci, & Vonofakou, 2008; Wright et al., 1997). The concept of extended contact, emphasizing vicarious contact experiences, demonstrates that direct intergroup encounters are not required for contact to positively influence intergroup experiences.

However, what happens if individuals do not have the *opportunity* for direct or extended contact? For instance, when groups live in separate communities, like Catholics and Protestants in Belfast or South Asian and White people in Bradford, introducing intergroup contact or knowing an ingroup member who is friends with

an outgroup member is difficult (Turner et al., 2007). When groups are rather isolated, an alternative method of reducing prejudice between opposing groups needs to be found, a form of contact for which no outgroup member and no ingroup member with an outgroup friend are needed.

2 IMAGINED CONTACT

Despite the evident power of contact, it remains limited by a simple constraint: It can only reduce prejudice when social groups and group members have the opportunity to engage in contact. Unfortunately, because prejudice goes hand in hand with segregation, there are many situations in which establishing meaningful contact between communities may be difficult. In the United States, for instance, segregation of Latino and White communities remains pervasive (Martin, 2006), and the average White person lives in a predominantly White neighbourhood (Logan, 2001). Many Catholic and Protestant communities in Belfast, Northern Ireland, have a very low percentage of residents from the other community (Office for National Statistics, 2001). There are many other examples of more extreme segregation from the Green Line in Cyprus to the West Bank in Israel (Pettigrew, 2008; see also Crisp & Turner, 2009).

How can policymakers reap the prejudice-reducing benefits of contact in situations where contact is going to be difficult, unlikely, or impossible to establish? To solve the problems associated with lack of opportunity for contact, Turner et al. (2007) implemented a new indirect form of contact based on the power of mental imagery.

2.1 The Power of Mental Imagery

A large body of research has demonstrated the benefits of mental imagery in various areas such as health and personality psychology, consumer research, clinical therapy, and sports. Imagery improves attitudes, intentions, self-efficacy and behaviour (for a review see Crisp et al., 2011).

Mental imagery has a positive impact on *attitudes* towards blood donation (Armitage & Reidy, 2008), safety laws (Gregory, Burroughs, & Ainslie, 1985), or brand evaluations (Babin & Burns, 1997; Escalas & Luce, 2004); on *intentions* towards a new job (C. A. Anderson, 1983), time spent studying (Ratcliff et al., 1999), or health behaviours like dieting or exercising (Eyck, Labansat, Gresky, Dansereau, & Lord, 2006); on *self-efficacy* in terms of physical ability (Feltz & Riessinger, 1990; Jones, Mace, Bray, MacRae, & Stockbridge, 2002; Landau, Libkuman, & Wildman, 2002), and on *behaviour* in terms of remaining in psychotherapy (R. T. Sherman & C. A. Anderson, 1987), coping with stress (Rivkin & Taylor, 1999), or a successful job interview (Knudstrup, Segrest, & Hurley, 2003).

The capacity for imaginative thought is central to the human experience and, as such, a correspondingly critical component of behavioural change strategies (Crisp et al., 2011). This argument is supported by considering imagery's central role in advances spanning the breadth of psychological science – from studies of the biological correlates of motor control, mimicry, and theory of mind to the cognitions and emotions that characterize reasoning, self-regulation, planning, and goal pursuit. I outline three of these areas below: a) understanding others, b) understanding ourselves and c) changing ourselves.

a) Understanding others

Functional neuroimaging studies have shown that similar neural mechanisms are activated during performing, perceiving, and imagining behaviour and that simulations employ the same neurological mechanisms involved in memory, emotion, and motor control (Kosslyn, Ganis, & Thompson, 2001). Most importantly, when perceiving another person's behaviour, common motor representations are activated to the extent that there is a match between perceived and represented behaviour (Preston & de Waal, 2002). This direct link between perception and action and between neural and cognitive systems feeds directly into social behaviour through stereotype activation and social mimicry (e.g., Chartrand, Maddux, & Lakin, 2005). It is this link that allows us to simulate the mental states of others (e.g., intentions, feelings, and beliefs – i.e., theory of mind). When an individual is attributing mental states, his or her own mental states have to be put aside and replaced with those of the observed person (Goldman, 2005). In imagining oneself performing the same action, this mimicry of mental activity enables the perceiver to take the perspective of the target person as an inferential tool.

Research has suggested that specific neurons underlie this capacity to infer others' mental states. Discovery of the functional role of visuomotor "mirror" neurons (for review see Rizzolatti, 2005) supports the notion that we understand the minds of others at least in part through mental simulation. This work has shown how mental simulation constitutes a core cognitive process involved in the planning and rehearsal of social interaction (i.e., enabling shared representations between self and other, empathy, and theory of mind). The biological basis for this mechanism – and the demonstrable link between motor control and social inference – provides

evidence of the centrality of mental simulation in the comprehension of social thought and action. However, simulation is not only essential for predicting others' mental states but also for making spontaneous inferences about our own attitudes and behaviours.

b) Understanding ourselves

Kahneman and Tversky (1982) identified simulation as a heuristic tool that maintains basic functionality, fulfilling epistemic and self-evaluative needs. The key role that simulation plays in meeting these needs is illustrated in work on counterfactual reasoning. Simulation enables us to consider alternative possibilities for past behaviour (Galinsky, Moskowitz, & Skurnik, 2000). Such counterfactuals are more likely to result from a negative outcome (Roese & Olson, 1996). Upward counterfactuals serve a self-improvement function, allowing individuals to prepare to improve on their outcomes in the future at the expense of immediate feelings of dissatisfaction. Downward counterfactuals serve more of a mood repair function, enhancing satisfaction but at the expense of leaving one unprepared for the future. Mental simulation is key to the maintenance of self-esteem and to helping us chart a way through the triumphs and tribulations of everyday life. It is a mechanism of self-regulation and, as such, the way in which we implement plans to better ourselves and the world around us. It is a cognitive process that enables and empowers the pursuit of our ambitions, aims, and aspirations.

c) Changing ourselves

Predicated on its role in helping us infer and understand both others' and our own mental states, mental simulation serves a fundamental function in the selection, rehearsal, preparation, and planning of goal-directed behaviour. The literature on goal pursuit documents its use as a self-regulatory technique in domains such as planning and decision making, sports performance, clinical psychology, advertising, health, and academic achievement (Taylor, Pham, Rivkin, & Armor, 1998). This literature shows that mental simulations help us understand not only social inferences about self and others but also how individuals initiate action to elicit behavioural change. There are some vivid examples of how eliciting mental simulations can exert substantive changes on behaviour. For instance, Ratcliff et al., (1999) directed undergraduate students either to think about the reasons why people should find studying enjoyable (e.g., learn new things, make better grades, boost self-confidence) or to imagine the actions that people might take up to make studying more enjoyable (e.g., create a comfortable atmosphere, study with a friend, reward oneself). Imagining actions elicited more effective and productive study behaviours than did thinking about reasons. Similarly, R. T. Sherman and Anderson (1987) attempted to reduce psychotherapy dropout rates at an outpatient clinic using a scripted-simulation procedure administered at the intake session. Those who imagined staying in therapy both reported an increased expectation of doing so and were less likely to subsequently drop out. Consistent with the research demonstrating a neural link between mental simulation and motor control, the use of mental simulation is also a well-established training technique to improve sports

performance. Meta-analytic reviews of mental-practice research indicate that while physical practice is a superior method for developing motor skills, mental practice is significantly more beneficial for performance than no practice at all; and the combination of mental and physical practice can be maximally effective in enhancing performance (Driskell, Copper, & Moran, 1994). These examples illustrate the range of positive individual outcomes that can accrue from properly implemented simulation strategies for promoting behaviour change. Having discussed the power of mental imagery in general in people's life, I now turn to explain how mental imagery can be beneficial in intergroup contect.

2.2 Imagined Contact Task

Imagined intergroup contact has recently been proposed as a further implementation of contact theory that can capitalize on the benefits of contact, even where opportunities for contact are unlikely or impossible. It is defined as "*the mental simulation of a social interaction with a member or members of an outgroup category*" (Crisp & Turner, 2009, p. 234).

The typical instruction used in research on imagined contact is "We would like you to take a minute to imagine yourself meeting [an outgroup] stranger for the first time. Imagine that the interaction is positive, relaxed and comfortable" (Crisp, Stathi, Turner, & Husnu, 2008). Crisp and Turner (2009) emphasized two key elements in this instruction: simulation and positive tone. First, only thinking of an outgroup member (i.e., social category priming) has no effect on prejudice (Turner et al., 2007, Experiment 2). It is important to *actively* engage in imagining a contact experience. Second, the tone of the imagined interaction needs to be *positive* to

prevent individuals from imagining a negative or stereotypical interaction, and positive contact works better than neutral contact (Stathi & Crisp, 2008; Experiment 1). To reinforce the instruction, participants describe in a few sentences the scenario they imagined.

Previous research on imagined contact has tested an extensive variety of control conditions, including neutral contact (Stathi & Crisp, 2008, Experiment 1), no-contact control scenes (Stathi & Crisp, 2008, Experiment 3; Turner et al., 2007, Experiment 1), non-relevant positive interaction (Stathi & Crisp, 2008, Experiment 2) and outgroup priming (Turner et al., 2007, Experiment 2). The benefits of imagining positive contact scenarios have been demonstrated against all of these conditions (see Table 2).

Studies have ruled out informational load (Turner et al., 2007; Experiment 1), stereotype priming (Turner et al., 2007; Experiment 2), positive affective priming and non-relevant social interaction (Stathi & Crisp, 2008; Experiment 2), and demand characteristics (Turner et al., 2007; Turner & Crisp, 2010) as alternative explanations for the imagined contact effect.

Table 2

Overview of imagined contact and control group instructions

Study		Imagined Contact	Control Group
Turner, Crisp, and Lambert (2007)	1a	Classification: *"We would like you to take a minute to imagine yourself meeting a [outgroup] stranger for the first time. Imagine their appearance, the conversation that follows and, from what you learn, all the different ways you could classify them into different groups of people."*	No-contact: *"We would like you to take a minute to imagine an outdoor scene. Try to imagine aspects of the scene about you (e.g. is it a beach, a forest, are there trees, hills, what's on the horizon)."*
	1b	Classification	Priming: *"We would like you to spend a minute thinking about [outgroup]."*
	1c	Contact: *"Please spend the next five minutes imagining that you are talking to a [outgroup member] that has sat next to you on the train. You spend about thirty minutes chatting until you reach your stop and depart the train."* Interesting and unexpected things: *"During the conversation you find out some interesting and unexpected things about him."*	No-contact

Turner and Crisp (2010)	2a	Contact + interesting and unexpected things	No-contact
	2b	Positive, relaxed, comfortable: *"We would like you to spend the next 2 minutes imagining yourself meeting someone who is a [outgroup member] for the first time. Imagine that the interaction is relaxed, positive, and comfortable."*	Priming
Stathi and Crisp (2008)	3a	Contact + interesting and positive things	Neutral contact: *"Please spend five minutes imagining that they speak to a [outgroup member] that has sat next to you in the bus. You spend about 30 minutes chatting until you reach your stop and depart the bus. "*
	3b	Contact + *"Please answer the following questions concerning the person you met."*	Non-relevant positive contact: *"Please spend the next five minutes imagining that you are talking to someone who has sat next to you in a party. You spend some time chatting about several things. Please answer the following questions concerning the person you met."*
	3c	Contact	No-contact

Stathi, Crisp, and Hogg (2011)	4a	Positive, relaxed, comfortable + "Imagine three specific things that you learn about the life and experiences of [outgroup] from your conversation partner."	No-contact
	4b	Person-based: *"We would like you to take a minute to imagine yourself meeting a [outgroup] stranger for the first time. Imagine that the interaction is relaxed, positive and comfortable. Imagine that you find out about the life and experiences of your conversation partner."*	Group-based: *"We would like you to take a minute to imagine yourself meeting a [outgroup] stranger for the first time. Imagine that the interaction is relaxed, positive and comfortable. Imagine that you find out about the life and experiences of [outgroup] from your conversation partner."*
	4c	Typical: *"We would like you to take a minute to imagine yourself meeting a [outgroup] stranger for the first time. Imagine that this person is a typical [outgroup], he or she dresses in a traditional way, avoids alcohol, reads the Koran and prays five times a day. Imagine that the interaction is relaxed, positive and comfortable. Imagine that you learn about the life and experiences of your conversation partner."*	Atypical: *"We would like you to take a minute to imagine yourself meeting a [outgroup] stranger for the first time. Imagine that this person is a not a typical [outgroup], he or she dresses in 'western' clothes, drinks alcohol, eats pork and does not pray regularly. Imagine that the interaction is relaxed, positive and comfortable. Imagine that you learn about the life and experiences of your conversation partner."*
Husnu and Crisp (2010b)	5	Elaborated contact: *"I would like you to take a minute to imagine yourself meeting a [outgroup] stranger for the first time. While imagining this think specifically of when (e.g., next Thursday) and where (e.g., Ledra Palace) this conversation might occur. During the conversation imagine you find out some interesting and unexpected things about the stranger."* Contextually homogenous (same time and place) vs. diverse	No-contact
Husnu and Crisp (2010a)	6a	Contact + interesting and unexpected things	No-contact
	6b	Standard contact	Elaborated contact

	6c	Standard contact	Elaborated contact
Husnu and Crisp (2011)	7a	Standard contact	Elaborated contact
	7b	Standard + eyes closed	Standard + eyes open
Crisp and Husnu (2011)	8	Standard contact + first person vs. third person perspective	No-contact + first person vs. third person perspective
West, Holmes, and Hewstone (2011)	9a	Classification	Priming
	9b	Classification + positive vs. negative information	No mental imagery + positive vs. negative information
	9c	Positive contact	Non-relevant positive contact
	9d	Positive, relaxed, comfortable	Non-relevant positive contact
Turner, West, and Christie (in press)	10a	Positive, relaxed, comfortable	Ingroup member: *"We would like you to spend the next 2 minutes imagining yourself meeting and interacting with [ingroup member] for the first time. [Ingroup member] is a [ingroup]. Imagine that the interaction with [ingroup member] is positive, relaxed and comfortable."*
	10b	Positive, relaxed, comfortable	Non-relevant positive contact
Turner and West (2011)	11a	Positive, relaxed, comfortable	Non-relevant positive contact
	11b	Positive, relaxed, comfortable	Non-relevant positive contact
Abrams et al. (2008)	12b	Classification	No-contact
Harwood, Paolini, Joyce, Rubin, and Arroyo (2011)	13	Positive contact	No-contact

2.2 Why Does Imagined Contact Reduce Prejudice?

a) Imagined vs. real experience

Imagined contact goes beyond a positive approach of an interaction and means mentally simulating the interaction experience before one actually engages in an intergroup encounter. Mental imagery plays an important role in social situations as well as in intergroup perceptions and interactions. A mental experience of a particular social context can have the same effect as an actual experience of that context (Blair, Ma, & Lenton, 2001; Garcia, Weaver, Moskowitz, & Darley, 2002; Turner et al., 2007).

Garcia et al. (2002) showed that imagining a social situation can evoke the same mental state as actually experiencing this situation, using the bystander apathy effect as an example. The bystander effect is the idea that the presence of others inhibits helping behaviour (e.g, Latané & Darley, 1968). The more people present in an emergency situation, the less likely each individual feels obligated to help (diffusion of responsibility; Darley & Latané, 1968) and the more they evaluate the situation as not an emergency when others seem calm (pluralistic ignorance; Prentice & Miller, 1996). Garcia et al. (2002) found that activating the psychological construct of a group of people at time 1 led to an implicit bystander effect in a subsequent unrelated helping behaviour task at time 2. Participants who imagined having a meal with 10 people were less willing to help the experimenter in a second study compared to participants who imagined having a meal with only person, even though the imagined others were unable to help out (Study 3). Throughout five

studies, they showed that there is a linear negative relationship between the number of people imagined and helping behaviour; that the implicit bystander effect works for friends as well as strangers, and for hypothetical and real helping behaviour; and that the concept of unaccountability is more accessible.

While Crisp and Turner (2009) were the first to formalize imagined contact as a contact intervention, as the above review demonstrates, imagery has been a key component of experimental psychology in a range of domains, and this extends to intergroup interactions. Some previous studies have used imagery as an experimental proxy, which offers further support for the imagined contact proposition.

For example, Desforges, Lord, Pugh, and Sia (1997) used mental imagery as part of their cooperative contact manipulation. Participants took part in cooperative learning sessions. In these sessions, they watched a videotape of their interaction partner, showing their partner in a cooperative task with another person. Participants then were asked to imagine themselves being in the same room with their interaction partner. Vicarious cooperative contact resulted in a positive attitude change towards a previously negatively rated group. Furthermore, attitude change generalized towards other groups when the interaction partner was representative of that group.

Furthermore, research has shown that the activation and application of implicit stereotypes can be controlled under certain conditions (e.g., Blair & Banaji, 1996; Gilbert & Hixon, 1991; Gollwitzer & Schaal, 1998; Macrae, Bodenhausen, Milne, Thorn, & Castelli, 1997). Among the few strategies to moderate and control implicit stereotypes that have shown to be effective, Blair et al. (2001) have found a new strategy based on mental imagery. They define mental imagery as the conscious and intentional act of creating a mental representation of a person, object, or event by seeing it with the "mind's eye." (p. 828). Throughout five experiments, implicit

stereotypes were weaker after having engaged in counterstereotypic mental imagery (e.g., a strong woman) compared to participants who engaged in neutral (e.g., vacation in Caribbean), stereotypic or no mental imagery. These results could not be explained with suppression. Having shown that an imagined experience can have a similar effect as an actual experience, I will now explain the processes through which mental imagery works.

b) How does mental imagery work?

It is well established that priming, defined as "the incidental activation of knowledge structures, such as trait concepts and stereotypes" (Bargh, Chen, & Burrows, 1996, p. 230), directly affects behaviour (e.g., Dijksterhuis, Spears, & Lépinasse, 2001; Kawakami, Young, & Dovidio, 2002; Macrae & Johnston, 1998). For example, when participants were primed with the stereotype of an older adult, they walked more slowly after the study (Bargh et al., 1996). The proposed mechanism is that a certain knowledge structure (e.g., stereotype of an older adult) activates the associated semantic knowledge (e.g., behaviours like walking slowly). Furthermore, priming also *indirectly* affects behaviour through social perception. Research on self-schemata (Markus, 1977) and chronic accessibility (Bargh & Thein, 1985) suggests that individuals' chronic cognitive filters affect social perception. Once these social representations are activated, they influence one's perspective of the world and with this one's behaviour.

Garcia et al. (2002) found that a *social context* can be primed as well and in turn influence behaviour indirectly. They argue that the implicit activation of concepts operates the same way as an explicit activation. Imagining a social context would make certain concepts cognitively accessible, and this perceptual fluency

would structure the way people respond in a following situation, searching for internal cues to choose the appropriate behaviour. For example, imagining being in a group activated the concept of unaccountability which led to decreased helping behaviour in a subsequent situation (implicit bystander effect).

When individuals access perceptual information from memory, mental images emerge (Kosslyn et al., 2001). These mental images can occur by just recalling objects or events one has received in the past, or they can even be created by combining and modifying stored perceptual information in a *new* way. Mental imagery activates brain mechanisms which effect e.g., heart rate and breathing, which are normally effects of real perception. Imagining an object has similar effects on the body as seeing the object.

To explain how imagined contact works, Turner et al. (2007) proposed a similar mechanism as direct contact. When individuals are imagining intergroup contact, concepts which are normally associated with successful intergroup interactions are involved. *Automatic* processes (e.g., feeling more self-confident) and *conscious* processes (e.g., thinking about the intergroup experience, for instance about conversation topics) are activated. Affective prejudice (e.g., improved intergroup attitudes; Turner et al., 2007) and cognitive prejudice (e.g., greater projection of positive traits to the outgroup; Stathi & Crisp, 2008) is reduced similar to the effect of direct contact. The following section will discuss empirical evidence for the imagined contact effect and its proposed processes.

2.3 Empirical Support for Imagined Contact

Research has shown positive effects of imagined contact on intergroup attitudes, intentions, stereotype threat, and behaviour (see Table 3).

a) Explicit and implicit attitudes

Across three studies, Turner et al. (2007) found that imagined contact enhances *explicit intergroup attitudes*. Young people who imagined meeting an older adult reported lower levels of intergroup bias compared to people who imagined an outdoor scene (Experiment 1) or who just thought about older adults (Experiment 2). Furthermore, male heterosexual participants asked to mentally simulate a positive social interaction with a gay man reported subsequently more positive evaluations of gay men and greater outgroup variability. The effect of imagined contact on outgroup evaluation was mediated by reduced anxiety at the prospects of a future encounter with a gay man. These positive effects of imagined contact extend to response time measures of *implicit intergroup attitudes* (Turner & Crisp, 2010). Young participants who imagined meeting an older adult, and non-Muslim participants who imagined meeting a Muslim showed a reduction in implicit bias on the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) compared to a control group.

Imagined contact not only has positive effects on attitudes but also enhances *projection of positive traits* to ethnic and national outgroups (Stathi & Crisp, 2008). In three experiments, Stathi and Crisp (2008) investigated the role of group status, national identification and self-salience. The first experiment was conducted in

Mexico with a majority group (Mestizos) and a minority group (Indigenous). Imagined contact led to greater overlap of positive traits between self and outgroup for the majority group but not the minority group. In experiment 2, British students who imagined talking to a French person projected more positive traits towards the outgroup when they were low in national identification, but not when they were high. In experiment 3, imagined contact led to greater projection of positive traits towards international students when the self was salient compared to when the outgroup was salient.

Imagined contact also enhanced college students' attitudes towards adults with schizophrenia (West, Holmes, & Hewstone, 2011), and a range of other groups not involved in the imagined contact scenario, as an extended effect of prejudice reduction towards the imagined outgroup (secondary transfer effects; Harwood, Paolini, Joyce, Rubin, & Arroyo, 2011). Furthermore, it promoted member-to-group generalization of positive affect arising from the contact scenario (Stathi, Crisp, & Hogg, 2011).

b) Contact intentions

Imagined contact also encourages *intentions* to engage in future intergroup contact (Crisp & Husnu, 2011; Husnu & Crisp, 2010b; Husnu & Crisp, 2011). For example, Turkish Cypriots who repeatedly imagined contact with a Greek Cypriot reported greater intentions to engage in future contact with Greek Cypriots, especially when contact was imagined in a contextually diverse context (Husnu & Crisp, 2010b).

c) Behavioural tendencies

Recent research has shown that imagined contact reduces the impact of negative self-stereotyping (i.e., stereotype threat, Steele, 1997) on cognitive performance in older adults (Abrams et al., 2008; Crisp & Abrams, 2008), and can promote outgroup approach behaviours (Turner & West, 2011; Turner, West, & Christie, in press).

Older adults who imagined meeting a young person sustained performance in a math test, in the context of stereotype threat. In a stereotype threat context, people experience the concern of confirming negative stereotypes about their group, for example older adults for failing in tests that require cognitive abilities. The effect of imagined intergenerational contact on *cognitive performance* was mediated by reduced anxiety (Abrams et al., 2008).

Turner, West et al. (in press) found that participants who imagined interacting with an outgroup member reported a heightened *tendency to approach* the outgroup, i.e., they stated that they were more willing to talk to the outgroup, find out more about them and spend time with them (Experiments 1, 2), and a reduced *tendency to avoid* the outgroup (Experiment 2). Outgroup trust, intergroup anxiety and outgroup attitudes mediated the effect of imagined contact on intergroup behavioural tendencies.

Furthermore, imagined contact also enhanced actual behavioural tendencies. Turner and West (2011) asked participants to take part in a discussion with an outgroup member. For this task, the experimenter asked participants to set out two chairs in a room for the discussion. Participants who had engaged in imagined

contact beforehand, placed the chairs closer to each other compared to the control condition.

d) Enhancing the effectiveness of imagined contact

The imagined contact effect on intentions can be enhanced via a) an elaborated version of imagined contact, b) closing the eyes during mental simulation, and c) imagining the encounter from a third-person perspective.

Elaboration. First, an elaborated version of imagined contact, specifying when and where the imagined conversation could occur, led to greater intentions to engage in future contact, more positive outgroup attitudes and less intergroup anxiety compared to the standard imagined contact version (Husnu & Crisp, 2010a, Experiment 2). Furthermore, the elaborated scenario was described as more vivid compared to the standard scenario. Elaborated imagined contact enhanced intentions via two routes: a) through enhanced vividness of the imagined scenario, and b) through reduced intergroup anxiety and with this improved intergroup attitudes. Participants also estimated a higher number of future outgroup acquaintances in the elaborated simulation compared to the simple simulation (Husnu & Crisp, 2011, Experiment 1). Furthermore, elaborated imagined contact on day 1 led to greater ease of recall and confidence regarding the imagined scenario on day 2 compared to the standard version (Husnu & Crisp, 2010a, Experiment 3).

Visual focus. Second, participants who were instructed to carry out the imagined contact task with their eyes closed reported greater future contact intentions compared to participants who were instructed to leave their eyes open (Husnu & Crisp, 2011, Experiment 2).

Visual perspective. Third, when imagining contact with an outgroup member from a third-person visual perspective, future contact intentions were higher compared to the first-person perspective, an effect that was mediated by attribution (to oneself) of positive attitudes towards outgroup contact (Crisp & Husnu, 2011).

Finally, these positive effects of imagery are not restricted to imagined interactions. In related research, Hodson, Choma, and Costello (2009) found that participants imagining themselves in a society in which they were an oppressed minority can also elicit more positive attitudes and empathy (towards gay men and women). Their contact intervention involved imagining being on a planet with an alien nation who experience situational constraints similar to those of gay men and lesbians on earth. This intervention improved attitudes towards gay individuals, directly and also indirectly in increasing intergroup perspective-taking which in turn increased inclusive intergroup categorization and outgroup empathy compared to a control lecture.

Imagined contact reduces prejudice against a range of different target groups (Harwood et al., 2011) which experience prejudice because of *nationality* (Stathi & Crisp, 2008), *ethnicity* (Husnu & Crisp, 2010b; Stathi & Crisp, 2008), *religion* (Husnu & Crisp, 2010a; Turner & Crisp, 2010), *age* (Turner et al., 2007), *sexuality* (Turner et al., 2007), *mental health* (West et al., 2011) and *weight* (Turner & West, 2011)

While imagining positive encounters with outgroup members has proven highly successful, this has not been equivocally the case (e.g., Stathi & Crisp, 2008; Experiments 1 and 2) and the effectiveness of mental imagery in combating prejudiced thoughts does vary depending upon the way the task is implemented (e.g.,

Crisp et al., 2010; Crisp & Husnu, 2011; Husnu & Crisp, 2010a; Husnu & Crisp, 2010b). Understanding when, why and how mental imagery can most effectively promote positive perceptions is critical for improving the effectiveness of imagery-based approaches.

Table 3

Overview of imagined contact studies 2007-2011

Study		Sample	Outgroup	Dependent Measures	Results: Effects of IC Compared to Control
Turner et al. (2007)	1a	*N* = 28 young students	Older adults	Intergroup bias	Lower intergroup bias
	1b	*N* = 24 young students	Older adults	Intergroup bias	Lower intergroup bias
	1c	*N* = 27 male heterosexual students	Gay men	Outgroup evaluation Outgroup variability Mediator: intergroup anxiety	Greater outgroup evaluation via lower anxiety Greater outgroup variability
Turner and Crisp (2010)	2a	*N* = 25 young female students	Older adults	Explicit and implicit (IAT) attitudes	Lower explicit and implicit attitudes
	2b	*N* = 40 students	Muslims	IAT	Lower implicit bias
Stathi and Crisp (2008)	3a	*N* = 94 Mestizo/Indigenous students	Mestizo/ Indigenous	Projection of positive traits Moderator: group status	Greater projection for majority group
	3b	*N* = 64 British students	French	Projection of positive traits Moderator: ingroup identification	Greater projection for low identifiers
	3c	*N* = 98 female British students	French	Projection of positive traits Moderator: self salience	Greater projection when self salient
Stathi et al. (2011)	4a	*N* = 32 non-Muslim students	Muslims	Self-efficacy	Higher self-efficacy
	4b	*N* = 30 non-Muslim students	Muslims	Self-efficacy Moderator: salience of individuating vs. Group information	Higher self-efficacy after group-based IC

	4c	*N* = 28 non-Muslim students	Muslims	Self-efficacy Moderator: typical vs. atypical outgroup member	Higher self-efficacy after IC with typical outgroup member
Husnu and Crisp (2010b)	5	*N* = 90 Turkish Cypriot students	Greek Cypriots	Intentions Moderator: contextual diversity (homogenous vs. diverse)	Greater intentions after IC, stronger in diverse context
Husnu and Crisp (2010a)	6a	*N* = 33 non-Muslim students	Muslims	Intentions	Greater intentions after elaborated IC
	6b	*N* = 60 non-Muslim students	Muslims	Intentions Mediators: vividness, anxiety, attitudes	Greater intentions via two routes: a) greater vividness, b) lower anxiety and higher attitudes after elaborated IC
	6c	*N* = 60 young students	Older adults	Script availability	Greater script availability after elaborated IC
Husnu and Crisp (2011)	7a	*N* = 75 young students	Older adults	Estimated number of future outgroup acquaintances	Higher estimated number of future acquaintances after elaborated IC
	7b	*N* = 43 young students	Older adults	Intentions Moderator: eyes closed vs. open	Greater intentions when eyes closed
Crisp and Husnu (2011)	8	*N* = 60 young students	Older adults	Intentions Mediator: attributions of positive attitudes Moderator: visual perspective (1st vs. 3rd)	Greater intentions via greater attribution of positive attributes after IC in third person perspective
West et al. (2011)	9a	*N* = 87 students	People with schizophrenia	Anxiety	Higher anxiety
	9b	*N* = 99 students	People with schizophrenia	Anxiety Attitudes Moderator: valence of information (+ vs. -)	Higher anxiety

	9c	$N = 38$ students	People with schizophrenia	Attitudes Mediator: anxiety	Higher attitudes via lower anxiety
	9d	$N = 47$ students	People with schizophrenia	Attitudes Mediator: anxiety	Higher attitudes via lower anxiety
Turner, West et al. (in press)	10a	$N = 36$ high school students	Asylum seeker	Approach behavioural tendency Mediators: trust, attitudes	Greater approach behavioural tendency via enhanced trust and attitudes
	10b	$N = 41$ heterosexual students	Gay people	Approach and avoid behavioural tendency Mediators: anxiety, attitudes, trust	Greater approach tendency via reduced anxiety and enhanced attitudes Lower avoid tendency via enhanced attitudes and trust
Turner and West (2011)	11a	$N = 50$ students	Obese people	Behavioural tendency	Higher behavioural tendency
	11b	$N = 41$ non-Muslim students	Muslims	Feelings Beliefs Behavioural tendency	More positive feelings and beliefs, higher behavioural tendency
Abrams et al. (2008)	12b	$N = 84$ older adults	Young people	Stereotype threat Mediator: performance anxiety	Sustained performance in stereotype threat context via reduced anxiety
Harwood et al. (2011)	13	$N = 158$ students	Illegal immigrants	Attitudes towards non-imagined groups Mediator: attitudes towards imagined group	Secondary transfer effect
Overviews:	Crisp et al. (2008); Crisp and Turner (2009); Crisp and Turner (2010); Crisp et al. (2010)				

3 AIMS OF THIS THESIS

Since the positive effects of imagined contact on reducing prejudice are widely established, there now needs to be a focus on mediating and moderating mechanisms, and broader notions of mental articulation (e.g., memory) that imagined contact has opened up. Therefore, broadly speaking, the aim of this thesis was to extend previous research on imagined contact and develop effective cognitive interventions that make use of the power of mental imagery and its special link to emotions to reduce prejudice in order to prepare individuals for direct contact, increasing the likelihood of long-lasting harmonious intergroup relations. More specifically, the research reported in this thesis focused on three ways to improve cognitive interventions: The first aim was to shed light into the processes of imagined contact. I examined whether imagined contact has the potential for compensation – for counteracting negative pre-contact experiences in terms of high intergroup anxiety and low prior outgroup contact (Chapters 4, 5). The second aim was to test the applicability of a clinical approach in reducing anxiety to imagined contact, i.e., the exposure to negative mental imagery prior to a positive imagery (Chapter 6). The third aim was to investigate the role of recalling contact memories as a broader form of mental articulation, drawing upon well established principles of memory and cognition (Chapter 7).

3.1 Compensatory and Facilitating Effects of Imagined Contact

Stathi and Crisp (2008) proposed several factors which moderated the effectiveness of imagined contact and maximized its positive outcome: the tone of imagined contact, group status, national identification and self salience. The imagined encounter needs to be *positive* as opposed to neutral, the effect is greater for *majority* than for minority groups, when ingroup *identification* is *low* as opposed to high, and when the *personal self* is salient as opposed to the collective self. The main focus of these factors was the individual in relation to one's ingroup.

In order to make imagined intergroup contact most effective, one needs to understand *when* and *how* it is working, this means its moderating mechanisms and mediating potentials have to be explored. Under some conditions, imagined contact may be easier or harder for individuals. Different individuals with different experiences may react differently after an imagined contact intervention. Providing pre-conditions helps practitioners in schools and organizations to design imagined contact interventions which match all kinds of experiences and motivations that individuals bring into a contact situation (Crisp & Turner, 2010).

The research in this thesis looked at individual and contextual factors concerning *emotions* prior to an encounter (anxiety), *personal experiences* (prior contact with the outgroup) and *dispositions* (ability to generate mental images). The rationale behind choosing these factors was to examine optimizing conditions that tailor imagined contact best to each individual. Knowing about the interactive effect of imagined contact with these factors is important because it will make imagined contact more effective in contact interventions to improve intergroup relations.

First, I proposed a compensatory effect of imagined contact. The research reported in Chapters 4 and 5 examined whether imagined contact moderates the relationship between negative pre-contact experiences, i.e., high intergroup anxiety and low prior contact, and prejudice. Anxiety and low contact usually negatively predict prejudice, but imagined contact was predicted to remove this negative relationship. Second, further to the compensatory effect of imagined contact that I expected, I also proposed a facilitating effect of imagined contact, i.e., the positive relationship between imagined contact and prejudice reduction should be stronger for people who are able to vividly mentally simulate the imagined contact scenario.

a) Anxiety

Anxiety has a negative impact on performance in a wide range of domains, it also blights intergroup attitudes and communication. Intergroup anxiety plays a key role in intergroup relations and is the major mediator of the contact-prejudice relationship (e.g., Blascovich et al., 2001; Islam & Hewstone, 1993; Page-Gould et al., 2008; Paolini et al., 2004; Pettigrew, 1998; Stephan et al., 1999; Stephan et al., 2002; Voci & Hewstone, 2003). Plant and Devine (2003) suggested that intergroup anxiety not only leads to physical contact avoidance but also to other avoidance behaviours (e.g., reduced eye contact, greater interpersonal distance, speech errors) which in turn prevents qualitatively high intergroup interactions. Therefore, to improve intergroup contact, anxiety needs to be fought. Whereas previous research has examined the anxiety-reducing effect of imagined contact, and anxiety as a mediator of imagined contact-prejudice association, in this thesis I asked whether imagined contact *moderates* the negative relationship between pre-contact anxiety

and prejudice. I also tested whether the effectiveness of imagined contact varies with the amount of pre-contact anxiety.

b) Prior contact

Research has shown that contact reduces intergroup anxiety which in turn leads to more favourable intergroup attitudes. The contact effect was higher for contact quality than quantity (Islam & Hewstone, 1993). Already Allport (1954) emphasized that it is not just the amount but the "nature of contact" which is important. A lack of previous positive intergroup experiences evokes negative expectations about intergroup contact (Stephan & Stephan, 1985). This also means that positive previous contact leads to anticipation of positive consequences of contact. Whereas previous research has examined the prejudice-reducing effect of contact, in this thesis, I asked whether imagined contact *moderates* the negative relationship between previous outgroup contact experiences and prejudice. I also tested whether the effectiveness of imagined contact varies with the amount of previous outgroup contact experiences.

c) Ability to generate mental images

Previous research suggested that the higher one's ability to generate mental images, the more accessible are these mental images in memory (Petrova & Cialdini, 2005). Mental imagery influences likelihood judgments and memory tasks. For instance, participants rely on the ease of generating a mental image of an event to determine the likelihood with which the event is occurring (S. J. Sherman, Cialdini, Schwartzman, & Reynolds, 1985). Participants with higher vividness of mental

imagery were more accurate in a memory task that involved recalling photographs than participants with lower vividness of mental imagery (Marks, 1973). In this thesis, I asked whether the effect of imagined contact can be facilitated by a high ability to generate mental images in general.

3.2 Exposure-Therapy and Imagined Contact

While the first studies look at whether there are individual or contextual conditions of the pre-contact experiences-prejudice relationship that imagined contact moderates, this part looks at whether there are task focused changes, i.e., changing the way the imagery task is administered, that influence the effectiveness of imagined contact on prejudice.

Exposure therapy (e.g., Foa et al., 1991), as a form of Cognitive-Behavioural Therapy (CBT), has been demonstrated to be an effective therapeutic approach in treating anxiety disorders by gradually confronting the patient with fear-evoking stimuli within a safe environment. The research reported in Chapter 6 tested whether principles of exposure therapy can be applied to imagined contact in order to enhance its effectiveness in reducing anxiety and prejudice. I asked whether exposing individuals to negative imagery before introducing a positive one can be beneficial.

3.3 Recalling Contact Memories

Mental simulation can be either an imitative representation of future scenarios, a replay of past scenarios, or a mixture of both. While the preceding parts focused on imagining a new encounter with an outgroup stranger, this part focuses

on retrieving a past experience with an outgroup member from memory. My aim was to test whether, similar to imagining new contact, recalling past contact could also be beneficial for intergroup relations. Therefore, Chapter 7 investigated a further approach based on recalled contact as a broader form of mental articulation.

Memory plays a vital role in humans life. Episodic memory not only enables people to imagine the future but also to recall the past, both showing an overlap in psychological and neural processes (Schacter & Addis, 2008). Furthermore, research on nostalgia (Turner, Sedikides, & Wildschut, in press) and ease of retrieval (e.g., Schwarz et al., 1991) indicates the importance of meta-cognition in memory.

First, I examined whether the valence of recalled contact plays a role. Based on imagined contact research and the research reported in this thesis, which showed that imagining positive contact with an outgroup stranger improves intergroup attitudes, I asked whether recalling positive contact could have similar effects, i.e., improve attitudes and enhance meta-cognitive perceptions of one's self-efficacy in future interactions.

Second, based on the literature on ease of retrieval, I examined whether the amount of recalled instances influences meta-cognitive perceptions of one's self-efficacy, and whether it interacted with previous contact experiences. I asked whether "less is more" for individuals low in prior contact.

CHAPTER 4

INTERGROUP ANXIETY

1 OVERVIEW

Imagined intergroup contact is a new indirect contact strategy for promoting tolerance and more positive intergroup attitudes. In this chapter I ask whether the effectiveness of imagined contact is contingent upon characteristics that define the experience of intergroup relations. Specifically, I tested whether pre-contact intergroup anxiety makes imagining contact more cognitively effortful, and if it does, whether this detracts from its effectiveness. In four studies participants were asked to imagine either contact with an outgroup member (disabled person, British Muslim, older adult, or international student) or a control scene. I found that imagining contact counteracted the negative impact of intergroup anxiety on outgroup attitudes (Experiments 1 and 2) and behaviours (Experiments 3 and 4). Furthermore, performance on an ostensibly unrelated Stroop task (Experiments 3 and 4) revealed that this compensatory benefit requires cognitive resources proportional to the level of pre-contact anxiety. I conclude that the detrimental impacts of intergroup anxiety can be assuaged by imagining contact, but that doing so requires the allocation of attentional resources proportional to the level of pre-intervention anxiety.

2 INTRODUCTION

2.1 Negative Impacts Anxiety

Anxiety has a negative impact on performance in a wide range of domains including academic tests (Elliot & McGregor, 1999), sporting events (Woodman & Hardy, 2003), public speaking (Merritt, Richards, & Davis, 2001), music (Kenny, Davis, & Oates, 2004), and sexual intercourse (McCabe, 2005). Given its pervasive negative impact it is perhaps unsurprising that anxiety is also an inhibitory factor that prevents the development of more positive intergroup relations. A key characteristic of disharmony in intergroup relations is intergroup anxiety which can manifest itself both as a subjective experience (Pettigrew, 1998) and a physiological threat response (Blascovich et al., 2001). Importantly, anxiety felt at the prospect of contact with outgroups has a profound negative impact on attitudes, evaluations, intention and action (Paolini et al., 2004; Pettigrew & Tropp, 2006; Richeson & Shelton, 2003; Swart, Hewstone, Christ, & Voci, 2011; Wagner, Christ, Pettigrew, Stellmacher, & Wolf, 2006). If intergroup contact is to promote positive impressions, dispel negative stereotypes and foster more favourable relations, we must find ways of eliminating the negative impact of anxiety contexts of contact. In this research, I present a new way of improving attitudes, intentions and communications with social outgroups that draws upon the power and potential of imaginative thought.

I focused my investigation on the interplay between intergroup anxiety and *intergroup contact*. Intergroup contact can alleviate intergroup anxiety and in turn

promote more positive perceptions of outgroups (Pettigrew & Tropp, 2006), but high anxiety can also compel individuals to avoid intergroup contact and lead to hostility and ingroup bias when contact occurs (Plant & Devine, 2003). A recently developed indirect contact strategy for improving intergroup attitudes, *imagined intergroup contact* (Crisp & Turner, 2009), has been justified on the basis that where actual intergroup relations are difficult, or anxiety provoking, then imagined contact may offer a "safe" way of instigating intergroup contact. However, different people experience intergroup relations differently, and it is possible that just as higher pre-contact levels of anxiety will compel people to avoid intergroup contact, such individuals may find it harder to envisage a positive contact scenario. In this research, I explored how differences in one's emotional reaction to outgroups affect the efficacy of imagined contact. My central hypothesis is that imagined contact will mitigate the detrimental effects of higher intergroup anxiety on intergroup attitudes and communication quality, but it will be more cognitively effortful for such individuals, and they will have to work harder to envisage a positive contact scenario than participants lower in intergroup anxiety. In other words, imagined contact will compensate for the detrimental impact of higher intergroup anxiety on attitudes and behaviour, but doing so will require cognitive effort proportional to the level of pre-contact anxiety.

2.2 Intergroup Contact and Imagined Contact

Over 500 studies (Pettigrew & Tropp, 2006) have demonstrated the power of contact in reducing prejudice relations (Allport, 1954; Brown & Hewstone, 2005; Pettigrew & Tropp, 2008). A great amount of research has also shown that already

knowing that an ingroup member is friends with an outgroup member can improve intergroup relations (Cameron et al., 2006; Paolini et al., 2004; Turner, Hewstone et al., 2007; Turner et al., 2008; Wright et al., 1997). However, conflict can be so hostile that groups refuse to live in the same area, resulting in segregated communities within one city. For example, Latinos and Whites in the United States, Catholic and Protestants in Belfast, Northern Ireland, South Asians and Whites in Bradford, or Greek and Turkish Cypriots in Cyprus. *Imagined intergroup contact* has recently been proposed as an effective and safe way of capitalizing on the benefits of contact where opportunities for contact are challenging or impossible.

However, what happens if individuals do not have the *opportunity* for direct or extended contact? In general terms, mental simulation has proved to be an effective technique in many areas to enhance performance, for example in sports, health and psychotherapy (for a recent review see Crisp et al., 2011). *Imagined intergroup contact* has recently been proposed as an effective and safe way of capitalizing on the benefits of contact where opportunities for contact are challenging or impossible. Imagined contact, similarly to direct contact, has established its positive effects on intergroup *attitudes* (Stathi & Crisp, 2008; Turner et al., 2007; Turner & Crisp, 2010), *intentions* (Crisp & Husnu, 2011; Husnu & Crisp, 2010b; Husnu & Crisp, 2011) and *behaviour* (Abrams et al., 2008; Turner & West, 2011; Turner, West et al., in press). Furthermore, imagined contact generalized from the imagined member to the whole outgroup (Stathi et al., 2011), and not imagined outgroups (secondary transfer effects; Harwood et al., 2011).

2.3 Anxiety Blights Intergroup Attitudes

Part of the justification for both extended and imagined contact interventions is that they provide a way of introducing intergroup contact to individuals who might otherwise be disinclined to entertain such thoughts (due to high levels of intergroup anxiety – a defining feature of disharmonious intergroup relations). The prospect of intergroup contact can evoke intergroup anxiety: Negative expectations of rejection or discrimination during cross-group interactions or because of fears that the interaction partner, or the respondents themselves, may behave in an incompetent or offensive manner lead to intergroup anxiety (Plant & Devine, 2003; Plant & Devine, 2009; Stephan & Stephan, 1985; Vorauer et al., 2000; Vorauer & Kumhyr, 2001). This psychological reaction is reflected in a physiological state of threat in individuals facing interracial interactions (Blascovich et al., 2001). This can mean that if and when intergroup contact does occur it is difficult and stilted, negatively affecting the quality of communications (Gudykunst & Shapiro, 1996; Hubbert et al., 1999), compelling individuals to rely on stereotypes (Stephan & Stephan, 1985; Wilder, 1993) and likely resulting in more negative outgroup evaluations (Stephan & Stephan, 1985).

2.4 Anxiety Blights Communication with Outgroups

Everyday communicative behaviour has a significant impact on interpersonal relationships and is essential in explaining the development and maintenance of those relationships. High communication quality is perceived when the interaction is relaxed, smooth, open, attentive and with minimal breakdowns (Duck, Rutt, Hurst, &

Strejc, 1991). As with interpersonal communication, communication quality in inter*group* relationships increases with intimacy (Duck et al., 1991). However, intergroup communication is especially difficult compared to interpersonal communication (Hoyle, Pinkley, & Insko, 1989); it involves greater anxiety and uncertainty (Gudykunst & Shapiro, 1996). This is because of concerns about appearing prejudiced, behaving incompetently or offensively, or about being negatively evaluated (Stephan & Stephan, 1985; Vorauer et al., 2000). This means that the quality of intergroup communications varies with the individuals' ability to manage their anxiety and uncertainty (Gudykunst, 1998). Research has shown that the more anxiety one feels at the prospect of communicating with an outgroup member, the poorer the quality of the subsequent communication. Participants who report higher levels of anxiety are subsequently more stressed and insecure, less likely to self-disclose and demonstrably more uncomfortable in the intergroup communicative context (Gudykunst & Shapiro, 1996; Hubbert et al., 1999). Furthermore, participants high in anxiety perceive their communication as less effective (Gudykunst & Nishida, 2001). Reducing anxiety at the prospect of intergroup communication is therefore an important goal for efforts to improve intergroup relations.

2.5 Intergroup Anxiety Versus Performance Anxiety

Compared to Stephan and Stephan's (1985) intergroup anxiety, which leads to hostility when one is concerned about being negatively appraised in intergroup interactions, performance anxiety leads to reduced cognitive performance when one is concerned about being incorrectly evaluated as prejudiced (Crisp & Abrams,

2008). Anxiety about intergroup encounters can take the form of performance anxiety. Both types of anxiety reduce available cognitive resources (Easterbrook, 1959; Wilder & Shapiro, 1991; Wilder, 1993), directly affecting performance (Crisp & Abrams, 2008).

2.6 This Research: Compensatory Effect of Imagined Contact

Research has shown that imagined intergroup contact produces positive perceptions of *outgroups*, e.g., improved intergroup attitudes. Furthermore, previous studies have indicated that reduced anxiety is important in explaining the positive effects of imagined contact (Crisp & Turner, 2009). However, no studies have yet explored the potential *moderating* impact of pre-contact intergroup anxiety. Exploring the moderating impact of anxiety also allows us the opportunity to provide converging evidence of the centrality of anxiety in explaining imagined contact effects (a so-called "moderation-of-process" approach, Spencer, Zanna, & Fong, 2005). Researchers have suggested that imagined contact is a safe, anxiety-free way of introducing the idea of imagining contact (Crisp & Turner, 2009; Crisp et al., 2010; Turner et al., 2007). However, just as anxiety can compel people to avoid intergroup contact (Plant & Devine, 2003), there are reasons to think that imagined contact may also not be entirely immune to the effects of pre-contact intergroup anxiety.

Based on what we know of the avoidance-inducing effects of intergroup anxiety, it is likely that individuals higher in intergroup anxiety will not only be used to avoiding actual contact (Plant & Devine, 2003; Stephan & Stephan, 1985), but even *thinking* about positive contact. For such individuals, thinking about positive

encounters with outgroup members may be hard because of their negative perceptions of outgroups. Research has shown that anxiety is cognitively depleting (Easterbrook, 1959; Kahneman, 1973), and intergroup anxiety aroused in an interracial interaction is associated with self-regulatory demands and can interfere with cognitive control (Amodio, 2009). Richeson and colleagues have shown that interracial interactions compared to same-race interactions impair subsequent cognitive functioning, measured by the Stroop task, due to depleted cognitive resources (Richeson & Shelton, 2003; Richeson & Trawalter, 2005; Trawalter & Richeson, 2006). Finally, Amodio (2009) found that controlled processing, measured by the weapon identification task (Payne, 2001), was lower for participants with larger cortisol reactivity to an interracial interaction.

I therefore expected that, as with actual contact, imagining an intergroup contact encounter would be more cognitively effortful for individuals higher in intergroup anxiety compared to those lower in intergroup anxiety. Those lower in intergroup anxiety will likely find the idea of thinking about positive contact more palatable than those higher in intergroup anxiety, and will likely be more able to readily form an envisaged positive contact scenario with a relevant outgroup member. I therefore hypothesised that imagining intergroup contact will mitigate the negative impacts of high anxiety on tolerance and intergroup interactions but, like actual contact, it will be more resource depleting for individuals high in pre-task intergroup anxiety.

In four experiments I therefore tested whether imagined contact can act as a *compensatory* technique for people whose subjective experience of intergroup relations is characterized by higher levels of intergroup anxiety. I focus on

identifying conditions related to experience and emotion that could influence a) the difficulty with which imagining positive contact with an outgroup member is perceived, and b) attitudes and behavioural tendencies towards the outgroup. My aim was to delineate the optimizing conditions under which imagined contact can be implemented, and to help practitioners in schools and organizations to design imagined contact interventions which match all the kinds of experience and emotion that individuals bring to a contact situation.

3 Experiment 1: Imagined Intergroup Contact as Compensatory Contact

3.1 Aims and Hypotheses

Experiment 1 was designed to test the basic prediction that imagined contact can fulfil a compensatory role in intergroup relations characterized by high levels of intergroup anxiety. I hypothesised that intergroup anxiety would be negatively associated with tolerance in the control condition (higher anxiety, less tolerance). However, I expected imagining intergroup contact to break this negative relationship, restoring tolerance to the same level as for individuals lower in anxiety.

3.2 Method

a) Participants

Forty-one (26 female, 14 male) non-disabled students (one participant declined to report their gender), aged between 19 and 34 (M = 21.78, SD = 3.27), were randomly allocated to one of the two imagery task conditions. Half were asked to imagine meeting a disabled student in a wheelchair for the first time (imagined contact condition), half to form an impression of a disabled student in a wheelchair (priming condition). Participants received either course credits or a small payment (£3) for their participation.

b) Procedure and measures

Participants were told that the study aimed to investigate "attitudes towards disabled people". First, intergroup anxiety felt at the prospect of meeting a disabled person was measured. In this research, I focused on a positive interaction with an outgroup member and did not include a neutral interaction or an ingroup member for two reasons. Previous studies on imagined contact have de-coupled the effects of imagining neutral contact with an outgroup member from the effects of imagining positive contact with an outgroup member, showing that only the latter reduces prejudice (Stathi & Crisp, 2008). Furthermore, research on direct contact has established the clear benefits of positive contact over contact *per se* (Pettigrew & Tropp, 2006).

In the 'visual imagery' part of the study, as in Turner et al. (2007, Experiment 2), I employed a control *priming condition* in which participants were asked: "Please take a moment to form an impression of a disabled student (in a wheelchair)." Participants in the *imagined contact condition* received the following instruction, based on the implementation of the imagined contact task used by Turner and Crisp (2010): "Please take a moment to imagine yourself meeting a disabled student (in a wheelchair) for the first time. Imagine that the interaction is positive, relaxed, and comfortable." Following this, to reinforce the effects of the imagery task, all participants were instructed to describe what they have just imagined in as much detail as possible. Participants then completed the measure of tolerance. Finally, demographic variables (age, gender, nationality, ethnicity, religion, subject, year of study) were gathered and participants had to indicate what they thought the study was about and whether they were suspicious at any point that the study was looking at something other than what was stated. Then, participants were thanked and debriefed.

Independent Measure

Intergroup anxiety. To measure anxiety concerning a future interaction with a disabled person, participants were asked "If you were to meet a disabled person (in a wheelchair) in the future, how do you think you would feel?" followed by 10 items from the scale by Stephan and Stephan (1985). Participants reported how awkward, suspicious, embarrassed, defensive, anxious, happy (reversed), comfortable (reversed), self-conscious, confident (reversed) and careful they would feel on a 7-point Likert-scale (1 = *not at all*, 7 = *very much*). Items were recoded such that

higher scores represented higher intergroup anxiety. A composite intergroup anxiety score was created by the mean of these items (α = .79).

Dependent measures

To measure tolerance, participants had to report how tolerant they perceive themselves to be. Tolerance was measured by seven statements "I am a tolerant person towards disabled people.", "I believe that non-disabled people and disabled people should be treated equally.", "I am the sort of person who gets along well with disabled people.", "I can understand the needs of disabled people.", "I accept disabled people.", "I accept the different values of disabled people.", "I accept the different life styles of disabled people." on a 5-point Likert-Scale (1 = *strongly agree*, 5 = *strongly disagree*). Items were recoded such that higher scores represented higher tolerance. A composite tolerance score was created by the mean of these items (α = .85).

3.3 Results and Discussion

Means, standard deviations and correlations between all measures can be found in Appendix A.

a) Tolerance

To assess the interactive effect of imagery task (imagined contact vs. control) and intergroup anxiety on tolerance, I computed a moderated regression analysis (Aiken & West, 1991). The interaction variable was created by multiplying the centered intergroup anxiety scores with the imagery task variable coded as -1

(control) and +1 (imagined contact). The imagery task and the centered intergroup anxiety variables were entered on the first step, the interaction variable (Imagery Task x Intergroup Anxiety) on the second step.

There was a main effect of intergroup anxiety, ß = -.54, $t(37) = -3.91$, $p = .000$. In general, the higher the intergroup anxiety, the lower was the tolerance. There was no main effect of imagery condition, ß = .12, $t(37) = 0.88$, $p = .383$. More importantly, the analysis revealed the predicted significant interaction between imagery task and intergroup anxiety on tolerance, ß = .37, $t(36) = 2.63$, $p = .012$, R square change = .11 (see Figure 1).

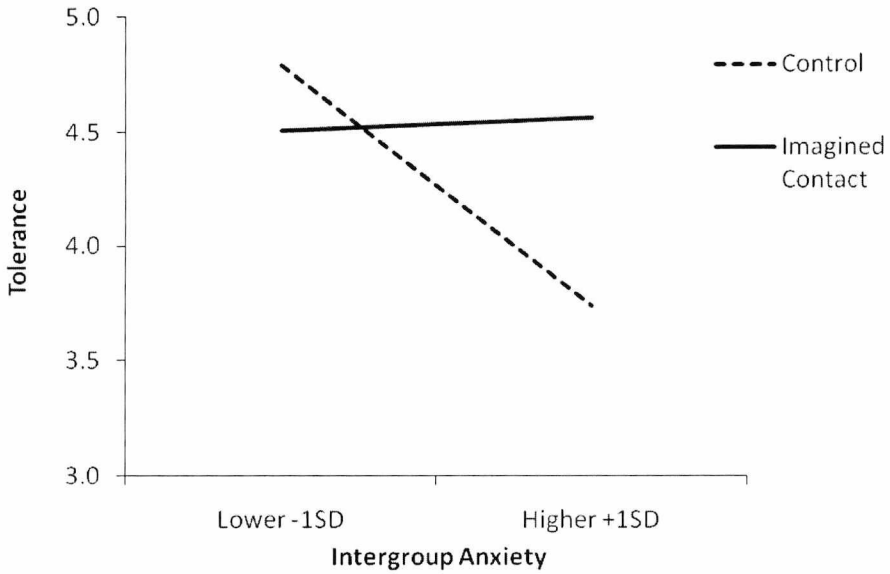

Figure 1. Tolerance as a function of imagery task and intergroup anxiety, Experiment 1.

In the control condition, higher levels of intergroup anxiety predicted lower levels of tolerance, $\beta = -.71$, $t(36) = -4.13$, $p < .0005$, while in the imagined contact condition there was no significant relationship between anxiety and tolerance, $\beta = .04$, $t(36) = 0.18$, $p = .856$. Furthermore, differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of intergroup anxiety revealed that at higher levels of intergroup anxiety, tolerance was significantly higher in the imagined contact condition compared to the control condition, $\beta = .60$, $t(36) = 2.70$, $p = .011$. In contrast at lower levels of intergroup anxiety, tolerance did not differ significantly between the imagery conditions, $\beta = -.22$, $t(36) = -1.20$, $p = .238$.

In sum, in the control condition, where participants simply thought about the outgroup, the higher the participants' intergroup anxiety, the lower the tolerance. However, when participants imagined a positive contact encounter with the outgroup this relationship disappeared. Individuals higher in intergroup anxiety no longer reported themselves to be lower in tolerance, and in fact levels of tolerance for these individuals remained at the same level as individuals with lower levels of intergroup anxiety. These findings support my assertion that imagined contact provides the mental tools to help mitigate the negative impacts of intergroup anxiety.

b) Demand characteristics

In this study I also took an opportunity to address some criticisms of previous imagined intergroup contact research. Concerns have related to the use of the control condition 'outdoor scene' as well as the possibility of demand characteristics as an explanation for effects. I aimed to address both of these criticisms. First, I used a control condition in which I compared imagined contact with an outgroup prime

(i.e., participants were asked to form an impression of an outgroup member; for a similar test see Turner et al., 2007). In my study participants had to either imagine a positive interaction with a disabled student or to form an impression of a disabled student. Second, research on imagined contact has largely ruled out the possibility that the effects of imagined contact are attributable to demand characteristics. For example, Turner and Crisp (2010) showed that imagined contact reduces implicit prejudice using the IAT (Greenwald et al., 1998), a measure that is less susceptible to demand. Turner and West (2011) showed that imagined contact has effects on implicit behavioural measures. Furthermore, the use of a between-subjects design, especially when comparing imagined contact variants (as in two studies by Husnu & Crisp, 2010a), which would be indistinguishable from perceivers' point of view, strengthen the assertion than the effects cannot be attributable to demand. However, to further address this issue, I asked participants to not only report their own attitudes towards the outgroup, but also to estimate the experimenter's outgroup attitudes. If demand characteristics are playing a role, participants in the imagined contact condition may have an idea that the experimenter is hoping to elicit more positive outgroup attitudes, and therefore estimate that experimenter's attitudes are more positive compared to participants of the control condition. Participants were asked to estimate the experimenter's attitude towards disabled people on a 7-point Likert-Scale (1 = *negative*, 7 = *positive*). There were no differences between the imagined contact (M = 5.95, SD = 0.97) and the priming condition (M = 5.79, SD = 0.79), $t(38) = -0.58$, $p = .567$.

4 EXPERIMENT 2: INTERGROUP ANXIETY AND TOLERANCE

4.1 Aims and Hypotheses

In Experiment 1, I established the positive impact of imagined contact on tolerance for high-anxious individuals compared to a priming control condition. However, using priming instructions (as in Experiment 1) as the control condition might prime negative stereotypes (exacerbating any differences with the experimental condition). A more stringent test of the imagined contact hypothesis would use a control condition that more appropriately reflects baseline responding. As such, in Experiment 2 I employed an "imagined outdoor scene" simulation as used in previous imagined contact studies (e.g., Stathi & Crisp, 2008; Turner et al., 2007). This has the advantage of being mildly positive in nature, which is more consistent with the positive tone of the imagined encounter in the experimental condition. Furthermore, Experiment 2 focuses on a different target group, British Muslims, a group who are experiencing increasing discrimination in Western societies (Allen & Nielsen, 2002).

a) Islamophobia

Islamophobia, which describes prejudice, hatred and fear against Muslims, has increased in the United Kingdom since the 9-11 terrorist attacks 2001 in New York and Washington, and the London bombings in July 2005 (BBC, 2005a; BBC,

2005b). The BBC reported 269 religious crimes in the three weeks after the London bombings, a six-fold increase of crimes against Muslims.

Muslims in the UK are confronted with a great amount of prejudice and discrimination, and they are Britain's largest minority religious group, constituting 2.8% of UK's population (e.g., MORI, 2001). There are many shocking incidents of discrimination against British Muslims in the news every year. To give examples: Two young Muslims were killed in Preston in 2005 and 2006, and the Jamia Masijd mosque was attacked (Arabic News, 2006). The Glasgow branch of Islamic Relief, a charity, was set on fire in 2009 (BBC, 2009). A Muslim was beaten to death outside a shop in Nottingham by a gang shouting anti-Islamic abuse at him in 2005 (The Guardian, 2005). Newcastle United fans were accused of racist chanting direct at Middlesbrough's Egyptian striker Mido during a Premier League match in 2007 (Reuters, 2008). A case study by the University of Exeter found that anti-Muslim hate crime ranges from low-level street assaults like spitting and name calling, over to anonymous telephone, email and postal threats of harm or death, and even murder (Lambert & Githens-Mazer, 2010). Their study described incidents like a bomb plot (2009) or manufacturing nail bombs (2010) by extremist nationalists, a gang attack on Muslim students at London City University (2009), murder of a Muslim pensioner (2009), serious assault on the Imam at London Central Mosque (2007), and an arson attack on Greenwich Islamic Centre (2009).

4.2 Method

a) Participants

Seventy-two British non-Muslim students (60 female, 12 male), aged between 17 and 60 (M = 20.11, SD = 6.08), were randomly allocated to one of the two imagery task conditions: One half were asked to imagine meeting a British Muslim stranger for the first time (imagined contact condition), the other half had to imagine an outdoor scene (control condition). Participants received course credits as reward for their participation.

b) Procedure and measures

Participants were told that the study aimed to investigate "mental images and opinions about British Muslims in the UK". First, intergroup anxiety about meeting a British Muslim was measured. In the 'visual imagery' part of the study, participants in the *control condition* were asked: "Please take a moment to imagine an outdoor scene. Try to imagine aspects of the scene (e.g., is it a beach, a forest, are there trees, hills, what's on the horizon)." Participants in the *imagined contact condition* received the following instruction: "Please take a moment to imagine yourself meeting a British Muslim stranger for the first time. Imagine that the interaction is positive, relaxed, and comfortable." Following this, to reinforce the effects of the imagery task, all participants were instructed to describe what they have just imagined in as much detail as possible. Then, participants completed a measure of

tolerance. Finally, participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Independent Measure

Intergroup anxiety. To measure anxiety concerning a future interaction with a British Muslim, I used the same scale by Stephan and Stephan (1985) as in Experiment 1 ($\alpha = .86$).

Dependent Measure

Tolerance. Tolerance as was measured by two statements: "How tolerant do you think you are compared to the average University of Kent student?" and "How well do you think you get on with British Muslims compared to the average University of Kent student?" on a 7-point Likert-Scale (1 = *much lower/worse than average*, 7 = *much higher/better than average*). A composite tolerance score was created by the mean of these items ($\alpha = .78$).

Enjoyment. To measure expected enjoyment of a future interaction with a British Muslim, participants were asked "If you were now asked to have a conversation with a British Muslim, how much do you think you would enjoy the experience?" on a 9-point Likert-scale (1 = *not at all*, 9 = *very much*).

4.3 Results and Discussion

Means, standard deviations and correlations between all measures can be found in Appendix A.

a) Tolerance

To assess the interaction between imagery task (imagined contact vs. control) and intergroup anxiety on tolerance, a moderated regression was used as described in Experiment 1. There were significant main effects of imagery task and intergroup anxiety. In general, tolerance was higher after imagined contact (M = 4.56) compared to the control condition (M = 4.06), ß = .29, $t(69) = 2.67$, $p = .009$, and tolerance was higher when intergroup anxiety was low, ß = -.35, $t(69) = -3.25$, $p = .002$. More importantly, the analysis revealed the predicted interaction between imagery task and intergroup anxiety on tolerance, ß = .24, $t(68) = 2.20$, p = .032, R square change = .05 (see Figure 2).

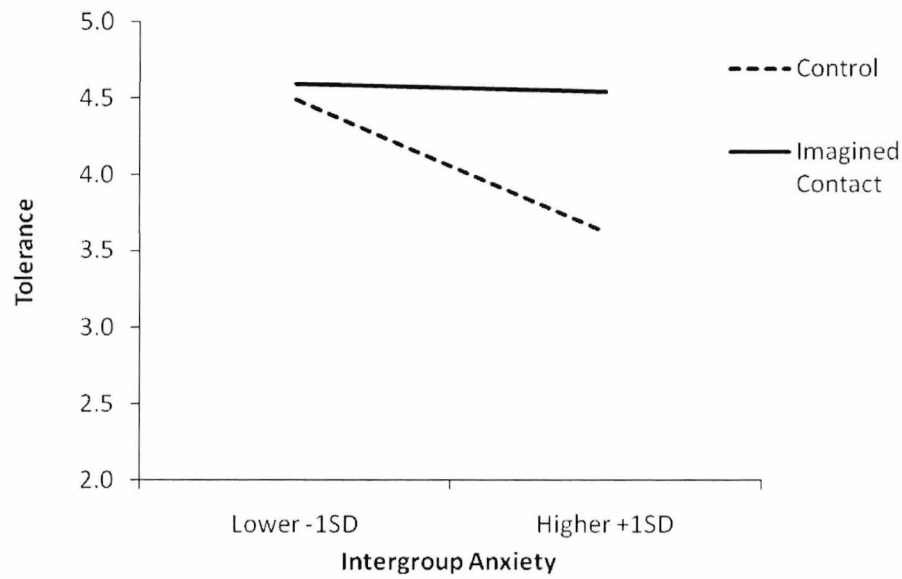

Figure 2. Tolerance as a function of imagery task and intergroup anxiety, Experiment 2.

In the control condition (but not the imagined contact condition), higher levels of intergroup anxiety predicted lower levels of tolerance, $\beta = -.51$, $t(68) = -3.49$, $p = .001$. In contrast, there was no significant relationship in the imagined contact condition, $\beta = -.04$, $t(68) = -0.21$, $p = .835$. Looking at differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of intergroup anxiety, when intergroup anxiety was high (but not when it was low), imagining contact with a British Muslim led to higher tolerance compared to the control condition, $\beta = .55$, $t(68) = 3.46$, $p = .001$. When intergroup anxiety was low, tolerance did not differ significantly between the imagery task conditions, $\beta = .06$, $t(68) = 0.42$, $p = .676$.

As in Experiment 1, the higher the anxiety, the lower was the reported tolerance in the control condition. Imagining positive contact with an outgroup member led individuals higher in anxiety to no longer report lower tolerance, and brought levels of reported tolerance for these high-anxious individuals up to the same level as low-anxious individuals.

b) Enjoyment

There was a marginally significant effect of Imagery Task X Intergroup Anxiety on enjoyment, ß = .20, $t(68) = 1.86$, $p = .067$, R square change = .04. When intergroup anxiety was high (but not when it was low), imagining contact with a British Muslim led to higher enjoyment compared to the control condition, β = .37, $t(68) = 2.29$, $p = .025$. In the control condition (but not the imagined contact condition), higher levels of intergroup anxiety predicted lower levels of enjoyment, β = -.63, $t(68) = -4.77$, $p < .0005$.

c) Mediated moderation

A mediated moderation analysis was computed to assess whether the relationship between Imagery Task X Intergroup Anxiety and enjoyment was mediated by tolerance. Since the Sobel test cannot be used with mediated moderation (Judd, Park, Yzerbyt, Gordijn, & Muller, 2005), I used the method by Preacher and Hayes (2008). The interaction variable Imagery Task x Intergroup Anxiety was entered as a predictor while controlling for the predictors imagery task and anxiety. Imagery Task X Intergroup Anxiety significantly predicted tolerance (ß = .24, $t = 2.20$, $p = .032$). The interaction also marginally significantly predicted the mediator,

enjoyment (ß = .20, t = 1.86, p = .067). The path between enjoyment and tolerance while controlling for the predictor was significant (ß = .30, t = 2.48, p = .016). When the mediator was controlled, the relationship between Imagery Task X Intergroup Anxiety and enjoyment became non-significant (β = .13, t = 1.23, p = .224). The overall model was significant, $F(4, 67) = 8.34$, $p < .0005$. The 95% bias-corrected and accelerated confidence interval (BCa CI) obtained by bootstrapping of 5000 subsamples was: {.00, -.18}. High-anxious participants perceived themselves as more tolerant towards British Muslims after imagined contact, and therefore expected that they would enjoy a future interaction more.

5 Experiment 3: Intergroup Anxiety and Communication Quality

5.1 Aims and Hypotheses

Experiments 1 and 2 established support for the basic proposition that imagined contact has a compensatory effect on outgroup perceptions for individuals higher in intergroup anxiety. Experiment 3 was designed to explore the cognitive consequences underlying this effect, namely the proposed resource depletion account.

My proposition is that mentally simulating an intergroup communication will eliminate the detrimental impact of pre-communication anxiety on the actual communication, as it eliminated the detrimental impacts of pre-contact anxiety on outgroup tolerance in Experiments 1 and 2. My reasoning is based on a rich literature

that has demonstrated the clear benefits of mental simulation for performance in a range of domains, particularly due to its ability to counter the negative effects of stress (Rivkin & Taylor, 1999). For instance, Taylor et al. (1998) found that students felt more confident about writing an essay, and subsequently wrote a better essay, when they were first instructed to mentally simulate writing the essay. Furthermore, mental simulation of good study habits reduced pre-exam anxiety in students which in turn improved their grades in the subsequent exam (Pham & Taylor, 1999). These benefits of simulation are not restricted to academic testing. A meta-analysis by Driskell et al. (1994) showed that mental imagery enhanced task performance and was more effective the more this task involved cognitive activities (e.g., comparing and contrasting information). Furthermore, mental imagery employed prior to a netball game led to higher sporting confidence in netball players (Callow & Hardy, 2001). Mental simulation also helps people to cope with upcoming stressful events. Knudstrup et al. (2003) found that participants asked to imagine doing well in a job interview reported lowered perceived stress about a forthcoming interview, and were more likely to achieve higher performance in a subsequent (mock) interview.

I hypothesised that imagined contact would improve communication quality for participants high in pre-communication anxiety. However, the imagined contact task should be more difficult for individuals higher in pre-contact intergroup anxiety. I expect imagined contact to lead to resource depletion for individuals higher in pre-contact intergroup anxiety, reflected in impaired post-communication Stroop test performance. The Stroop task is regarded as the "golden standard" task to measure selective attention and cognitive control, and its effect is seen as large and statistically reliable (MacLeod, 1992). It has been used in over 700 studies to measure executive function and response inhibition in cognitive psychology (for a

review see MacLeod, 1991; MacLeod & MacDonald, 2000), as well as in clinical and psychometric psychology (Jensen & Rohwer, 1966).

a) Ageism

Experiment 3 investigates prejudice against older adults. A national survey, conducted on behalf of the University of Kent and the charity Age Concern in 2005 (N = 1,843), uncovered that the end of youth is seen at the age of 49. The Daily Mail reports that ageism is the "most widely experienced form of prejudice in the UK today" (Mail Online, 2005).

5.2 Method

a) Participants

Thirty-eight young students (29 female, 9 male) of the University of Kent, aged between 18 and 40 (M = 21.39, SD = 4.03), were randomly allocated to one of the two imagery conditions. One half were asked to imagine things they might have in common with an older stranger (imagined contact condition), the other half had to imagine an outdoor scene (control condition). The initial sample size was N = 40 but was reduced for the analysis due to two outliers in the Stroop test. Participants received either course credits or a small payment (£3) for their participation.

b) Procedure and measures

Participants were told that the study consisted of three independent parts which would examine "mental preparation, speech and cognition". In the first part,

participants were informed that they were going to "record a short video introducing yourself to an elderly stranger. In particular, we want you to talk about the things that you might have in common". Immediately after being informed of this, performance anxiety about recording a video was measured. Next, participants were randomly assigned to one of the two imagery task conditions. Participants in the *control condition* were asked to imagine an outdoor scene as described in Experiment 2. Participants in the *imagined contact condition* received the following instruction: "Please spend the next two minutes imagining that you are recording the video introducing yourself to an elderly stranger, and in particular talking about the things that you might have in common". The rationale for asking participants to talk about things they had in common was to make this a positive, co-operative communication. Following this, to reinforce the effects of the imagery task, all participants were instructed to describe what they had just imagined. Participants were then asked to record a two-minute video introducing themselves to an older adult stranger, and talking about what they might have in common with them. In the third part of the session, participants completed a Stroop (1935) colours-naming test. They were told that "we are interested in whether different types of mental preparation also have an effect on basic categorization tendencies". I used the Stroop test because it has been used previously to measure cognitive depletion in intergroup communication settings (Richeson & Shelton, 2003). Finally, participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Independent measure

Performance anxiety. Performance anxiety about recording the video introducing oneself to an older adult stranger was measured before the imagery task. Performance anxiety rather than intergroup anxiety was used in this study. This type of anxiety is more appropriate than intergroup anxiety here because participants imagined the interaction task they were about to perform, while in Experiments 1 and 2 participants imagined a more general intergroup encounter (I return to this issue in Experiment 4). The measure asked: "Thinking about what you might say in this task, how do you feel?" followed by eight items adapted from the scale used by Abrams, Eller, and Bryant (2006). Participants reported how under pressure, tense, nervous, confident (reversed), uneasy, calm (reversed), afraid of not doing well and uncomfortable they felt on a 7-point Likert-scale (1 = *not at all*, 7 = *very much*). Items were recoded such that higher scores represented greater performance anxiety. A composite performance anxiety score was created by the mean of these items (α = .88).

Dependent measures

Communication quality. The video recordings were coded for communication quality by two independent coders who were blind to the hypotheses and what condition participants were in, using items from the Iowa Communication Record (Duck et al., 1991). The participants' introduction to an elderly stranger was rated on how *relaxed-strained, personal-impersonal, in-depth-superficial, smooth-difficult, open-guarded, free from conflict-laden with conflict* and *free of*

communication breakdowns-laden with communication breakdowns it was on a semantic differential ranging from 1 to 9. Items were recoded such that higher scores represented greater communication quality. A composite communication quality score was created by the mean of these items for each rater ($\alpha_1 = .94$, $\alpha_2 = .92$). The inter-rater reliability was $\alpha = .74$.

Stroop test. The Stroop (1935) colours-naming test was conducted with a colours-coded keyboard. Participants received the instruction that colours words (red, blue, yellow, green) and X-strings (xxx, xxxx, xxxxx) would be presented on the screen in one of the following colours: red, blue, yellow or green. They were asked to press the button corresponding to the ink colours of the word as quickly as they can, whilst ignoring the word itself. Each of the colours words and control X-strings appeared for a maximum of 2,000 ms, preceded by a fixation cross (+). The intertrial interval (ITI) was 1,500 ms. The Stroop task consisted of 32 practice trials with X-strings followed by four blocks of 24 trials with colours words and X-strings each, for a total of 96 experimental trials. *Incongruent* trials consisted of colours words appearing in an ink colours other than its semantic meaning (e.g., "green" in a red ink colour). *Control* trials consisted of the X-string in the corresponding ink colours (e.g., "xxxxx" in a red ink colour).

5.3 Results and Discussion

Means, standard deviations and correlations between all measures can be found in Appendix A.

a) Initial analysis

Stroop. Participants with more than 15% errors (2 cases) were removed from the analysis. Of the remaining 38 participants, incorrect responses were recoded as missing (4.4% errors). The analysis was conducted on the mean correct reaction times (RT). The mean correct RTs were used to control for effects of outliers. Reaction time outliers (2.41%) were winsorized using Van Selst and Jolicoeur's (1994) non-recursive procedure (NR) with moving criterion. Response latencies < 200 ms were recoded as 200 ms. For response latency outliers above the mean, a cutoff per participant in each within-participant condition (i.e., incongruent and control) was calculated (for the *SD* criterion see Van Selst & Jolicoeur, 1994, table 4, p. 642). A moving criterion was used instead of an absolute 2.5 *SD* criterion to take into account unequal numbers of observations between conditions and to not decrease power. The Stroop interference was calculated by subtracting the mean correct RTs in control trials from the mean correct RTs in incongruent trials. Greater Stroop interference (worse task performance) is represented by higher values. In the present sample, Stroop interference ranged from -52.03 to 249.11 (M = 81.02, SD = 64.48).

b) Main analysis

Communication quality. To assess the predicted interactive effect of imagery task and performance anxiety on communication quality, a moderated regression was computed as described above. There were no significant main effects

of imagery task, β = .10, $t(30) = 0.59$, $p = .560$, nor performance anxiety, β = -.28, $t(30) = -1.63$, $p = .115$.

More importantly, the analysis revealed the predicted significant interaction between imagery task and performance anxiety, β = .37, $t(29) = 2.18$, $p = .038$, R square change = .13 (see Figure 3).

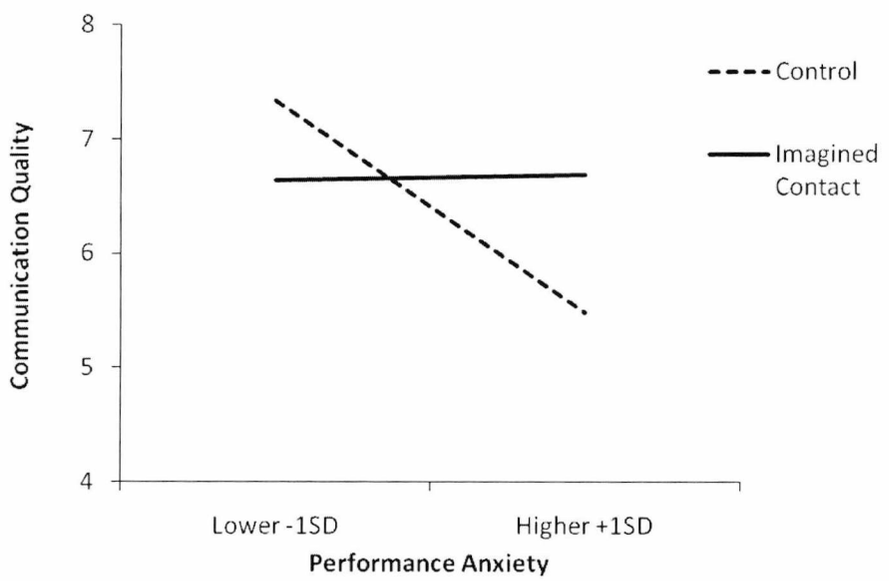

Figure 3. Communication quality as a function of imagery task and performance anxiety, Experiment 3.

In the control condition performance anxiety was negatively correlated with communication quality, β = -.53, $t(29) = -2.47$, $p = .020$. In contrast, this relationship was not apparent following imagined contact – there was high quality performance regardless of pre-communication anxiety, β = .02, $t(29) = 0.07$, $p = .942$. Differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of

performance anxiety revealed that at higher levels of performance anxiety, communication quality was higher in the imagined contact condition compared to the control condition, a difference that approached significance, $\beta = .48$, $t(29) = 2.00$, $p = .055$. In contrast at lower levels of performance anxiety, communication quality did not differ significantly between the imagery conditions, $\beta = -.28$, $t(29) = -1.15$, $p = .259$. In sum, imagined contact normalized communication quality for higher and lower anxiety participants. Put another way, for participants higher in pre-communication performance anxiety, imagined contact improved communication quality to the same level as exhibited by participants lower in anxiety. This pattern of behavioural responses perfectly mirrors those observed on the tolerance measures used in Experiments 1 and 2.

Stroop interference. I predicted that it would be more cognitively taxing for participants higher in anxiety to imagine a successful intergroup communication. In other words, those participants higher in anxiety would show subsequent poor Stroop performance compared to lower anxiety participants. I computed the same analysis as for communication quality.

There were no significant main effects of imagery task, $\beta = .11$, $t(34) = 0.66$, $p = .517$, nor performance anxiety, $\beta = .19$, $t(34) = 1.14$, $p = .262$. Most importantly, however, the analysis revealed the predicted significant interaction between imagery task and performance anxiety, $\beta = .45$, $t(33) = 2.93$, $p = .006$, R square change = .20 (see Figure 4).

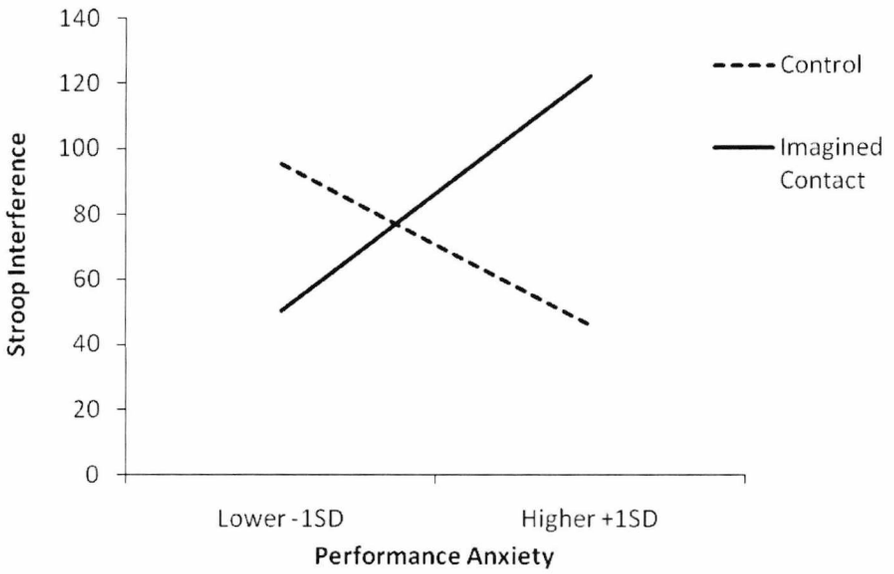

Figure 4. Stroop interference as a function of imagery task and performance anxiety, Experiment 3.

Consistent with the hypothesis that imagining the outgroup communication is proportionally more cognitively demanding as anxiety increases, in the imagined contact condition performance anxiety was positively related to Stroop interference, $\beta = .59$, $t(33) = 2.92$, $p = .006$. In contrast, in the control condition, which is not group-relevant so should not be cognitively taxing as a function of anxiety, there was no significant relationship, $\beta = -.34$, $t(33) = -1.47$, $p = .152$. Furthermore, I tested the differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of performance anxiety. At higher levels of performance anxiety, Stroop interference was higher in the imagined contact condition compared to the control condition, $\beta = .58$, $t(33) = 2.63$, $p = .013$. At lower levels of performance anxiety,

Stroop interference did not differ between the imagery conditions, $\beta = -.34$, $t(33) = -1.58$, $p = .123$.

This study shows that the detrimental effects of anxiety on intergroup communications can be mitigated by the use of pre-communication imagery tasks, but that doing so requires attentional resources proportional to the level of pre-communication anxiety.

6 Experiment 4: Intergroup Anxiety and Communication Difficulty

6.1 Aims and Hypotheses

Having shown that the compensatory effect of imagined contact is accompanied by cognitive depletion, in Experiment 4 I further explore the cognitive dynamics underlying the interplay of imagined contact with anxiety. In Experiment 3, participants imagined giving an outgroup communication, and were subsequently asked to give that communication, in other words, what they imagined they subsequently did. However, I do not know from this data whether the Stroop performance detriment reflected difficulty imagining contact, or difficulty carrying out the subsequent task. Because communication quality *improved*, this strongly indicates that it is not the subsequent task that high-anxiety participants found difficult. However a more robust test would be to actually ask participants how difficult they found the subsequent task, and show that it bears no correlation with the Stroop task. In Experiment 4, I tested this possibility. In Experiment 3 it was also

possible that it is simply imagining the to-be-done task - not the intergroup element - that compensated for the negative impact of anxiety. Therefore, in Experiment 4, I asked participants to imagine a typical imagined contact scenario (a generalized encounter like in Experiment 2) and then do a task that is unrelated in behavioural terms to what was imagined (only the outgroup simulation content is the same). This also enables us to use pre-task *intergroup* anxiety as a predictor, and so better aligns my testing of imagined contact with respect to outgroup communication (Experiment 3) and outgroup tolerance (Experiments 1 and 2).

I used a new measure of behavioural tendency to examine whether the Stroop performance detriment reflects difficulty carrying out the imagined contact task or the difficulty of the subsequent interaction task. I asked participants to write an email to an international student. If it is the subsequent interaction task which participants find difficult, then there should be no difference in communication difficulty reported in the imagined contact and the control conditions, and the impaired Stroop test performance for high-anxious individuals will reflect the difficulty of the email writing task. If it is the imagined contact task which participants find difficult (as I predict), then imagined contact should reduce communication difficulty for participants higher in intergroup anxiety. For these higher anxiety individuals it is the imagined contact task that requires more cognitive resources, which would be reflected in the impaired post-communication Stroop test performance, similar to Experiment 3.

6.2 Method

a) Participants

Thirty-six British non-Muslim students (29 female, 7 male), aged between 18 and 31 (M = 20.81, SD = 2.81), were randomly allocated to one of the two imagery task conditions. One half were asked to imagine meeting an international student for the first time (imagined contact condition), the other half had to imagine an outdoor scene (control condition). The initial sample size was N = 39 but was reduced for the analysis due to three outliers in the Stroop test. Participants received either course credits or a small amount of money as reward for their participation.

b) Procedure and measures

Participants were told that the study aimed to investigate "people's experiences with and feelings about international students" as well as whether "visual imagery has an effect on a categorization task". At the beginning of the study, they were asked to indicate their intergroup anxiety towards international students. In the 'visual imagery' part of the study, participants were randomly assigned to one of the two imagery task conditions. Participants in the *control condition* were asked to imagine an outdoor scene as describe in Experiment 2. Participants in the *imagined contact condition* received the following instruction: "Please take a moment to imagine yourself meeting an international student stranger for the first time. Imagine that the interaction is positive, relaxed, and comfortable." This instruction differed from what participants imagined in the experimental

condition in Experiment 3 where the imagined task matched exactly the behavioural task. I decided to use a more general instruction specifically to see whether imagined contact in a more generalized form could be beneficial to a specific task. This is important because it will show if we can achieve a generalization of impacts of simulation on outgroup perception. Following this, to reinforce the effects of the imagery task, all participants were instructed to describe what they have just imagined in as much detail as possible.

The next part of the study was introduced as a necessary break between the visual imagery and the Stroop task. Participants were told that the University of Kent is doing a "project on the integration of international students". Participants were asked whether they would be willing to write an email to an international student, talking about their experiences as a student at the University of Kent, life in Canterbury, or any other topics they would like to share. Those willing to help were given as much time as they wanted to write the email and indicated afterwards the difficulty with which writing the email was perceived. In the third part of the session, participants completed the Stroop task. Finally, participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Independent measure

Intergroup anxiety. To measure anxiety concerning a future interaction with an international student, the scale by Stephan and Stephan (1985) as in Experiment 1 was used ($\alpha = .77$).

Dependent measures

Communication difficulty. To measure communication difficulty (writing the email to an international student), participants were asked "How easy or difficult was it for you to write this email?" on a 7-point Likert-scale (1 = *extremely easy*, 7 = *extremely difficult*).

Stroop interference. The Stroop (1935) colour-naming test was conducted as described in Experiment 3.

Other dependent variables were completed by the participants but because they are not relevant to the current focus of this Chapter, I discuss them in the appropriate experiment in Chapter 5 (Experiment 7).

6.3 Results and Discussion

Means, standard deviations and correlations between all measures can be found in Appendix A.

a) Initial analysis

Stroop. Participants with more than 15% errors (3 cases) were removed from the analysis. Of the remaining 36 participants, incorrect responses were recoded as missing (5.2% errors). The analysis was conducted on the mean correct reaction times (RT). The mean correct RTs were used to control for effects of outliers. Reaction time outliers (2.50%) were winsorized using Van Selst and Jolicoeur's (1994) non-recursive procedure (NR) with moving criterion and recoded as described in Experiment 3. The Stroop interference was calculated as described in

Experiment 3. In the present sample, Stroop interference ranged from -28.16 to 230.52 (M = 73.92, SD = 51.52).

b) Main analysis

Communication difficulty. To assess the predicted interactive effect of imagery task and intergroup anxiety on perceived difficulty in writing the email, a moderated regression was computed. There was a marginally significant main effect of imagery task on communication difficulty, β = -.39, t(23) = -2.07, p = .050. As expected, communication difficulty was lower after imagined contact (M = 2.30) compared to the control condition (M = 3.49). There was no significant main effect of intergroup anxiety, β = .23, t(23) = 1.23, p = .231. Most importantly the analysis revealed the predicted interaction between imagery task and intergroup anxiety, β = -.36, t(22) = -2.04, p = .05, R square change = .13 (see Figure 5).

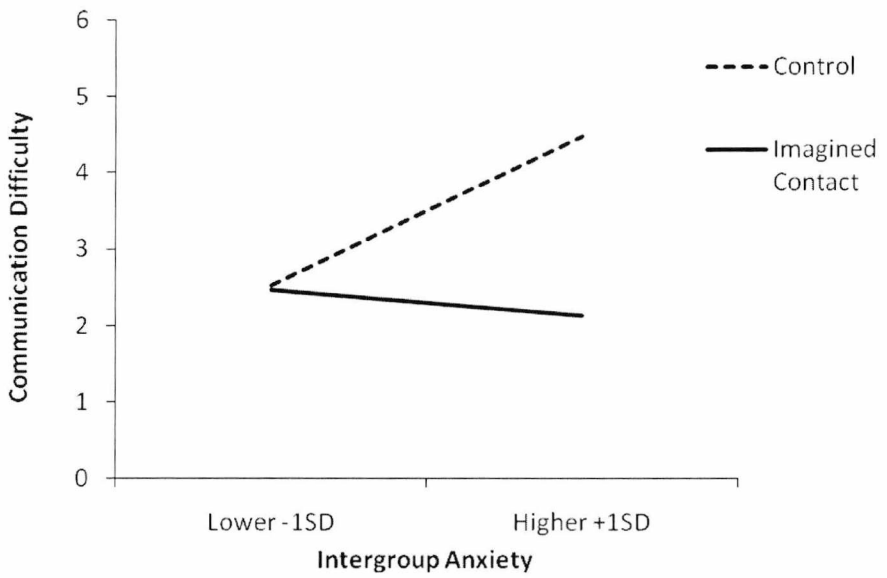

Figure 5. Communication difficulty as a function of imagery task and intergroup anxiety, Experiment 4.

In the control condition intergroup anxiety was positively correlated with communication difficulty, $\beta = .57$, $t(22) = 2.28$, $p = .031$. In contrast, this relationship was eliminated in the imagined contact condition, $\beta = -.13$, $t(22) = -.44$, $p = .666$, Furthermore, differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of intergroup anxiety revealed that at higher levels of intergroup anxiety, communication difficulty was lower in the imagined contact condition compared to the control condition, $\beta = -.75$, $t(22) = -3.00$, $p = .007$. In contrast at lower levels of intergroup anxiety, communication difficulty did not differ significantly between the imagery conditions, $\beta = -.01$, $t(22) = -.04$, $p = .970$. In sum, imagined contact normalized difficulty for higher and lower anxiety participants. Put another way, for participants higher in intergroup anxiety, imagined

contact reduced the perceived difficulty in writing the email to the same level as exhibited by participants lower in intergroup anxiety.

Stroop interference. To assess the interaction between imagery task (imagined contact vs. control) and intergroup anxiety on Stroop interference, a moderated regression was computed. There were no main effects of imagery task (ß = .06, $t(33) = 0.36$ $p = .719$) nor anxiety (ß = .27, $t(33) = 1.60$, $p = .118$). More importantly, the analysis revealed the predicted significant interaction between imagery task and intergroup anxiety on task difficulty, ß = .36, $t(32) = 2.23$, $p = .033$, R square change = .12 (see Figure 6).

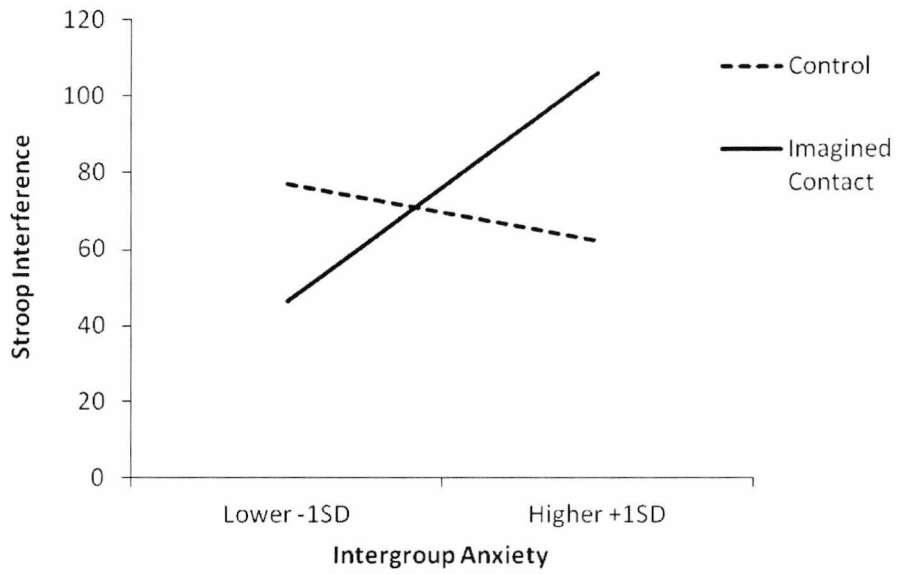

Figure 6. Stroop interference as a function of imagery task and intergroup anxiety, Experiment 4.

Further analysis within experimental conditions revealed that, consistent with the hypothesis that imagined contact is proportionally more cognitively demanding as anxiety increases, in the imagined contact condition intergroup anxiety was positively related to Stroop interference, $\beta = .56$, $t(32) = 2.59$, $p = .015$. There was no significant relationship in the control condition, $\beta = -.15$, $t(32) = -.61$, $p = .546$. Furthermore, I tested the differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of intergroup anxiety. At higher levels of intergroup anxiety, Stroop interference was marginally significantly higher in the imagined contact condition compared to the control condition, $\beta = .42$ $t(32) = 1.86$, $p = .071$. At lower levels of intergroup anxiety, Stroop interference did not differ between the imagery conditions, $\beta = -.30$, $t(32) = -1.32$, $p = .197$. In sum, these findings show that it was the imagined contact task which participants higher in anxiety found difficult, reflected in Stroop performance, rather than the subsequent communicative task.

7 Discussion

While it is well established that imagined intergroup contact produces positive perceptions of outgroups, I aimed at examining whether intergroup anxiety plays a moderating role. I examined whether the effectiveness of imagined contact is contingent upon characteristics that define the experience of intergroup relations; in particular, whether higher levels of pre-contact intergroup anxiety make imagining intergroup contact more cognitively difficult and whether this detracts from the effectiveness of the approach. Across four studies, employing a range of methods,

measures and target groups, I showed consistently that imagined contact can compensate for the negative impacts of higher levels of intergroup anxiety. Imagined contact not only had beneficial effects on intergroup anxiety and tolerance but also on behavioural tendencies (communication quality, communication difficulty). This work has also extended past research on imagined contact by identifying a new factor that interacts with the effectiveness of imagined contact: intergroup/performance anxiety. In the following section I summarize the key findings, and explore implications and applications for future research.

In *Experiments 1 and 2*, I established support for my basic prediction that imagined contact can play a compensatory role in intergroup relations defined by differing levels of intergroup anxiety. I found that compared to a control condition in which higher anxiety predicts lower tolerance, this relationship was eliminated following imagined contact with a disabled person or a British Muslim. In other words, imagined contact compensated for the negative impacts of high anxiety, and raised tolerance to levels reported by people lower in anxiety.

Having established basic support for my imagined contact as compensation proposition, in *Experiment 3* I explored the cognitive dynamics involved. Compared to a control condition in which higher anxiety predicted lower quality of communication to outgroups, this relationship was eliminated following imagined contact with an elderly person. Imagined contact compensated for the negative impact of high anxiety on outgroup communication. Furthermore, the post experimental Stroop test showed that compared to the control condition, in which there was no relationship between anxiety and Stroop performance, higher anxiety led to more Stroop interference in the imagined contact condition. This suggests that

the compensatory effects of imagined contact are cognitively taxing (in other words, people who are higher in anxiety show greater cognitive depletion after imagining positive contact, indicating that they may have to put more effort to imagine positive contact), but nonetheless they are able to imagine contact with an outgroup member, and this leads to positive outcomes for communication quality.

Having shown that the compensatory effects of imagined contact are accompanied by cognitive depletion, in *Experiment 4* I provided a more robust test showing that the Stroop performance detriment reflects the difficulty of the imagined contact task and not the difficulty carrying out the subsequent interaction task. Consistent with predictions, in the control condition difficulty of writing an email to an international student was positively correlated with anxiety, but this relationship was not apparent in the imagined contact condition. Furthermore, I replicated the Stroop test findings from Experiment 3. This confirms that imagined contact makes the subsequent outgroup interaction task easier, and that it is the imagined contact task itself that is difficult, not the subsequent task (Stroop performance was correlated with anxiety in the imagined contact condition; communication difficulty was not).

7.1 Implications

The present work contributes to the literature on improving intergroup relations. While it is now established that contact has clear beneficial effects on intergroup relations (Allport, 1954; Brown & Hewstone, 2005; Pettigrew, 1998), I argue that focus should also turn to understanding how to best encourage people to *engage* in contact; and how to make that contact successful when it is initiated.

The four studies reported in this chapter have shown, for the first time, that a simple cognitive task involving mental simulation can counter the negative impacts of higher anxiety on intergroup perceptions and behaviour (e.g., outgroup evaluation, tolerance, and communication quality and difficulty).

I demonstrated that even when imagined contact is cognitively demanding when intergroup anxiety is high (illustrated by detriments on the post-communication Stroop test), it can improve outgroup evaluation, communication quality and reduce communication difficulty. These findings support the efficacy of mental simulation as a cognitive-behavioural intervention, not only in a range of academic and sporting domains (Taylor et al., 1998), but increasingly to efforts to promote, encourage and enhance more harmonious intergroup relations.

The findings suggest that the imagery task provides individuals high in performance anxiety the tools with which to negotiate an anxiety-provoking contact situation and to achieve a better intergroup interaction. In countering the negative impacts of anxiety on communication quality this work shows that imagined contact makes it more likely, once contact is established, that the interaction will proceed successfully and yield all the benefits we know to accrue from long-term, high quality intergroup contact (Pettigrew & Tropp, 2006).

In sum, while previous work has established the beneficial impact of imagined contact on intergroup attitudes, and supports its efficacy as an intervention where there exists little or no opportunity for contact; this research shows it can also be used as a compensatory measure – a way of helping individuals higher in anxiety to engage positively and effectively in actual intergroup contact.

My findings demonstrate that imagined intergroup contact has the potential to improve communicative behaviour and with this intergroup relations. It combats the detrimental effects of intergroup anxiety on intergroup communications to achieve a high quality experience. These findings support the increasingly evident benefits of mental simulation, not only in a range of personal and professional domains, but increasingly to efforts to promote, encourage and enhance more harmonious intergroup relations.

CHAPTER 5

PRIOR OUTGROUP CONTACT AND VIVIDNESS ABILITY

1 OVERVIEW

The findings of the four studies reported in Chapter 4 established the compensatory benefits of imagined contact for individuals higher in intergroup anxiety. In this chapter, Experiment 5 demonstrates meta-cognitive processes of imagined contact: Individuals who imagined contact perceived themselves as more tolerant because communicating with the outgroup was perceived as less difficult. This chapter also explores two further factors that moderate the effects of imagined contact: prior outgroup contact and vividness ability. Imagining contact counteracted the negative impact of low prior contact experiences on outgroup attitudes (Experiment 6), future contact intentions and uncertainty about future intergroup interactions (Experiment 7). Furthermore, the positive effects of imagined contact on intergroup anxiety were facilitated by a high ability to generate mental images (Experiment 8). The results also demonstrate mediating processes underlying imagined contact effects. Imagined contact enhanced intentions and reduced intergroup anxiety because of reduced uncertainty about intergroup interactions (Experiments 7, 8).

2 INTRODUCTION

The findings reported in Chapter 4 provide evidence that imagined contact can be particularly useful for individuals higher in intergroup anxiety. In this chapter, I investigate two further factors that may moderate the effectiveness of imagined contact: prior contact and vividness ability. I also examine mediating and meta-cognitive processes of imagined contact.

2.1 Meta-Cognitive Processes

The previous chapter has shown that imagined contact enhances tolerance (Experiments 1, 2) and reduces the difficulty of communication with the outgroup (Experiment 4). The findings imply that imagined contact may involve meta-cognitive processes. If individuals find it hard to communicate with an outgroup member, they may conclude that they do not feel comfortable in their company, or cannot go on well with the outgroup. However, if individuals communicate with an outgroup member and perceive this communication as less difficult, they will conclude that they must have positive feelings towards this outgroup. Therefore, if imagined contact is expected to enhance the ease of communicating with the outgroup, individuals who imagined intergroup contact should perceive themselves as more tolerant towards the outgroup after having had a less difficult intergroup communication.

2.2 Compensatory and Facilitating Contact

Intergroup anxiety plays a key role in intergroup relations and is the major mediator of the contact-prejudice relationship (e.g., Blascovich et al., 2001; Islam & Hewstone, 1993). Previous research has established anxiety as a mediator between imagined contact and prejudice (Abrams et al., 2008; Husnu & Crisp, 2010a; Turner et al., 2007). The previous chapter demonstrated that imagined contact moderates the negative relationship between anxiety and prejudice. Research has also shown that contact reduces intergroup anxiety which in turn leads to more favourable intergroup attitudes (e.g., Paolini et al., 2004; Turner, Hewstone et al., 2007; Voci & Hewstone, 2003).

Having established the compensatory benefits of imagined contact as related to anxiety, this chapter explores the compensatory benefits of imagined contact related to the predictor of anxiety, prior intergroup contact. First evidence for this prediction comes from work that compares an elaborated version of imagined contact with the standard version (Husnu & Crisp, 2010a). Prior outgroup contact enhanced intentions to engage in future outgroup contact, independently of whether participants imagined contact in an elaborated or simple way (Experiment 2). Furthermore, Husnu and Crisp showed that imagined contact led to heightened contact intentions because the vividness of the imagined scenario was enhanced. This finding led to the assumption that if intentions are enhanced by the vividness of the scenario, then imagined contact may be even more effective for individuals who possess a high ability to generate mental images. While anxiety and contact reduce prejudice, and imagined contact as compensatory contact is expected to moderate

this relationship, I expected vividness ability to facilitate the effectiveness of imagined contact on prejudice because vivid imagined contact scenarios have shown to reduce prejudice. While vividness was a mediator in previous research, this research extends these findings in looking at vividness as a moderator of the imagined contact-prejudice relationship. This also implies that imagined contact may not only have a compensatory effect on negative pre-contact experiences, but also a facilitating effect for individuals who possess certain characteristics.

3 Experiment 5: Meta-cognitive Processes

3.1 Aims and Hypotheses

Experiment 5 was designed to test meta-cognitive processes underlying imagined contact effects. Experiments 1 and 2 showed that imagined contact enhances tolerance. Experiment 4 showed that imagined contact reduces the difficulty of communicating with an outgroup member. I therefore hypothesised that ingroup members would find it easier to communicate with the outgroup (e.g., writing an email) after having imagined a positive intergroup encounter, and because they see that writing an email to an outgroup member is less difficult, they should in turn perceive themselves as more tolerant towards the outgroup.

3.2 Method

a) Participants

Sixty-five British non-Muslim students (52 female, 12 male, 1 did not report gender), aged between 18 and 44 (M = 19.76, SD = 4.25), were randomly allocated to one of the two imagery task conditions. One half were asked to imagine meeting a Muslim stranger for the first time (imagined contact condition), the other half had to imagine a British stranger (control condition). Participants received course credits as reward for their participation.

b) Procedure and measures

Participants were told that the study aimed to investigate "people's experiences with and feelings about British Muslims". In the 'visual imagery' part of the study, participants were randomly assigned to one of the two imagery task conditions. This time, to vary between control groups and show the consistency of the imagined contact effect, I used a control group that asked participants to imagine a positive interaction with an ingroup member. Participants in the *control condition* received the following instruction: "Please take a moment to imagine yourself meeting a British stranger for the first time. Imagine that the interaction is positive, relaxed, and comfortable." Participants in the *imagined contact condition* received the following instruction: "Please take a moment to imagine yourself meeting a Muslim stranger for the first time. Imagine that the interaction is positive, relaxed, and comfortable." Following this, to reinforce the effects of the imagery task, all

participants were instructed to describe what they have just imagined in as much detail as possible.

In the next part of the study, participants were told that the University of Kent is doing a "project on the integration of international students". Participants were asked whether they would be willing to write an email to an international student (this student had a typical Muslim name: "Saad Allami"), talking about their experiences as a student at the University of Kent, life in Canterbury, or any other topics they would like to share. Those willing to help were given as much time as they wanted to write the email and indicated afterwards the difficulty with which writing the email was perceived. In the third part of the session, participants reported how tolerant they perceived themselves towards British Muslims in general. Finally, participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Dependent Measures

Communication difficulty. Communication difficulty (writing the email to the Muslim student) was measured as in Experiment 4. Participants were asked: "How easy or difficult was it for you to write this email?" on a 7-point Likert-scale (1 = *extremely easy*, 7 = *extremely difficult*).

Tolerance. Tolerance was measured by seven statements as in Experiment 1: "I am a tolerant person towards British Muslims.", "I believe that British people and British Muslims should be treated equally.", "I am the sort of person who gets along well with British Muslims.", "I can understand the needs of British Muslims.", "I accept British Muslims.", "I accept the different values of British Muslims.", "I

accept the different life styles of British Muslims." on a 5-point Likert-Scale (1 = *strongly agree*, 5 = *strongly disagree*). Items were recoded such that higher scores represented higher tolerance. A composite tolerance score was created by the mean of these items (α = 91).

3.3 Results and Discussion

To determine whether imagining contact with an outgroup member, compared to imagining contact with an ingroup member, reduced communication difficulty and enhanced tolerance, independent *t*-tests were computed. These analyses revealed lower *communication difficulty* following imagined intergroup contact (M = 2.91, SD = 1.44) compared to the control condition (M = 3.94, SD = 1.89), $t(39) = 1.98$, $p = .055$; and higher *tolerance* following imagined contact (M = 4.50, SD = 0.44) compared to the control condition (M = 4.11, SD = 0.80), $t(62) = -2.45$, $p = .017$.

a) Mediation

I then computed a mediation analysis to assess whether the effect of imagery task (imagined contact with a Muslims vs. a British) on tolerance towards British Muslims was mediated by variation in communication difficulty.

Imagery task predicted tolerance (β = .30, t = 2.45, p = .017). Imagery task also predicted the mediator, communication difficulty, (β = -.30, t = -1.98, p = .055). The path between communication difficulty and tolerance while controlling for the predictor was significant (β = -.49, t = -3.36, p = .002). When the mediator was controlled, the relationship between imagery task and tolerance became non-

significant (β = .12, t = 0.80, p = .429). A Sobel test was approaching significance, Z = 1.76, p = .078 (see Figure 7). The 95% BCa CI obtained by bootstrapping of 5000 subsamples was: {.00, .24}. The effect of imagery task on perceived tolerance was mediated by communication difficulty.

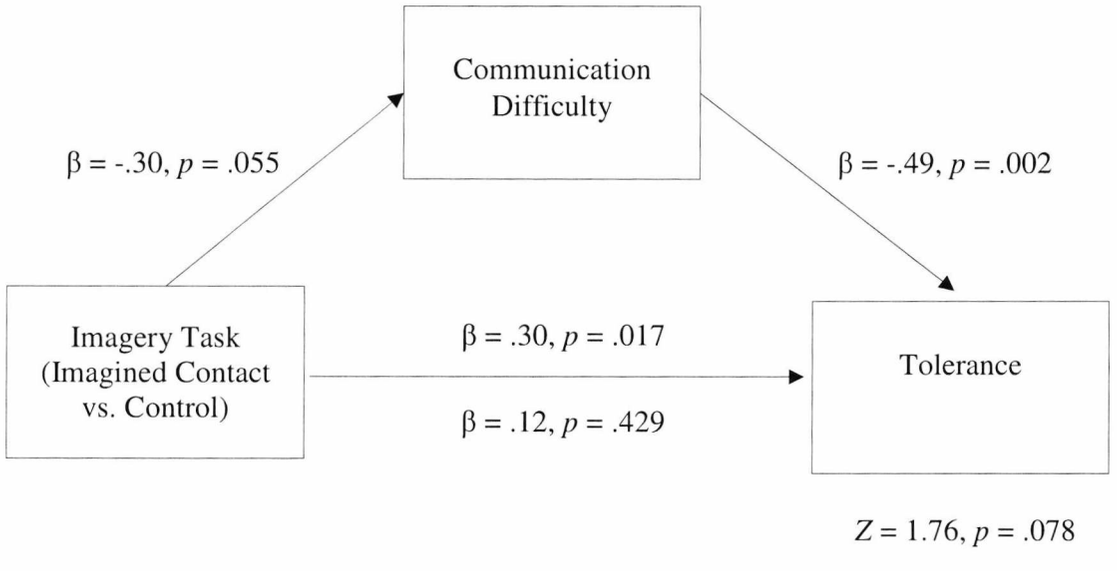

Figure 7. Communication difficulty as mediator of the relationship between imagery task and tolerance, Experiment 5.

In sum, these results show that imagined contact involves meta-cognitive processes: British participants found it easier to communicate with a Muslim student after having imagined a positive encounter with a Muslim stranger. Having seen that writing this email to a Muslim student was not difficult, participants perceived themselves as more tolerant towards British Muslims in general.

4 EXPERIMENT 6: PRIOR CONTACT AND OUTGROUP EVALUATION

4.1 Aims and Hypotheses

Having established the compensatory benefits of imagined contact as related to anxiety I turn to a predictor of intergroup anxiety: prior intergroup contact. If the compensatory effects of imagined contact are robust, they should be observed not only in relation to anxiety, a proximal predictor of attitudes and behaviour, but also contact, a more distal and socially determined predictor.

As imagined contact compensates for the higher levels of intergroup anxiety on tolerance and outgroup communications, and communication difficulty mediates the relationship between imagery task and tolerance, I here hypothesised that imagined contact should compensate for the negative effects of *low prior contact* on outgroup evaluations. While previous studies have found positive effects of imagined contact on intergroup attitudes (Stathi & Crisp, 2008; Turner et al., 2007; Turner & Crisp, 2010), only one has taken into account the impact of prior contact experiences. Husnu and Crisp (2010a) found that higher prior contact predicted a greater impact of imagined contact on future contact intentions.

In Experiments 3 and 4 I found that the detriments observed on the Stroop task by individuals higher in anxiety, who imagined contact, reflect the difficulty of the imagined contact task, not the difficulty of the subsequent communication task. This is because communication difficulty is not correlated with anxiety in the imagined contact condition (Experiment 4), and because communication quality is

enhanced for such individuals who undertake imagined contact (Experiment 3). While I asked participants about the difficulty of the communication task in Experiment 4, Experiment 6 was designed to provide further confirmation that participants low in pre-contact experiences find imagined contact difficult by asking participants directly about the difficulty of the imagined contact task.

a) Sexual orientation

In this experiment I focused on a new target group: gay men. 17% of the Britons expressed prejudice against gay men (MORI, 2001). In general, gay men are stereotyped as feminine (Madon, 1997). In the Stereotype Content Model (SCM), gay men are seen as neutral (Fiske, Cuddy, Glick, & Xu, 2002). The SCM classifies stereotypes of different outgroups along the two dimensions competence and warmth. For example, older adults and disabled people are seen as low in competence (LC) but high in warmth (HW), whereas Jews and business women are seen as high in competence (HC) and low in warmth (LW). When gay men are divided into subgroups, some subgroups are seen as LC-LW, some as HC-LW, and the feminine group is seen as LC-HW (Clausell & Fiske, 2005).

4.2 Method

a) Participants

Sixty-one heterosexual male students, aged between 18 and 38 (M = 20.70, SD = 3.88), were randomly allocated to one of the two imagery task conditions. One half were asked to imagine meeting a gay man for the first time (imagined contact

condition), the other half had to imagine an outdoor scene (control condition). Four participants of the initial sample size $N = 65$ had to be excluded because they indicated that they were homosexual. Participants received either course credits or a small payment (£3) for their participation.

b) Procedure and measures

Participants were told that the study aimed to investigate "mental images and opinions about gay men in the UK". They were asked to indicate their everyday contact with gay men "before we are going to start the study". Measures of prior quantitative and qualitative contact with gay men followed. Then, in the 'visual imagery' part of the study, participants were randomly assigned to one of the two imagery task conditions. Participants in the *control condition* were asked: "Please take a moment to imagine an outdoor scene. Try to imagine aspects of the scene (e.g., is it a beach, a forest, are there trees, hills, what's on the horizon)." Participants in the *imagined contact condition* received the following instruction: "Please take a moment to imagine yourself meeting a gay man for the first time. Imagine that the interaction is positive, relaxed, and comfortable." Following this, to reinforce the effects of the imagery task, all participants were instructed to list the things they saw in the scene they just imagined. After this, the perceived difficulty of the imagery task was measured. In the 'opinions' part of the study, participants completed a measure of outgroup evaluation. Finally, participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Independent measures

To determine the quantity and quality of prior contact experiences, typical items used in previous contact research (e.g., Voci & Hewstone, 2003) were used.

Contact quantity. Prior quantity of contact with gay men was measured by four items: "How many gay men do you know?", "In everyday life, how often do you encounter gay men?", "In everyday life, how frequently do you interact with gay men?" and "In everyday life, how much contact do you have with gay men?" on a 7-point Likert-scale (1 = *none*, 7 = *a lot*). A composite contact quantity score was created by the mean of these items (α = .93), higher scores represented higher prior quantity.

Contact quality. To measure the quality of prior contact with gay men, participants had to rate on five items how *superficial-deep, natural-forced, unpleasant-pleasant, competitive-cooperative, intimate-distant* they characterized their previous contact with gay men on a semantic differential ranging from 1 to 7. Items were recoded such that higher scores represented higher prior quality. A composite contact quality score was created by the mean of these items (α = .56).

Dependent measures

Imagery difficulty. Task difficulty was measured by the statement "Imagining the scenario was…". Participants indicated on seven items how difficult, complex, effortless (reversed), simple (reversed), troublesome, easy (reversed) and complicated the imagery task was on a 7-point Likert-scale (1 = *not at all*, 7 = *very much*). Items were recoded such that higher scores represented higher task difficulty.

A composite imagery difficulty score was created by the mean of these items (α = .92).

Outgroup evaluation. To measure prejudice as outgroup evaluation, participants stated their feelings towards gay men on a 101-point feeling thermometer ranging from 0 (*very cold*) to 100 (*very warm*). The thermometer has been used as a reliable measure of intergroup attitudes in previous research (e.g., (Converse & Presser, 1986; Esses, Haddock, & Zanna, 1993; Haddock et al., 1993; Stangor, Sullivan, & Ford, 1991).

4.3 Results and Discussion

Means, standard deviations and correlations between all measures can be found in Appendix A.

a) Prior contact quality

Outgroup evaluation. To assess the interaction between imagery task (imagined contact vs. control) and prior contact quality on outgroup evaluation, I computed a moderated regression. There was no main effect of imagery task, ß = .01, $t(58) = 0.08$, $p = .933$. There was a main effect of prior contact quality. Higher quality prior contact was associated with more positive outgroup evaluation, ß = .68, $t(58) = 7.04$, $p < .001$.

More importantly, the analysis revealed the predicted significant interaction between imagery task and prior contact quality on outgroup evaluation, ß = -1.08, $t(57) = -2.33$, $p = .023$, *R* square change = .05 (see Figure 8).

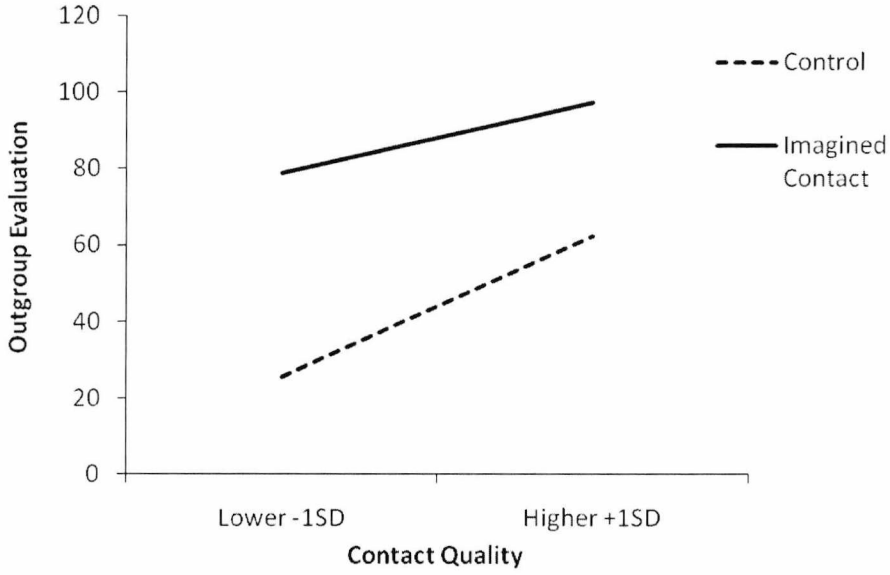

Figure 8. Outgroup evaluation as a function of imagery task and prior contact quality, Experiment 6.

Higher prior contact quality enhanced outgroup evaluation in both the imagined contact (ß = .54, $t(57) = 3.47$, $p = .001$) and the control conditions (ß = .78, $t(57) = 6.56$, $p < .0005$). Looking at differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of contact quality, the outgroup was perceived as more positive in the imagined contact condition compared to the control condition when prior contact quality was low (ß = .23, t (57) = 1.72, $p = .092$), but not when it was high (ß = -.21, $t(57) = -1.60$, $p = .115$).

Imagery difficulty. To assess the interaction between imagery task (imagined contact vs. control) and prior contact quality on imagery difficulty, I computed a moderated regression. There were no main effects of imagery task, ß =

.11, $t(58) = 0.87$, $p = .390$, nor contact quality, ß = -.14, $t(58) = -1.08$, $p = .283$. More importantly, the analysis revealed the predicted interaction between imagery task and prior contact quality on imagery difficulty, ß = -1.25, $t(57) = -2.00$, $p = .050$, R square change = .06 (see Figure 9).

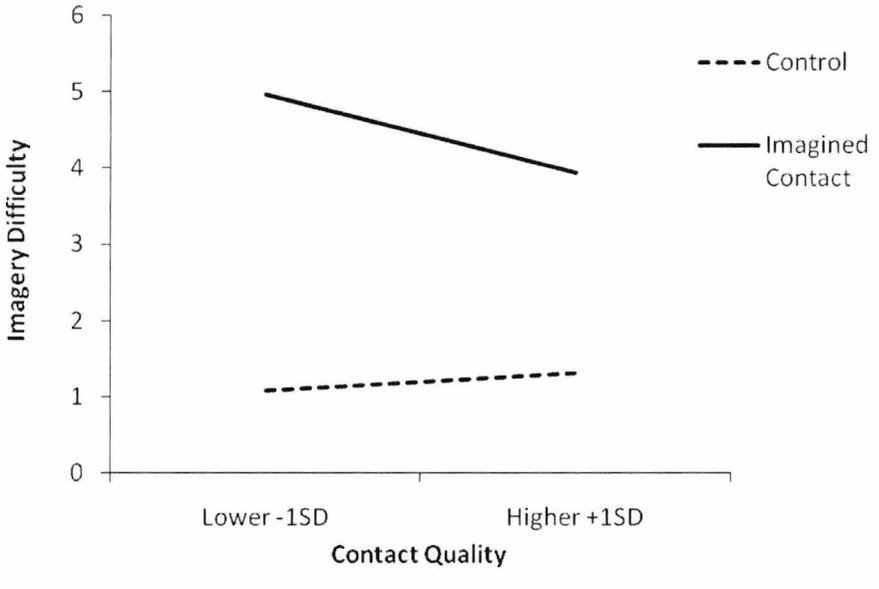

Figure 9. Imagery difficulty as a function of imagery task and prior contact quality, Experiment 6.

Higher levels of prior high quality contact made the imagery task easier in the imagined contact condition (ß = -.38, $t(57) = -2.24$, $p = .029$), but had no effect in the control condition (ß = .10, $t(57) = 0.54$, $p = .590$). Looking at differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of contact quality, the imagery task was perceived as more difficult in the imagined

contact condition compared to the control condition when prior contact quality was low (ß = .37, $t(57) = 2.04$, $p = .046$), but not when it was high (ß = -.15, $t(57) = -0.80$, $p = .425$).

In sum, imagined contact moderated the impact of prior contact quality on imagery difficulty and outgroup evaluations, which is consistent with my resource depletion account. When individuals had experienced higher quality prior contact with gay men, evaluations were positive irrespective of the imagery task. However, when individuals reported having experienced lower quality prior contact, imagined contact raised outgroup evaluations to the same level as expressed by individuals with higher quality prior contact, showing the same compensatory effect as observed with pre-task anxiety, on measures of tolerance and communication quality, and across a range of groups, in Experiments 1 to 4. Furthermore, imagining positive contact with a gay man was reported as more difficult than imagining an outdoor scene for individuals reporting lower quality prior contact, a relationship that was not apparent for individuals reporting higher quality prior contact, mirroring the Anxiety x Imagery effects on Stroop performance in Experiments 3 and 4.

b) Prior contact quantity

Outgroup evaluation. The same analysis was done for prior contact quantity**.** To assess the interaction between imagery task (imagined contact vs. control) and prior contact quantity on outgroup evaluation, I computed a moderated regression. There was a main effect of contact quantity. Higher prior contact quantity led to more positive outgroup evaluation, ß = .36, $t(58) = 2.90$, $p = .005$. There was no main effect of imagery task, ß = -.09, $t(58) = -0.73$, $p = .471$. The analysis

revealed no significant interaction between imagery task and contact quantity on outgroup evaluation, ß = -.06, $t(57) = -0.22$, $p = .826$, R square change < .005. No effects were obtained when contact quantity and quality were combined into a quantity x quality measure.

Imagery difficulty. To assess the interaction between imagery task (imagined contact vs. control) and prior contact quantity on the imagery difficulty, moderated regression was employed. There were no main effects of imagery task, ß = .14, $t(58) = 1.05$, $p = .297$, nor contact quantity, ß = -.13, $t(58) = -1.00$, $p = .323$. More importantly, the analysis revealed the predicted significant interaction between imagery task and contact quantity on imagery difficulty, ß = -.67, $t(57) = -2.63$, $p = .011$, R square change = .10. A further analysis within experimental conditions was computed. Higher levels of prior contact quantity reduced the difficulty of the imagined contact task (β = -.42, $t(57) = -2.49$, $p = .019$), but had no effect in the control condition (β = .25, $t(57) = 1.36$, $p = .186$). Looking at differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of contact quantity, the imagery task was perceived as more difficult in the imagined contact condition compared to the control condition when prior contact quantity was low (β = .46, $t(57) = 2.64$, $p = .011$), but not when it was high (β = -.20, $t(57) = -1.13$, $p = .263$).

While quantity predicted difficulty in imagining contact in the same way as for contact quality, it did not predict subsequent evaluations (nor in combination with quality). This is consistent with research supporting the lesser importance of contact *per se*, and the much more important impact of high quality contact (e.g., Islam & Hewstone, 1993). Research has shown that contact reduces intergroup

anxiety which in turn leads to more favourable intergroup attitudes. The contact effect was higher for contact quality than quantity (Islam & Hewstone, 1993). Therefore, outgroup evaluation is expected to be only enhanced by prior quality of contact, not by quantity. This is in line with the results obtained by Voci and Hewstone (2003).

5 EXPERIMENT 7: PRIOR CONTACT AND INTENTIONS

5.1 Introduction

Having established the compensatory effects of imagined contact in interaction with prior contact on attitudes, I return to explore the implications of these effects for imagined contact and link with established imagined contact effects by examining impacts on intentions. Crisp et al. (2010) argue that this approach is the most useful focus of future work on imagined contact.

a) Future contact intentions

Mental simulation can be a replay of past events, a cognitive construction of hypothetical events, or a mixture of real and hypothetical events (Taylor & Schneider, 1989). Mental simulation is critical in the selection, rehearsal and planning of goal-directed behaviour and facilitates its performance (Marks, 1999). Through mental simulation people can envision a future situation and prepare for it because it addresses fundamental tasks of self-regulation (Taylor et al., 1998). Mental simulation facilitates goal-directed behaviour because it strengthens the link

between thought and action through three ways (Pham & Taylor, 1999): Firstly, mentally simulating future events makes individuals more confident that these events will occur more likely. Secondly, it provides information that can be used for an action plan and engages individuals in planning and problem-solving activities. Thirdly, it manages emotions and brings the individual in a physiological state necessary for the actual behaviour (Pham & Taylor, 1999; Taylor et al., 1998). A great amount of research on imagined contact has shown that imagining having an interaction with an outgroup member is able to strengthen individuals' intentions to engage in future direct intergroup contact (Crisp et al., 2010; Crisp & Husnu, 2011; Husnu & Crisp, 2010a; Husnu & Crisp, 2010b; Husnu & Crisp, 2011).

b) Uncertainty

The prospect of intergroup contact evokes a great amount of uncertainty, and even arouses perceptions of threat. Ingroup members are lacking knowledge about the outgroup, therefore outgroup members seem unfamiliar. When the novelty of a situation is reduced, the situation becomes less threatening, and less uncertain. Intergroup contact can reduce threat and with this uncertainty of the contact situation (Blascovich et al., 2001).

Individuals have a need to construct a meaningfully predictable world. Uncertainty about one's attitudes, feelings, perceptions, and behaviour, and about the self and how it will be treated by others, is an aversive state that evokes anxiety. The key premise of subjective uncertainty reduction theory (Hogg, 2000; Hogg, 2007; Hogg, 2009) is that individuals strive to reduce this aversive state of self-uncertainty, and they are doing this by social categorization of the self and others. Identifying the self with social groups reduces uncertainty, but at the same time enhances intergroup

bias. Self-uncertainty promotes approach behaviours when individuals perceive their uncertainty-reducing sources as sufficient. However, when their resources seem insufficient, self-uncertainty arouses feelings of threat and promotes avoidant behaviours.

This research tests whether imagined contact could provide individuals with uncertainty-reducing sources. Consistent with this idea, Stathi et al. (2011) have found that imagined contact enhances feelings of self-efficacy as a resource. Individuals who feel more confident in outgroup contact, may also feel less uncertain about outgroup contact, and in turn be more willing to engage in future contact.

5.2 Aims and Hypotheses

The research reported in this thesis has shown that imagined contact not only carries a compensatory role for intergroup anxiety but also for prior outgroup contact. In Experiment 7, I hypothesised that the compensatory effect of imagined contact not only shows on attitudes but also on intentions. I hypothesised that imagined contact would remove the negative effects of low prior contact experiences on future contact intention. Furthermore, I expected uncertainty to mediate this relationship.

5.3 Method

a) Participants

Thirty-six British non-Muslim students (29 female, 7 male), aged between 18 and 31 (M = 20.81, SD = 2.81), were randomly allocated to one of the two imagery

task conditions. One half were asked to imagine meeting an international student for the first time (imagined contact condition), the other half had to imagine an outdoor scene (control condition). Participants received either course credits or a small amount of money as reward for their participation.[1]

b) Procedure and measures

Participants were told that the study aimed to investigate "people's experiences with and feelings about international students". At the beginning of the study, participants were also asked to indicate their amount of everyday contact with international students. In the 'visual imagery' part of the study, participants were randomly assigned to one of the two imagery task conditions. Participants in the *control condition* were asked to imagine an outdoor scene. Participants in the *imagined contact condition* received the following instruction: "Please take a moment to imagine yourself meeting an international student In the 'opinions' part of the study, which followed the imagery and interaction task, participants additionally received measures of uncertainty and future contact intentions. Finally, participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Independent measures

Contact quantity. Prior quantity of contact with international students was measured by eight items (adapted from Turner et al., 2008): "How many

[1] These are additional measures that were taken in Experiment 4.

international students do you know?", "How many friends do you have at university who are international students?", "How many friends do you have outside university who are international students?", "How often do you spend time with international students at university?", "How often do you spend time with international students as neighbours?", "How often do you spend time with international students as close friends?", "How often do you have informal talks with international students?" and "How often do you visit an international student at home?" on a 7-point Likert-scale (1 = *none*, 7 = *a lot*). A composite contact quantity score was created by the mean of these items (α = .79), higher scores represented higher prior quantity. Contact quality was also measured but there were no significant results.

Dependent measures

Future contact intentions. To measure contact intentions, participants gave answers to the statement "The next time you find yourself in a situation where you could interact with an international student (e.g., queuing for a bus, with friends in a café, etc.) ...." on three items (adapted from Husnu & Crisp, 2010a): "How likely do you think it is that you would strike up a conversation?", "How interested would you be in striking up a conversation?"; "How much do you think you'd like to strike up a conversation?" on a 9-point Likert-scale (1 = *not at all likely/not at all interested/not at all*, 9 = *highly likely/highly interested/very much*). A composite specific intentions score was created by the mean of these items (α = .90).

Uncertainty. To measure uncertainty about a future interaction with an international student, participants were asked "If you were now asked to have a conversation with an international student stranger, how uncertain would you be about it?" and "If you were now asked to have a conversation with an international

student stranger, how able to understand this person would you be?" (recoded) on a 9-point Likert-scale (1 = *not at all*, 9 = *very much*). A composite uncertainty score was created by the mean of these items (α = .65), higher scores reflect higher uncertainty.

5.4 Results and Discussion

Means, standard deviations and correlations between all measures can be found in Appendix A.

a) Future contact intentions

To assess the interaction between imagery task (imagined contact vs. control) and prior contact quantity on contact intention, a moderated regression was carried out. There was a marginally significant main effect of imagery task, ß = .30, $t(33)$ = 1.87, p = .071. In general, imagining meeting an international student led to higher future contact intention compared to imagining an outdoor scene. There was no main effect of contact quantity, ß = .27, $t(33)$ = 1.70, p = .098. More importantly, the analysis revealed the predicted significant interaction between imagery task and contact quantity on contact intention, ß = -.34, $t(32)$ = -2.20, p = .035, R square change = .11 (see Figure 10).

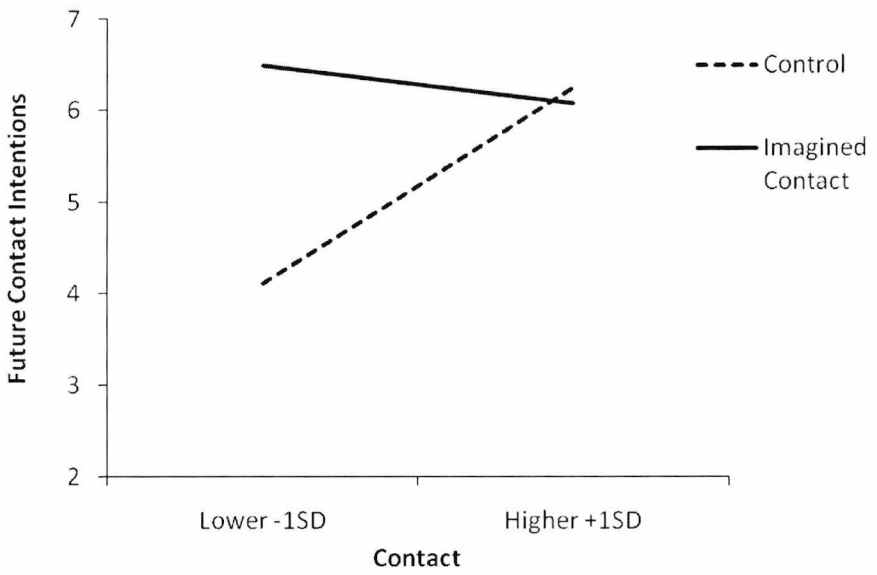

Figure 10. Future contact intentions as a function of imagery task and prior contact, Experiment 7.

Imagined contact led to high future contact intention regardless of contact quantity, β = -.13, $t(32) = -0.50$, $p = .621$, while in the control condition contact quantity was positively correlated with future contact intention, β = .53, $t(32) = 2.61$, $p = .014$. Furthermore, differences between the imagery conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of contact quantity revealed that at lower levels of contact quantity, future contact intention was higher in the imagined contact condition compared to the control condition, β = .64, $t(32) = 2.95$, $p = .006$. In contrast at higher levels of contact quantity, future contact intention did not differ significantly between the imagery conditions, β = -.04, $t(32) = -.20$, $p = .840$. In sum, imagined contact normalized future contact intention for higher and lower quantity participants. Put another way, for participants lower in contact quantity, imagined

contact enhanced future contact intention up the same level as exhibited by participants higher in contact quantity.

b) Uncertainty about a future interaction

To assess the interaction between imagery task (imagined contact vs. control) and prior contact quantity on uncertainty about future interaction, a moderated regression was carried out.

There was a marginally significant main effect of imagery task, ß = -.29, $t(33) = -1.76$, $p = .087$. In general, imagining meeting an international student led to lower uncertainty compared to imagining an outdoor scene. There was no main effect of contact quantity, ß = -.23, $t(33) = -1.40$, $p = 171$. More importantly, the analysis revealed the predicted marginally significant interaction between imagery task and contact quantity on uncertainty, ß = .28, $t(32) = 1.76$, $p = .087$, R square change = .08 (see Figure 11).

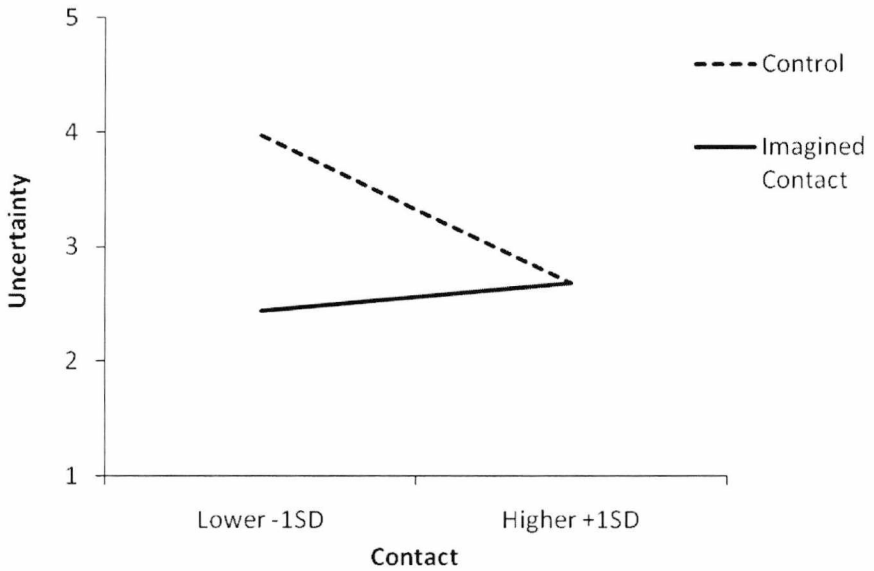

Figure 11. Uncertainty as a function of imagery task and prior contact, Experiment 7.

Imagined contact led to low uncertainty regardless of contact quantity, β = .10, $t(32) = 0.38$, $p = .707$, while in the control condition contact quantity was negatively correlated with uncertainty, β = -.46, $t(32) = -2.16$, $p = .038$. Furthermore, differences between the imagery task conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of contact quantity revealed that at lower levels of contact quantity, uncertainty was lower in the imagined contact condition compared to the control condition, β = -.57, $t(32) = -.253$, $p = .016$. In contrast at higher levels of contact quantity, uncertainty did not differ significantly between the imagery task conditions, β = -.00, $t(32) = -.00$, $p = .998$. In sum, imagined contact normalized uncertainty for higher and lower quantity participants. Put another way, for

participants lower in contact quantity, imagined contact reduced uncertainty down to the same level as exhibited by participants higher in contact quantity.

Compared to Experiment 6, in which imagined contact moderated the relationship between contact quality and outgroup evaluation but not quantity, in Experiment 7 imagined contact moderated the relationship between contact quantity and intentions, but not quality. It may be that the quality of prior contact is important when evaluating outgroup members, but the amount of prior contact is more important for people's willingness to engage in future contact.

c) Mediated moderation

Imagery task moderated the impact of participants' prior contact on future contact intention. A mediated moderation analysis was computed to assess whether this moderation was mediated by uncertainty about a future interaction. Since the Sobel test cannot be used with mediated moderation (Judd et al., 2005), I used the method by Preacher and Hayes (2008). The interaction variable Imagery Task x Contact was entered as a predictor while controlling for the predictors imagery task and contact. Imagery Task X Contact significantly predicted intentions (ß = -.34, t = -2.20, p = .035). The interaction also marginally significantly predicted the mediator, uncertainty (ß = .28, t = 1.76, p = .087). The path between uncertainty and intentions while controlling for the predictor was significant (ß = -.37, t = -2.32, p = .027). When the mediator was controlled, the relationship between imagery task x contact and contact intention became non-significant (β = -.23, t = -1.55, p = .132). The overall model was significant, $F(4, 31) = 4.65$, p = .005 (see Figure 12). The 95% BCa CI obtained by bootstrapping of 5000 subsamples was: {-.53, .01}. Uncertainty mediated the relationship between Imagery Task X Contact and intentions. Imagined

contact enhanced future contact intentions of participants low in prior contact because their uncertainty about a future interaction was reduced.

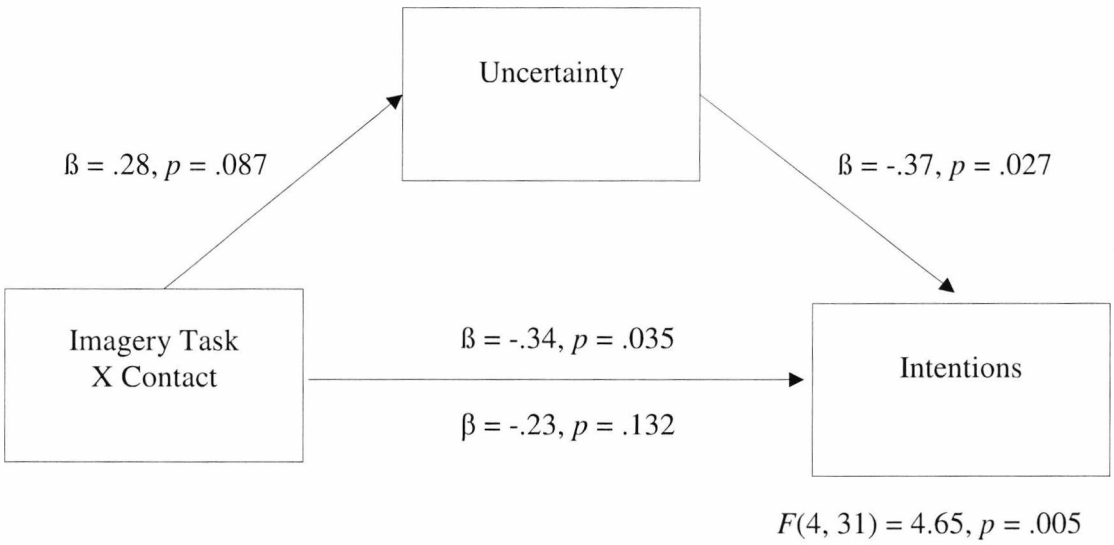

Figure 12. Uncertainty as mediator of the relationship between Imagery Task X Contact and intentions, Experiment 7.

6 EXPERIMENT 8: VIVIDNESS ABILITY

6.1 Introduction

a) Ability to generate mental images

Previous research suggested that the greater one's ability to generate vivid mental images, the more accessible are those mental images in memory (Petrova &

Cialdini, 2005). Mental imagery influences likelihood judgments and memory tasks. For instance, participants rely on the ease of generating a mental image of an event to determine the likelihood with which the event is occurring (S. J. Sherman et al., 1985). Participants with higher vividness of mental imagery were more accurate in a memory task that involved recalling photographs than participants with lower vividness of mental imagery (Marks, 1973). When imagining outgroup contact, the vividness of the emerging mental images plays an important role. An elaborated version of the imagined contact task produced stronger effects due to reduced intergroup anxiety and enhanced perceived vividness of the imagined scenario (Husnu & Crisp, 2010a). In this research, I tested whether the ability to generate mental images in general affects the effectiveness of imagined contact.

b) Uncertainty

Contact with outgroup members induces threat in members of dominant groups as well as in minority group members. Blascovich et al. (2001) argued that intergroup contact decreases threat by reducing the unfamiliarity of the outgroup, and when the novelty of a situation is reduced, the situation becomes less uncertain (Blascovich et al., 2001). Drawing upon the analogies between direct and imagined contact, mentally simulating contact could have a similar effect. Experiment 7 has shown that uncertainty mediates the interactive effect of imagery task and contact on intentions. Uncertainty reduction is proposed to be an important factor in explaining the relationship between familiarity and liking (Lee, 2001). Furthermore, uncertainty about one's impression on outgroup members is a strong part of intergroup anxiety (Devine, Evett, & Vasquez-Suson, 1996; Frey & Tropp, 2006; Plant & Devine,

2003). In this research, I tested whether imagined contact reduces intergroup anxiety because of uncertainty being reduced.

6.2 Aims and Hypotheses

I focused my investigation on the interplay between *intergroup contact* and the ability to generate vivid mental images. I explored how differences in one's vividness ability affect the efficacy of imagined contact. My central hypothesis is that the imagined contact scenario will be more vivid for individuals with a high ability to generate vivid mental images in general. Furthermore, research has shown that imagined contact is reducing intergroup anxiety (Abrams et al., 2008; Turner et al., 2007). Therefore, I also expected imagined contact to be more effective in reducing intergroup anxiety for individuals high in vividness ability. Since uncertainty seems to play an important role in threat perceptions, I expected intergroup anxiety to be reduced because uncertainty about a future interaction is reduced.

6.3 Method

a) Participants

Thirty-five young psychology students (32 female, 3 male), aged between 18 and 27 (M = 19.34, SD = 1.88), were randomly allocated to one of the two imagery task conditions: One half were asked to imagine meeting an older adult for the first time (imagined contact condition), the other half had to imagine an outdoor scene

(control condition). Participants received course credits as reward for their participation.

b) Procedure and measures

Participants were told that the study aimed to investigate "mental images and opinions about elderly people in the UK". In the 'visual imagery' part of the study, individual differences in the ability to generate mental images were measured. Then, participants were randomly assigned to one of the two imagery task conditions. Participants in the *control condition* were asked: "Please take a moment to imagine an outdoor scene. Try to imagine aspects of the scene (e.g., is it a beach, a forest, are there trees, hills, what's on the horizon)." Participants in the *imagined contact condition* received the following instruction: "Please take a moment to imagine yourself meeting an elderly person for the first time. Imagine that the interaction is positive, relaxed, and comfortable." Following this, to reinforce the effects of the imagery task, all participants were instructed to list the things they saw in the scene they just imagined.

Then, vividness of their mental imagery was measured. In the 'opinions' part of the study, participants received measures of intergroup anxiety and uncertainty about a future interaction with an older adult. Finally, participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Independent Measure

Vividness ability. To measure individual differences in the ability to generate mental images, participants completed the Vividness of Visual Imagery Questionnaire (Marks, 1973). Items were recoded such that higher scores represented higher vividness ability. A composite vividness ability score was created by the mean of these items ($\alpha = .77$).

Dependent Measures

Vividness of mental imagery. Vividness of the imagined scenario was measured by the statement "In my mind, the scenario I imagined is…" (Husnu & Crisp, 2010a). Participants reported on five items how *faint-vivid*, *fuzzy-clear*, *dim-bright*, *vague-sharp*, and *dull-lively* the imagery was on a semantic differential ranging from 1 to 9. A composite vividness score was created by the mean of these items ($\alpha = .88$), higher scores represented higher vividness.

Intergroup anxiety. To measure anxiety concerning a future interaction with an older adult, participants were asked "If you were to meet an elderly person in the future, how do you think you would feel?" followed by 10 items from the scale by Stephan and Stephan (1985). Participants reported how awkward, suspicious, embarrassed, defensive, anxious, happy (reversed), comfortable (reversed), self-conscious, confident (reversed) and careful they would feel on a 7-point Likert-scale (1 = *not at all*, 7 = *very much*). Items were recoded such that higher scores represented higher intergroup anxiety. A composite intergroup anxiety score was created by the mean of these items ($\alpha = .67$).

Uncertainty. To measure expected uncertainty about a future interaction with an older adult, participants were asked "If you were now asked to have a conversation with an elderly stranger, how uncertain would you be about it?" on a 9-point Likert-scale (1 = *not at all*, 9 = *very much*).

6.4 Results and Discussion

Means, standard deviations and correlations between all measures can be found in Appendix A.

a) Vividness of mental imagery

To assess the interaction between imagery task (imagined contact vs. control) and ability to generate mental images on vividness of mental imagery, a moderated regression was used. There was a main effects of imagery task (ß = -.42, $t(32) = -2.80$, $p = .009$) and vividness ability (ß = .42, $t(32) = 2.76$, $p = .010$). Imagining an older adult led to a less vivid mental image compared to the control condition, and the higher the vividness ability, the more vivid was the mental image. More importantly, the analysis revealed the predicted marginally significant interaction between imagery task and vividness ability on vividness of mental imagery, ß = .28, $t(31) = 1.97$, $p = .057$, R square change = .08 (see Figure 13).

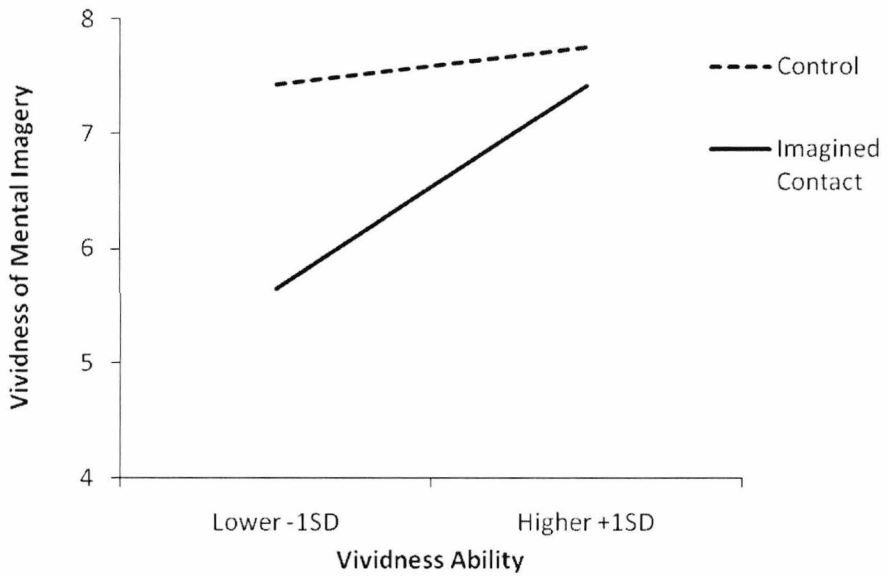

Figure 13. Vividness of mental imagery as a function of imagery task and vividness ability, Experiment 8.

When imagining an older adult (but not when imagining an outdoor scene), higher vividness ability enhanced the vividness of the mental image, $\beta = .62$, $t(31) = 3.20$, $p = .003$ (and $\beta = .18$, $t(31) = 0.72$, $p = .477$, respectively). Looking at differences between the imagery task conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of vividness ability, mental images were more vivid in the control condition when vividness ability was low ($\beta = -.71$, $t(31) = -3.46$, $p = .002$), but when it was high, both conditions did not differ ($\beta = -.13$, $t(31) = -0.64$, $p = .526$).

b) Intergroup anxiety

To assess the interaction between imagery task (imagined contact vs. control) and vividness ability on intergroup anxiety, I computed the same analysis as for

vividness of mental imagery. There was a main effect of imagery task, ß = -.36, $t(32)$ = -2.22, p = .034. Intergroup anxiety was lower after imagined contact compared to the control condition. There was no main effect of vividness ability, ß = -.12, $t(32)$ = -0.73, p = .473. More importantly, the analysis revealed the predicted significant interaction between imagery task and vividness ability on intergroup anxiety, ß = -.32, $t(31)$ = -2.06, p = .048, R square change = .10 (see Figure 14).

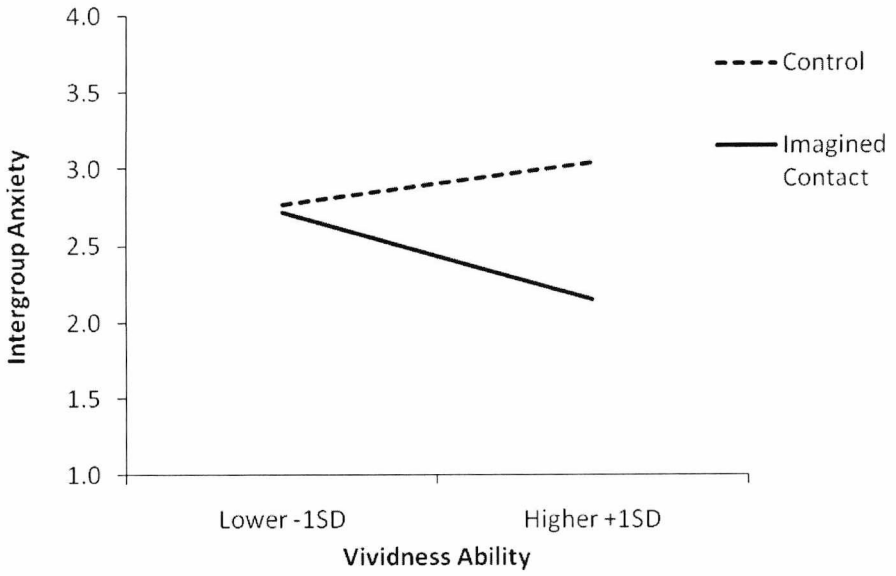

Figure 14. Intergroup anxiety as a function of imagery task and vividness ability, Experiment 8.

In the imagined contact condition (but not in the control condition), vividness was negatively related to intergroup anxiety, β = -.53, $t(31)$ = -2.49, p = .018 (and β = .20, $t(31)$ = 0.77, p = .447, respectively). Looking at differences between the imagination conditions at higher (+1 *SD*) and lower levels (-1 *SD*) of vividness

ability, intergroup anxiety was significantly higher in the control condition when vividness ability was high (β = -.69, $t(31)$ = -3.10, p = .004), but when it was low both conditions did not differ (β = -.04, $t(31)$ = -0.18, p = .862).

In sum, vividness ability moderated the impact of imagined contact on vividness of mental imagery and intergroup anxiety. A higher ability to generate mental images was associated with more vivid images. Mental images were less vivid when imagining an outgroup member compared to imagining an outdoor scene. Higher vividness ability helped to improve the vividness of imagined contact, raising the vividness of the mental image up to the same level as in a control condition. Imagining positive contact with an outgroup member generally reduced intergroup anxiety compared to a control group. When individuals had low vividness ability, there was no difference in intergroup anxiety between both conditions. However, high vividness ability helped imagined contact to reduce intergroup anxiety.

c) Mediation

I then computed a mediation analysis to assess whether the effect of imagery task on intergroup anxiety was mediated by variation in uncertainty. Imagery task significantly predicted intergroup anxiety, β = -.38, t = -2.38, p = .023. Imagery task also significantly predicted the mediator, uncertainty, β = -.46, t = -2.97, p = .006. The path between uncertainty and intergroup anxiety while controlling for the predictor was significant (β = .46, t = 2.82, p = .008). When the mediator was controlled, the relationship between imagery task and intergroup anxiety became non-significant (β = -.17, t = -1.03, p = .310). A Sobel test was significant (Z = -2.11, p = .035). The 95% BCa CI obtained by bootstrapping of 5000 subsamples was: {-

.34, -.03}. The effect of imagery task on intergroup anxiety was mediated by reduced uncertainty (see Figure 15).

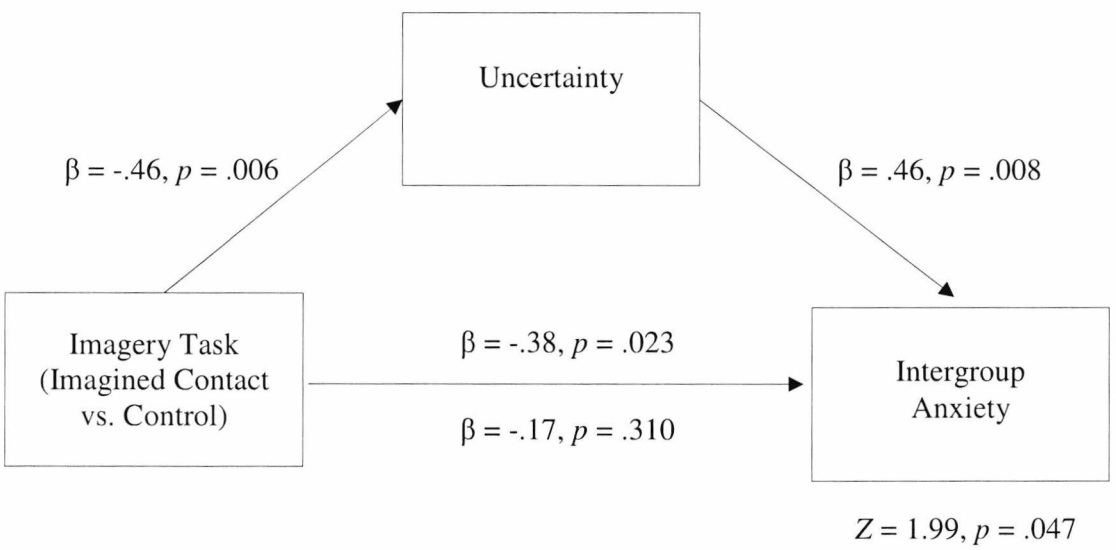

Figure 15. Uncertainty as mediator of the relationship between imagery task and intergroup anxiety, Experiment 8.

In sum, imagining positive intergroup contact, compared to imagining an outdoor scene, reduced uncertainty about a future interaction with an older adult, intergroup anxiety towards older adults and vividness of mental imagery. The effect of imagining intergroup contact on intergroup anxiety was mediated by reduced uncertainty.

7 DISCUSSION

One finding of Chapter 4 was that imagined contact enhances perceptions of tolerance and reduces the difficulty of communicating with an outgroup member. In *Experiment 5*, I explored meta-cognitive processes of imagined contact. The results showed that ingroup members find it easier to communicate with an outgroup member after having imagined a positive encounter first, and because they perceive this communication as less difficult, they in turn perceive themselves as more tolerant towards the outgroup.

While Experiments 1 to 4 in Chapter 4 demonstrated that imagined contact plays a moderating role in the relationship between intergroup anxiety and prejudice, I explored two further potential factors which could interact with imagined contact: prior outgroup contact and the ability to generate mental images. I examined whether the effectiveness of imagined contact is contingent upon previous contact experiences with outgroup members; in particular, whether lower levels of pre-contact outgroup experiences makes imagining intergroup contact more difficult and whether this detracts from the effectiveness of the approach. Across two studies, I showed consistently that imagined contact can compensate for the negative impacts of lower levels of prior contact. Furthermore, I examined whether the effectiveness of imagined contact increases with a higher ability to generate mental images. I showed that a high vividness ability facilitates the positive effect of imagined contact.

This work has extended past research on imagined contact by identifying two new factors that interact with the effectiveness of imagined contact: prior outgroup contact and vividness ability. In the following section I summarize the key findings and explore implications.

Having established the compensatory benefits of imagined contact as they relate to intergroup anxiety, in *Experiment 6* I tested a more distal predictor of intergroup perceptions, and one upon which intergroup anxiety is predicated, prior intergroup contact. I found that under control condition prior contact quality was positively related to intergroup evaluations, while in the imagined contact condition outgroup evaluation was positive regardless of prior contact quality. In other words, imagined contact with a gay man compensated evaluation for the negative effects of low prior contact quality. I also sought converging evidence that what was difficult to people who have had negative experiences of the outgroup is the imagined contact task, not the task of making evaluations. In Experiment 4, I did this by showing that subjective reports of the difficulty of the subsequent task were unrelated to Stroop interference. In Experiment 6, I asked participants directly how difficult they found the imagined contact task. In the control condition, the imagined task was unrelated to contact. As predicted, the difficulty of the imagined contact task was indeed correlated with the amount of prior contact. The less prior contact participants had the more difficult they found the imagined contact task, mirroring the effects on Stroop performance in Experiments 3 and 4.

In *Experiment 7*, I found that under control conditions prior contact quantity was positively related to future contact intentions, while in the imagined contact condition future intentions were positive regardless of prior contact quantity. In other

words, imagining contact with an international student compensated for the negative effects of low prior contact quantity on intentions. I also showed that compared to a control condition in which lower contact predicted higher expected uncertainty in a future interaction, this relationship was eliminated following imagined contact with an international student. In other words, imagined contact compensated for the negative impacts of low prior contact, and reduced uncertainty down to levels reported by people higher in prior contact. Uncertainty mediated the relationship between Imagery Task X Contact and contact intentions.

In *Experiment 8*, I examined whether a high ability to generate mental images in general could facilitate the positive effect of imagined contact. Vividness ability moderated the impact of imagined contact on vividness of mental imagery and intergroup anxiety. Higher vividness ability helped to improve the vividness of imagined contact, raising the vividness of the mental image up to the same level as in a control condition. High vividness ability also helped imagined contact to reduce intergroup anxiety. The effect of imagining intergroup contact on intergroup anxiety was mediated by reduced uncertainty.

7.1 Implications

The present work contributes to the literature on improving intergroup relations, focusing on understanding how to best encourage people to *engage* in contact; and how to make that contact successful when it is initiated.

I demonstrated that even when imagined contact is difficult when prior contact experiences are low, it can improve outgroup evaluation and future contact intentions. These findings provide further support to the efficacy of mental

simulation as a cognitive-behavioural intervention, providing a tool for individuals low in prior contact.

Mental images are more accessible in memory, the greater one's ability to generate vivid mental images (Petrova & Cialdini, 2005). Imagined contact is proposed to make an image of a positive encounter with an outgroup member more accessible and ready to retrieve. This research demonstrates that mental simulation can be especially effective when one's ability to generate vivid mental images is high. This implies that if individuals' ability to generate vivid mental images could be improved, imagined contact could be even more successful in promoting, encouraging and enhancing harmonious intergroup relations.

Research on imagined contact has shown that the positive effect of imagined contact on intergroup attitudes and stereotype threat is mediated by reduced anxiety (Abrams et al., 2008; Turner et al., 2007). Intergroup contact could lead to less threat by reducing the unfamiliarity of the outgroup, making the situation becomes less uncertain (Blascovich et al., 2001). I have shown that anxiety is reduced because uncertainty about an intergroup encounter is reduced. Imagined contact could provide individuals with uncertainty-reducing resources.

In sum, these experiments show that the efficacy of imagined contact as an intervention is high when individuals have low prior contact experiences, and when they have a high ability to generate mental images. This research shows further that imagined contact can be used as a compensatory measure – a way of helping individuals who have experienced lower prior contact to engage positively and effectively in actual intergroup contact.

CHAPTER 6

AN EXPOSURE THERAPY APPROACH TO REDUCING PREJUDICE

1 OVERVIEW

One of the ways in which therapists treat anxiety disorders is to expose patients to fear-evoking stimuli within a safe environment before encouraging more positive stimulus-related thoughts. This research adapted the psychotherapeutic principles of exposure therapy to promote tolerance towards stigmatized groups. I tested the hypothesis that imagining an expectancy-disconfirming positive encounter with a stigmatized group member would be more likely to promote tolerant attitudes when preceded by an expectancy-confirming negative encounter. The results of three experiments, targeting a range of different stigmatized groups (adults with schizophrenia, gay men, and Muslims), supported this hypothesis. Compared to purely positive interventions, both single exposure and multiple exposure to positive simulations, imagining a single negative encounter just prior to a positive imaginal intervention resulted in significantly reduced prejudice. Furthermore, reduced anxiety uniquely derived from the mixed-valence imaginal task statistically explained enhanced intentions to engage positively with the previously stigmatized group in the future.

2 INTRODUCTION

The preceding chapters examined whether imagined contact can compensate negative pre-contact experiences, and I showed that imagining a single positive encounter with an outgroup member prevents prejudice normally observed for people high in intergroup anxiety and low in prior outgroup contact. Furthermore, previous research has established that a single exposure to positive imagined contact reduces anxiety and with this enhances attitudes and intentions. The aim of this chapter is to go beyond a single exposure to imagined contact and test the combination of positive mental imagery and negative mental imagery. While a single positive mental imagery has demonstrated a positive impact on intergroup relations, I asked whether combining it with a negative mental imagery can enhance this effect. This idea was inspired by the principles established in clinical psychology in the treatment of anxiety disorders.

2.1 Embracing Negativity

It is almost universally the case that psychological approaches to reducing prejudice try to promote *positive* perceptions of stigmatized groups. With good reason: These approaches have yielded some significant success in improving intergroup relations (Crisp & Turner, 2009; Pettigrew & Tropp, 2006; Pettigrew & Tropp, 2008; Pettigrew, 2009; Turner, Hewstone et al., 2007). In contrast, negative thoughts, feelings and beliefs about other groups are the foundation of the prejudice that pervades societies across the world (Paolini, Harwood, & Rubin, 2010). But

what if some small dose of negativity could be beneficial to these attempts to promote tolerance? Conversely, one of the ways in which therapists treat anxiety disorders is to first expose patients to fear-evoking stimuli *before* introducing positive images or experiences to counter the recurrent negative thoughts; an approach much more likely to diminish the anxiety associated with the phobic stimulus (see Holmes & Mathews, 2010). In this research, I draw upon principles used in the psychotherapeutic treatment of anxiety disorders to develop a short form of "exposure therapy" to "treat" prejudice against stigmatized groups, i.e., the (intergroup) anxiety provoking stimulus. My aim is to make use of the positive effects of exposure on anxiety, using a cognitive intervention which applies the exposure mechanism to intergroup context to reduce anxiety and promote more positive attitudes. I find that when it comes to promoting positive group perceptions, negativity is not all bad; and a small dose, administered just prior to a positively-focused intervention, can be surprisingly effective in reducing prejudice towards stigmatized groups.

2.2 Anxiety: The Aetiology of Prejudice

Research on contact has firmly established anxiety as perhaps the most important determinant of prejudice (Pettigrew & Tropp, 2011). Anxiety regarding negative consequences of intergroup contact in form of rejection, embarrassment or discrimination leads individuals to avoid contact with stigmatized groups, or when contact occurs, it leads to even more negative outgroup evaluations (Plant & Devine, 2003; Stephan & Stephan, 1985; Vorauer et al., 2000), compels individuals to rely on stereotypes (Stephan & Stephan, 1985; Wilder, 1993), and lowers the

communication quality (Gudykunst & Shapiro, 1996). This psychological reaction is reflected in a physiological threat response (Blascovich et al., 2001). However, when intergroup contact is successfully initiated, it reduces intergroup anxiety, a process which is commonly associated with reduction in prejudice (Islam & Hewstone, 1993; Pettigrew & Tropp, 2006; Pettigrew & Tropp, 2008; Voci & Hewstone, 2003). However, the people who are avoiding contact cannot benefit from its positive effects until the anxiety levels are reduced.

Research developing interventions to reduce prejudice have correspondingly focused on combating anxiety about interacting stigmatized groups. Most notable amongst these approaches is intergroup contact theory (Allport, 1954; Brown & Hewstone, 2005; Pettigrew & Tropp, 2006; Pettigrew & Tropp, 2008). According to a recent meta-analysis of over 500 contact studies, reduced anxiety is the primary mechanism through which exposure (i.e, contact) reduces prejudice (Pettigrew & Tropp, 2006; Pettigrew & Tropp, 2008), and much work has shown anxiety to be a major mediator in prejudice reduction (e.g., Blascovich et al., 2001; Page-Gould et al., 2008; Paolini et al., 2004; Pettigrew, 1998; Stephan et al., 1999; Stephan et al., 2002; Voci & Hewstone, 2003).

Given the central importance of anxiety for reducing prejudice it therefore makes sense to develop interventions that specifically target anxiety. To do this I looked beyond intergroup relations research to other fields to find specialized approaches to reducing specifically anxiety: the psychotherapeutic treatments for anxiety disorder. What I find in this literature qualifies the practical truism that to reduce prejudice we must unequivocally promote positive perceptions to combat

stigma and discrimination, and that a little negativity can go a long way in combating the root cause of social anxiety.

2.3 Reducing Anxiety through Exposure: Psychotherapeutic Approaches

a) Exposure therapy

A common, disorder-maintaining symptom in anxiety disorders (e.g., post-traumatic stress disorder PTSD, social phobia, or specific phobias such as animals or height) is negative imagery (Hirsch & Holmes, 2007). Research in clinical and cognitive psychology proposes a special link between mental imagery and emotion, especially anxiety (Holmes & Mathews, 2005; Kosslyn, 1994). Clinical treatments of anxiety disorders therefore focus on repeating or modifying such images with the aim of reducing their emotional power. Early forms of treatment used imagery as part of a desensitization approach for treating phobias (Wolpe, 1959), while more recent forms use cognitive therapy (Hirsch, Clark, Mathews, & Williams, 2003).

Cognitive-behavioural therapy (CBT) is a well-established treatment of anxiety disorders that targets dysfunctional emotions, cognitions and behaviours. Negative automatic cognitions of anxiety disorders can take the form of both verbal thoughts and mental images. CBT is especially effective when it targets these negative images (Hirsch & Holmes, 2007).

Exposure therapy (e.g., Foa et al., 1991) is one of various therapeutic approaches of CBT and is known to be effective in treating anxiety disorders. Exposure therapy (also referred to as systematic desensitization, imaginal exposure or in vivo exposure) confronts the patient with fear-evoking objects or situations

within a safe environment, instructing patients to actively visualize and describe the phobic stimulus. The rationale for exposure therapy is that it gradually extinguishes the fear response, which was learnt through classical conditioning and maintained through negative reinforcement of avoidance, and leads to habituation of emotional responses (Foa & Kozak, 1986).

Similarly, in systematic desensitization, therapists work with the client to form a graduated anxiety hierarchy and to tackle anxiety with concomitant relaxation techniques, as these are antagonist to an anxious physiological state. Typically, the presentation of hierarchy items to the client in a relaxed state is achieved through detailed, imaginal exposure. The technique has been repeatedly found to be a very effective way to reduce anxiety (Choy, Fyer, & Lipsitz, 2007; Frank, Anderson, Stewart, & Dancu, 1988; Himle, 2007; Rothbaum & Schwartz, 2002; Tarrier et al., 1999; Wolpe, 1959).

In their emotional-processing theory, Foa and Kozak (1986) argue that fear emerges through a development of a fear memory which elicits escape and avoidance. Their logic is based on Lang's (1977; 1979) bio-informational theory of emotional imagery in which fear represents a network in memory, the "fear structure". These cognitive representations contain stimulus information, responses to the stimulus (verbal, physiological and behavioural), and interpretive information about meaning (threat or danger). Exposure therapies operate through emotional processing, which is defined as "the modification of memory structures that underlie emotions" (p. 20). Successful therapies can modify this fear structure if two conditions are met: the activation of the fear structure, and incorporation of incompatible information into it. First, only if the fear memory is activated, can it be

modified. Second, corrective information must be available to form a new memory structure that replaces the old, anxiety-provoking structure. The therapy fails if these conditions are not met, for example because of cognitive avoidance or overvalued ideation (Foa & Kozak, 1986).

b) Special link between mental imagery and emotion

Research in clinical and cognitive psychology proposes a special link between mental imagery and emotion, especially anxiety (Holmes & Mathews, 2005; Kosslyn, 1994). Imagery has a more powerful effect on emotions like anxiety than verbal processing (Holmes & Mathews, 2005; Holmes, Geddes, Colom, & Goodwin, 2008; Holmes, Mathews, Mackintosh, & Dalgleish, 2008), and even prevents negative mood more effectively than verbal thinking ("cognitive vaccine", Holmes, Lang, & Shah, 2009). Mental imagery influences emotions in both positive and negative ways (Holmes & Mathews, 2010). In Holmes and Mathews (2005), participants received descriptions of unpleasant scenarios. One half imagined these events, the other half thought about their verbal meaning. Participants in the imagery condition experienced a greater increase in anxiety compared to participants in the verbal condition. Mental imagery not only induces greater negative affect (Holmes & Mathews, 2005), but also greater positive affect (Holmes, Mathews, Dalgleish, & Mackintosh, 2006), than verbal processing.

Research on social phobia has emphasized how negative imagery can be detrimental for social interactions. Social phobia is a form of anxiety that occurs in social situations. Individuals fear interacting with other people and being negatively evaluated by them, especially in unfamiliar situations. As a result, individuals tend to

avoid these situations. Self-imagery influences anxiety and behaviour in both individuals high and low in social anxiety. The negative self-imagery of people high in social anxiety led to anxiety and reduced the quality of a conversation with another person (e.g., conversational flow, interestingness of conversation). Creating a non-negative self-imagery of being relaxed in a social situation in people with social anxiety reduced anxiety and led to a better performance rated by a conversational partner (Hirsch, Meynen, & Clark, 2004). Participants low in social anxiety who adopted a negative self-image prior to giving a speech reported greater anxiety and showed lower performance compared to participants who adopted a positive self-imagery (Hirsch, Mathews, Clark, Williams, & Morrison, 2006). The authors conclude that negative imagery plays a causal role in developing and maintaining social anxiety.

Since imagery has such a great impact on emotion and social interactions in clinical psychology, it should be made useful as a tool for promoting positive intergroup relations.

2.4 This Research: Imagined Contact as an Exposure Intervention

Drawing on the principles of emotional processing in exposure therapies to intergroup context, I conceived of stigmatized groups as type of "phobic stimulus", and intergroup anxiety as a non-pathological "fear structure". If this analogy holds, then just as activating negative thoughts and feelings associated with the phobic stimulus before introducing positive counter-veiling thoughts is maximally effective at decreasing negative reactions in the treatment of anxiety disorders (Foa & Kozak, 1986), this should also be the case in when tackling negative perceptions of

stigmatized groups. In clinical therapy, relaxation is central to modify fear structures (Borkovec & Sides, 1979). However, since intergroup anxiety is not a pathological fear, it is not necessary in this research to include a relaxation stage.

Negative contact alone has been shown to be detrimental for intergroup relations (Paolini et al., 2010), targeting negative imagery and exposing patients to fear-evoking stimuli in clinical therapy has been shown to treat anxiety disorders.

In three experiments I therefore tested the hypothesis that pre-positive negative imagery would enrich and enhance, rather than reduce, the impact of receiving positive information about stigmatized groups. More specifically, I asked whether the consideration of both, negative and positive information, could actually enhance the effectiveness of mental articulation strategies compared to just positive information.

3 Experiment 9: Reducing Intergroup Anxiety

3.1 Aims and Hypotheses

In clinical therapy, two steps are effective in reducing anxiety. Patients are confronted with anxiety provoking objects or situations to activate the fear memory, and once this is activated it can be modified through corrective information (Foa & Kozak, 1986). Experiment 9 was designed to test whether imagining negative contact with an outgroup member can activate intergroup anxiety, or in clinical terms the fear structure. In a second step, imagining positive contact is expected to reduce intergroup anxiety even more compared to a repeated simulation of positive contact.

In Experiment 9, I sought preliminary support for the hypothesis, derived from principles underlying exposure therapy, that imagining a negative-then-positive experience with the stigmatized group would be more effective at reducing intergroup anxiety than imagining positive-then-positive experience. Although seemingly counter-intuitive, this hypothesis is derived from firm theory and research in psychotherapeutic methods, and, if substantiated, would establish an important new principle in research developing interventions to reduce prejudice. In this first study I focused, perhaps appropriately, on stigma towards people with mental health problems; specifically adults with schizophrenia (see West et al., 2011). Adults with schizophrenia are not only disliked groups like groups of different sexual orientation or age they are additionally stereotyped as dependent, unpredictable, or even dangerous and prone to violence, and can arouse feelings of fear (Angermeyer & Dietrich, 2006).

3.2 Method

a) Participants

Twenty-nine participants without mental health problems (25 female, 4 male), aged between 18 and 38 (M = 21.14, SD = 4.96) took part in my online study, and were randomly allocated to one of the two imaginal exposure conditions. One half was asked to imagine two positive contact situations with an adult with schizophrenia one after another (positive-positive imaginal exposure condition), the other half imagined a negative contact situation first and then a positive contact situation (negative-positive imaginal exposure condition). One participant of the

initial sample size $N = 30$ had to be excluded from the analysis because he indicated that he completed the same study with a different outgroup earlier. All participants had no mental disability. Participants received credits as reward for their participation.

b) Procedure and measures

Participants were told that the study aimed to investigate "imagery and group perceptions". Then, participants were randomly assigned to one of the two imaginal exposure conditions. Participants in the *positive-positive imaginal exposure condition* were first asked: "Please take a moment to imagine yourself meeting an adult with schizophrenia for the first time. Imagine that the interaction is positive, relaxed, and comfortable." Participants in the *negative-positive imaginal exposure condition* received the following instruction: "Please take a moment to imagine yourself meeting an adult with schizophrenia for the first time. Imagine that the interaction is negative, tense, and uncomfortable." Following this, to reinforce the effects of the imaginal exposure , all participants were instructed to write down what they imagined in as much detail as possible. Subsequently, they completed the intergroup anxiety questionnaire.

Then, all participants received the same second imagined contact instruction: "Please take a moment to imagine yourself meeting another adult with schizophrenia for the first time. Imagine that the interaction is positive, relaxed, and comfortable." As before, they were instructed to write down what they imagined in as much detail as possible. Then, they completed the second measure of intergroup anxiety. Finally,

participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Dependent Measures

Intergroup anxiety. Anxiety concerning a future interaction with adults with schizophrenia was measured after both imaginal exposure conditions. Participants were asked "The next time you find yourself in a situation where you might interact with an adult with schizophrenia, to what extend do you think you will feel..." followed by 10 items from the scale by Stephan and Stephan (1985). Participants reported how awkward, suspicious, embarrassed, defensive, anxious, happy (reversed), comfortable (reversed), self-conscious, confident (reversed), and careful they will feel on a 7-point Likert-scale (1 = *not at all*, 7 = *very much*). Items were recoded such that higher scores represented higher intergroup anxiety. A composite intergroup anxiety score was created by the mean of these items for *time 1* (α = .74) and *time 2* (α = .78). An anxiety change score between time 1 and time 2 was created by subtracting anxiety at time 2 from anxiety at time 1.

3.3 Results and Discussion

Means and standard deviations for all dependent measures can be found in Table 4.

Table 4

Means of anxiety as a function of imaginal exposure (Experiment 9)

	Imaginal Exposure				
	Positive-Positive	**Negative-Positive**	***t***	**df**	***p***
Anxiety Time 1	3.48 (0.48)	4.31 (0.80)	-3.35	27	.002
Anxiety Time 2	3.19 (0.45)	2.69 (0.81)	2.06	27	.050
Positive Pre-Post	3.48 (0.48)	2.69 (0.81)	3.17	27	.004

Note: Standard deviations shown in parentheses.

a) Intergroup anxiety

To determine whether a change in the valence of the imagined contact instruction influenced anxiety about a future interaction with an adult with schizophrenia, a mixed-model analysis was carried out. Imaginal exposure (positive-positive vs. negative-positive) was entered as between-participants factor, time (intergroup anxiety at time 1 vs. time 2) was entered as within-participants factor. The hypotheses were that imagining negative contact with an adult with schizophrenia would lead to higher intergroup anxiety than imagining positive contact. Also, imagining a positive contact after having imagined a negative contact first would lead to a higher decrease in intergroup anxiety, compared to imagining two positive contact situations. The results confirmed my hypotheses.

There was a significant main effect of time: Anxiety was significantly reduced between time 1 (M = 3.91, SD = 0.78) and time 2 (M = 2.93, SD = 0.70), $F(1, 27) = 48.17$, $p < .0005$. More importantly, the expected interaction between

imaginal exposure and intergroup anxiety was significant, $F(1, 27) = 23.61$, $p < .0005$.

To decompose this interaction, planned independent *t*-tests were computed separately for both time points. Unsurprisingly, at time 1, imagining a negative contact ($M = 4.31$) led to higher anxiety compared to imagining a positive contact ($M = 3.48$), $t(27) = -3.35$, $p = .002$. However, crucially, at time 2, despite participants in both conditions imagining a positive encounter, anxiety was *lower* after having first imagined a negative ($M = 2.69$) compared to a positive encounter ($M = 3.19$) at time 1, $t(27) = 2.06$, $p = .050$ (see Figure 16).[2]

---

[2] ***Anxiety change.*** Looking at anxiety change, imagining a positive interaction after a negative one resulted in a greater decrease in intergroup anxiety ($M = 1.62$, $SD = 0.89$) compared to imagining a positive interaction after a positive one ($M = 0.29$, $SD = 0.53$), $t(27) = -4.86$, $p < .0005$. Although theoretically less interesting, I note that anxiety changed as expected from time 1 and time 2. Thus, imagining a positive interaction at both time 1 and time 2 led to no change in reported intergroup anxiety ($M_{\text{time 1}} = 3.48$; $M_{\text{time 2}} = 3.19$), $t(13) = 2.01$, $p = .066$. Imagining a negative interaction at time 1 and then a positive interaction at time 2 led to significantly lowered anxiety ($M_{\text{time 1}} = 4.31$; $M_{\text{time 2}} = 2.69$), $t(14) = 7.06$, $p < .0005$.

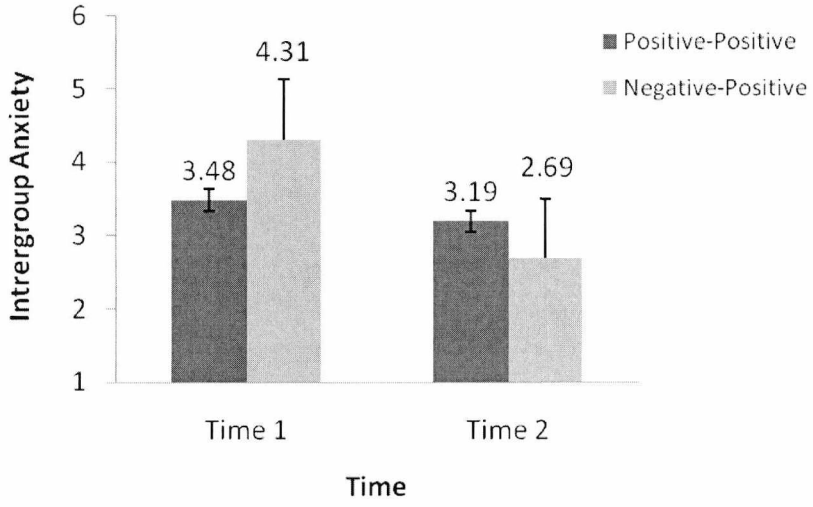

Figure 16. Anxiety at time 1 and time 2 as a function of imaginal exposure, Experiment 9.

b) Positive pre-post comparison

The pre-post test design I employed meant I could also compare time 2 anxiety in the negative-positive condition with time 1 anxiety in the positive-positive condition. This analysis confirmed that imagining positive contact after having imagined negative contact resulted in lower anxiety at time 2 (M = 2.69) compared to having imagined only one positive contact at time 1 (M = 3.48), $t(27) = 3.17$, p = .004.

In sum, I showed that imagining a negative intergroup encounter with an adult with schizophrenia enhanced intergroup anxiety. Furthermore, imagining a negative encounter first before imagining a positive encounter reduces intergroup anxiety to a greater extent compared to imagining two positive encounters.

4 EXPERIMENT 10: ENHANCING INTENTIONS VIA ANXIETY

4.1 Aims and Hypotheses

In Experiment 9 I established support for the basic principle, incorporated from exposure therapy, that negative feelings directed towards stigmatized groups were more effectively banished when imaginal exposure begins with a negative encounter. Imagining a negative experience with the group prior to imagining a positive experience led to a greater reduction in anxiety compared to imagining two positive encounters. This is consistent with emotional-processing theory (Foa & Kozak, 1986) and the idea that to counter negative associations in memory with positive information it is first necessary to activate the "fear structure" in memory. Experiment 10 sought to replicate this effect with a different target group, and to test whether the reduced anxiety elicited by this "intergroup exposure therapy" would drive broader changes in orientations towards the stigmatized group, namely future contact intentions.

4.2 Method

a) Participants

Thirty-two heterosexual male students, aged between 18 and 24 (M = 19.59, SD = 1.64) took part in my online study, and were randomly allocated to one of the two imaginal exposure conditions. One half was asked to imagine two positive contact situations with a gay man one after another (positive-positive imaginal exposure condition), the other half imagined a negative contact situation first and

then a positive contact situation (negative-positive imaginal exposure condition). Four participants of the initial sample size $N = 36$ had to be excluded from the analysis because two were female and two were homosexual. Participants received credits as reward for their participation.

b) Procedure and measures

The procedure was similar to Experiment 9. Participants were told that the study aimed to investigate "imagery and group perceptions". Then, participants were randomly assigned to one of the two imaginal exposure conditions. Participants in the *positive-positive imaginal exposure condition* were first asked: "Please take a moment to imagine yourself meeting a gay man for the first time. Imagine that the interaction is positive, relaxed, and comfortable." Participants in the *negative-positive imaginal exposure condition* received the following instruction: "Please take a moment to imagine yourself meeting a gay man for the first time. Imagine that the interaction is negative, tense, and uncomfortable." Following this, to reinforce the effects of the imaginal exposure, all participants were instructed to write down what they imagined in as much detail as possible.

Then, all participants received the same second imagined contact instruction: "Please take a moment to imagine yourself meeting another gay man for the first time. Imagine that the interaction is positive, relaxed, and comfortable." As before, they were instructed to write down what they imagined in as much detail as possible.

This time, intergroup anxiety was only measured after the second imaginal exposure task. Then, participants completed a measure of future contact intentions with gay men. Finally, they were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Dependent measures

Intergroup anxiety. Anxiety concerning a future interaction with gay men was measured as in Experiment 9. A composite intergroup anxiety score was created by the mean of constituent items for time 2 ($\alpha = .78$).

Future contact intentions. To measure intentions to engage in contact with gay men, participants responded to seven items (based on Husnu & Crisp, 2010a): "How much do you intend to interact with gay men in the future?", "How much do you expect to enjoy interacting with gay men in the future?", "How much time do you think you might spend learning about homosexuality in the future?", "How important do you think interacting with gay men is?", "How important do you think it is to learn more about gay men and homosexuality?", "How willing would you be to participate in a discussion group that includes both heterosexual men and gay men that will focus on issues of homosexuality in the UK?" and "How willing would you be to attend a gay club gathering to learn more about homosexuality?" on a 9-point Likert-scale with appropriate responses anchored from 1 = *not at all*, 9 = *very much*. A composite intentions score was created by the mean of these items ($\alpha = .87$).

4.3 Results and Discussion

Means and standard deviations for all dependent measures can be found in Table 5.

Table 5

Means of anxiety and intentions as a function of imaginal exposure (Experiment 10)

	Imaginal Exposure				
	Positive-Positive	**Negative-Positive**	***t***	**df**	***p***
Anxiety Time 2	2.81 (0.58)	2.18 (0.59)	3.06	30	.005
Intentions	3.99 (1.40)	5.25 (1.47)	-2.48	30	.019

Note: Standard deviations shown in parentheses.

a) Intergroup anxiety

To compare the anxiety level after negative-positive imagery to the anxiety level after positive-positive imagery, an independent *t*-test was carried out. The hypothesis was that imagining a positive contact after having imagined a negative contact first would lead to a higher decrease in intergroup anxiety, compared to imagining two positive contact situations. The results confirmed my hypothesis and replicated Experiment 9. Despite participants in both conditions imagining a positive encounter, anxiety was *lower* when having imagined a negative (M = 2.18) compared to a positive encounter (M = 2.81), $t(30) = 3.06$, p = .005.

b) Future contact intentions

An independent *t*-test was carried out to test whether imagining a positive contact after having imagined a negative contact first would lead to higher contact intentions, compared to imagining two positive contact situations. Future contact

intentions were higher in the negative-positive (M = 5.25) compared to the positive-positive condition (M = 3.99), $t(30) = -2.48$, $p = .019$.

c) Mediation

I then computed a mediation analysis to assess whether the effect of imaginal task (positive-positive vs. negative-positive) on future contact intentions was mediated by variation in intergroup anxiety. Imaginal exposure was recoded as -1 (positive-positive) and 1 (negative-positive).

Imaginal task predicted contact intentions ($\beta = .41$, $t = 2.48$, $p = .019$). Imaginal exposure also significantly predicted the mediator, time 2 intergroup anxiety ($\beta = -.49$, $t = -3.06$, $p = .005$). The path between intergroup anxiety and contact intentions while controlling for the predictor was significant ($\beta = -.46$, $t = -2.64$, $p = .013$). When the mediator was controlled, the relationship between imaginal exposure and contact intentions became non-significant ($\beta = .19$, $t = 1.08$, $p = .287$). A Sobel test was significant ($Z = 2.06$, $p = .039$). The 95% BCa CI obtained by bootstrapping of 5000 subsamples was: {.08, .83}. The effect of imaginal exposure on future contact intentions was mediated by intergroup anxiety (see Figure 17).

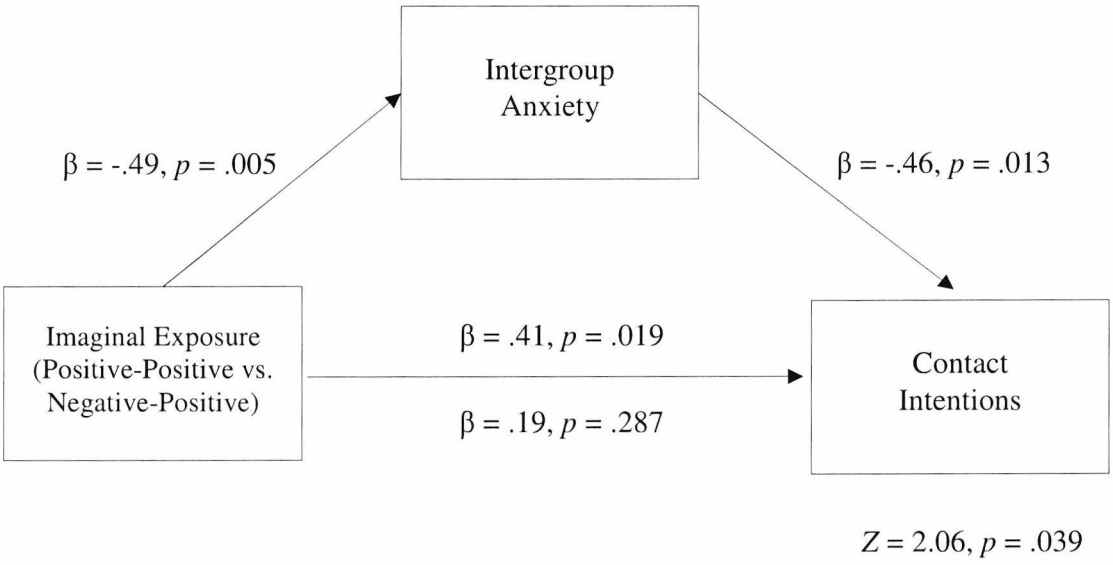

Figure 17. Intergroup anxiety as mediator of the relationship between imaginal exposure and contact intentions, Experiment 10.

In sum, I showed that imagining a negative intergroup encounter with a gay man first before imagining a positive encounter reduced intergroup anxiety to a greater extent compared to imagining two positive encounters. Furthermore, imagining a negative encounter prior to a positive imagined encounter improved future contact intentions towards gay men, an impact mediated by the reduced intergroup anxiety.

5 EXPERIMENT 11: ENHANCING INTENTIONS VIA ATTITUDES

5.1 Aims and Hypotheses

In Experiment 11, I sought to more closely align research on exposure therapy with research in reducing prejudice and to further enhance the generalizability of the observed effects. Previous work on mental simulation has been demonstrated to be an effective technique in many areas to enhance performance, for example in sports, health and academic performance (for a recent review Crisp et al., 2011). Contact imagery has examined the impact of positive contact imagery on attitudes and intentions after a single exposure (for a review see Crisp & Turner, 2009). This work has established a mediational route from positive imagery to attitudes and intentions via intergroup anxiety (Husnu & Crisp, 2010a; Turner et al., 2007).

While imagining positive encounters with outgroup members has proven highly successful, this has not been equivocally the case (e.g., Stathi & Crisp, 2008; Experiments 1 and 2) and the effectiveness of mental imagery in combating prejudiced thoughts does vary depending upon the way the task is implemented (e.g., Crisp et al., 2010; Crisp & Husnu, 2011; Husnu & Crisp, 2010a; Husnu & Crisp, 2010b). Understanding when, why and how mental imagery can most effectively promote positive perceptions is critical for improving the effectiveness of imagery-based approaches.

I therefore compared affective orientation and intentions following this standard single exposure imaginal task with affective orientation and intentions following the combined negative-positive imaginal task used in Experiments 9 and 10. While this no longer controls for the number of exposures, we know from Experiments 9 and 10 that the effects cannot be attributable to this, and what we gain is a closer direct comparison with existing work on prejudice reduction. In addition I made two further changes. First, instead of simply measuring anxiety I employed a more generic measure of positive feelings towards the stigmatized group, one that is used frequently in the literature on prejudice reduction. If reduced anxiety is driving more general changes in affective orientation towards the stigmatized group, then convergent support should be gleaned from consonant, but relevant measures of affective reaction. Second, I shifted focus to a third group who suffer from stigmatization: British Muslims.

5.2 Method

a) Participants

Twenty-two British non-Muslim students[3] (13 female, 9 male), aged between 18 and 41 (M = 21.05, SD = 4.56), were randomly allocated to one of the two imaginal exposure conditions. One half was asked to imagine one single positive contact with a British Muslim stranger (positive imaginal exposure condition), the other half imagined a negative contact situation first and then a positive contact

[3] The data was collected by the research assistant Amy King. Data preparation, analysis, interpretation were carried out by the author of this thesis, Michèle D. Birtel.

situation (negative-positive imaginal exposure condition). Participants received a small payment (£3) as reward for their participation.

b) Procedure and measures

The procedure was similar to that employed in Experiments 9 and 10. Participants were told that the study aimed to investigate "imagery and group perceptions". Then, participants were randomly assigned to the two imaginal exposure conditions. Participants in the *positive imaginal exposure condition* were asked: "I would like you to take a minute to imagine yourself meeting a British Muslim stranger for the first time. Imagine that the interaction is positive, relaxed and comfortable." Participants in the *negative-positive imaginal exposure condition* received the following instruction: "I would like you to take a minute to imagine yourself meeting a British Muslim stranger for the first time. Imagine that the interaction is negative, tense and uncomfortable." Following this, to reinforce the effects of the imaginal exposure, all participants were instructed to write down what they imagined in as much detail as possible and were timed for one minute.

Participants in the *negative-positive condition* received a second imagined contact instruction: "I would now like you to take a minute to imagine yourself meeting another British Muslim stranger for the first time. Once again/This time, imagine that the interaction is positive, relaxed and comfortable." As before, they were instructed to write down what they imagined in as much detail as possible and were timed for one minute.

Then, all participants completed measures of affective orientation towards British Muslims, and future contact intentions. Finally, participants were asked to

complete demographic information and suspicion probes before being thanked and debriefed.

Dependent measures

Positive affect. Affective orientation towards British Muslims was measured by asking participants to describe on six items how they feel about British Muslims in general on a semantic differential ranging from 1 to 9 (based on Wright et al., 1997): *cold-warm, positive-negative* (reversed), *friendly-hostile* (reversed), *suspicious-trusting, respectful-contempt* (reversed) *and admiration-disgust* (reversed). Items were recoded such that higher scores represented more positive feelings towards British Muslims (i.e., lower prejudice). A composite positive affect score was created by the mean of these items (α = .87).

Future contact intentions. To measure intentions to engage in contact with British Muslims, participants responded to seven items (based on Husnu & Crisp, 2010a): "How much do you intend to interact with British Muslims in the future?", "How much do you expect to enjoy interacting with British Muslims in the future?", "How much time do you think you might spend learning about Islam in the future?", "How important do you think interacting with British Muslims is?", "How important do you think it is to learn more about British Muslims and Islamic beliefs?", "How willing would you be to participate in a discussion group that includes both Muslims and non-Muslims that will focus on issues of religious and cultural differences in the UK?" and "How willing would you be to attend a mosque gathering to learn more about Islamic beliefs and practices?" on a 9-point Likert-scale with appropriate responses anchored from 1 = *not at all*, 9 = *very much*. A composite intentions score was created by the mean of these items (α = .86).

5.3 Results and Discussion

Means and standard deviations for all dependent measures can be found in Table 6.

Table 6

Means of positive affect and intentions as a function of imaginal exposure (Experiment 11)

	Imaginal Exposure				
	Positive	**Negative-Positive**	***t***	**df**	***p***
Positive affect	5.37 (1.02)	6.89 (1.09)	-3.36	20	.003
Intentions	4.77 (0.89)	6.62 (1.44)	-3.52	20	.002

Note: Standard deviations shown in parentheses.

a) Positive affect

To determine whether a change in the valence of the imagined contact instruction influenced affective orientation towards British Muslims, an independent *t*-test was carried out. The hypothesis was that imagining a positive contact after having imagined a negative contact first would lead to more positive affect, compared to imagining one positive contact situation only. The results confirmed my hypothesis. Positive affect was higher in the negative-positive (M = 6.89) compared to the positive condition (M = 5.37), $t(20) = -3.36$, $p = .003$.

b) Future contact intentions

To determine whether a change in the valence of the imagined contact instruction influenced future contact intentions with British Muslims, an independent *t*-test was carried out. The hypothesis was that imagining a positive contact after having imagined a negative contact first would lead to higher contact intentions, compared to imagining one positive contact situation only. The results confirmed my hypothesis. Future contact intentions were higher in the negative-positive ($M = 6.62$) compared to the positive condition ($M = 4.77$), $t(20) = -3.52$, $p = .002$.

c) Mediation

I then computed a mediation analysis to assess whether the effect of imaginal exposure (positive vs. negative-positive) on future contact intentions was mediated by variation in affective orientation. Imaginal exposure was recoded as -1 (positive) and 1 (negative-positive).

Imaginal exposure predicted contact intentions ($\beta = .62$, $t = 3.52$, $p = .002$). Imaginal exposure also significantly predicted the mediator, positive affect ($\beta = .60$, $t = 3.36$, $p = .003$). The path between positive affect and contact intentions while controlling for the predictor was significant ($\beta = .62$, $t = 3.50$, $p = .002$). When the mediator was controlled, the relationship between imaginal exposure and contact intentions became non-significant ($\beta = .25$, $t = 1.42$, $p = .172$). A Sobel test was significant ($Z = 2.47$, $p = .013$). The 95% BCa CI obtained by bootstrapping of 5000 subsamples was: {.24, 1.10}. The effect of imaginal exposure on future contact intentions was mediated by positive affect (see Figure 18).

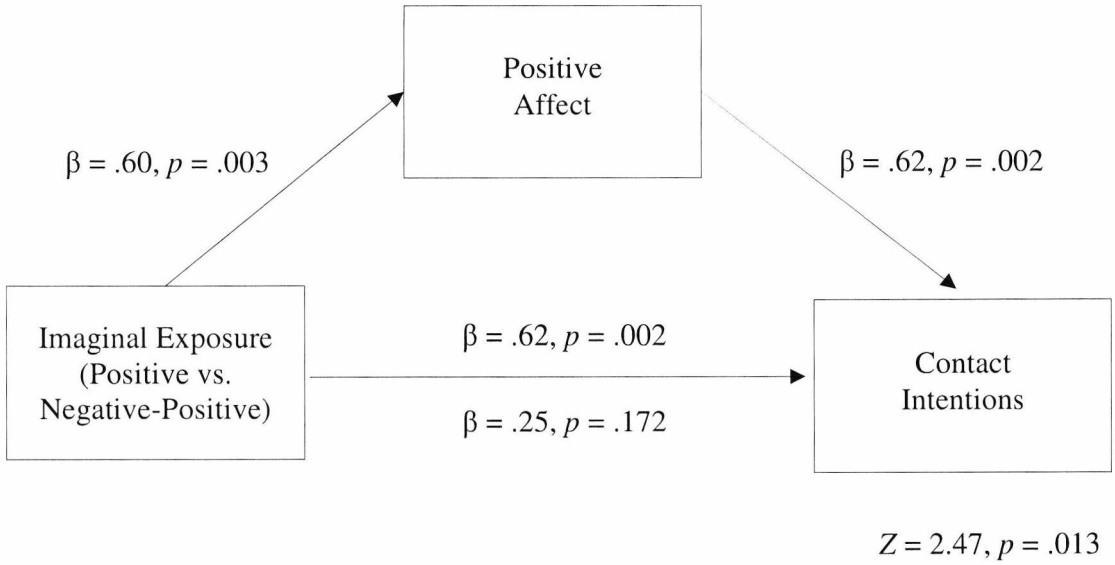

Figure 18. Positive affect as mediator of the relationship between imaginal exposure and contact intentions, Experiment 11.

In sum, Experiment 11 showed that imagining a negative intergroup encounter with a British Muslim prior to a standard positive imagined contact instruction helped to improve positive affect towards British Muslims and future contact intentions. Furthermore, in line with the theory underlying exposure therapy, intentions to engage in future contact with British Muslims were enhanced because the negative-then-positive exposure order elicited more positive feelings about British Muslims.

6 DISCUSSION

In psychotherapy two steps are effective in reducing anxiety. Patients are confronted with anxiety provoking objects or situations to activate the fear memory, and once this is activated it can be modified through corrective information (Foa & Kozak, 1986). I tested whether adapting the principle of pre-positive negative imaginal exposure would enhance the effectiveness of subsequent positive imaginal exposure. Previous research on reducing prejudice has established the benefits of positive imaginal exposure to stigmatized groups (Turner et al., 2007). In three experiments I tested an application of principles from exposure therapy to interventions designed to promote positive perceptions of stigmatized groups. The results confirmed my hypotheses.

In Experiment 9 participants without mental health problems who imagined a positive encounter with an adult with schizophrenia after having imagined a negative one, experienced less intergroup anxiety compared to participants who engaged in two imagined positive encounters. In Experiment 10, heterosexual male participants who imagined a positive encounter with a gay man after having imagined a negative one, experienced less intergroup anxiety and through this reported greater future contact intentions compared to participants who engaged in two imagined positive contacts. In Experiment 11, British participants who imagined a negative encounter with a British Muslim before imagining a positive one, reported greater intentions towards British Muslims compared to participants who engaged in a single positive

imaginal exposure, a tendency that was mediated by the development of more positive feelings towards the previous stigmatized group.

6.1 Implications

This is the first time that research has demonstrated that an imagery intervention based on principles established in clinical therapy can be applied to an intergroup contact context. The negative impact of anxiety is a link between research on psychotherapies and social interventions aiming to promote more positive intergroup relations. The studies reported in this chapter demonstrate the efficacy in exploring convergences between the two domains. Intergroup anxiety contaminates or even prevents interactions between conflicting groups. The prospect of intergroup contact can evoke both the subjective experience of intergroup anxiety (Pettigrew, 1998) and a physiological threat response (Blascovich et al., 2001). Part of the justification for imaginal exposure interventions is that they provide a way of introducing intergroup contact to individuals who might otherwise be disinclined to entertain such thoughts. It is an important endeavour to cognitively introduce contact to individuals who might otherwise be disinclined to entertain such thoughts (due to high levels of intergroup anxiety – a defining feature of disharmonious intergroup relations). This is because individuals come to recognize that interacting with an outgroup member does not entail negative consequences. Having nothing to fear from intergroup contact, individuals feel more self-confident and comfortable. Furthermore, reduced intergroup anxiety in turn reduces prejudice (Islam & Hewstone, 1993; Paolini et al., 2004; Voci & Hewstone, 2003).

Previous research has established the benefits of imaginal exposure to stigmatized groups. Imagined *positive* exposure reduces prejudice against a range of different target groups (Harwood et al., 2011) including the basis of age (Turner et al., 2007), nationality (Stathi & Crisp, 2008), sexuality (Turner et al., 2007), ethnicity (Husnu & Crisp, 2010b; Stathi & Crisp, 2008), mental health (West et al., 2011) and religion (Husnu & Crisp, 2010a; Turner & Crisp, 2010). I have shown for the first time that a *negative* tone can be helpful, when it is used in a controlled setting and a positive tone follows. This work also demonstrates the value in integrating insights from other areas, like clinical psychology, developing maximally effective intervention strategies. The research reported in this chapter supports the idea that such imaginal interventions should not necessarily be unequivocally positive, but that a small dose of negativity can more effectively reduce the intergroup anxiety and improve intergroup perceptions.

In general, research has found that negative information has a larger weight than positive information (negativity bias, Cacioppo & Berntson, 1994; Ito, Larsen, Smith, & Cacioppo, 1998), for example in impression formation (N. H. Anderson, 1965; Fiske, 1980), risk taking (Kahneman & Tversky, 1984), or physiological, cognitive, emotional or social responses to negative events (Taylor, 1991). Since negative information is more salient than positive information, in intergroup context, negative contact experiences will be more influential in affecting attitudes than positive experiences, something that has been suggested as contributing to the pervasiveness of prejudice (Paolini et al., 2010). Perhaps, therefore, we should not be avoiding negativity, but embracing it, using its power to change intergroup attitudes and through this behaviour.

A possible alternative explanation for my findings could be contrast effects. Social judgments and emotional states can produce contrast effects (e.g., Mussweiler, 2003). If contrast effects explain my results, then anxiety towards the outgroup is lower and future contact intentions are higher after a negative-positive mental imagery compared to a positive-positive mental imagery because the outgroup is perceived as more positive in the context of a negative imagery than in the context of a positive imagery. Future research needs to be conducted to rule out contrast effects as the mechanism driving my findings, and to further support the fear structure activation hypothesis.

6.2 Applications

Outgroup stereotypes and prejudices are hard to change, and disconfirming (positive) information can often be subtyped (Bless, Schwarz, Bodenhausen, & Thiel, 2001; Kunda & Oleson, 1995), subgrouped (Richards & Hewstone, 2001), ignored (Lyons & Kashima, 2003) or have only a minimal impact on negative perceptions. Changing stereotypes is difficult, even in context of stereotype-inconsistent information (Kunda & Oleson, 1995; Weber & Crocker, 1983). People tend to interpret ambiguous behaviour as stereotype-consistent (Darley & Gross, 1983) and to search for stereotype-consistent information (Snyder & Swann, 1978). Furthermore, stereotypes lead to stereotype-consistent behaviour as a result of self-fulfilling prophecy (Snyder, Tanke, & Berscheid, 1977). Imagined contact goes beyond providing positive information about the outgroup, it is able to change negative emotions. A vast amount of research has demonstrated the powerful connection between mental imagery and emotions, and the power of imagined

contact on attitudes, cognition, intentions and behaviour in intergroup relations. Imagined intergroup contact is a potentially safe, effective and simple cognitive intervention to prepare people for positive intergroup relations.

It is important to explore various imagined contact variants to create the most successful intervention to bring harmony into intergroup relations. Previous research has shown that several variants can be used to enhance the imagined contact effect, for example an elaborated version (Husnu & Crisp, 2010a), adopting a third-person perspective (Crisp & Husnu, 2011), or adding positive information (West et al., 2011). One of the key elements of imagined contact has been emphasized to be the positivity of the instruction (Crisp & Turner, 2009). This positive tone not only works better than a neutral tone (Stathi & Crisp, 2008), it also prevents participants from taking a negative tone, especially when their anxiety is high and their attitudes are low. I have shown for the first time that a negative tone can be helpful, when it is used in a controlled setting and a positive tone follows. Applying principles of other areas, like clinical psychology, should be considered to develop most effective imagery instructions.

CHAPTER 7

REMEMBRANCE OF CONTACT PAST: CONTACT MEMORIES PREDICT PATTERNS OF PREJUDICE

1 OVERVIEW

Research on the contact hypothesis has demonstrated a robust negative relationship between self-reported recall of contact experiences and prejudice. But are these self-reports invariably objective, or is there some malleability? This research highlights the importance of memory in the subjective experience of intergroup relations. Experiment 12 established that recalling positive contact (compared to negative contact) enhanced outgroup attitudes and self-efficacy in a future intergroup interaction because it reduced intergroup anxiety. In Experiments 13 and 14 I found that this basic positive relationship was moderated by contextual factors that alter the subjective ease of memory retrieval. Lower prior contact was associated with lower perceived self-efficacy in a future contact after having recalled five memories compared to only one encounter (Experiment 13), and it was associated with higher reported difficulty in recalling five positive memories (Experiment 14). High-contact people benefited from recalling five memories, which enhanced perceived tolerance towards the outgroup. Recall difficulty mediated the relationship between recall and tolerance (Experiment 14). I conclude that harnessing the meta-cognitive processes involved in recalling intergroup contact may have considerable power to reduce prejudice.

2 INTRODUCTION

2.1 Recalling Intergroup Contact

Mental simulation can be a replay of past events, a cognitive construction of hypothetical events, or a mixture of real and hypothetical events (Taylor & Schneider, 1989). In other words, mental simulation involves the imitative representation of either an imagined event (e.g., a future scenario) or a real event (e.g., a memory for a past scenario).

Research on episodic memory suggests that remembering the past and imagining the future share psychological and neural processes (for an overview see Schacter & Addis, 2008). Episodic memory is the memory that enables people to recollect past experiences. This type of memory is highly adaptive because it also allows individuals to draw on past experiences to imagine future scenarios. Schacter and Addis (2008) stated that the simulation of future episodes is not an exact repetition of past episodes, it is rather a flexible extraction and recombination of elements of a past episode. Cognitive, neuropsychological and neuroimaging evidence supports their constructive episodic simulation hypothesis.

The previous chapters have focused on simulation of a hypothetical event through imagined contact, this chapter focuses on the simulation of a past actual event through recalled contact. As we have seen in Chapter 5, simulating hypothetical events was experienced as difficult for individuals who had little experience with these events, i.e., low prior contact with an outgroup member. Simulating a past real event may therefore be a valuable alternative as a cognitive intervention based on mental imagery. People spontaneously engage in mental

simulation and therefore are practiced in imagining new or recalling past experiences (Taylor & Schneider, 1989). While the positive effects of simulating hypothetical events are explored in previous research, this part focuses on the power of human memory to improve intergroup relations.

When people are asked to report how much contact they have had with members of a particular group in the past, they report more positive attitudes towards that group (for a meta-analysis see Pettigrew & Tropp, 2006). People who had negative experiences with people not belonging to their own group (e.g., a young person meeting an older adult) are likely to experience anxiety regarding a future encounter. They may feel concerned about behaving in an incompetent or inappropriate manner, or about the person from the other group responding negatively or offensively (Stephan & Stephan, 1985).

While encouraging for efforts to reduce prejudice, I argue that this research has not taken into account the subjective nature of memory. Recall is subject to specific biases that can substantively change the nature of what is recalled. In particular, memory researchers have found that people make judgments based on not only what they can recall, but the subjective ease with which they can recall it (e.g., Schwarz et al., 1991). The self-reported contact literature has assumed, until now, that subjective reports of contact are based on an objective recall of the content of contact memories – I contend that a critical component of a greater understanding of contact effects requires an assessment also of the subjective experience of recalling that contact.

In three experiments I explored this proposition. In Experiment 12 participants who recalled positive contact were less prejudiced and more confident about future

contact with the outgroup because they felt less anxious. This suggests that, like imagined contact, recalling specific contact experiences reduces prejudice because it makes individuals less uncertain about future contact (on affective and cognitive dimensions). In Experiments 13 and 14 I find that the subjective ease with which people recall these positive encounters can be predicted by prior actual contact experiences, and that when participants had low prior contact they report lesser confidence for future contact and have more difficulty recalling positive contact experiences. These findings have considerable implications for implementations of the contact hypothesis. Educators working under the assumption that more contact is good may be working under the wrong assumption. When it comes to possible interventions involving the recollection of contact past, less, it seems, is more sometimes. Before linking the literature on imagined contact with recalled contact, I will explain why memory plays such an important role in human life.

2.2 Why is Memory Important?

Imagine you are sitting alone at a table outside a café. All other tables are occupied. While you are watching many people pass by, a German woman stops at your table and asks whether she could join you for a coffee since there is a free chair at your table. You agree and you both start talking. The next day, you tell a friend about this encounter and your friend wants to know what the woman was like and what you talked about. Now, what will you remember from this encounter? Will you remember for example that she was a tourist from Bavaria, talking about the typical Bavarian food, the traditional Dirndl and Lederhosen, and the one litre beer glasses, or will you remember that the German woman likes to paint in her leisure time, that

she has a cat, and rides her bike to work every morning? Both contact memories would be different, in the first place you would recall stereotypical content, in the latter case you would focus on individual traits. You could even recall a negative memory, remember that you felt uncomfortable talking to a German person, being reminded of the Second World War and therefore just being polite but not particularly enjoying the conversation, not knowing what to say or ask. What happens during an intergroup encounter and which contact memories people possess and access, is different. There are many examples when prejudice and intergroup anxiety prevent people from conflicting groups from seeking communication.

Why human memory is so important becomes clear when researchers examine patients with brain damage whose memory is impaired. Baddeley (1990), for example, described the case of Clive Wearing who had been infected by the virus encephalitis which caused amnesia. As a result, Clive lost his memory for details of his past life, a great amount of his general knowledge about the world (semantic memory), and was not able to learn new information.

2.3 Autobiographical Memory

Memory is defined as the processes of encoding, storing and retrieving information that is acquired through people's senses (Baddeley, 1990) and has been experimentally studied since Ebbinghaus (1885) published his groundbreaking *Memory: A contribution to experimental psychology* in 1885. Memory is vital to human beings, it allows individuals to remember their past life and to learn new information. Since memory plays such an important role, I argue that memories of

past experiences can alter present experiences, and I argue that this could be useful in enhancing harmonious relations between conflicting individuals and groups.

The memory for one's past life events is called autobiographical memory (Conway & Rubin, 1993). It contains lifetime periods (i.e., major ongoing situation), general events (i.e., events lasting days to months) and event-specific knowledge (e.g., images and feelings). Autobiographical memory is important for people's construction of their personal identity. When the recall of life events fails, the sense of identity is lost. The relation between autobiographical memory and personal identity is reciprocal. Memories about the past are malleable, i.e., a person's current self (i.e., self-views, beliefs and goals) influence how people recall their past. In turn, recalled memories influence the current self (A. E. Wilson & Ross, 2003).

Research on dementia shows the importance of autobiographical memory for subjective well-being. Dementia decreases life satisfaction mainly because the decline in autobiographical memory leads to a loss of personal and social identity, the reduced cognitive ability plays a less important role (Jetten, Haslam, Pugliese, Tonks, & Haslam, 2010).

2.4 Memory is Subjective and Prone to Error

Remembering one's past life and comparing it to the present life may not always be an accurate process. Memories can be prone to error (e.g., repressed memories, Loftus, 1993; memory illusions Roediger, 1996), and biased by for example one's emotional mood at the time of encoding and recall (Bower, Gilligan, & Monteiro, 1981), directional self-questions (Kunda, Fong, Sanitioso, & Reber, 1993), retell perspective taken prior to recall (B. Tversky & Marsh, 2000) or implicit

theories about one's personal history (M. Ross, 1989). However, remembering our past events is not always prone to error. We tend to rely on heuristics, e.g., when events are recalled vividly and rich in detail we are more confident that the event happened (generation heuristic, Whittlesea & Leboe, 2000). The generation heuristic can lead to false memories when imagined events interfere with real events (Loftus & Pickrell, 1995).

There has been initial work on memory in intergroup contexts, focusing on false memories. Several factors can lead to false memories in intergroup contexts. Both activation and suppression of stereotypes can evoke false memories of stereotypes (Lenton, Blair, & Hastie, 2001; Peters, Jelicic, & Merckelbach, 2006). Participants who read a list of stereotypically female or male roles showed enhanced false recognition rate of stereotypically consistent roles and traits in the Deese-Roediger-McDermott (DRM) paradigm (Lenton et al., 2001). Dissonance occurring after an imagined interaction can lead to a positive attitude change (McIntyre, Lord, Lewis, & Frye, 2004), the lack of experience in a crime situation can lead to stereotypic interpretation of the perpetrator's behaviour (Lindholm, Christianson, & Karlsson, 1997), and direct eye contact in same-race faces results in the cross-race memory effect, i.e., the difficulty in recognizing and processing faces of members of a different race (Adams, Pauker, & Weisbuch, 2010). I am extending this research to the contact domain.

2.5 Nostalgia

Recent research on nostalgia supports the idea that meta-cognition in recalling contact is important. Nostalgia, defined as "a sentimental longing for the

past" (The New Oxford Dictionary of English, 1998, p. 1266), is a self-relevant, social and predominantly positive emotion that has a range of benefits for the social self (Zhou, Sedikides, Wildschut, & Gao, 2008). For example, bringing to mind a nostalgic compared to an ordinary event, experimentally induced nostalgia increases positive affect and self-esteem (Wildschut, Sedikides, Arndt, & Routledge, 2006). Nostalgia further produces perceptions of social support, and of social competence and empathy. When a nostalgic event is brought to mind, people estimate a higher number of friends they have, feel protected and loved, and report lower attachment anxiety and attachment avoidance (Wildschut et al., 2006; Wildschut, Sedikides, Routledge, Arndt, & Cordaro, 2010; Zhou et al., 2008). Because of its positivity and capacity to engender social connectedness, nostalgia leads to "an expansive state of mind" (Kaplan, 1972, p. 465) or an approach orientation (Stephan et al., 2011), and through this new relationships are possible (Turner et al., in press).

While it is well established that nostalgia is an important emotion in an interpersonal context, recent research has tested its role in intergroup context. Turner et al. (in press) have, for example, tested an extension of imagined contact which involves getting participants to *recall* a nostalgic past encounter with an outgroup member.

Turner et al. hypothesised that by increasing people's sense of social connectedness and their positive orientation towards others in general, recalling a nostalgic past encounter with an outgroup member might lead to more positive attitude towards outgroup members. Compared to imagined contact, rather than imagining an interaction with an outgroup, participants were asked to recall, and then *imagine* themselves back at the scene of, a past nostalgic encounter with an

overweight person. Across two studies, it emerged that recalling a nostalgic encounter with an overweight person (compared to an ordinary encounter) enhanced positive outgroup attitudes. This relationship was mediated by increased inclusion of the outgroup in the self, intergroup trust, and perception of a common ingroup identity, and reduced intergroup anxiety.

The positive impact of imagined contact based on a nostalgic recall approach shows that autobiographical memories can be a source of imagined contact. Although people might not spontaneously engage in nostalgic mental imagery, however, research shows that recalling memories in an intergroup context can improve intergroup relations. This research provides insight into how capitalizing upon the known propensity for people to recall past memories might benefit cognitive interventions based on mental imagery.

Work on nostalgia has shown that meta-cognition plays a role in memory in terms of the subjective feeling of positivity about memories. The research reported in this thesis looks from another angle: self-efficacy, i.e., the confidence one has in one's own capacity to function effective in future contact settings.

2.6 Self-Efficacy

I examined self-efficacy in Experiments 12 and 13 as a meta-cognitive judgment, perceiving oneself as confident in a future interaction. Self-efficacy plays a central role in behaviour and how challenges are approached (Bandura, 1986). It is defined as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (Bandura, 1995, p. 2). Self-efficacy determines people's attitudes, cognitions and behaviours (Bandura, 1994).

Recent work on imagined contact has shown that mentally simulating positive contact with an outgroup member enhances perceptions of contact self-efficacy. In three experiments, Stathi et al. (2011) found that non-Muslim participants who imagined an encounter with a British Muslim stranger rated themselves as more confident to engage in a future direct interaction compared to a control condition. Imagined contact on contact self-efficacy was maximally effective after a group-based version of imagined contact in which participants imagined positive things about the whole outgroup (Experiment 2), and when the imagined contact scenario involved a typical (versus atypical) outgroup member (Experiment 3).

Applying Bandura's theory on contact memory recall, I would expect that recalling positive contact heightens people's confidence to engage in intergroup encounters which are viewed as challenging (Stephan & Stephan, 1985).

2.7 The Subjectivity of Intergroup Contact Experiences

Much of the intergroup contact work is based upon self-reported, i.e., recalled, contact experiences. For example, people are asked to state the amount of contact "How many people from Africa do you know?" or "How frequently do you have contact with students coming from Africa?" on a Likert-scale (1 = *none/never*, 10 = *more than 10/very frequently*) or the contact quality, whether contact is perceived for example as equal, superficial or pleasant on a Likert-scale (e.g., Islam & Hewstone, 1993; Voci & Hewstone, 2003).

However, subjective reports of contact can be an unreliable measure of contact memory. Socially desirable responding and acquiescent responding are two factors that reduce the validity of self-reports (Hewstone, Judd, & Sharp, 2011;

Paulhus, 1991; Paulhus & Vazire, 2007). Acquiescence is the tendency of people to agree with whatever they are asked. Social desirability refers to the tendency of people to present themselves in an unrealistically positive light, especially when participants are asked about attitudes towards socially sensitive issues for which they either want to appear favourably to others (impression management) or when participants present themselves the way they want to appear to themselves (self-deception). The bias towards social desirability will be stronger the greater the social norm against prejudice towards a certain group is. Cook and Campbell (1979) emphasized that self-report data can be unreliable because participants can, instead of reporting their true feelings and beliefs, report according to the hypothesis they think the researcher holds.

Furthermore, Schacter (1999) has pointed out that human memory is fallible. It is prone to forgetting, distortions and intrusive recollections. Seven problems make our memory less reliable: (1) information gets less accessible over time (transience), (2) shallow processing creates weak memories (absent-mindedness), (3) information can be temporarily inaccessible (blocking), (4) misattribution, (5) suggestibility, (6) bias as a results of current beliefs, (7) memories that cannot be forgotten (persistence).

On the other hand, Hewstone et al. (2011) found that self-reports of intergroup contact can be valid. In comparing self- and observer reports of intergroup contact, they investigated whether judgements made by different observers match with each other and with the judgements made by the observant. Looking at the correlation between self-ratings, when asked to rate themselves and other group members on contact quantity and quality, cross-group friendship,

extended friendship and extraversion, participants rated themselves as higher on these variables compared to the extend they attributed to others. Looking at the correlation between self- and other-ratings, observers projected their own ratings onto others, if they judge themselves as high (low) on a dimension, others are also judged as high (low). Most importantly, looking at the correlation between other-ratings, when the target reported high contact, cross-group friendship, outgroup attitude, and extraversion (but not extended contact) then other observers consensually agreed with these self-ratings. Participants discriminated between ratings for different outgroups. Hewstone et al. (2011) come to the conclusion that their findings support the validity of self-reports of direct, but not extended, intergroup contact.

While the research described above demonstrates that the content of recalled contact memories can predict prejudice with a good deal of validity, the question remains whether *how* contact memories are recalled could influence their impact on attitudes. In the following studies I directly manipulated how contact memories are recalled.

2.8 Theoretical Model: Can Past Memories Influence Present Intergroup Experiences?

Since memory is so powerful, the present research combines memory research and research on prejudice. Contact memories may impact perceptions of outgroup members, depending on how people are asked to recall their memories for past experiences (e.g., contact valence, amount of contact), and depending on how much actual contact people had in the past.

I contend that a major, but under-researched, determinant of intergroup contact effects are meta-cognitions about recalling contact. In other words, it is not just what is recalled, it is the subjective experience of recalling the memories that is important. Turner et al. (in press) recently found that nostalgia, i.e., how people *feel* about contact memories, has a positive effect on prejudice. I contend that another meta-cognition – the subjective ease with which contact memories are recalled – also has an impact. Previous research on intergroup contact has assumed that the observed negative association between self-reported contact, which is essentially recalled contact, and prejudice is based upon the assumption that subjective recall is accurate. In this research, I put this assumption to test.

This research investigates whether the way of remembering past experiences, i.e., the *valence* of contact and the *amount* of recalled instances, can affect intergroup relations. My contention is that recalling positive contact leads to more positive evaluations of the outgroup and enhances confidence for future contact because it makes people feel less anxious that future contact will go well (Experiment 12). I asked whether the *quality* of recalled contact (positive, negative) affects outgroup evaluation and self-efficacy.

Second, if recalling a positive encounter makes individuals more confident about future contact than recalling a negative encounter, this may be due to the content recalled. However, perhaps it is not just the content of the recalled memories that matters, perhaps also the way individuals are asked to recall contact matters. I expect that not what but *how* individuals are required to recall, i.e., the amount of contact memories individuals are directed to recall, has an impact on their confidence for future contact (Experiment 13). I asked, whether the *quantity* of recalled contact influences meta-cognitive perceptions of one's self-efficacy in a

future interaction. I further expect that contextual moderators such as prior outgroup contact experiences may alter this relationship.

Third, Experiment 14 tests why the manner of recall is important. I expect that the perceived ease or difficulty with which contact memories are recalled is important. I expect that "less is more" for low-contact people, the more they have to recall, the more difficult they should find this.

Finally, I discuss the implications of these findings for current models of contact and prejudice reduction, and whether they could suggest new ways of reducing prejudice more effectively. More broadly, my findings illustrate the value in integrating cognitive approaches with research on intergroup relations.

Older adults were chosen as a target group of prejudice because research has shown that ageism is the most commonly experienced prejudice in Britain (Abrams, Eilola, & Swift, 2009). In Abrams et al.'s survey, over a quarter of participants reported to have experienced prejudice or discrimination because of age, and prejudice because of age was experienced more often than other forms of prejudice.

3 Experiment 12: Valence of Contact Memories

3.1 Aims and Hypotheses

While previous literature has tended to focus on improving attitudes and tolerance, this research will look at a new factor, the *confidence* in intergroup contact. Recalling positive contact is not only expected to reduce prejudice, but also to promote the *meta-cognition* of self-efficacy. Compared to subjective reports of

contact memories which are used in previous research, experimentally manipulating contact memories should have similar effects. Retrieving a positive contact memory should improve attitudes towards the outgroup, enhance confidence in future contact, and reduce anxiety, whereas retrieving a negative memory should result in negative effects. Anxiety mediates the relationship between contact and prejudice, therefore I expected anxiety to also mediate the relationship between recall and attitudes, as well as recall and self-efficacy.

3.2 Method

a) Participants

Fifty-one young psychology students (46 female, 5 male) of the University of Kent, aged between 18 and 27 (M = 19.16, SD = 1.52), were randomly allocated to one of the three recall conditions: One third had to recall a positive prior experience, one third had to recall a negative prior experience and the last third had no memory instruction. Thus, the study was a between-participants one-way design with three levels (memory: positive vs. negative vs. no). Participants received course credits as reward for their participation.

b) Procedure and measures

Participants were told that the study aimed to investigate "mental images and opinions about elderly people in the UK". First, they were randomly assigned to one of the three recall conditions. Participants in the *no recall condition* received no instruction. Participants in the *positive recall condition* were instructed: "Please

think of a positive encounter with an elderly person in your past and describe it here", participants in the *negative recall condition* were instructed to think of a negative encounter. To reinforce their memory, participants had to describe their encounter they have had with an older adult in the past. Then, participants received the dependent measures of intergroup anxiety, outgroup evaluation, and self-efficacy in a future contact situation with an older adult. Finally, demographic variables (age, gender, nationality, ethnicity, religion, subject, year of study) were gathered and participants had to indicate what they thought the study was about and whether they were suspicious at any point that the study was looking at something other than what was stated. Then, participants were thanked and debriefed.

Dependent measures

Intergroup anxiety. To measure anxiety concerning a future interaction with an older adult, participants were asked "If you were to meet an elderly person in the future, how do you think you would feel?" followed by 10 items derived from the scale by Stephan and Stephan (1985). Participants reported how awkward, suspicious, embarrassed, defensive, anxious, happy (reversed), comfortable (reversed), self-conscious, confident (reversed) and careful they would feel on a 7-point Likert-scale (1 = *not at all*, 7 = *very much*). Items were recoded such that higher scores represented higher intergroup anxiety. A composite intergroup anxiety score was created by the mean of these items ($\alpha = .80$).

Outgroup evaluation. To measure prejudice, participants stated their feelings towards older adults on a 101-point feeling thermometer ranging from 0 (*very cold*) to 100 (*very warm*). The thermometer has been used as a reliable measure

of intergroup attitudes in previous research (e.g., Esses et al., 1993; Haddock et al., 1993; Stangor et al., 1991).

Self-efficacy. To measure how participants perceive their ability to engage in a positive future interaction with an older adult, they were asked to estimate the amount of enjoyment, uncertainty and behavioural control they expect in that interaction. Participants were asked: "If you were now asked to have a conversation with an elderly person, how much do you think you would enjoy the experience?", "If you were now asked to have a conversation with an elderly stranger, how uncertain would you be about it?"(recoded) on a 9-point Likert-scale (1 = *not at all*, 9 = *very much*), and "If you were now asked to have a conversation an elderly person, do you think it would be difficult or easy?" on semantic differential *difficult-easy* ranging from 1 to 7, based on research in the attitude-behaviour-relationship literature (Ajzen & Madden, 1986). A composite self-efficacy score was created by the mean of these *z*-standardised items ($\alpha = .76$).

3.3 Results and Discussion

a) ANOVA

To determine whether recalling a positive experience, compared to recalling a negative or no experience, reduced intergroup anxiety towards older adults, enhanced outgroup evaluation, and enhanced expected self-efficacy in a future interaction, one-way analyses of variances (ANOVA) with three levels (positive vs. negative vs. no recall) were conducted.

Overall, recall had significant effects on *intergroup anxiety*, $F(2, 48) = 5.70$, $p = .006$, *outgroup evaluation*, $F(2, 48) = 3.43$, $p = .041$, and expected *self-efficacy*, $F(2, 48) = 4.28$, $p = .020$. To examine which recall conditions had significant effects, I carried out planned *t*-tests that reflected my precise predictions. I predicted that positive recall would lead to less intergroup anxiety, and to greater outgroup evaluation and self-efficacy compared to negative memory and to no recall. I further predicted that there should be no difference between the negative- and the no-recall condition on my dependent measures. The results confirmed my hypotheses. Means and standard deviations of all dependent measures are shown in Table 7.

Table 7

Intergroup anxiety, outgroup evaluation, and self-efficacy as a function of recall (Experiment 12)

	Recalled Contact					
	Positive		**Negative**		**No**	
	M	*SD*	*M*	*SD*	*M*	*SD*
Intergroup Anxiety	2.19	0.57	2.99	0.94	2.86	0.62
Outgroup Evaluation	82.75	10.92	71.11	17.54	75.88	8.15
Self-Efficacy	0.46	0.75	-0.29	1.00	-0.13	0.46

Note: Standard deviations shown in parentheses.

Firstly, compared to negative recall, positive recall led to lower intergroup anxiety ($t(32) = -2.96$, $p = .006$), and higher evaluation ($t(32) = 2.29$, $p = .029$) and higher self-efficacy ($t(32) = 2.44$, $p = .021$). Secondly, compared to no recall,

positive recall led to lower intergroup anxiety ($t(31) = -3.26$, $p = .003$), and higher evaluation ($t(31) = 2.06$, $p = .048$) and higher self-efficacy ($t(31) = 2.74$, $p = .010$). Thirdly, intergroup anxiety ($t(33) = 0.46$, $p = .649$), evaluation ($t(33) = -1.02$, $p = .314$) and self-efficacy ($t(33) = -0.60$, $p = .552$) and did not differ between the negative-recall and no-recall conditions.[4]

In sum, positive recall enhanced tolerance, self-efficacy and reduced anxiety; negative recall had no effect.

b) Mediational model

I then computed mediation analyses to assess whether the effects of recalling past contact experiences (positive vs. negative vs. no) on outgroup evaluation and on self-efficacy were mediated by variation in intergroup anxiety. Recall was recoded as 2 (positive recall), -1 (negative recall) and -1 (no recall).

---

[4] Using contrast analysis to test my specific hypotheses about recall of contact (Rosnow, Rosenthal, & Rubin, 2000), two contrasts were computed. The order of levels within the recall variable for all contrasts was: positive versus negative versus no recall. Contrast 1 tested differences between positive recall and the combination of negative and no recall. It was coded as +2 -1 -1. Contrast 2 tested the differences between positive and negative recall. It was coded as 0 +1 -1. I predicted that positive recall would lead to less intergroup anxiety, and to greater outgroup evaluation and self-efficacy compared to the combination of the other two conditions (Contrast 1 will be significant). I further predicted that there should be no difference between the negative- and the no-recall condition on my dependent measures (Contrast 2 will be non-significant). The results confirmed both hypotheses and I get exactly the same pattern of results: Contrast 1 was significant for *intergroup anxiety*, $t(48) = -3.33$, $p = .002$; for *outgroup evaluation*, $t(48) = 2.36$, $p = .022$; and for *self-efficacy*, $t(48) = 2.85$, $p = .006$. Contrast 2 was non-significant for *intergroup anxiety*, $t(48) = 0.50$, $p = .620$; for *outgroup evaluation*, $t(48) = -1.09$, $p = .282$; and for *self-efficacy*, $t(48) = -0.61$, $p = .545$. Intergroup anxiety was lower and outgroup evaluation and self-efficacy were higher in the positive-recall condition compared to the combination of negative- and no-recall conditions. There was no difference between negative-recall and no-recall condition.

Recall predicted *outgroup evaluation* ($\beta = .32$, $p = .021$) and *self-efficacy* ($\beta = .38$, $p = .006$). Recall also significantly predicted the mediator, intergroup anxiety, ($\beta = -.43$, $p = .001$). The path between intergroup anxiety and *outgroup evaluation* while controlling for the predictor was significant ($\beta = -.55$, $p < .0005$). The path between intergroup anxiety and *self-efficacy* while controlling for the predictor was significant ($\beta = -.54$, $p < .0005$). When the mediator was controlled, the relationship between recall and *outgroup evaluation* became non-significant ($\beta = .08$, $p = .525$), as well as the relationship between recall and *self-efficacy* ($\beta = .15$, $p = .248$). A Sobel test was significant for *outgroup evaluation* ($Z = 2.69$, $p = .007$). The 95% BCa CI obtained by bootstrapping of 5000 subsamples was: {.66, 5.08}. A Sobel test was also significant for *self-efficacy* ($Z = 2.68$, $p = .007$). The 95% BCa CI obtained by bootstrapping of 5000 subsamples was: {.05, .30}. The effect of recall on outgroup evaluation and on self-efficacy was mediated by reduced anxiety (see Figures 19 and 20). I also tested alternative models, looking at outgroup evaluation and self-efficacy as mediators of the relationship between recall and intergroup anxiety. Overall, using path analysis, my two suggested models with intergroup anxiety as the mediator had the best fit compared to my alternative models.

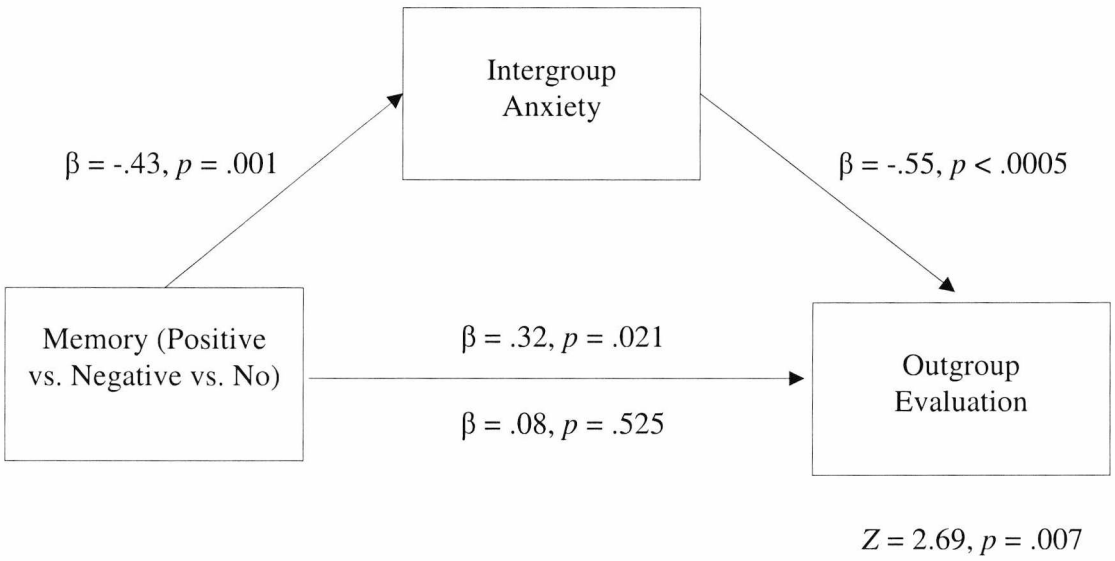

Figure 19. Intergroup anxiety as mediator of the relationship between memory and outgroup evaluation, Experiment 12.

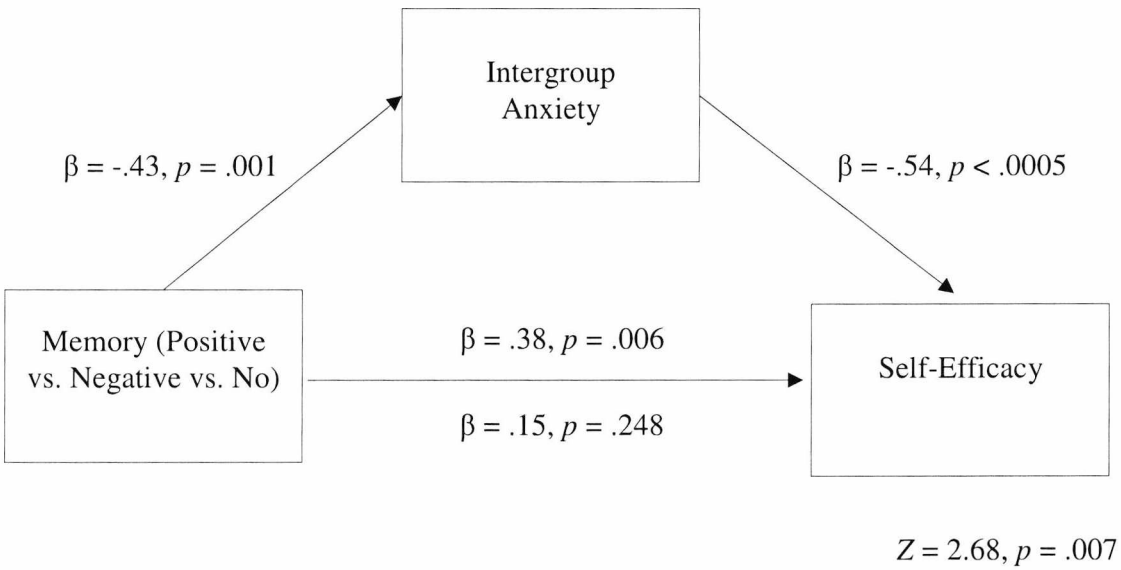

Figure 20. Intergroup anxiety as mediator of the relationship between memory and self-efficacy, Experiment 12.

These findings support the proposed model: As previous research suggested, I showed that recall affected outgroup evaluation. More importantly, recall affected the *confidence* individuals perceive for a future interaction with an outgroup member, depending on the valence of the remembered experience. Recalling a positive experience with an outgroup member, compared to recalling a negative and no experience, reduced anxiety towards older adults, and in turn enhanced outgroup evaluation as well as expected self-efficacy within a future situation. The positive effects of recalling past experiences on outgroup evaluation and self-efficacy were mediated by variation in anxiety.

4 Experiment 13: Amount of Contact Memories

4.1 Introduction

In Experiment 12, I have shown that even recalling one single positive encounter can promote more positive intergroup relations. Furthermore, recall not only reduced prejudice, it also promoted the meta-cognition of self-efficacy. Experiment 12 established that recalling contact has an effect on how individuals feel about their abilities in intergroup contact. However, the question is whether it is the *content* or *how* individuals recall contact memories. If content matters, reason now would suggest that recalling more positive encounters is even better. If it matters *how* individuals recall contact, keeping the valence of memories constant should not make a difference, but the amount of memories retrieved should have an impact on one's confidence in future contact. Therefore, in Experiment 13 I asked

whether effect of recall on self-efficacy is true for everyone or whether specific situations or experiences, i.e., prior contact, influence the effectiveness of the amount of recall.

a) Memory recall

Research has shown that autobiographical memories are not always accurate, and can be quite malleable depending upon current context. For example, eyewitnesses' memories are suggestible to post-event information, i.e., eyewitnesses often report details of an event that they did not actually observe but that were suggested to them (Loftus, Miller, & Burns, 1978). Imagining a counter-factual event raises people's confidence that this event really happened (imagination inflation; Garry & Polaschek, 2000). Imagining contrary-to-truth experiences not only changes the way people interpret their past, but also changes their memories for it. Imagining an event not only enhances the belief that the event actually occurred but also induces false autobiographical memories (Mazzoni & Memon, 2003). Participants either imagined a frequent event or a non-occuring event. Results revealed a significant increase in autobiographical belief and memory for imagined non-occuring events. Furthermore, the higher the plausibility of an imagined event, the clearer and more complete the memories were that participants experienced (Sharman & Scoboria, 2009).

Social cognition research has demonstrated an established bias in recall and meta-cognition. The accessibility of experiences is associated with the ease of recalling *past* information or the ease of generating thoughts, whereas the processing

fluency is associated with the ease of processing *new*, external information (Schwarz, 2004).

b) Processing fluency

Research has demonstrated a link between processing success and positive affect on perception (*perceptual fluency*, Reber, Winkielman, & Schwarz, 1998). This link extends beyond perception to recall, i.e., ratings of one's assertiveness (Schwarz et al., 1991) or memory ability (Winkielman, Schwarz, & Belli, 1998) are influenced by the subjective ease of recall (*ease of retrieval*).

Research on fluency has demonstrated a positive relationship between the *ease of perception* and *positive affect* (Reber et al., 1998; Winkielman & Cacioppo, 2001; Zajonc, 1968). Successful cognitive processing increases positive affect through a misattribution of the source of perceptual fluency. People rate a stimulus they have seen before as more pleasant at a later point (mere exposure effect, (Zajonc, 1968) because prior exposure increases the ease with which the stimulus is perceived at a subsequent time point. This perceptual fluency will be attributed to pleasantness (Jacoby & Dallas, 1981). When perceptual fluency is enhanced, liking judgments of the stimulus also increase (Reber et al., 1998).

Leboe and Ansons (2006) have shown that the positive feelings evoked by nostalgic experiences do not necessarily reflect a true memory of one's happy past, but are rather a result of *successfully recalling* a past event. Nostalgic experiences are rather a misattribution of the source of positive affect of a successful recall to a pleasant past. They argue that the effect of perceptual fluency (pleasantness judgments) is different from the effect of successful recall (attribution to positive

context). Whereas fluent perception leads to attribution of positive characteristics to a stimulus *itself*, successful recall leads to misattribution, i.e., remembering the *experience* with a stimulus as positive, using the vividness of the recollection as a basis for this judgment. A past experience can be remembered as positive, independently of the original valence, when participants can engage in a vivid recollection.

c) Ease of retrieval

Our future judgments and behaviours are influenced by knowledge we retrieve from our memory. When making judgments about things we retrieve information about past events that is stored in our long-term memory (Aarts & Dijksterhuis, 1999). Recollecting experiences not always undergoes an elaborate process, but often takes the form of heuristics which are an effortless way of making judgment based on the information that is available quickly, this means that the likelihood of an event is estimated "by the ease with which instances or associations come to mind" (*availability heuristic*, A. Tversky & Kahneman, 1973, p. 208). Meta-cognitive experiences can be informative about ourselves in their own right, and need to be considered in interplay with declarative information stored in our long-term memory. The ease with which thoughts are generated or the fluency with which new information is processed can be a basis, and even at the expense of accessible memory content, for obtaining judgments (Schwarz, 2004) The cognitive mechanism that underlies the availability heuristic is what Schwarz et al. (1991) call the *ease of retrieval,* i.e., the subjective ease with which recollective experiences come to mind is used as cue when forming judgments.

The phenomenon of ease of retrieval explains various situations in which information that we use to guide judgments and behaviour is rather based on the experienced ease of our recollective experiences than the objective content of our long-term memory (Schwarz et al., 1991); for instance *evaluation of one's self* (Schwarz et al., 1991), *frequency estimates of one's past actions* (Aarts & Dijksterhuis, 1999), *memory judgments* (Winkielman et al., 1998), *attitudes* (Wänke, Bohner, & Jurkowitsch, 1997) and *stereotyping* (Dijksterhuis, Macrae, & Haddock, 1999).

People who had to recall more examples about past events (e.g., assertiveness, bike rides, childhood events) or who had to generate more thoughts (reasons for choosing a BMW over a Mercedes, traits that differ between women and men) found this recall task more difficult, and because bringing more examples to mind took more effort, they evaluated themselves as less assertive (Schwarz et al., 1991), lower in frequency of their bike use in the past (Aarts & Dijksterhuis, 1999), and poor quality of their autobiographical memory (Winkielman et al., 1998) compared to people who had to recall less examples.

People also rated a BMW as less and a Mercedes as more favourable (Wänke et al., 1997), and they stereotyped less when performing an impression of a stereotypical person after recalling more stereotypical traits (Dijksterhuis et al., 1999). The ease of retrieval effect was found when one's motivation to be accurate is low (Aarts & Dijksterhuis, 1999), and among people low- but not high in prejudice (Dijksterhuis et al., 1999). When we form an impression of a person, we use the information that is retrieved easily from memory. High- and low-prejudiced people differ in their cognitive demands of retrieving information from memory. For

high-prejudiced people stereotypic thoughts are accessible easier and provide a basis for perception of people independently of the amount of information that has to be retrieved. Whereas for low-prejudiced people, stereotypic thoughts are retrieved under cognitive effort, and this effort is higher the higher the amount of thoughts is that needs to be retrieved (Dijksterhuis et al., 1999).

4.2 Aims and Hypotheses

I use the interaction between contact *frequency* and *quality* as a predictor of prejudice. An optimal combination of quantity and quality of contact has been shown to be stronger in reducing prejudice than a single index (Allport, 1954). Reminding people of positive contact in their past enhances their self-efficacy about negotiating intergroup interactions (Pettigrew & Tropp, 2011).

I expect self-efficacy, i.e., perceiving oneself as confident at the prospect of a future intergroup interaction, to increase with the subjective ease with which contact memories can be retrieved. Based on the ease of retrieval (Schwarz et al., 1991), low-contact people should perceive themselves as less competent in a future interaction after having been asked to recall a greater amount of past contact experiences. High-contact people should benefit from recalling a greater amount and perceive themselves higher in self-efficacy the higher their previous contact.

4.3 Method

a) Participants

Fifty-five young students[5] (36 female, 19 male) of the University of Kent, aged between 18 and 29 (M = 21.31, SD = 1.65), were randomly allocated to one of the two recall conditions: One half had to recall one positive experience with an older adult, the other half had to recall five positive experiences with an older adult from the past. Participants received course credits or a small payment (£2) as reward for their participation.

b) Procedure and measures

Participants were told that the study aimed to investigate "mental images and opinions about elderly people in the UK". At the beginning of the study, they were asked to indicate their quantity and quality of prior contact with older adults. Then, they were randomly assigned to two recall conditions. Participants in the *one encounter condition* were instructed: "Please think of a positive encounter you have had with an elderly person in your past and describe it here." Participants in the *five encounters condition* were instructed: "Please think of five positive encounters you have had with different elderly people in your past and describe them here." To reinforce their memory, participants had to describe their encounter(s) they have had with an older adult in the past. Then, participants received the dependent measure of

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[5] The data was collected by the research assistants Elinor Swatton and Graham Dufton. Data preparation, analysis, interpretation were carried out by the author of this thesis, Michèle D. Birtel.

perceived self-efficacy in a future interaction with older adults. Finally, participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Independent measures

Contact. To determine the quantity and quality of prior contact experiences with older adults, standard items used in previous contact research (e.g., Voci & Hewstone, 2003) were used. Prior quantity of contact with older adults was measured by four items: "How many elderly people do you know?", "In everyday life, how often do you encounter elderly people?", "In everyday life, how frequently do you interact with elderly people?" and "In everyday life, how much contact do you have with elderly people?" on a 7-point Likert-scale (1 = *none*, 7 = *a lot*). A composite contact quantity score was created by the mean of these items (α = .87), higher scores represented higher prior quantity. To measure prior quality of contact, participants rated five items how *superficial-deep, natural-forced, unpleasant-pleasant, competitive-cooperative, intimate-distant* they would characterize contact with older adults on a semantic differential ranging from 1 to 7. Items were recoded such that higher scores represented higher prior quality. A composite contact quality score was created by the mean of these items (α = .71). A single index of frequent (contact quantity) and positive (contact quality) contact was calculated through multiplying the quantity and quality scores, adapting a procedure by Brown, Maras, Masser, Vivian, and Hewstone (2001).

Dependent measures

Self-efficacy. To measure *confidence* in future contact with older adults, participants were asked "How much do you agree with the following statements concerning elderly people?" followed by 10 items adapted from the attributional confidence measure by Gudykunst and Nishida (1986): "I am confident in my ability to predict their behaviour.", "I am confident in my ability to predict their attitude.", "I am confident in my ability to predict their feelings.", "I am confident in my ability to predict their values.", "I am confident in my ability to predict their willingness to communicate.", "I am confident in my ability to predict their feelings about themselves.", "I am confident in my ability to predict what they mean when they communicate.", "I am confident that they make allowances for me when we communicate.", "I am confident that they can understand my feelings." and "I am confident that they would like me." on a 7-point Likert-Scale (1 = *strongly disagree*, 7 = *strongly agree*). A composite self-efficacy score was created by the mean of these items (α = .88), higher scores representing higher self-efficacy/confidence.

4.4 Results and Discussion

To assess the interactive effect of retrieval instruction (one encounter vs. five encounters) and contact (quantity multiplied by quality) on self-efficacy, I computed a moderated regression analysis (Aiken & West, 1991). The two-way interaction variables were created by multiplying (a) the recall variable coded as -1 (one encounter) and +1 (five encounters) with the centered contact quantity variable, and (b) with the centered quality variable, as well as (c) both quantity and quality with

one another. The recall and the centered contact quantity and quality variables were entered on the first step, the two-way interaction variables (Recall x Contact Quantity, Recall x Contact Quality, Quantity x Quality) on the second step, and the three-way interaction on the third step (Recall x Quantity x Quality). Means can be found in Table 8.

Table 8

Means for self-efficacy as a function of Recall X Contact (Experiment 13)

	1 Encounter		5 Encounters	
Contact	Lower -1 *SD*	Higher +1 *SD*	Lower -1 *SD*	Higher +1 *SD*
Self-Efficacy	4.66	4.15	3.67	4.29

Note: Standard deviations shown in parentheses.

The analysis revealed the predicted significant interaction between recall and contact on self-efficacy, ß = 1.90, $t(47) = 2.57$, $p = .013$, R square change = .10 (see Figure 21).

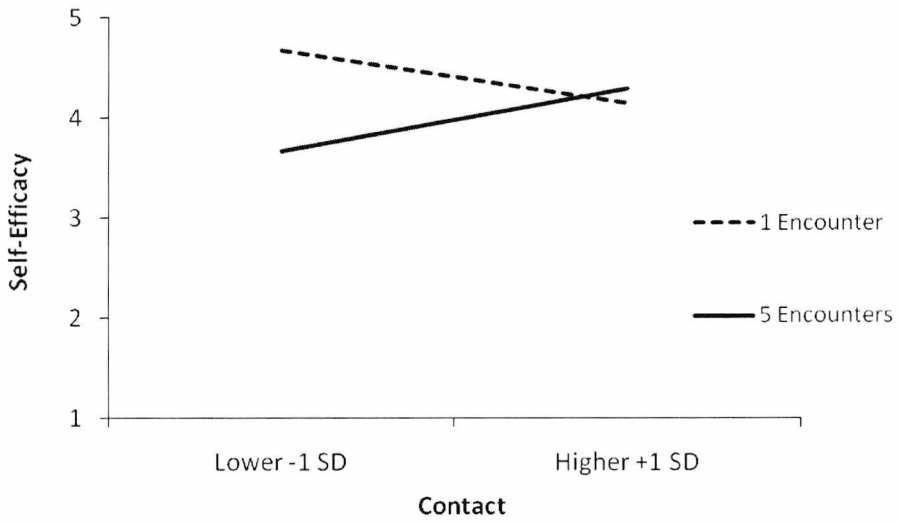

Figure 21. Self-efficacy as a function of recall and contact, Experiment 13.

Differences between retrieval instruction at higher (+1 *SD*) and lower levels (-1 *SD*) of contact revealed that self-efficacy was significantly lower in the five encounters condition compared to the one encounter condition at lower levels of contact, $\beta = -.46$, $t(51) = -2.49$, $p = .016$. At higher levels of contact, there was no difference between the recall conditions, $\beta = .06$, $t(51) = 0.32$, $p = .752$.

Furthermore, in the five encounter condition, higher levels of contact predicted higher levels of self-efficacy, $\beta = .38$, $t(51) = 2.04$, $p = .047$, while in the one encounter condition there was no significant relationship between contact and self-efficacy, $\beta = -.08$, $t(51) = -0.42$, $p = .676$. In sum, recalling five positive encounters with older adults led to lower self-efficacy in a future interaction for individuals who had low prior contact. Higher contact increased self-efficacy after having recalled five positive encounters.

5 EXPERIMENT 14: CONTACT MEMORIES: "LESS IS MORE SAFE"

5.1 Aims and Hypotheses

Experiment 12 has shown that recalling contact enhances meta-cognitive perceptions of one's ability to engage in future contact. Experiment 13 has shown, keeping the valence of recall constant and varying the amount of recall, that it is not the content but *how* individuals are asked to recall matters for perceptions of self-efficacy. Experiment 14 further extends the meta-cognition hypothesis of recalled contact in measuring the *difficulty* with which contact memories are retrieved, and whether this affects a meta-cognitive judgment, this time in form of perceiving oneself as tolerant towards the outgroup.

Research on processing fluency and ease of retrieval suggests that the amount of contact experiences recalled will interact with prior contact experiences. I examined the effect of differential recall instructions as a function of prior contact. Based on the ease of retrieval (Schwarz et al., 1991), low-contact people should find it more difficult to recall a larger amount of past positive encounters, whereas high-contact people should benefit from recalling a larger amount. I expected that the higher people's actual prior contact is the easier they should find it to recall a large amount of past encounters. Furthermore, high levels of actual contact should facilitate the recall of contact, and enhance perceived tolerance towards older adults when a larger amount is recalled compared to a smaller amount.

5.2 Method

a) Participants

Sixty-seven young students (49 female, 18 male)[6] of the University of Kent, aged between 18 and 25 (M = 20.15, SD = 1.59), were randomly allocated to one of the two recall conditions: One half had to recall one positive experience with an older adult, the other half had to recall five positive experiences with an older adult from the past. Participants received course credits as reward for their participation.

b) Procedure and measures

Participants were told that the study aimed at gaining an "understanding of students' opinions and experiences of the elderly". At the beginning of the study, they were asked to indicate the amount of prior contact they had with older adults. Then, they were randomly assigned to one of the two recall conditions. Participants in the *one encounter condition* were instructed: "Please take a minute to think of a positive encounter you have had with an elderly person in your past." Participants in the *five encounters condition* were instructed: "Please take five minutes to think of five positive encounters you have had with different elderly people in your past." To reinforce their memory, participants had to describe the encounter(s) they have had with an older adult in the past. Then, participants received the dependent measures of

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[6] The data was collected by the undergraduate student Lisbeth Cuthbert. Data preparation, analysis, interpretation were carried out by the author of this thesis, Michèle D. Birtel. The results reported in this thesis are independent from the results reported in her final year project.

recall difficulty, and perceived tolerance. Finally, participants were asked to complete demographic information and suspicion probes before being thanked and debriefed.

Independent measures

Contact. To determine quantity of prior contact experiences, standard items used in previous contact research (e.g., Voci & Hewstone, 2003) were used. Participants responded to four items: "How many elderly people do you know?", "In everyday life, how often do you encounter elderly people?", "In everyday life, how frequently do you interact with elderly people?" and "In everyday life, how much contact do you have with elderly people?" on a 7-point Likert-scale (1 = *none/never*, 7 = *a lot*). A composite contact quantity score was created by the mean of these items (α = .83), higher scores represented higher prior quantity. Contact quality was also measured, but had no significant effects.

Dependent measures

Recall difficulty. Recall difficulty was measured by the statement "I found the task I just did…". Participants indicated on seven items how difficult, complex, effortless (reversed), simple (reversed), troublesome, easy (reversed) and complicated the recall task was on a 7-point Likert-scale (1 = *not at all*, 7 = *very much*). Items were recoded such that higher scores represented higher task difficulty. A composite recall difficulty score was created by the mean of these items (α = .90).

Perceived tolerance. Perceived tolerance was measured by seven statements "I am a tolerant person towards elderly people", "I believe that British people and

elderly people should be treated equally.", "I am the sort of person who gets along well with elderly people.", "I can understand the needs of elderly people.", "I accept elderly people.", "I accept the different values of elderly people." and "I accept the different life styles of elderly people." on a 5-point Likert-Scale (1 = *strongly agree*, 5 = *strongly disagree*). Items were recoded such that higher scores represented higher tolerance. A composite perceived tolerance score was created by the mean of these items (α = .89).

5.3 Results and Discussion

a) Recall difficulty

To assess the interactive effect of retrieval instruction (one encounter vs. five encounters) and contact quantity on recall difficulty, I computed a moderated regression analysis (Aiken & West, 1991). The interaction variable was created by multiplying the centered contact quantity with the recall variable coded as -1 (one encounter) and +1 (five encounters), the interaction variable (Recall x Contact Quantity) on the second step. Means can be found in Table 9.

Table 9

Means for recall difficulty and tolerance as a function of Recall X Contact (Experiment 14)

	1 Encounter		5 Encounters	
Contact	Lower -1 *SD*	Higher +1 *SD*	Lower -1 *SD*	Higher +1 *SD*
Recall Difficulty	2.34	2.37	4.32	2.76
Tolerance	4.29	4.16	4.21	4.75

Note: Standard deviations shown in parentheses.

The analysis revealed a main effect of recall, ß = .46, $t(64) = 4.29$, $p < .0005$. In general, recalling five encounters ($M = 3.55$, $SD = 1.42$) was experienced as more difficult than recalling one encounter ($M = 2.36$, $SD = 0.89$). There also was a main effect of contact ß = -.25, $t(64) = -2.36$, $p = .022$. In general, the more previous contact participants had with an older adult, the less difficult they experienced recalling contact. More importantly, the analysis revealed the predicted significant interaction between recall and contact on recall difficulty, ß = -.31, $t(63) = -3.01$, $p = .004$, *R* square change = .09 (see Figure 22).

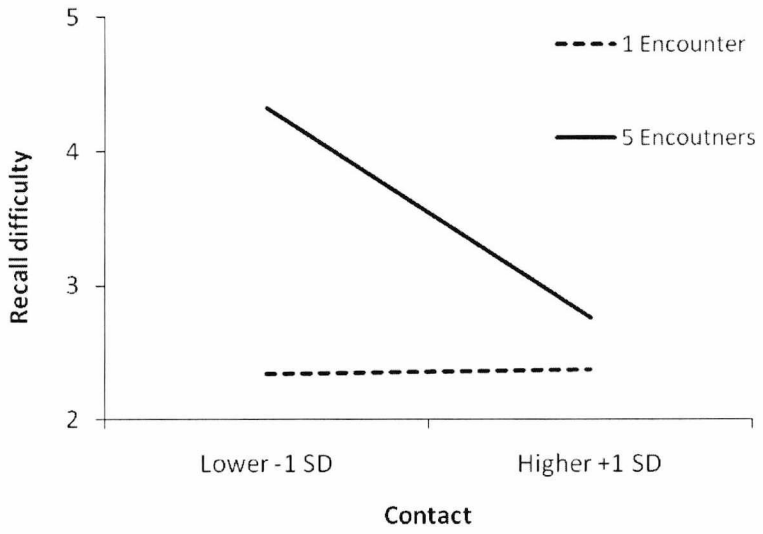

Figure 22. Recall difficulty as a function of recall and contact, Experiment 14.

Differences between the memory at higher (+1 *SD*) and lower levels (-1 *SD*) of contact revealed that recall difficulty was significantly higher in the five encounter condition compared to the one encounter condition at lower levels of contact, $\beta = .76$, $t(63) = 5.34$, $p < .0005$, but not at higher levels of contact, $\beta = .15$, $t(63) = 1.04$, $p = .302$. Furthermore, in the five encounter condition, higher levels of contact predicted lower levels of recall difficulty, $\beta = -.53$, $t(63) = -3.39$, $p = .001$, while in the one encounter condition there was no significant relationship between contact and recall difficulty, $\beta = .02$, $t(63) = 0.11$, $p = .913$.

In sum, recalling five positive encounters with older adults from their past was more difficult than recalling one encounter for individuals with low prior

contact experiences. Recalling five encounters was easier the higher previous contact.

b) Perceived tolerance

To assess the interactive effect of retrieval instruction (one encounter vs. five encounters) and contact quantity on tolerance, I computed the same analysis as for recall difficulty. The analysis revealed the predicted significant interaction between recall and contact on tolerance, ß = .26, $t(63) = 2.16$, $p = .034$, R square change = .07 (see Figure 23). Means can be found in Table 9.

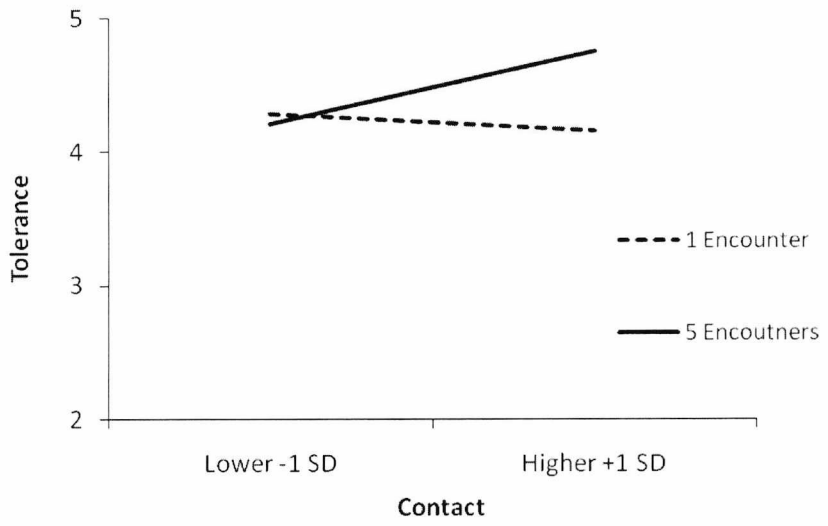

Figure 23. Tolerance as a function of recall and contact, Experiment 14.

Differences between the memory at higher (+1 *SD*) and lower levels (-1 *SD*) of contact revealed that tolerance was significantly higher in the five encounter condition compared to the one encounter condition at higher levels of contact, β =

.46, $t(63) = 2.71$, $p = .009$, but not at lower levels of contact, $\beta = -.06$, $t(63) = -0.37$, $p = .714$. Furthermore, in the five encounter condition, higher levels of contact predicted higher levels of tolerance, $\beta = .55$, $t\ (63) = 3.51$, $p = .001$, while in the one encounter condition there was no significant relationship between contact and tolerance, $\beta = -0.09$, $t(63) = -0.51$, $p = .612$.

In sum, recalling five encounters was beneficial for individuals with high positive experiences with older adults. They perceived themselves as more tolerant compared to when recalling only one encounter. When prior experiences were low, tolerance did not differ.

c) Mediated moderation

Participants' prior contact experiences moderated the impact of recall on perceived tolerance. I then computed a mediated moderation analysis to assess whether this moderation was mediated by recall difficulty. Since the Sobel test cannot be used with mediated moderation (Judd et al., 2005), I used the method by Preacher and Hayes (2008). The interaction variable Recall x Contact was entered as a predictor while controlling for the predictors recall and contact. Recall x Contact significantly predicted tolerance ($\beta = .26$, $t = 2.16$, $p = .034$). The interaction significantly predicted the mediator, recall difficulty ($\beta = -.31$, $t = -3.01$, $p = .004$). The path between recall difficulty and tolerance while controlling for the interaction was also significant ($\beta = -.37$, $t = -2.59$, $p = .012$). When the mediator was controlled, the relationship between Recall x Contact and tolerance became non-significant ($\beta = .15$, $t = 1.19$, $p = .238$). The 95% BCa CI obtained by bootstrapping

of 5000 subsamples was: {.02, .11}. The overall model was significant, $F(4, 62) = 4.00$, $p = .006$ (see Figure 24).

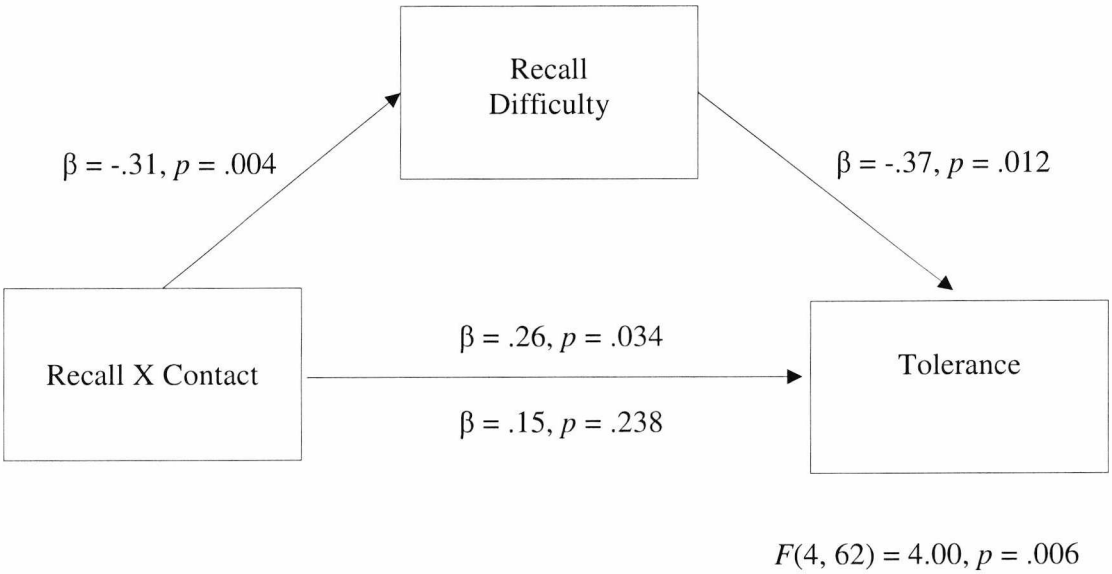

Figure 24. Recall difficulty as mediator of the relationship between Recall X Contact and tolerance, Experiment 14.

In sum, recall difficulty mediated the relationship between Recall X Contact and tolerance. High-contact participants found the recall task less difficult compared to low-contact participants, and therefore they perceived themselves as more tolerant.

6 DISCUSSION

The present research contributes to the literature on memory and prejudice. It shows that recalling contact memories, when asked to do so, plays an important role in reducing prejudice. Previous research on the contact-prejudice relationship is based on subjective reports of prior contact. In this research, I manipulated the quantity and quality of contact participants recalled. Furthermore, I showed that the recall of contact experiences interacts with prior contact experiences. Furthermore, the findings support the meta-cognition hypothesis, both through moderation and mediation.

Experiment 12 demonstrated that the valence of people's memory affected prejudice and one's meta-cognitive perceptions of confidence for a future contact. Positive recall (compared to negative or no recall) reduced anxiety and in turn enhanced outgroup evaluation and perceived self-efficacy in a future interaction. Experiments 13 and 14 demonstrated that prior contact moderated the relationship between memory and prejudice. Based on the ease of retrieval effects (see Schwarz et al., 1991), when recalling five contact experiences, low-contact participants perceived themselves as lower in confidence in a future interaction (Experiment 13). Furthermore, recalling five encounters was experienced as more difficult compared to recalling only one experience for low-contact participants (Experiment 14). High-contact participants benefited from recalling five encounters and rated themselves as higher in perceived tolerance, a meta-cognitive judgment about how well they would go along with the outgroup. Recall difficulty mediated the relationship between

Recall X Contact and tolerance (Experiment 14). In Experiment 14, contact quality had no effect. Perhaps this may be due to the fact that quality could play a role in perceiving one's ability to cope in future contact, but may not play a role when being asked to report how difficult it is to retrieve a certain amount of contact memories, or when perceiving oneself as tolerant.

6.1 Implications

Much research on the contact-prejudice relationship has been done with subjective reports of past contact, a form of recall of contact. In this research, I directly manipulated the recall of contact memories. I demonstrated, instead of asking for participants to report the amount or quality of past contact, that asking them to recall a specific past contact influences self-efficacy and attitudes, depending on the valence of contact memory recalled; and influences contact self-efficacy and tolerance, depending on the amount of contact memories recalled. Recalling contact not only had a positive effect on attitudes but also on meta-cognitive evaluations of one's confidence about future contact.

I also demonstrated that this relationship between recalled contact and prejudice is moderated by the amount of previous contact experiences. My findings are in line with previous research on the ease of retrieval effect (e.g., Dijksterhuis et al., 1999; Schwarz et al., 1991). People with low actual contact experiences found it harder to retrieve a larger amount of positive past experiences from memory, and rated themselves as possessing less self-efficacy in a future interaction with an outgroup member. In contrast, people with high contact experiences found it easier to retrieve positive past experiences from memory, and the more they could retrieve

the higher they perceived themselves as tolerant towards people from another group. For high-contact people contact memories should be accessible easier and provide a basis for perception of people, and the more they can retrieve the more they perceive themselves as tolerant towards people from other groups. Whereas for low-contact people, contact memories should be retrieved under cognitive effort.

These findings are also in line with previous research on prejudice which demonstrated that actual contact between conflicting groups reduces prejudice because of intergroup anxiety being reduced (Pettigrew & Tropp, 2006). I extended this research in showing that, similar to reports of actual contact, retrieving positive contact memories has the ability to reduce prejudice. In the current research, remembering positive contact memories reduced intergroup anxiety and with this reduced prejudice. Furthermore, people with high actual contact experiences who retrieved a larger amount of contact memories perceived themselves as higher in tolerance and self-efficacy.

When taking into account frequency and quality of actual contact, my results imply that having high actual contact is necessary but not sufficient to promote more positive relations. Ease of retrieval may also play a role – individuals need to retrieve the high amount of experiences from memory. Contact memories may be malleable, depending on how people are asked to recall them. What people experience could be susceptible to the way past experiences are retrieved from memory.

This research shows how powerful memory can be beyond remembering our past. Contact memories can affect our attitudes and meta-perceptions towards members from other groups, depending on how we are asked to recall our memories for past experiences (e.g., memory valence, amount of memories), and depending on

how much actual contact we had in the past. Our contact memories may be malleable, and retrieved differently depending on how we are asked to retrieve them. When we make judgments or choose behaviour, these decisions are influenced by what we retrieve from our long-term memory (Aarts & Dijksterhuis, 1999). If we can change recollective experiences, then meta-cognitive processes provide a way of promoting a positive present and future.

These findings have applied potential to a wide audience. Since already one recall of past positive contact is enough to promote positive intergroup relations, it can be easily implemented in interventions in schools to reduce prejudice. In sum, in this chapter I demonstrated that the valence of the remembered experience and the amount of contact memories that can be retrieved influence attitudes towards another group in general, and meta-cognition in terms of one's perceived capability to engage in a future interaction with a member from that group. Meta-cognitive processes in terms of ease of retrieval as well as being able to encourage people to remember a positive experience from the past, seem to be a promising way in reducing prejudice and bringing harmony in relations between conflicting groups.

CHAPTER 8

GENERAL DISCUSSION

This chapter summarizes the findings of 14 studies reported in Chapters 4, 5, 6 and 7. This thesis demonstrated that imagined contact moderates the impact of intergroup anxiety and prior outgroup contact on prejudice. The ability to generate vivid mental images facilitates the effect of imagined contact. I established support for the compensatory contact hypothesis: imagined contact removed the detrimental effects of high anxiety and low prior contact. Vividness ability facilitated the positive effect of imagined contact. Furthermore, I developed two derivations of the imagined contact task: one based on imaginal exposure which draws upon principles from clinical psychotherapy, and one based on recalled contact which applies principles from cognitive psychological research on memory and cognition. The three imagery intervention variants reported in this thesis – imagined contact, exposure therapy and recalled contact – can all reduce prejudice and enhance positive perceptions of the outgroup. Limitations, theoretical and practical implications together with applications of this research are discussed in the second part of the chapter.

1 THEORETICAL BACKGROUND AND AIMS

The opening chapter of this thesis described prejudice as a major social issue. New and emerging conflicts serve as vivid reminders of the importance of the endeavour to tackle pervasive social issues; immigration and globalization

underscore the need for informed policies that encourage cooperation and tolerance. The 14 studies reported in this thesis have aimed to address this most pressing of social issues by exploring the potential for cognitive interventions to improve attitudes, intentions and behaviours related to improved intergroup relations.

1.1 Intergroup Contact and Prejudice

Chapter 2 provided an overview of theory and research on the importance of intergroup contact theory in tackling prejudice. *Intergroup contact theory* is regarded as the most influential theory for improving intergroup relations between conflicting groups (Allport, 1954; Brown & Hewstone, 2005; Pettigrew, 1998). The most impressive evidence for the effectiveness of intergroup contact in reducing prejudices comes from Pettigrew and Tropp's (2006) meta-analysis which showed across over 500 studies that intergroup contact has a robust effect in reducing prejudice.

Since Allport's original formulation, further models have evolved: N. Miller and Brewer's 1984 *decategorization model*, Hewstone and Brown's (1986) *mutual intergroup differentiation*, and Gaertner et al.'s (1989) *common ingroup identity model.* All three models draw upon a common theory, i.e., *social identity theory* (Tajfel & Turner, 1979) but have a different views on the role of salience of group membership within the contact situation. Pettigrew (1998) combined the three research traditions into his *longitudinal model* of intergroup contact, proposing an optimal time sequence for the generalization of contact effects to take place, a continuum from decategorization, salient group categorization to recategorization. Finally, Brown and Hewstone (2005) revised their model from 1986 by not only

emphasizing the intergroup but also interpersonal dimension of contact, by identifying mediators, and by integrating their view and alternative research traditions on group categorization into their *integrative model of intergroup contact.* Knowledge about cognitive representations is key to understanding contact effects and to develop new interventions that go beyond direct contact. The knowledge about cognitive representation of groups and cognitive processes in interactions, e.g., self-regulation and its cognitive costs (Trawalter & Richeson, 2006), needs to be combined in imagined contact interventions which are about the representation of interactions.

People bring evaluative concerns into intergroup interactions (Richeson & Shelton, 2007). Majority group members experience *intergroup anxiety*, i.e., the concern about appearing prejudiced and behaving incorrectly (Plant & Devine, 2003; Shelton, 2003; Vorauer & Kumhyr, 2001). In this thesis, I focused on the majority group's perspective and interventions to tackle their feelings of intergroup anxiety. Anxiety has a negative impact on performance in a wide range of domains, and intergroup anxiety inhibits positive intergroup relations and is the major mediator of the contact-prejudice relationship (Pettigrew & Tropp, 2008).

1.2 Imagined Contact and Prejudice

Chapter 3 demonstrated that even indirect forms of contact can help combating prejudice. Even the mere knowledge that an ingroup member has a close relationship with an outgroup member can improve intergroup attitudes (i.e., *extended contact*, Wright et al., 1997). A newly developed implementation of intergroup contact theory, *imagined intergroup contact*, has been shown to capitalize

on the benefits of contact, even when actual intergroup relations are difficult and anxiety provoking, e.g., Greeks and Turks in Cyprus. A great body of previous research has shown that mental simulation in general is an effective technique in many areas to enhance performance (for reviews see Crisp et al., 2011; Crisp et al., 2010). Imagined contact, similarly to direct contact, has established its positive effects on intergroup *attitudes* (Stathi & Crisp, 2008; Turner et al., 2007; Turner & Crisp, 2010; West et al., 2011), *intentions* (Crisp & Husnu, 2011; Husnu & Crisp, 2010b; Husnu & Crisp, 2011) and *behaviour* (Abrams et al., 2008; Turner & West, 2011; Turner, West et al., in press). Furthermore, imagined contact generalized from the imagined member to the whole outgroup (Stathi et al., 2011), and not imagined outgroups (secondary transfer effects; Harwood et al., 2011).

Chapters 4 to 7 sought to further develop imagined contact as a cognitive intervention. The aim of this thesis was to develop effective interventions based on mental imagery to reduce prejudice and bring harmony in conflicting intergroup relations. The research reported searched for optimizing conditions that tailor imagined contact best to each individual and make it most effective in contact interventions. Firstly, it examined the compensatory effect of imagined contact, looking at moderating and mediating processes (Chapters 4, 5), secondly it tested a clinical therapy approach of imagined contact, i.e., the combination of negative and positive mental imagery (Chapter 6), thirdly it investigated the role of recalling contact memories as a broader form of mental articulation, drawing upon established principles in cognitive psychology.

2 SUMMARY OF FINDINGS

A great amount of literature demonstrated the promising and exciting capability of imagined intergroup contact to produce positive perceptions of outgroups. In 14 Experiments – employing a range of methods, measures and target groups – this thesis examined how imagined contact mitigates factors that explain prejudice: intergroup anxiety (Chapter 4) and prior outgroup contact. It further tested whether an ability to generate vivid mental images facilitates the imagined contact effect (Chapter 5). This research also identified two further mediators: communication difficulty and uncertainty about a future interaction (Chapter 5). Moreover, this work developed new variants of imagined contact as cognitive interventions to reduce prejudice, one based on the combination of negative and positive mental imagery (Chapter 6), and one based on recalling previous contact (Chapter 7). The new approaches draw upon the power of mental imagery that has been well established in clinical psychotherapy and research on memory and cognition (for an overview see Table 10).

2.1 Compensatory and Facilitating Effects of Imagined Contact

Chapters 5 and 6 examined whether imagined contact can have a compensatory role in intergroup context. In Experiments 1-6, I established support for my compensatory contact hypothesis: Imagined contact moderated factors that typically explain prejudice: high levels of intergroup anxiety (Experiments 1-4) and low prior contact experiences (Experiments 6, 7).

a) Intergroup anxiety

In Experiments 1 and 2 I found that, compared to a control condition in which higher anxiety was related to lower tolerance, imagining contact with an outgroup member (disabled student, British Muslim) compensated for the negative impacts of high anxiety, and raised tolerance to the same level as low-anxiety individuals. Having established support for the basic proposition of imagined contact as compensatory contact, Experiments 3 and 4 explored the cognitive consequences underlying this effect, namely cognitive depletion, as well as the effect of imagined contact on behavioural tendencies. Compared to a control condition in which higher anxiety was related to lower communication quality on a video task (Experiment 3) and communication difficulty in an email task (Experiment 4), imagining contact with an outgroup member (older adult, international student) mitigated the detrimental effects of anxiety and raised outgroup communication to the same level as low-anxiety individuals. Compensating for anxiety required executive attentional resources proportional to the level of anxiety, shown in a post experimental Stroop test. This suggests that the compensatory effects of imagined contact are cognitively taxing, high-anxiety individuals put more cognitive effort in the imagined contact task. Nevertheless, they are able to do so, and improve their outgroup communication.

b) Prior contact

Experiments 6 and 7 extended these findings and demonstrated that the compensatory effect of imagined contact also applies to prior outgroup contact experiences, a more distal and socially determined predictor. Imagined contact

moderated the impact of prior contact on imagery difficulty and outgroup evaluation. In Experiment 6, when individuals had experienced higher quality prior contact with gay men, evaluations were positive irrespective of imagined contact. However, when individuals reported having experienced lower quality prior contact, imagined contact raised outgroup evaluations to the same level as expressed by individuals with higher quality prior contact, showing the same compensatory effect as observed with pre-task anxiety on measures of tolerance, communication quality and communication difficulty in Chapter 4. In Experiment 7, I observed the same compensatory effect of imagined contact, qualified by prior contact quantity, on future contact intentions and uncertainty about a future interaction. Imagined contact with an international student raised contact intentions to the same level as expressed by individuals with higher quantity of prior contact.

There is evidence that it was not the communication task but the imagined contact task that was difficult for individuals high in anxiety and low in prior contact. I demonstrated this by showing that subjective reports of the difficulty of the communication task were unrelated to the Stroop interference (Experiment 4), and that the difficulty of the imagined contact task was correlated with the amount of prior contact (Experiment 6). The less prior contact participants had the more difficult they found the imagined contact task, mirroring the effects on Stroop performance. In Experiment 6, imagining positive contact with a gay man was reported as more difficult than imagining an outdoor scene for individuals reporting lower prior contact (quantity and quality), a relationship that was not apparent for individuals reporting higher prior contact (quantity and quality), mirroring the Anxiety x Imagery effects on Stroop performance in Experiments 3 and 4.

c) Vividness ability

The findings of Experiment 8 suggest that a high ability to generate mental images facilitates the positive effect of imagined contact. Higher vividness ability helped individuals to improve their vividness of the imagined contact scenario, raising it up to the same level as in the outdoor scene control condition. Furthermore, higher vividness ability reduced intergroup anxiety after imagining contact with an older adult.

d) Mediating and meta-cognitive processes

In Experiment 5, imagining contact with a Muslim person, compared to imagining contact with a British person, reduced the difficulty of writing an email to a Muslim student, and enhanced perceived tolerance towards British Muslims. Communication difficulty mediated the relationship between imagery task and tolerance, showing that imagined contact involves meta-cognitive processes.

This research has identified two further mediators of imagined contact: communication difficulty and uncertainty in a future interaction. The prospect of intergroup contact evokes a great amount of uncertainty, and even arouses perceptions of threat. Intergroup contact decreases threat by reducing the novelty of the situation (Blascovich et al., 2001). Therefore, I hypothesised that similarly to direct contact, imagined contact would reduce the novelty of the situation, and provide resources to reduce self-uncertainty. Uncertainty mediated the relationship between Imagery Task X Contact on intentions (Experiment 7) and between imagery task and intergroup anxiety (Experiment 8). In Experiment 7, low-contact

individuals who imagined contact with an international student reported reduced uncertainty about a future interaction compared to individuals who imagined an outdoor scene, and this in turn enhanced future contact intention compared to the control condition. In Experiment 8, imagined contact with an older adult reduced uncertainty about a future interaction, and with this intergroup anxiety.

2.2 Exposure Therapy Approach of Imagined contact

Having shown that the detrimental effects of negative prior outgroup experiences in the form of high intergroup anxiety and low prior contact can be mitigated by imagining a positive encounter with an outgroup member, I then returned to explore a further variant of the imagined contact intervention, making use of the anxiety-reducing strategies of clinical psychology.

The research reported in Chapter 6 tested whether the principles of emotional processing of clinical psychotherapy can be applied to intergroup context to improve the effectiveness of imagined contact. Research in clinical and cognitive psychology proposes a special link between mental imagery and emotion, especially anxiety (Holmes & Mathews, 2005; Kosslyn, 1994). Exposure therapy (e.g., Foa et al., 1991) has been established as an effective cognitive-behavioural therapy in treating anxiety disorders. It gradually confronts the patient with fear-evoking objects or situations within a safe environment, instructing patients to actively visualize and describe the phobic stimulus. In three experiments I therefore tested the hypothesis that pre-positive negative imagery would enrich and enhance, rather than reduce, the impact of receiving positive information about stigmatized groups. More specifically, I asked whether the consideration of both, negative and positive information, could

actually enhance the effectiveness of mental articulation strategies compared to just positive information.

In Experiment 9, exposing participants to a negative imagery of an adult with schizophrenia led to a greater reduction in intergroup anxiety compared to a purely positive single or repeated mental imagery. In Experiment 10, imagining a negative encounter with a gay man before imagining a positive one, enhanced future contact intentions with gay men. This effect was mediated by a reduction in intergroup anxiety. Similarly, in Experiment 11, negative imagery of a British Muslim prior to positive imagery enhanced contact intentions compared to a single positive imagery, an effect mediated by increased positive feelings towards previously stigmatized British Muslims.

2.3 Recalled Intergroup Contact

After having established that imagining a new contact with an outgroup member successfully reduces prejudice, in its standard variant but also when drawing upon principles of exposure therapy, I asked whether recalling a past intergroup encounter could also be effective. Research on episodic memory suggests that imagining future scenarios and remembering past events have overlapping psychological and neural processes. While encouraging for efforts to reduce prejudice, this research has not taken into account the subjective nature of memory. Recall is subject to specific biases that can substantively change the nature of what is recalled. In particular, memory researchers have found that people make judgments based on not only what they can recall, but the subjective ease with which they can

recall it (e.g., Schwarz et al., 1991). Furthermore, work on nostalgia has shown that meta-cognition plays a role in memory.

In Chapter 7 I showed that asking participants to recall past contact of a certain *valence* and a certain *amount* influences prejudice and meta-cognition. In Experiment 12, I showed that the *quality* of recalled contact (positive, negative) affects outgroup evaluation and self-efficacy. Recalling a positive experience, compared to recalling a negative one, led to more positive evaluations of the outgroup and enhanced confidence for future contact because it made people feel less anxious that future contact will go well.

In Experiments 13 and 14, I showed that it is not just the content of the recalled memories that matters, but also the *way* individuals are asked to recall contact. The *quantity* of recalled contact influenced meta-cognitive perceptions of one's self-efficacy in a future interaction, the ease with which recalling contact is perceived as well as tolerance. The relationship between recall and prejudice as well as meta-cognition was qualified by prior contact. Based on research on the ease of retrieval (Schwarz et al., 1991), "less was more safe" for individuals low in prior contact. In Experiment 13, low-contact (quantity and quality) individuals perceived themselves as lower in self-efficacy in a future encounter after having recalled a larger amount of contact memories. In Experiment 14, recalling a larger amount of positive contact memories of older adults was rated as more difficult for people low in prior contact quantity. Whereas high-contact people benefitted from recalling a larger amount and perceived themselves as more tolerant towards the outgroup (Experiment 14).

Table 10

Overview of all 14 experiments of this thesis

	Study	Sample	Outgroup	Imagined Contact (IC)	CG	Dependent Measures	Main Result
1	Intergroup anxiety	$N = 41$ non-disabled students	Disabled students	Positive, relaxed and comfortable interaction with an outgroup stranger	Priming	Tolerance Demand characteristics	IC compensates negative effects of anxiety on tolerance.
2	Intergroup anxiety	$N = 72$ British students	British Muslims	See 1a	Scene	Tolerance Enjoyment Mediator: tolerance	IC compensates negative effects of anxiety on tolerance and enjoyment.
3	Intergroup anxiety	$N = 38$ young students	Older adults	Imagine recording video, things in common	Scene	Communication quality Stroop	IC compensates negative effects of anxiety on communication quality, high-anxious individuals are cognitively depleted.
4	Intergroup anxiety	$N = 36$ British students	International students	See 1a	Scene	Communication difficulty Stroop	IC compensates negative effects of anxiety on communication difficulty, high-anxious individuals are cognitively depleted.
5	Meta-cognition	$N = 65$ British students	British Muslims	See 1a	Ingroup member	Tolerance Mediator: communication difficulty	Communication difficulty mediates the effect of IC on tolerance.
6	Prior contact	$N = 61$ heterosexual male students	Gay men	See 1a	Scene	Outgroup evaluation Imagery difficulty	IC compensates negative effects of low prior contact on evaluation, low-contact individuals find IC more difficult.
7	Prior contact	$N = 36$ British students	International students	See 1a	Scene	Intentions Mediator: uncertainty	IC compensates negative effects of low prior contact on intentions, mediated by reduced uncertainty.
8	Vividness ability	$N = 35$ young psychology students	Older adults	See 1a	Scene	Vividness of mental imagery	IC effect is facilitated by high vividness ability, vividness of imagery is enhanced and anxiety reduced.

						Anxiety Mediator: uncertainty	Uncertainty mediated the imagery task-anxiety relationship.
9	Clinical approach	*N* = 29 students without mental health problems	Adults with schizophrenia	Negative-positive	Positive-positive	Anxiety time 1 Anxiety time 2	Negative IC prior to positive IC leads to greater anxiety reduction.
10	Clinical approach	*N* = 32 heterosexual male students	Gay men	Negative-positive	Positive-positive	Mediator: Anxiety time 2 Intentions	Anxiety mediates the relationship between IC and intentions.
11	Clinical approach	*N* = 22 British students	British Muslims	Negative-positive	Positive	Intentions Mediator: positive affect	Positive affect mediated the relationship between IC and intentions.
12	Contact memory	*N* = 51 young psychology students	Older adults	Positive past contact	Negative vs. no past contact	Outgroup evaluation Self-efficacy Mediator: anxiety time 2	Anxiety mediates the relationship between recall and evaluation / self-efficacy
13	Contact memory Moderator: contact quantity x quality	*N* = 55 young students	Older adults	5 past encounters	1 past encounter	Self-efficacy	Low-contact individuals perceive lower self-efficacy after recalling 5 encounters.
14	Contact memory Moderator: contact quantity	*N* = 67 young students	Older adults	5 past encounters	1 past encounter	Recall difficulty Tolerance	Higher difficulty for low-contact individuals after recalling 5 encounters. Lower tolerance for high-contact individuals after recalling 5 encounters. Recall difficulty mediates the relationship between Recall X Quantity and tolerance.

3 LIMITATIONS

3.1 Measuring Actual Behaviour

Social psychological research is criticised for abandoning the measurement of actual behaviour (Baumeister, Vohs, & Funder, 2007). The shift from introspection in early psychological research (e.g., Wundt, Creighton, & Titchener, 1894) to measurement of actual behaviour (Aronson & Mills, 1959; Darley & Latané, 1968; Festinger & Carlsmith, 1959; Milgram, 2006) is perceived as an improvement of scientific methodology (Baumeister et al., 2007). However, in the 1980s, direct observation of behaviour has started being replaced by introspective self-reports on past behaviours, imagined behaviour in hypothetical situations, reaction times and questionnaire ratings (Baumeister et al., 2007). While studying real behaviour is very important in psychology, however, sometimes self-reports can be the appropriate and only possible method in studies. There are also reasons why it is sometimes difficult to observe actual behaviour. It can be unethical, unfeasible, impossible, challenging, less intrusive and expensive. Furthermore, since the cognitive revolution, journals do not reward papers which measure actual behaviour, and researchers have to demonstrate inner processes as well (Baumeister et al., 2007). One drawback to the studies reported in this thesis was that participants did not engage in an actual face-to-face interaction or receive a response from the outgroup member in Experiments 3 and 4. My procedure provided a level of experimental control that was especially valuable at this initial stage of research on this topic. However, generalizability of the results beyond this very first step in the

interaction process to actual interaction situations warrants examination (Vorauer & Turpie, 2004). Having established the compensatory effects of imagined contact, its cognitive consequences, and the efficacy of new variants such as an exposure therapy approach of imagined contact and contact memory recall, it will now be important to examine impacts on actual intergroup behaviour.

3.2 Yerkes-Dodson Law

The Yerkes-Dodson law describes the curvilinear relationship between arousal and performance (Yerkes & Dodson, 1908). It dictates that optimal performance is dependent on the amount of arousal. More specifically, a certain amount of arousal (physiological or mental) is best for performance. Performance increases with arousal but only to a certain point. If arousal becomes higher, performance starts to decrease again. A little anxiety can boost performance, but if it gets too high it inhibits performance. Furthermore, anxiety has a strong negative correlation with quality of communication in intergroup relations (Gudykunst & Shapiro, 1996; Hubbert, Gudykunst, & Guerrero, 1999). Anxiety is best at medium level. If anxiety is too high, individuals rely on stereotypes. If anxiety is too low, individuals are not motivated enough to communicate with others (Anxiety and Uncertainty Management Theory AUM; Gudykunst, 1988; Gudykunst, 1995). According to AUM theory, the quality of intergroup communication varies with the individual's ability to manage their anxiety and uncertainty. Therefore one can criticise that the anxiety participants report is not very high and therefore imagined contact boosts outgroup communication. Participants could have reported only a small or medium amount of anxiety due to my outgroups used, for example

international students may elicit much less anxiety and prejudice concerns as for example the anxiety that is involved in conflicts between Protestants and Catholics in Northern Ireland. However, research has successfully shown that imagined contact also reduces prejudice in real-life settings, for example between Greek and Turkish Cypriots as well as between British and Muslims as described in Chapter 2 (Husnu & Crisp, 2010b; Turner & Crisp, 2010). Therefore, I am optimistic that the compensatory effect of imagined contact will also show in conflicts that arouse higher anxiety.

3.3 Control Conditions

One potential criticism is that it is uncertain whether the reduction of prejudice is due to imagining a positive, relaxed, and comfortable interaction with an outgroup member. Critics may argue that my outdoor scene control condition has not sufficiently isolated the effect to that of imagined contact. Although previous research on imagined contact has tested an extensive variety of control conditions as described in Chapter 2 – for example neutral contact (Stathi & Crisp, 2008; Experiment 1) or non-relevant positive interaction (Stathi & Crisp, 2008, Experiment 2) – it may be useful to try new approaches. Since my interpretation of the effect involves two components functioning concurrently (1) a smooth interaction with (2) an outgroup member, an approach may be to orthogonally manipulate the latter, for example in a 2 (imagined person: ingroup vs. outgroup member) x (imagined interaction: smooth vs. awkward). The imagined contact effect predicts a 1-vs.-3 pattern on subsequent prejudice such that the condition involving a smooth interaction with an outgroup member yields less prejudice than the other three

conditions. Imagining an awkward interaction with an ingroup member might produce a unique effect as well. One could also try other approaches, for example to match the positivity of the smooth outgroup interaction by contrasting it against a condition in which participants imagine a smooth interaction with a close friend. The latter should not reduce prejudice according to imagined contact theory.

4 THEORETICAL IMPLICATIONS

4.1 Compensatory Contact: Intergroup Anxiety and Prior Intergroup Contact

The present work contributes to the literature on improving intergroup relations. While it is now established that contact has clear beneficial effects on intergroup relations (Allport, 1954; Brown & Hewstone, 2005; Pettigrew, 1998), I argue that focus should also turn to understanding how to best encourage people to *engage* in contact; and how to make that contact successful when it is initiated.

The studies reported in Chapters 5 and 6 have shown, for the first time, that a simple cognitive task involving mental simulation can counter the negative impacts of higher anxiety and lower prior contact on intergroup perceptions and behaviour (e.g., outgroup evaluation, tolerance, contact intentions and outgroup communication). I demonstrated that even when imagined contact is difficult when prior contact experiences are low in quality, and cognitively demanding when intergroup anxiety is high (illustrated by detriments on the post-communication Stroop test), it can improve outgroup evaluation, communication quality and reduce communication difficulty. These findings support the efficacy of mental simulation

as a cognitive-behavioural intervention, not only in a range of academic and sporting domains (Taylor et al., 1998), but increasingly to efforts to promote, encourage and enhance more harmonious intergroup relations.

The findings suggest that the imagery task provides individuals high in performance anxiety and low in prior outgroup contact the tools with which to negotiate an anxiety-provoking contact situation and to achieve a better intergroup interaction. In countering the negative impacts of anxiety on communication quality this work shows that imagined contact makes it more likely, once contact is established, that the interaction will proceed successfully and yield all the benefits we know to accrue from long-term, high quality intergroup contact (Pettigrew & Tropp, 2006).

4.2 Facilitating Contact: Vividness Ability

Mental images are more accessible in memory, the greater one's ability to generate vivid mental images (Petrova & Cialdini, 2005). Imagined contact is proposed to make an image of a positive encounter with an outgroup member more accessible and ready to retrieve. The research in Chapter 6 demonstrated that mental simulation can be especially effective when one's ability to generate vivid mental images is high; the reduction of intergroup anxiety is stronger when a negative encounter was imagined before a positive encounter. This implies that if individuals' ability to generate vivid mental images could be improved, imagined contact could be even more successful in promoting, encouraging and enhancing harmonious intergroup relations.

Research on imagined contact has shown that the positive effect of imagined contact on intergroup intergroup attitudes and stereotype threat is mediated by reduced anxiety (Abrams et al., 2008; Turner et al., 2007). Intergroup contact could lead to less threat by reducing the unfamiliarity of the outgroup, making the situation becomes less uncertain (Blascovich et al., 2001). I have shown that anxiety is reduced because uncertainty about an intergroup encounter is reduced.

In sum, while previous work has established the beneficial impact of imagined contact on intergroup attitudes, and supports its efficacy as an intervention where there exists little or no opportunity for contact; this research shows it can also be used as a compensatory measure – a way of helping individuals higher in anxiety and who have experienced lower prior contact quality to engage positively and effectively in actual intergroup contact.

4.3 Developing Imagined Contact

Previous research has established the positive effects of imagined contact on intergroup relations. In this thesis, I tested further derivations of imagined contact, drawing upon well-established principles of mental imagery in clinical psychology (i.e., imaginal exposure) and cognitive psychology (i.e., recalled contact).

a) Exposure therapy approach

Analogous to the treatment of anxiety disorders through exposure therapy, I have shown for the first time that a *negative* tone can be helpful, when it is used in a controlled setting and a positive tone follows. This work also demonstrates the value in integrating insights from other areas, like clinical psychology, developing

maximally effective intervention strategies. The research reported in this thesis supports the idea that such imaginal interventions should not necessarily be unequivocally positively, but that a small dose of negativity can more effectively reduce the intergroup anxiety and improve intergroup perceptions.

b) Recalled contact

Furthermore, making use of principles of memory and cognition, e.g. the ease of retrieval of information stored in memory, could be beneficial when developing cognitive interventions based on recalled contact. I demonstrated that manipulating the valence of a retrieved contact memory (contact quality), as well as the amount of memories recalled (contact quantity), influences attitudes towards another group in general, and meta-cognition in terms of one's perceived capability to engage in a future interaction with a member from that group. Meta-cognitive processes in terms of ease of retrieval as well as being able to encourage people to remember a positive experience from the past, seem to be promising ways in reducing prejudice and bringing harmony in relations between conflicting groups.

4.4 Importance of Mental Imagery

The research reported in this thesis further emphasizes the importance of mental imagery for human behaviour. According to Blair et al. (2001), mental imagery has several advantages. First, mental imagery has similar characteristics as a real experience like concrete details, emotions, neurological characteristics (Dadds, Bovbjerg, Redd, & Cutmore, 1997; Kosslyn, 1995; Kosslyn, 1994; Taylor & Schneider, 1989) and therefore is more powerful when it comes to learning and

behaviour compared to other information processing methods (Bower, 1972; Gregory, Cialdini, & Carpenter, 1982; Paivio, 1971; Pham & Taylor, 1999; Taylor et al., 1998).

Second, mental imagery makes related cognitive, emotional, and behavioural representations more accessible (Carroll, 1978; Johnson & Sherman, 1990; Strack, Schwarz, & Gschneidinger, 1985), operating like priming (see Bargh, 1996; Higgins, 1996), but more effective because of its similarity to a real experience. Even though mental imagery is controlled, it can positively affect implicit stereotypes (Blair et al., 2001).

Third, mental imagery has positive effects on judgments and behaviours in various domains like learning, political judgments and sports (Bower, 1972; Dadds et al., 1997; Feltz & Landers, 1983; Hall & Erffmeyer, 1983; Paivio, 1971; Pham & Taylor, 1999; Taylor et al., 1998), and has good external validity as an intervention (Kosslyn, Seger, Pani, & Hillger, 1990; Taylor et al., 1998). Blair et al. (2001) found that mental imagery also can moderate implicit stereotypes. They support the notion that mental imagery is a valuable strategy to reduce the impact of stereotypes on judgment and behaviour for several reasons. Mental imagery is easy to implement, enjoyable, and can be used to re-examine the past to make judgments about the present, and to prepare for the future (Kosslyn et al., 1990; Taylor et al., 1998).

5 PRACTICAL IMPLICATIONS

Mental simulation offers a new type of intervention to help implement social policy in this domain. For instance, imagined contact may offer a first step in

programmatic interventions that move in a graded fashion from more distal forms of contact (imagined) to more proximal (media portrayals of intergroup interactions) to finally actual contact—perhaps in a similar way to how phobias are treated clinically by systematic desensitization.

Imagery techniques offer considerable power and potential for promoting new and highly effective tools for transforming social policy. Simulations are key to the construal of social reality and, as such, should arguably be core components of policy aiming to effect positive, productive, and progressive social change.

5.1 A Simple Cognitive Task

The effect of imagined contact on prejudice is not as strong and long lasting as direct contact. Extended contact has a weaker effect than direct contact (Paolini, Hewstone, & Cairns, 2007; Turner, Hewstone et al., 2007) and since imagined contact is even more indirect, it should have a weaker effect than direct and extended contact. Despite these limitations, *imagined intergroup contact* and its further developments such as *imaginal exposure* or *recalled contact* clearly have some exciting advantages over direct and extended contact (Crisp et al., 2008; Turner et al., 2007). Mental imagery is a safe means to reduce intergroup anxiety and can be used when intergroup conflict is high but opportunity for contact is low. However, it should not be seen as a replacement for direct or extended contact but rather as a first step to direct contact. This increases the chance that individuals actively seek for intergroup encounters, that inhibitions associated with concerns about appearing prejudiced are removed, and that direct contact will result in strong, positive and long-lasting attitude change. Through mentally simulating the contact situation,

individuals can prepare themselves and encounter an interaction with greater confidence and an open mind. Furthermore, the fact that imagined contact provides a means to engage in intergroup contact in a safe way may help raising interest and intentions for direct future contact. Since no actual outgroup member or an ingroup member with an outgroup friend is needed, imagined contact can be implemented more widely than direct or extended contact. For contact interventions to reduce prejudice, it is important that imagined contact is one of "multiple interventions, developed from multiple perspectives" (Crisp & Turner, 2010, p. 134).

5.2 Promoting Social Change

Mental simulation provides a tool for social change. First, it is a core psychological mechanism that is vital to basic motor control and action initiation. Neuro-imaging studies affirm the biological basis of this core process and point to its pivotal role in social inference. Second, our capacity for mental simulation helps us understand not only others' behaviour but to regulate our own emotional reactions to past events and possible future ones. Finally, and predicated on these roles in action initiation and self-regulation, mental simulation is a key component needed to effect behaviour change in domains ranging from health to education to athletic performance. Given its theoretical significance and applied relevance, there is therefore a strong precedent for the incorporation of simulation techniques in interventions designed to effect social and behavioural change – even (and especially) in tackling pervasive social issues like the problem of prejudice.

CHAPTER 9

FUTURE RESEARCH, APPLICATIONS, AND CONCLUSION

In this chapter, I discuss suggestions for future research. I focus on two suggestions that are directly derived from the results reported in this thesis. Then I explain a brief research proposal on how imagined contact can be valuable in promoting social integration. First, I propose research on how to shed more light into the processes of imagined contact. Specifically, research should examine whether imagined contact could provide a behavioural script and whether this script is particularly useful for individuals high in intergroup anxiety and low in prior outgroup contact. Then, I focus on how to increase the efficacy of imagined contact. Research should test whether the ability to generate mental images could be trained and whether this enhances the imagined contact effect for individuals low in vividness ability. Second, I propose research that examines whether imagined contact could facilitate the integration of immigrants into host societies, and whether imagined contact benefits minority groups. Finally, I discuss applications of imagined contact and conclude with a final summary.

1 Does Imagined Contact Create a Behavioural Script?

1.1 Mental Imagery and Scrip Availability

There is extensive empirical evidence suggesting that imagined contact works by creating an available contact script that can be used as a basis for future contact judgments and behaviour (for a review see Crisp et al., 2010). Through imagining contact with an outgroup member, a behavioural script is created and stored in memory. Activated scripts then influence individuals' expectations and intentions, interpretation of immediate events as well as the individual's behaviour in the situation (C. A. Anderson, 1983). Subsequently, when the individual is asked to make an intergroup contact judgment or carry out a contact-related behaviour, the contact script will be available for use (C. A. Anderson, 1983; C. A. Anderson & Godfrey, 1987; see also Carroll, 1978). A great amount of research into the *availability heuristic* (A. Tversky & Kahneman, 1973) supports these ideas. According to the availability heuristic phenomenon, judgments are influenced by the ease with which one can "bring to mind" a psychological concept, whether that be an event, issue, person or object (L. Ross, Lepper, & Hubbard, 1975; R. T. Sherman & Anderson, 1987). Once a behavioural script has been formed it is a cognitively available source of diagnostic knowledge that is used to make judgments about one's expectations and intentions (C. A. Anderson, 1983); see also Gregory et al., 1982; T. D. Wilson & Capitman, 1982).

1.2 Dual-Route Model from Imagery to Intention

Crisp et al. (2010) proposed a dual route model from imagery to intention. They suggest two psychological routes, an affective and a cognitive, that improve behavioural intentions towards outgroups. First, imagined contact enhances attitudes towards outgroups because intergroup anxiety is reduced. This affective route, the association between imagery and attitudes via reduced anxiety is well documented in the imagined contact literature (e.g., Abrams et al., 2008; Turner et al., 2007). The association between attitudes and behaviour via intentions is well specified in the literature on the theory of planned behaviour (Ajzen & Madden, 1986). Recent studies on imagined contact established support for the cognitive route, imagery-intentions link of mental imagery (Husnu & Crisp, 2010a) and the imagery-behaviour link (Turner & West, 2011) supporting the script availability hypothesis as underlying mechanism. More specifically, like a range of mental imagery techniques, imagery enhances intentions to engage in actual contact because individuals form a behavioural script which they use to create a vivid imagined scenario (Husnu & Crisp, 2010a), to form behavioural intentions (Crisp & Husnu, 2011; Husnu & Crisp, 2010a; Husnu & Crisp, 2010b) and to estimate the likelihood that the behaviour takes place (Husnu & Crisp, 2011).

Husnu and Crisp (2010a) have shown that vividness as a proxy for script availability mediates the imagery-intentions relationship. Furthermore, high prior contact helps individuals to envisage more vivid encounters which in turn enhances future contact intentions. Conditions that enhance the effectiveness of imagined contact on intentions are repetition of imagery task (Husnu & Crisp, 2010b), eyes closed (compared to open) as visual focus (Husnu & Crisp, 2011), likelihood

estimates of future outgroup friends (Husnu & Crisp, 2011) and accessibility of imagined contact scenario one day later (Husnu & Crisp, 2010a). Furthermore, meta-cognitive processes play a role, for example intentions are enhanced through imagining contact from a third-person (compared to first-person) perspective, contact self-efficacy is enhanced through imagined contact (Stathi et al., 2011).

1.3 Intergroup Anxiety and Script Availability

Research should further explore whether the availability of a contact script differs between individuals, for example for those higher in intergroup anxiety, and whether it facilitates the imagined contact effect for those.

I therefore propose that while the *formation* of the imagined contact script is more difficult for individuals higher in pre-contact intergroup anxiety, the resulting contact script will be just as available to influence subsequent thoughts and behaviours as scripts formed by individuals lower in intergroup anxiety. Furthermore, because the use of behavioural scripts formed from imagined contact should be a heuristic process and, once formed, should not require the allocation of additional cognitive resource, I do not expect resource depletion arising from higher-anxiety participants' (more difficult) imagined contact to impact on subsequent attitudinal judgments or behaviours. In other words, I expect imagined contact to lead to resource depletion for individuals higher in pre-contact intergroup anxiety, but because imagined contact works by creating a positive contact behavioural script on which individuals can heuristically draw when making subsequent judgments and behaviour, I expect no negative impact of this resource depletion on subsequent judgments and behaviour. For example looking at tolerance judgments, further

studies should test the prediction that imagined contact works by providing an accessible contact script upon which participants can draw in making their judgment. Perceiving oneself as tolerant is a meta-cognitive judgment – it requires thinking about one's own past, or *envisaged*, behaviour towards other groups in society. If, as I propose, imagining intergroup contact provides a script that can be drawn upon heuristically in both high and low resource contexts, then pre-contact anxiety (and any associated resource depletion associated with the effort in forming the imagined scenario) will make no difference to resulting benefits for tolerance. If, in contrast, I am wrong in this assertion, and individuals have formed no contact script, and simply focus on the assumed difficulty of forming the imagined contact script, then I would expect higher intergroup anxiety to predict lower tolerance to the same, or greater, extent than in the control condition. Individuals higher in anxiety, and therefore under cognitive load, will usually rely on stereotypes as a heuristic (Stephan & Stephan, 1985; Wilder & Shapiro, 1991; Wilder, 1993). However, if a contact script is created through imagined contact, this provides an alternative source of information that can be used heuristically under cognitive load. Having imagined positive contact, this contact script could replace existing stereotypes when individuals enter a communicative or judgmental context in which they may be susceptible to cognitive load. Individuals higher in intergroup anxiety, who will be more depleted in such contexts, would be able to use the imagined contact script as a heuristic to guide their communicative behaviours.

2 Can the Ability to Generate a Vivid Imagined Contact Scenario be Trained?

Mental images are more accessible in memory, the greater one's ability to generate vivid mental images (Petrova & Cialdini, 2005). Husnu and Crisp (2010a) have shown that vividness of the mental imagery mediates the relationship between imagined contact and contact intentions. In this thesis, I have shown that vividness ability moderates the effect of imagined contact on the vividness of the imagined scenario and on anxiety. Since a high ability to generate mental images in general improves the effectiveness of imagined contact, future research should investigate whether the individuals' ability to generate mental images can be trained and whether this facilitates imagined contact to reduce prejudice.

Several exercises could be employed before participants carry out the imagined contact task (e.g., Brain Squeezers, 2010). If necessary, these exercises could be repeated over a period of time. Examples for exercises could be "geometric shapes" which involves imagining three-dimensional geometric shapes. Drawing upon systematic desensitization in psychotherapy, participants could be transferred into a relaxing state through relaxation techniques or mediation to facilitate the imagery training.

Having described future research that can be directly derived from the results of this thesis, namely contact script availability and training of vividness ability, I now propose research extending the imagined contact effect to conflicts arising in the migration process. Specifically, I will describe whether it could successfully

promote migration, reducing conflicts between immigrants (minority group) and host societies (majority group). I also suggest that the effectiveness of imagined contact for minority group members should be explored, as research has only taken into the majority perspective so far.

3 Facilitating the Integration of Immigrants into Host Societies Through Imagined Intergroup Contact

Interracial interactions can be stressful for both majority and minority groups. While majority members can feel anxious and threatened, minority members are concerned about being the target of discrimination. Recent research has shown that imagining intergroup contact can reduce prejudice for majority groups. The proposed research could focus on conflicts like the immigration of Turks in Germany, Muslims in the UK, and Blacks in Portugal. It should examine whether imagined contact eliminates threat as a factor for justification and activates an egalitarian norm, and through this reduces discrimination. It should also test whether imagined contact benefits minority groups in enhancing comfort and self-efficacy in interracial interactions. The findings will be important for developing new interventions to promote good relations between immigrants and host society members.

3.1 The Integration Problem

Migration is common in countries like Germany (13.1%) and the United Kingdom (10.4%, Department of Economic and Social Affairs, 2009). The different cultures of immigrants can conflict with the host country's culture, often resulting in

both groups living in separate communities. Furthermore, majority and minority groups differ in their interpersonal concerns (Shelton, 2003), and conflicts between immigrants and host society members arise (Stephan & Stephan, 1985). *Minority* groups are concerned with being the target of discrimination and engage in behavioural strategies to ensure a positive interaction (Shelton, Richeson, Salvatore, & Trawalter, 2005). *Majority* groups feel concerned about appearing prejudiced and experience intergroup anxiety (Stephan & Stephan, 1985) or even threat in terms of values and economy (Stephan & Stephan, 2000). The result is prejudice and discrimination (Pereira, Vala, & Costa-Lopes, 2010). How can we develop interventions to facilitate the integration of immigrants into the host country? This research proposes that imagined contact reduces symbolic threat and with this discriminatory behaviour. Furthermore, I propose that minority groups benefit equally well from such an intervention.

The proposed future research has two aims. First, it will investigate how imagined contact can facilitate the *integration* of minority group members into the host country. Second, it will look at the beneficial effects of imagined contact from a *minority's* point of view.

3.2 Future Research Hypotheses

a) The majority

Prejudice can be expressed in many ways, e.g., through *infra-humanisation* (i.e., lower attribution of uniquely human emotions than primary emotions to the outgroup), *ontologization* (i.e., greater attribution of natural traits than cultural traits

to the outgroup), *hetero-ethnicization* (attribution of cultural differences to the outgroup) and *negative outgroup evaluation* (Vala, Pereira, & Costa-Lopes, 2009). The relationship between prejudice and discrimination is mediated by *symbolic threat*, this mediation is moderated by social norms (Pereira, Vala, & Leyens, 2009). A threat to majority members' identity and values is used to justify discriminatory behaviour against immigrants when egalitarian norms are activated. Importantly, Pereira et al. (2009) have shown that disliked groups like Turks in Portugal can be humanized by showing that core similarities (e.g., secondary emotions like love and shame) are shared between ingroup and outgroup. This research should test whether imagined contact eliminates threat as a factor for justification and activates egalitarian norms, and through this reduces discrimination.

Imagining positive contact with immigrants is expected to reduce symbolic threat and activate an egalitarian norm, and because symbolic threat is reduced and an egalitarian norm is activated, *prejudice* in the form of infra-humanization, ontologization, hetero-ethnicization, and negative outgroup evaluation as well as *discrimination* in the form of opposition to naturalization (i.e., turning 'them' into 'us') as well as of actual behaviour is reduced. In summary, the effect of imagined contact on prejudice and discrimination will be mediated by symbolic threat and by social norms.

b) The minority

So far, there has been no research investigating the benefits of imagined intergroup contact on *minority* group members in interracial interactions. To promote harmonious relations between conflicting groups, the different interpersonal

concerns of both groups have to be taken into account. Research has shown that Blacks who expect a White interaction partner to be prejudiced, enjoy the interaction more (Shelton, 2003), but engage in fidgeting behaviour and compensatory strategies to enhance positive interactions, e.g., intimacy building behaviour (Shelton et al., 2005) or behaving especially positive (C. T. Miller, Rothblum, Felicio, & Brand, 1995). This research should test whether a new variant of the imagined contact tailored to minorities' concerns enhances their comfort and self-efficacy in an interracial interaction.

Based on Allport's (1954) optimal conditions for intergroup contact (equal status, cooperation, common goals, support by authorities), imagined contact with host society members in an *equal* and *cooperative* context is expected to enhance self-efficacy for minority members, and through this enhance enjoyment of the interaction, and reduce compensatory and fidgeting behaviour. In summary, the effect of imagined contact on enjoyment and behaviour will be mediated by self-efficacy.

3.3 Theoretical and Practical Implications

The proposed research will contribute to the existing literature on intergroup relations. It tests whether imagined contact reduces discrimination via reduced *symbolic threat* and enhanced *egalitarian norms*. Furthermore, it will extend previous research on imagined contact by measuring actual *behaviour* and by taking into account the *minority* group's perspective.

The results will be valuable in many important ways. Developing interventions, especially in contexts where direct contact is impossible, is vital in

promoting good relations. Indirect methods like imagined intergroup contact are highly effective interventions in *preparing* individuals for direct contact, increasing the likelihood of *long-lasting* harmony.

We will also gain deeper understanding of how prejudice and discrimination can be reduced in majority members *and* how interactions can be made more enjoyable for minority group members. The findings will be of great use for policy makers to reduce discriminatory behaviour of host society members against immigrants, and to enhance pleasurable interactions of immigrants with host society members. The results will be theoretically novel and good for publishing in high-impact journals. They will be made available for a wider audience in and outside academia to achieve the best outcome to facilitate the integration of immigrants in their host countries.

4 APPLICATIONS

I believe that mental simulation, as in other domains can offer considerable potential as an intervention for improving intergroup relations in educational and organizational settings. Imagined contact involves a short task that can be understood by adults and children alike; it produces clear and effective results and requires little obvious expense. Through imagining such communications, individuals can prepare themselves for future contact with lesser anxiety and greater confidence. In turn, this may help encourage a greater interest, and intention to engage, in direct future contact. Furthermore, this thesis shows that further derivations from imagined contact, imaginal exposure and recalled contact, can be

successful in reducing prejudice as well, Applying principles from other areas such as clinical psychology (exposure therapy) and cognitive psychology (memory, ease of retrieval) can be very valuable to find the most effective cognitive interventions.

Using imagined contact and its derivations as part of intervention strategies would make programs designed to reduce prejudice more effective because the role of learners would be transformed from 'passive consumers' to 'active producers' (Paris & Combs, 2006). Individuals higher in intergroup anxiety and lower in prior outgroup contact may benefit from properly implemented imagined contact because, although this research shows how this is cognitively difficult, it will provide the cognitive tools for effective future contact encounters. As well as in educational contexts, I believe that imagined contact can be applied to human resource development training in organizations. Today's organizations are becoming more and more diverse in terms of age, gender, race, sexual orientation and disability. Imagined intergroup contact could provide an additional tool in diversity training or multicultural team building programs.

5 CONCLUSION

To conclude, the findings of the 14 studies reported in this thesis demonstrate that mental imagery, in form of imagined intergroup contact, and new variants, has the potential to improve intergroup attitudes, intentions and behaviour, and with this intergroup relations. It combats the detrimental effects of negative prior outgroup contact experiences and provides resources for individuals to reduce their sense of uncertainty and anxiety about future contact situations, enhancing self-efficacy and

future contact intentions. These findings support the increasingly evident benefits of mental simulation, not only in a range of personal and professional domains, but increasingly to efforts to promote, encourage and enhance more harmonious intergroup relations.

REFERENCES

Aarts, H., & Dijksterhuis, A. (1999). How often did I do it? experienced ease of retrieval and frequency estimates of past behavior. *Acta Psychologica, 103*, 77-89. doi:10.1016/S0001-6918(99)00035-9

Aberson, C. L., & Haag, S. C. (2007). Contact, perspective taking, and anxiety as predictors of stereotype endorsement, explicit attitudes, and implicit attitudes. *Group Processes & Intergroup Relations, 10*, 179-201. doi:10.1177/1368430207074726

Abrams, D., Crisp, R. J., Marques, S., Bedford, L., Provias, D., & Fagg, E. (2008). Threat inoculation: Experienced and imagined intergenerational contact prevents stereotype threat effects on older people's math performance. *Psychology and Aging, 23*, 934-939. doi:10.1037/a0014293

Abrams, D., Eilola, T., & Swift, H. J. (2009). *Attitudes to age in Britain 2004-8.* Department for Work and Pensions Report 599.

Abrams, D., Eller, A., & Bryant, J. (2006). An age apart: The effects of intergenerational contact and stereotype threat on performance and intergroup bias. *Psychology and Aging, 21*, 691-702. doi:10.1037/0882-7974.21.4.691

Abu-Nimer, M. (2004). Education for coexistence and Arab-Jewish encounters in Israel: Potential and challenges. *Journal of Social Issues, 60*, 405-422. doi:10.1111/j.0022-4537.2004.00121.x

Adams, R. B., Jr., Pauker, K., & Weisbuch, M. (2010). Looking the other way: The role of gaze direction in the cross-race memory effect. *Journal of*

Experimental Social Psychology, 46, 478-481. doi:10.1016/j.jesp.2009.12.016

Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., & Sanford, R. N. (1950). The authoritarian personality. *Journal of Social and Personal Relationships, 11*, 1177-1196.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA US: Sage Publications, Inc.

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology, 22*, 453-474. doi:10.1016/0022-1031(86)90045-4

Allen, C., & Nielsen, J. S. (2002). *Summary report on Islamophobia in the EU after 11 September 2001.*European Monitoring Centre on Racism and Xenophobia. Retrieved from http://www.fra.europa.eu/fraWebsite/attachments/Synthesis-report_en.pdf

Allport, G. W. (1954). *The nature of prejudice*. Oxford England: Addison-Wesley.

Amodio, D. M. (2009). Intergroup anxiety effects on the control of racial stereotypes: A psychoneuroendocrine analysis. *Journal of Experimental Social Psychology, 45*, 60-67.

Anderson, C. A. (1983). Imagination and expectation: The effect of imagining behavioral scripts on personal influences. *Journal of Personality and Social Psychology, 45*, 293-305. doi:10.1037/0022-3514.45.2.293

Anderson, C. A., & Godfrey, S. S. (1987). Thoughts about actions: The effects of specificity and availability of imagined behavioral scripts on expectations about oneself and others. *Social Cognition, 5*, 238-258.

Anderson, N. H. (1965). Averaging versus adding as a stimulus-combination rule in impression formation. *Journal of Experimental Psychology, 70*, 394-400. doi:10.1037/h0022280

Angermeyer, M. C., & Dietrich, S. (2006). Public beliefs about and attitudes towards people with mental illness: A review of population studies. *Acta Psychiatrica Scandinavica, 113*, 163-179. doi:10.1111/j.1600-0447.2005.00699.x

Arabic News (2006). *Muslim teenager stabbed during attack on UK mosque.* Retrieved August, 2011, from http://www.arabicnews.com/ansub/Daily/Day/061003/2006100304.html

Armitage, C. J., & Reidy, J. G. (2008). Use of mental simulations to change theory of planned behaviour variables. *British Journal of Health Psychology, 13*, 513-524. doi:10.1348/135910707X227088

Aronson, E., & Mills, J. (1959). The effect of severity of initiation on liking for a group. *The Journal of Abnormal and Social Psychology, 59*, 177-181. doi:10.1037/h0047195

Babin, L. A., & Burns, A. C. (1997). Effects of print ad pictures and copy containing instructions to imagine on mental imagery that mediates attitudes. *Journal of Advertising, 26*, 33-44.

Baddeley, A. D. (1990). *Human memory: Theory and practice.* Needham Heights, MA US: Allyn & Bacon.

Bandura, A. (1973). *Aggression: A social learning analysis.* Oxford England: Prentice-Hall.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ US: Prentice-Hall.

Bandura, A. (1994). Regulative function of perceived self-efficacy. In M. G. Rumsey, C. B. Walker, J. H. Harris, M. G. Rumsey, C. B. Walker & J. H. Harris (Eds.), *Personnel selection and classification.* (pp. 261-271). Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura, & A. Bandura (Eds.), *Self-efficacy in changing societies.* (pp. 1-45). New York, NY US: Cambridge University Press.

Bargh, J. A. (1996). Automaticity in social psychology. In A. W. Kruglanski (Ed.), *Social psychology: Handbook of basic principles.* (pp. 169-183). New York, NY US: Guilford Press.

Bargh, J. A., Chen, M., & Burrows, L. (1996). Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology, 71*, 230-244. doi:10.1037/0022-3514.71.2.230

Bargh, J. A., & Thein, R. D. (1985). Individual construct accessibility, person memory, and the recall-judgment link: The case of information overload. *Journal of Personality and Social Psychology, 49*, 1129-1146. doi:10.1037/0022-3514.49.5.1129

Batson, C. D., Early, S., & Salvarani, G. (1997). Perspective taking: Imagining how another feels versus imagining how you would feel. *Personality and Social Psychology Bulletin, 23*, 751-758. doi:10.1177/0146167297237008

Batson, C. D., Polycarpou, M. P., Harmon-Jones, E., Imhoff, H. J., Mitchener, E. C., Bednar, L. L., . . . Highberger, L. (1997). Empathy and attitudes: Can feeling for a member of a stigmatized group improve feelings toward the group?

Journal of Personality and Social Psychology, 72, 105-118. doi:10.1037/0022-3514.72.1.105

Baumeister, R. F., Vohs, K. D., & Funder, D. C. (2007). Psychology as the science of self-reports and finger movements: Whatever happened to actual behavior? *Perspectives on Psychological Science, 2*, 396-403. doi:10.1111/j.1745-6916.2007.00051.x

BBC (2003). *Racial prejudice 'rising in UK'.* Retrieved January 25, 2010, from http://news.bbc.co.uk/1/hi/uk/3303261.stm

BBC (2005a). *Analysis: UK at ease with Islam?* Retrieved August, 2011, from http://news.bbc.co.uk/1/hi/uk/4139402.stm

BBC (2005b). *Hate crimes soar after bombings.* Retrieved August, 2011, from http://news.bbc.co.uk/1/hi/england/london/4740015.stm

BBC (2009). *Islamic charity fire 'deliberate'.* Retrieved August, 2011, from http://news.bbc.co.uk/1/hi/scotland/glasgow_and_west/8137021.stm

Blair, I. V., & Banaji, M. R. (1996). Automatic and controlled processes in stereotype priming. *Journal of Personality and Social Psychology, 70*, 1142-1163. doi:10.1037/0022-3514.70.6.1142

Blair, I. V., Ma, J. E., & Lenton, A. P. (2001). Imagining stereotypes away: The moderation of implicit stereotypes through mental imagery. *Journal of Personality and Social Psychology, 81*, 828-841. doi:10.1037/0022-3514.81.5.828

Blair, I. V., Park, B., & Bachelor, J. (2003). Understanding intergroup anxiety: Are some people more anxious than others? *Group Processes & Intergroup Relations, 6*, 151-169. doi:10.1177/1368430203006002002

Blascovich, J., Mendes, W. B., Hunter, S. B., Lickel, B., & Kowai-Bell, N. (2001). Perceiver threat in social interactions with stigmatized others. *Journal of Personality and Social Psychology, 80*, 253-267. doi:10.1037/0022-3514.80.2.253

Bless, H., Schwarz, N., Bodenhausen, G. V., & Thiel, L. (2001). Personalized versus generalized benefits of stereotype disconfirmation: Trade-offs in the evaluation of atypical exemplars and their social groups. *Journal of Experimental Social Psychology, 37*, 386-397. doi:10.1006/jesp.2000.1459

Borkovec, T. D., & Sides, J. K. (1979). The contribution of relaxation and expectancy to fear reduction via graded, imaginal exposure to feared stimuli. *Behaviour Research and Therapy, 17*, 529-540. doi:10.1016/0005-7967(79)90096-2

Bower, G. H. (1972). Mental imagery and associative learning. In L. W. Gregg (Ed.), *Cognition in learning and memory*. Oxford England: John Wiley & Sons.

Bower, G. H., Gilligan, S. G., & Monteiro, K. P. (1981). Selectivity of learning caused by affective states. *Journal of Experimental Psychology: General, 110*, 451-473. doi:10.1037/0096-3445.110.4.451

Brain Squeezers (2010). *Visualize: How to improve your visualization skills.* Retrieved August, 2011, from http://www.wilywalnut.com/Visualize-how-to-improve-your-visualization-skills.html

Brewer, M. B. (2000). The social self: On being the same and different at the same time. In E. T. Higgins, A. W. Kruglanski, E. T. Higgins & A. W. Kruglanski (Eds.), *Motivational science: Social and personality perspectives.* (pp. 50-59). New York, NY US: Psychology Press.

Brown, R., & Hewstone, M. (2005). An integrative theory of intergroup contact. In M. P. Zanna (Ed.), *Advances in experimental social psychology, vol. 37.* (pp. 255-343). San Diego, CA US: Elsevier Academic Press.

Brown, R., Maras, P., Masser, B., Vivian, J., & Hewstone, M. (2001). Life on the ocean wave: Testing some intergroup hypotheses in a naturalistic setting. *Group Processes & Intergroup Relations, 4*, 81-97. doi:10.1177/1368430201004002001

Cacioppo, J. T., & Berntson, G. G. (1994). Relationship between attitudes and evaluative space: A critical review, with emphasis on the separability of positive and negative substrates. *Psychological Bulletin, 115*, 401-423. doi:10.1037/0033-2909.115.3.401

Callow, N., & Hardy, L. (2001). Types of imagery associated with sport confidence in netball players of varying skill levels. *Journal of Applied Sport Psychology, 13*, 1-17. doi:10.1080/10413200109339001

Cameron, L., Rutland, A., Brown, R., & Douch, R. (2006). Changing children's intergroup attitudes toward refugees: Testing different models of extended contact. *Child Development, 77*, 1208-1219. doi:10.1111/j.1467-8624.2006.00929.x

Carroll, J. S. (1978). The effect of imagining an event on expectations for the event: An interpretation in terms of the availability heuristic. *Journal of Experimental Social Psychology, 14*, 88-96. doi:10.1016/0022-1031(78)90062-8

Chartrand, T. L., Maddux, W. W., & Lakin, J. L. (2005). Beyond the perception-behavior link: The ubiquitous utility and motivational moderators of

nonconscious mimicry. In J. A. Bargh (Ed.), *The new unconscious.* (pp. 334-361). New York, NY US: Oxford University Press.

Choy, Y., Fyer, A. J., & Lipsitz, J. D. (2007). Treatment of specific phobia in adults. *Clinical Psychology Review, 27*, 266-286. doi:10.1016/j.cpr.2006.10.002

Clausell, E., & Fiske, S. T. (2005). When do subgroup parts add up to the stereotypic whole? mixed stereotype content for gay male subgroups explains overall ratings. *Social Cognition, 23*, 161-181. doi:10.1521/soco.23.2.161.65626

Converse, J. M., & Presser, S. (1986). *Survey questions: Handcrafting the standardized questionnaire*. Thousand Oaks, CA US: Sage Publications, Inc.

Conway, M. A., & Rubin, D. C. (1993). The structure of autobiographical memory. In A. F. Collins, S. E. Gathercole, M. A. Conway, P. E. Morris (Eds.), *Theories of memory.* (pp. 103-137). Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues*. Boston, MA: Houghton Mifflin Company.

Crandall, C. S., & Eshleman, A. (2003). A justification-suppression of the expression and experience of prejudice. *Psychological Bulletin, 129*, 414-446. doi:10.1037/0033-2909.129.3.414

Crisp, R. J., & Abrams, D. (2008). Improving intergroup attitudes and reducing stereotype threat: An integrated contact model. *European Review of Social Psychology, 19*, 242-284. doi:10.1080/10463280802547171

Crisp, R. J., Birtel, M. D., & Meleady, R. (2011). Mental simulations of social thought and action: Trivial tasks or tools for transforming social policy? *Current Directions in Psychological Science, 20*, 261-264. doi:10.1177/0963721411413762

Crisp, R. J., Husnu, S., Meleady, R., Stathi, S., & Turner, R. N. (2010). From imagery to intention: A dual route model of imagined contact effects. *European Review of Social Psychology, 21*, 188.

Crisp, R. J., & Husnu, S. (2011). Attributional processes underlying imagined contact effects. *Group Processes & Intergroup Relations, 14*, 275-287. doi:10.1177/1368430210390721

Crisp, R. J., Stathi, S., Turner, R. N., & Husnu, S. (2008). Imagined intergroup contact: Theory, paradigm and practice. *Social and Personality Psychology Compass, 2*, 1-18. doi:10.1111/j.1751-9004.2008.00155.x

Crisp, R. J., & Turner, R. N. (2009). Can imagined interactions produce positive perceptions?: Reducing prejudice through simulated social contact. *American Psychologist, 64*, 231-240. doi:10.1037/a0014718

Crisp, R. J., & Turner, R. N. (2010). Have confidence in contact. *American Psychologist, 65*, 133-135. doi:10.1037/a0018437

Dadds, M. R., Bovbjerg, D. H., Redd, W. H., & Cutmore, T. R. H. (1997). Imagery in human classical conditioning. *Psychological Bulletin, 122*, 89-103. doi:10.1037/0033-2909.122.1.89

Darley, J. M., & Gross, P. H. (1983). A hypothesis-confirming bias in labeling effects. *Journal of Personality and Social Psychology, 44*, 20-33. doi:10.1037/0022-3514.44.1.20

Darley, J. M., & Latané, B. (1968). Bystander intervention in emergencies: Diffusion of responsibility. *Journal of Personality and Social Psychology, 8*, 377-383. doi:10.1037/h0025589

Davies, K., Tropp, L. R., Aron, A., Pettigrew, T. F., & Wright, S. C. (2011). Cross-group friendships and intergroup attitudes: A meta-analytic review. *Personality and Social Psychology Review,* doi:10.1177/1088868311411103

Department of Economic and Social Affairs Population Division (2009). *World population policies 2009.* Retrieved May 25, 2011, from http://www.un.org/esa/population/publications/wpp2009/Publication_complete.pdf

Desforges, D. M., Lord, C. G., Pugh, M. A., & Sia, T. L. (1997). Role of group representativeness in the generalization part of the contact hypothesis. *Basic and Applied Social Psychology, 19,* 183-204. doi:10.1207/s15324834basp1902_3

Devine, P. G., Evett, S. R., & Vasquez-Suson, K. (1996). Exploring the interpersonal dynamics of intergroup contact. In E. T. Higgins (Ed.), *Handbook of motivation and cognition, vol. 3: The interpersonal context.* (pp. 423-464). New York, NY US: Guilford Press.

Devine, P. G., & Vasquez, K. A. (1998). The rocky road to positive intergroup relations. In J. L. Eberhardt, S. T. Fiske, J. L. Eberhardt & S. T. Fiske (Eds.), *Confronting racism: The problem and the response.* (pp. 234-262). Thousand Oaks, CA US: Sage Publications, Inc.

Dijksterhuis, A., Macrae, C. N., & Haddock, G. (1999). When recollective experiences matter: Subjective ease of retrieval and stereotyping. *Personality and Social Psychology Bulletin, 25,* 760-768. doi:10.1177/0146167299025006010

Dijksterhuis, A., Spears, R., & Lépinasse, V. (2001). Reflecting and deflecting stereotypes: Assimilation and contrast in impression formation and automatic

behavior. *Journal of Experimental Social Psychology, 37*, 286-299. doi:10.1006/jesp.2000.1449

Dollard, J., Miller, N. E., Doob, L. W., Mowrer, O. H., & Sears, R. R. (1939). *Frustration and aggression*. New Haven, CT US: Yale University Press. doi:10.1037/10022-000

Driskell, J. E., Copper, C., & Moran, A. (1994). Does mental practice enhance performance? *Journal of Applied Psychology, 79*, 481-492. doi:10.1037/0021-9010.79.4.481

Duck, S., Rutt, D. J., Hurst, M. H., & Strejc, H. (1991). Some evident truths about conversations in everyday relationships: All communications are not created equal. *Human Communication Research, 18*, 228-267. doi:10.1111/j.1468-2958.1991.tb00545.x

Easterbrook, J. A. (1959). The effect of emotion on cue utilization and the organization of behavior. *Psychological Review, 66*, 183-201. doi:10.1037/h0047707

Ebbinghaus, H. (1885). *Memory: A contribution to experimental psychology*. New York: Teachers College, Columbia University.

Eller, A., & Abrams, D. (2003). 'Gringos' in mexico: Cross-sectional and longitudinal effects of language school-promoted contact on intergroup bias. *Group Processes & Intergroup Relations, 6*, 55-75. doi:10.1177/1368430203006001012

Eller, A., & Abrams, D. (2004). Come together: Longitudinal comparisons of Pettigrew's reformulated intergroup contact model and the common ingroup identity model in Anglo-French and Mexican-American contexts. *European Journal of Social Psychology, 34*, 229-256. doi:10.1002/ejsp.194

Elliot, A. J., & McGregor, H. A. (1999). Test anxiety and the hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 76*, 628-644. doi:10.1037/0022-3514.76.4.628

Escalas, J. E., & Luce, M. F. (2004). Understanding the effects of process-focused versus outcome-focused thought in response to advertising. *Journal of Consumer Research, 31*, 274-285. doi:10.1086/422107

Esses, V. M., Haddock, G., & Zanna, M. P. (1993). Values, stereotypes, and emotions as determinants of intergroup attitudes. In D. M. Mackie, D. L. Hamilton, D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception.* (pp. 137-166). San Diego, CA US: Academic Press.

Eyck, L. L. T., Labansat, H. A., Gresky, D. M., Dansereau, D. F., & Lord, C. G. (2006). Effects of directed thinking on intentions to engage in beneficial activities: Idea generation or mental simulation? *Journal of Applied Social Psychology, 36*, 1234-1262. doi:10.1111/j.0021-9029.2006.00040.x

Farley, J. E. (2005). *Majority - minority relations.* Upper Saddle River, NJ US: Prentice Hall.

Feltz, D. L., & Landers, D. M. (1983). The effects of mental practice on motor skill learning and performance: A meta-analysis. *Journal of Sport Psychology, 5*, 25-57.

Feltz, D. L., & Riessinger, C. A. (1990). Effects of in vivo emotive imagery and performance feedback on self-efficacy and muscular endurance. *Journal of Sport & Exercise Psychology, 12*, 132-143.

Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *The Journal of Abnormal and Social Psychology, 58*, 203-210. doi:10.1037/h0041593

Fiske, S. T. (1980). Attention and weight in person perception: The impact of negative and extreme behavior. *Journal of Personality and Social Psychology, 38*, 889-906. doi:10.1037/0022-3514.38.6.889

Fiske, S. T., Cuddy, A. J. C., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology, 82*, 878-902. doi:10.1037/0022-3514.82.6.878

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin, 99*, 20-35. doi:10.1037/0033-2909.99.1.20

Foa, E. B., Rothbaum, B. O., Riggs, D. S., & Murdock, T. B. (1991). Treatment of posttraumatic stress disorder in rape victims: A comparison between cognitive-behavioral procedures and counseling. *Journal of Consulting and Clinical Psychology, 59*, 715-723. doi:10.1037/0022-006X.59.5.715

Frank, E., Anderson, B., Stewart, B. D., & Dancu, C. (1988). Efficacy of cognitive behavior therapy and systematic desensitization in the treatment of rape trauma. *Behavior Therapy, 19*, 403-420. doi:10.1016/S0005-7894(88)80012-1

Frey, F. E., & Tropp, L. R. (2006). Being seen as individuals versus as group members: Extending research on metaperception to intergroup contexts. *Personality and Social Psychology Review, 10*, 265-280. doi:10.1207/s15327957pspr1003_5

Gaertner, S. L., & Dovidio, J. F. (2000). *Reducing intergroup bias: The common ingroup identity model.* New York, NY US: Psychology Press.

Gaertner, S. L., Mann, J., Murrell, A., & Dovidio, J. F. (1989). Reducing intergroup bias: The benefits of recategorization. *Journal of Personality and Social Psychology, 57*, 239-249. doi:10.1037/0022-3514.57.2.239

Galinsky, A. D., Moskowitz, G. B., & Skurnik, I. (2000). Counterfactuals as self-generated primes: The effects of prior counterfactual activation on person perception judgements. *Social Cognition, 18*, 252-280.

Garcia, S. M., Weaver, K., Moskowitz, G. B., & Darley, J. M. (2002). Crowded minds: The implicit bystander effect. *Journal of Personality and Social Psychology, 83*, 843-853. doi:10.1037/0022-3514.83.4.843

Garry, M., & Polaschek, D. L. L. (2000). Imagination and memory. *Current Directions in Psychological Science, 9*, 6-10. doi:10.1111/1467-8721.00048

Gilbert, D. T., & Hixon, J. G. (1991). The trouble of thinking: Activation and application of stereotypic beliefs. *Journal of Personality and Social Psychology, 60*, 509-517. doi:10.1037/0022-3514.60.4.509

Goldman, A. I. (2005). Imitation, mind reading, and simulation. In N. Chater (Ed.), *Perspectives on imitation: From neuroscience to social science: Vol. 2: Imitation, human development, and culture.* (pp. 79-93). Cambridge, MA US: MIT Press.

Gollwitzer, P. M., & Schaal, B. (1998). Metacognition in action: The importance of implementation intentions. *Personality and Social Psychology Review, 2*, 124-136. doi:10.1207/s15327957pspr0202_5

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test.

Journal of Personality and Social Psychology, 74, 1464-1480. doi:10.1037/0022-3514.74.6.1464

Gregory, W. L., Burroughs, W. J., & Ainslie, F. M. (1985). Self-relevant scenarios as an indirect means of attitude change. *Personality and Social Psychology Bulletin, 11*, 435-444. doi:10.1177/0146167285114009

Gregory, W. L., Cialdini, R. B., & Carpenter, K. M. (1982). Self-relevant scenarios as mediators of likelihood estimates and compliance: Does imagining make it so? *Journal of Personality and Social Psychology, 43*, 89-99. doi:10.1037/0022-3514.43.1.89

Gudykunst, W. B. (1988). Uncertainty and anxiety. In W. B. Gudykunst, & Y. Y. Kim (Eds.), *Theories in intercultural communication* (pp. 123-156). Newbury Park, CA US: Sage Publications, Inc.

Gudykunst, W. B. (1995). Anxiety/uncertainty management (AUM) theory: Current status. In *Intercultural communication theory.* (pp. 8-58). Thousand Oaks, CA US: Sage Publications, Inc.

Gudykunst, W. B. (1998). Applying anxiety/uncertainty management (AUM) theory to intercultural adjustment training. *International Journal of Intercultural Relations, 22*, 227-250. doi:10.1016/S0147-1767(98)00005-4

Gudykunst, W. B., & Nishida, T. (1986). Attributional confidence in low- and high-context cultures. *Human Communication Research, 12*, 525-549. doi:10.1111/j.1468-2958.1986.tb00090.x

Gudykunst, W. B., & Nishida, T. (2001). Anxiety, uncertainty, and perceived effectiveness of communication across relationships and cultures. *International Journal of Intercultural Relations, 25*, 55-71. doi:10.1016/S0147-1767(00)00042-0

Gudykunst, W. B., & Shapiro, R. B. (1996). Communication in everyday interpersonal and intergroup encounters. *International Journal of Intercultural Relations, 20*, 19-45. doi:10.1016/0147-1767(96)00037-5

Haddock, G., Zanna, M. P., & Esses, V. M. (1993). Assessing the structure of prejudicial attitudes: The case of attitudes toward homosexuals. *Journal of Personality and Social Psychology, 65*, 1105-1118. doi:10.1037/0022-3514.65.6.1105

Hall, E. G., & Erffmeyer, E. S. (1983). The effect of visuo-motor behavior rehearsal with videotaped modeling on free throw accuracy of intercollegiate female basketball players. *Journal of Sport Psychology, 5*, 343-346.

Harwood, J., Paolini, S., Joyce, N., Rubin, M., & Arroyo, A. (2011). Secondary transfer effects from imagined contact: Group similarity affects the generalization gradient. *British Journal of Social Psychology, 50*, 180-189. doi:10.1348/014466610X524263

Hewstone, M. (2000). Contact and categorization: Social psychological interventions to change intergroup relations. In C. Stangor, & C. Stangor (Eds.), *Stereotypes and prejudice: Essential readings.* (pp. 394-418). New York, NY US: Psychology Press.

Hewstone, M., & Brown, R. (1986). Contact is not enough: An intergroup perspective on the 'contact hypothesis.'. In M. Hewstone, R. Brown, M. Hewstone & R. Brown (Eds.), *Contact and conflict in intergroup encounters.* (pp. 1-44). Cambridge, MA US: Basil Blackwell.

Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology, 53*, 575-604. doi:10.1146/annurev.psych.53.100901.135109

Hewstone, M., Judd, C. M., & Sharp, M. (2011). Do observer ratings validate self-reports of intergroup contact?: A round-robin analysis. *Journal of Experimental Social Psychology, 47*, 599-609.

Higgins, E. T. (1996). Knowledge activation: Accessibility, applicability, and salience. In A. W. Kruglanski (Ed.), *Social psychology: Handbook of basic principles.* (pp. 133-168). New York, NY US: Guilford Press.

Hill, M. E., & Augoustinos, M. (2001). Stereotype change and prejudice reduction: Short- and long-term evaluation of a cross-cultural awareness programme. *Journal of Community & Applied Social Psychology, 11*, 243-262. doi:10.1002/casp.629

Himle, J. A. (2007). Cognitive behavior therapy for anxiety disorders. In A. Freeman (Ed.), *Cognitive behavior therapy in clinical social work practice.* (pp. 375-399). New York, NY US: Springer Publishing Co.

Hirsch, C. R., Clark, D. M., Mathews, A., & Williams, R. (2003). Self-images play a causal role in social phobia. *Behaviour Research and Therapy, 41*, 909-921. doi:10.1016/S0005-7967(02)00103-1

Hirsch, C. R., & Holmes, E. A. (2007). Mental imagery in anxiety disorders. *Psychiatry, 6*, 161-165. doi:DOI: 10.1016/j.mppsy.2007.01.005

Hirsch, C. R., Mathews, A., Clark, D. M., Williams, R., & Morrison, J. A. (2006). The causal role of negative imagery in social anxiety: A test in confident public speakers. *Journal of Behavior Therapy and Experimental Psychiatry, 37*, 159-170. doi:10.1016/j.jbtep.2005.03.003

Hirsch, C. R., Meynen, T., & Clark, D. M. (2004). Negative self-imagery in social anxiety contaminates social interactions. *Memory, 12*, 496-506. doi:10.1080/09658210444000106

Hodson, G., Choma, B. L., & Costello, K. (2009). Experiencing alien-nation: Effects of a simulation intervention on attitudes toward homosexuals. *Journal of Experimental Social Psychology, 45*, 974-978. doi:10.1016/j.jesp.2009.02.010

Hogg, M. A. (2000). Subjective uncertainty reduction through self-categorization: A motivational theory of social identity processes. *European Review of Social Psychology, 11*, 223-255. doi:10.1080/14792772043000040

Hogg, M. A. (2007). Uncertainty-identity theory. In M. P. Zanna, & M. P. Zanna (Eds.), *Advances in experimental social psychology, vol 39.* (pp. 69-126). San Diego, CA US: Elsevier Academic Press. doi:10.1016/S0065-2601(06)39002-8

Hogg, M. A. (2009). Managing self-uncertainty through group identification. *Psychological Inquiry, 20*, 221-224. doi:10.1080/10478400903333452

Holmes, E. A., Geddes, J. R., Colom, F., & Goodwin, G. M. (2008). Mental imagery as an emotional amplifier: Application to bipolar disorder. *Behaviour Research and Therapy, 46*, 1251-1258. doi:10.1016/j.brat.2008.09.005

Holmes, E. A., Lang, T. J., & Shah, D. M. (2009). Developing interpretation bias modification as a 'cognitive vaccine' for depressed mood: Imagining positive events makes you feel better than thinking about them verbally. *Journal of Abnormal Psychology, 118*, 76-88. doi:10.1037/a0012590

Holmes, E. A., & Mathews, A. (2005). Mental imagery and emotion: A special relationship? *Emotion, 5*, 489-497. doi:10.1037/1528-3542.5.4.489

Holmes, E. A., & Mathews, A. (2010). Mental imagery in emotion and emotional disorders. *Clinical Psychology Review, 30*, 349-362. doi:10.1016/j.cpr.2010.01.001

Holmes, E. A., Mathews, A., Dalgleish, T., & Mackintosh, B. (2006). Positive interpretation training: Effects of mental imagery versus verbal training on positive mood. *Behavior Therapy, 37*, 237-247. doi:10.1016/j.beth.2006.02.002

Holmes, E. A., Mathews, A., Mackintosh, B., & Dalgleish, T. (2008). The causal effect of mental imagery on emotion assessed using picture-word cues. *Emotion, 8*, 395-409. doi:10.1037/1528-3542.8.3.395

Houlette, M. A., Gaertner, S. L., Johnson, K. M., Banker, B. S., Riek, B. M., & Dovidio, J. F. (2004). Developing a more inclusive social identity: An elementary school intervention. *Journal of Social Issues, 60*, 35-55. doi:10.1111/j.0022-4537.2004.00098.x

Hoyle, R. H., Pinkley, R. L., & Insko, C. A. (1989). Perceptions of social behavior: Evidence of differing expectations for interpersonal and intergroup interaction. *Personality and Social Psychology Bulletin, 15*, 365-376. doi:10.1177/0146167289153007

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55. doi:10.1080/10705519909540118

Hubbert, K. N., Gudykunst, W. B., & Guerrero, S. L. (1999). Intergroup communication over time. *International Journal of Intercultural Relations, 23*, 13-46. doi:10.1016/S0147-1767(98)00024-8

Husnu, S., & Crisp, R. J. (2010a). Elaboration enhances the imagined contact effect. *Journal of Experimental Social Psychology, 46*, 943-950. doi:10.1016/j.jesp.2010.05.014

Husnu, S., & Crisp, R. J. (2010b). Imagined intergroup contact: A new technique for encouraging greater inter-ethnic contact in cyprus. *Peace and Conflict: Journal of Peace Psychology, 16*, 97-108. doi:10.1080/10781910903484776

Husnu, S., & Crisp, R. J. (2011). Enhancing the imagined contact effect. *The Journal of Social Psychology, 151*, 113-116. doi:10.1080/00224541003599043

Ingram, R. E., & Kendall, P. C. (1987). The cognitive side of anxiety. *Cognitive Therapy and Research, 11*, 523-536. doi:10.1007/BF01183856

Islam, M. R., & Hewstone, M. (1993). Dimensions of contact as predictors of intergroup anxiety, perceived out-group variability, and out-group attitude: An integrative model. *Personality and Social Psychology Bulletin, 19*, 700-710. doi:10.1177/0146167293196005

Ito, T. A., Larsen, J. T., Smith, N. K., & Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology, 75*, 887-900. doi:10.1037/0022-3514.75.4.887

Jacoby, L. L., & Dallas, M. (1981). On the relationship between autobiographical memory and perceptual learning. *Journal of Experimental Psychology: General, 110*, 306-340. doi:10.1037/0096-3445.110.3.306

Jensen, A. R., & Rohwer, W. D., Jr. (1966). The Stroop Color-Word test: A review. *Acta Psychologica, 25*, 36-93. doi:10.1016/0001-6918(66)90004-7

Jetten, J., Haslam, C., Pugliese, C., Tonks, J., & Haslam, S. A. (2010). Declining autobiographical memory and the loss of identity: Effects on well-being. *Journal of Clinical and Experimental Neuropsychology, 32*, 408-416. doi:10.1080/13803390903140603

Johnson, M. K., & Sherman, S. J. (1990). Constructing and reconstructing the past and the future in the present. In R. M. Sorrentino (Ed.), *Handbook of motivation and cognition: Foundations of social behavior, vol. 2.* (pp. 482-526). New York, NY US: Guilford Press.

Jones, M. V., Mace, R. D., Bray, S. R., MacRae, A. W., & Stockbridge, C. (2002). The impact of motivational imagery on the emotional state and self-efficacy levels of novice climbers. *Journal of Sport Behavior, 25*, 57-73.

Judd, C. M., Park, B., Yzerbyt, V., Gordijn, E. H., & Muller, D. (2005). Attibutions of intergroup bias and outgroup homogeneity to ingroup and outgroup others. *European Journal of Social Psychology, 35*, 677-704. doi:10.1002/ejsp.281

Kahneman, D. (1973). *Attention and effort*. Englewood Cliffs, NJ US: Prentice Hall.

Kahneman, D., & Tversky, A. (1982). The simulation heuristic. In D. Kahneman, P. Slovic & A. Tversky (Eds.), *Judgement under uncertainty: Heuristics and biases* (pp. 201-208). New York, NY: Cambridge University Press.

Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist, 39*, 341-350. doi:10.1037/0003-066X.39.4.341

Kaplan, K. J. (1972). On the ambivalence-indifference problem in attitude theory and measurement: A suggested modification of the semantic differential technique. *Psychological Bulletin, 77*, 361-372. doi:10.1037/h0032590

Kawakami, K., Young, H., & Dovidio, J. F. (2002). Automatic stereotyping: Category, trait, and behavioral activations. *Personality and Social Psychology Bulletin, 28*, 3-15. doi:10.1177/0146167202281001

Kenny, D. T., Davis, P., & Oates, J. (2004). Music performance anxiety and occupational stress amongst opera chorus artists and their relationship with

state and trait anxiety and perfectionism. *Journal of Anxiety Disorders, 18*, 757-777. doi:10.1016/j.janxdis.2003.09.004

Knudstrup, M., Segrest, S. L., & Hurley, A. E. (2003). The use of mental imagery in the simulated employment interview situation. *Journal of Managerial Psychology, 18*, 573-591. doi:10.1108/02683940310494395

Kosslyn, S. M. (1995). Mental imagery. In D. N. Osherson (Ed.), *Visual cognition: An invitation to cognitive science, vol. 2 (2nd ed.).* (pp. 267-296). Cambridge, MA US: The MIT Press.

Kosslyn, S. M., Ganis, G., & Thompson, W. L. (2001). Neural foundations of imagery. *Nature Reviews. Neuroscience, 2*, 635-642. doi:10.1038/35090055

Kosslyn, S. M., Seger, C., Pani, J. R., & Hillger, L. A. (1990). When is imagery used in everyday life? A diary study. *Journal of Mental Imagery, 14*, 131-152.

Kosslyn, S. M. (1994). *Image and brain: The resolution of the imagery debate.* Cambridge, MA US: The MIT Press.

Krahé, B., & Altwasser, C. (2006). Changing negative attitudes towards persons with physical disabilities: An experimental intervention. *Journal of Community & Applied Social Psychology, 16*, 59-69. doi:10.1002/casp.849

Kunda, Z., Fong, G. T., Sanitioso, R., & Reber, E. (1993). Directional questions direct self-conceptions. *Journal of Experimental Social Psychology, 29*, 63-86. doi:10.1006/jesp.1993.1004

Kunda, Z., & Oleson, K. C. (1995). Maintaining stereotypes in the face of disconfirmation: Constructing grounds for subtyping deviants. *Journal of Personality and Social Psychology, 68*, 565-579. doi:10.1037/0022-3514.68.4.565

Lambert, R., & Githens-Mazer, J. (2010). *Islamophobia and anti-Muslim hate crime: A London case study.* University of Exeter.

Landau, J. D., Libkuman, T. M., & Wildman, J. C., Jr. (2002). Mental simulation inflates performance estimates for physical abilities. *Memory & Cognition, 30*, 372-379.

Lang, P. J. (1977). Imagery in therapy: An information processing analysis of fear. *Behavior Therapy, 8*, 862-886. doi:10.1016/S0005-7894(77)80157-3

Lang, P. J. (1979). A bio-informational theory of emotional imagery. *Psychophysiology, 16*, 495-512. doi:10.1111/j.1469-8986.1979.tb01511.x

Latané, B., & Darley, J. M. (1968). Group inhibition of bystander intervention in emergencies. *Journal of Personality and Social Psychology, 10*, 215-221. doi:10.1037/h0026570

Leboe, J. P., & Ansons, T. L. (2006). On misattributing good remembering to a happy past: An investigation into the cognitive roots of nostalgia. *Emotion, 6*, 596-610. doi:10.1037/1528-3542.6.4.596

Lee, A. Y. (2001). The mere exposure effect: An uncertainty reduction explanation revisited. *Personality and Social Psychology Bulletin, 27*, 1255-1266. doi:10.1177/01461672012710002

Lenton, A. P., Blair, I. V., & Hastie, R. (2001). Illusions of gender: Stereotypes evoke false memories. *Journal of Experimental Social Psychology, 37*, 3-14. doi:10.1006/jesp.2000.1426

Lindholm, T., Christianson, S., & Karlsson, I. (1997). Police officers and civilians as witnesses: Intergroup biases and memory performance. *Applied Cognitive Psychology, 11*, 431-444. doi:10.1002/(SICI)1099-0720(199710)11:5<431::AID-ACP470>3.0.CO;2-9

Loftus, E. F. (1993). The reality of repressed memories. *American Psychologist, 48*, 518-537. doi:10.1037/0003-066X.48.5.518

Loftus, E. F., Miller, D. G., & Burns, H. J. (1978). Semantic integration of verbal information into a visual memory. *Journal of Experimental Psychology: Human Learning and Memory, 4*, 19-31. doi:10.1037/0278-7393.4.1.19

Loftus, E. F., & Pickrell, J. E. (1995). The formation of false memories. *Psychiatric Annals, 25*, 720-725.

Logan, J. (2001). *Ethnic diversity grows, neighborhood integration lags behind.* Albany: State University of New York at Albany, Lewis Mumford Center.

Lyons, A., & Kashima, Y. (2003). How are stereotypes maintained through communication? the influence of stereotype sharedness. *Journal of Personality and Social Psychology, 85*, 989-1005. doi:10.1037/0022-3514.85.6.989

MacLeod, C. M. (1991). Half a century of research on the stroop effect: An integrative review. *Psychological Bulletin, 109*, 163-203. doi:10.1037/0033-2909.109.2.163

MacLeod, C. M. (1992). The stroop task: The 'gold standard' of attentional measures. *Journal of Experimental Psychology: General, 121*, 12-14. doi:10.1037/0096-3445.121.1.12

MacLeod, C. M., & MacDonald, P. A. (2000). Interdimensional interference in the stroop effect: Uncovering the cognitive and neural anatomy of attention. *Trends in Cognitive Sciences, 4*, 383-391. doi:10.1016/S1364-6613(00)01530-8

Macrae, C. N., Bodenhausen, G. V., Milne, A. B., Thorn, T. M. J., & Castelli, L. (1997). On the activation of social stereotypes: The moderating role of

processing objectives. *Journal of Experimental Social Psychology, 33*, 471-489. doi:10.1006/jesp.1997.1328

Macrae, C. N., & Johnston, L. (1998). Help, I need somebody: Automatic action and inaction. *Social Cognition, 16*, 400-417.

Madon, S. (1997). What do people believe about gay males? A study of stereotype content and strength. *Sex Roles, 37*, 663-685. doi:10.1007/BF02936334

Mail Online (2005). *Prejudice against old people 'rife in UK'.* Retrieved January, 25, 2010, from http://www.dailymail.co.uk/health/article-361514/Prejudice-old-people-rife-UK.html

Mandela, N. (1995). *Long walk to freedom.* New York: Little, Brown and Company.

Marks, D. F. (1973). Visual imagery differences in the recall of pictures. *British Journal of Psychology, 64*, 17-24.

Marks, D. F. (1999). Consciousness, mental imagery and action. *British Journal of Psychology, 90*, 567-585. doi:doi:10.1348/000712699161639

Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology, 35*, 63-78. doi:10.1037/0022-3514.35.2.63

Martin, M. E. (2006). *Residential segregation patterns of Latinos in the United States, 1990–2000.* New York: Routledge.

Mazziotta, A., Mummendey, A., & Wright, S. C. (2011). Vicarious intergroup contact effects: Applying social-cognitive theory to intergroup contact research. *Group Processes & Intergroup Relations, 14*, 255-274. doi:10.1177/1368430210390533

Mazzoni, G., & Memon, A. (2003). Imagination can create false autobiographical memories. *Psychological Science, 14*, 186-188. doi:10.1046/j.1432-1327.2000.01821.x

McCabe, M. P. (2005). The role of performance anxiety in the development and maintenance of sexual dysfunction in men and women. *International Journal of Stress Management, 12*, 379-388. doi:10.1037/1072-5245.12.4.379

McIntyre, R. B., Lord, C. G., Lewis, S. J., & Frye, G. D. J. (2004). False memories of attitude-relevant actions. *Social Cognition, 21*, 395-420. doi:10.1521/soco.21.6.395.28689

Merritt, L., Richards, A., & Davis, P. (2001). Performance anxiety: Loss of the spoken edge. *Journal of Voice, 15*, 257-269. doi:10.1016/S0892-1997(01)00026-1

Milgram, S. (2006). Obedience to authority: An experimental view. In R. J. Lifton (Ed.), *Crimes of war: Iraq.* (pp. 379-386). New York, NY US: Nation Books.

Miller, C. T., Rothblum, E. D., Felicio, D., & Brand, P. (1995). Compensating for stigma: Obese and nonobese women's reactions to being visible. *Personality and Social Psychology Bulletin, 21*, 1093-1106. doi:10.1177/01461672952110010

Miller, N., & Brewer, M. B. (1984). Beyond the contact hypothesis: Theoretical perspectives on desegregation. In N. Miller, & M. B. Brewer (Eds.), *Groups in contact: The psychology of desegregation* (pp. 281-302). Orlando, FL: Academic Press.

Molina, L. E., & Wittig, M. A. (2006). Relative importance of contact conditions in explaining prejudice reduction in a classroom context: Separate and equal? *Journal of Social Issues, 62*, 489-509. doi:10.1111/j.1540-4560.2006.00470.x

Monteith, M. J. (1993). Self-regulation of prejudiced responses: Implications for progress in prejudice-reduction efforts. *Journal of Personality and Social Psychology, 65*, 469-485. doi:10.1037/0022-3514.65.3.469

Monteith, M. J., Sherman, J. W., & Devine, P. G. (1998). Suppression as a stereotype control strategy. *Personality and Social Psychology Review, 2*, 63-82. doi:10.1207/s15327957pspr0201_4

Monteith, M. J., & Spicer, C. V. (2000). Contents and correlates of whites' and blacks' racial attitudes. *Journal of Experimental Social Psychology, 36*, 125-154. doi:10.1006/jesp.1999.1401

MORI. (2001). *British views of immigration*. London: MORI.

Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126*, 247-259. doi:10.1037/0033-2909.126.2.247

Mussweiler, T. (2003). Comparison processes in social judgment: Mechanisms and consequences. *Psychological Review, 110,* 472-489.

Myers, D. G. (1999). *Social psychology*. New York: McGraw-Hill College.

Office for National Statistics (2001). *Neighbourhood statistics.* Retrieved July 24, 2006, from http://neighbourhood.statistics.gov.uk

Page-Gould, E., Mendoza-Denton, R., & Tropp, L. R. (2008). With a little help from my cross-group friend: Reducing anxiety in intergroup contexts through cross-group friendship. *Journal of Personality and Social Psychology, 95*, 1080-1094. doi:10.1037/0022-3514.95.5.1080

Paivio, A. (1971). *Imagery and verbal processes*. Oxford England: Holt, Rinehart & Winston.

Paolini, S., Harwood, J., & Rubin, M. (2010). Negative intergroup contact makes group memberships salient: Explaining why intergroup conflict endures. *Personality and Social Psychology Bulletin, 36*, 1723-1738. doi:10.1177/0146167210388667

Paolini, S., Hewstone, M., & Cairns, E. (2007). Direct and indirect intergroup friendship effects: Testing the moderating role of the affective-cognitive bases of prejudice. *Personality and Social Psychology Bulletin, 33*, 1406-1420. doi:10.1177/0146167207304788

Paolini, S., Hewstone, M., Cairns, E., & Voci, A. (2004). Effects of direct and indirect cross-group friendships on judgments of Catholics and Protestants in northern Ireland: The mediating role of an anxiety-reduction mechanism. *Personality and Social Psychology Bulletin, 30*, 770-786. doi:10.1177/0146167203262848

Paris, C., & Combs, B. (2006). Lived meanings: What teachers mean when they say they are learner-centered. *Teachers and Teaching: Theory and Practice, 12*, 571-592. doi:10.1080/13540600600832296

Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. R. Shaver, L. S. Wrightsman, J. P. Robinson, P. R. Shaver & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes.* (pp. 17-59). San Diego, CA US: Academic Press.

Paulhus, D. L., & Vazire, S. (2007). The self-report method. In R. W. Robins, R. C. Fraley, R. F. Krueger, R. W. Robins, R. C. Fraley & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology.* (pp. 224-239). New York, NY US: Guilford Press.

Payne, B. K. (2001). Prejudice and perception: The role of automatic and controlled processes in misperceiving a weapon. *Journal of Personality and Social Psychology, 81*, 181-192.

Pereira, C., Vala, J., & Costa-Lopes, R. (2010). From prejudice to discrimination: The legitimizing role of perceived threat in discrimination against immigrants. *European Journal of Social Psychology, 40*, 1231-1250. doi:10.1002/ejsp.718

Pereira, C., Vala, J., & Leyens, J. P. (2009). From infra-humanization to discrimination: The mediation of symbolic threat needs egalitarian norms. *Journal of Experimental Social Psychology, 45*, 336-344. doi:10.1016/j.jesp.2008.10.010

Peters, M. J. V., Jelicic, M., & Merckelbach, H. (2006). When stereotypes backfire: Trying to suppress stereotypes produces false recollections of a crime. *Legal and Criminological Psychology, 11*, 327-336. doi:10.1348/135532505X74055

Petrova, P. K., & Cialdini, R. B. (2005). Fluency of consumption imagery and the backfire effects of imagery appeals. *Journal of Consumer Research, 32*, 442-452. doi:10.1086/497556

Pettigrew, T. F. (1997). Generalized intergroup contact effects on prejudice. *Personality and Social Psychology Bulletin, 23*, 173-185. doi:10.1177/0146167297232006

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65-85. doi:10.1146/annurev.psych.49.1.65

Pettigrew, T. F. (2008). Future directions for intergroup contact theory and research. *International Journal of Intercultural Relations, 32,* 187-199.

Pettigrew, T. F. (2009). Secondary transfer effect of contact: Do intergroup contact effects spread to noncontacted outgroups? *Social Psychology, 40*, 55-65. doi:10.1027/1864-9335.40.2.55

Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology, 90*, 751-783. doi:10.1037/0022-3514.90.5.751

Pettigrew, T. F., & Tropp, L. R. (2008). How does intergroup contact reduce prejudice? meta-analytic tests of three mediators. *European Journal of Social Psychology, 38*, 922-934. doi:10.1002/ejsp.504

Pettigrew, T. F., & Tropp, L. R. (2011). *When groups meet: The dynamics of intergroup contact*. New York, NY US: Psychology Press.

Pham, L. B., & Taylor, S. E. (1999). From thought to action: Effects of process-versus outcome-based mental simulations on performance. *Personality and Social Psychology Bulletin, 25*, 250-260. doi:10.1177/0146167299025002010

Plant, E. A., & Devine, P. G. (2003). The antecedents and implications of interracial anxiety. *Personality and Social Psychology Bulletin, 29*, 790-801. doi:10.1177/0146167203029006011

Plant, E. A., & Devine, P. G. (2009). The active control of prejudice: Unpacking the intentions guiding control efforts. *Journal of Personality and Social Psychology, 96*, 640-652. doi:10.1037/a0012960

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879-891. doi:10.3758/BRM.40.3.879

Prentice, D. A., & Miller, D. T. (1996). Pluralistic ignorance and the perpetuation of social norms by unwitting actors. In M. P. Zanna (Ed.), *Advances in experimental social psychology, vol. 28.* (pp. 161-209). San Diego, CA US: Academic Press. doi:10.1016/S0065-2601(08)60238-5

Preston, S. D., & de Waal, Frans B. M. (2002). Empathy: Its ultimate and proximate bases. *Behavioral and Brain Sciences, 25*, 1-20. doi:10.1017/S0140525X02000018

Ratcliff, C. D., Czuchry, M., Scarberry, N. C., Thomas, J. C., Dansereau, D. F., & Lord, C. G. (1999). Effects of directed thinking on intentions to engage in beneficial activities: Actions versus reasons. *Journal of Applied Social Psychology, 29*, 994-1009. doi:10.1111/j.1559-1816.1999.tb00136.x

Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science, 9*, 45-48. doi:10.1111/1467-9280.00008

Reuters (2008). *Briefs3-FA investigating claims of racist chanting against mido.* Retrieved August, 2011, from http://reuters.com/article/2008/12/01/sport-briefs-idUKL137257820081201

Richards, Z., & Hewstone, M. (2001). Subtyping and subgrouping: Processes for the prevention and promotion of stereotype change. *Personality and Social Psychology Review, 5*, 52-73. doi:10.1207/S15327957PSPR0501_4

Richeson, J. A., Baird, A. A., Gordon, H. L., Heatherton, T. F., Wyland, C. L., Trawalter, S., & Shelton, J. N. (2003). An fMRI investigation of the impact of interracial contact on executive function. *Nature Neuroscience, 6*, 1323-1328. doi:10.1038/nn1156

Richeson, J. A., & Shelton, J. N. (2003). When prejudice does not pay: Effects of interracial contact on executive function. *Psychological Science, 14*, 287-290. doi:10.1111/1467-9280.03437

Richeson, J. A., & Shelton, J. N. (2007). Negotiating interracial interactions: Costs, consequences, and possibilities. *Current Directions in Psychological Science, 16*, 316-320. doi:10.1111/j.1467-8721.2007.00528.x

Richeson, J. A., & Trawalter, S. (2005). Why do interracial interactions impair executive function? A resource depletion account. *Journal of Personality and Social Psychology, 88*, 934-947. doi:10.1037/0022-3514.88.6.934

Richeson, J. A., Trawalter, S., & Shelton, J. N. (2005). African americans' implicit racial attitudes and the depletion of executive function after interracial interactions. *Social Cognition, 23*, 336-352. doi:10.1521/soco.2005.23.4.336

Rivkin, I. D., & Taylor, S. E. (1999). The effects of mental simulation on coping with controllable stressful events. *Personality and Social Psychology Bulletin, 25*, 1451-1462. doi:10.1177/01461672992510002

Rizzolatti, G. (2005). The mirror neuron system and its function in humans. *Anatomy and Embryology, 210*, 419-421. doi:10.1007/s00429-005-0039-z

Robinson, J. W., & Preston, J. D. (1976). Equal-status contact and modification of racial prejudice: A reexamination of the contact hypothesis. *Social Forces, 54*, 911-924. doi:10.2307/2576183

Roediger, H. L. (1996). Memory illusions. *Journal of Memory and Language, 35*, 76-100. doi:10.1006/jmla.1996.0005

Roese, N. J., & Olson, J. M. (1996). Counterfactuals, causal attributions, and the hindsight bias: A conceptual integration. *Journal of Experimental Social Psychology, 32*, 197-227. doi:10.1006/jesp.1996.0010

Rosnow, R. L., Rosenthal, R., & Rubin, D. B. (2000). Contrasts and correlations in effect-size estimation. *Psychological Science, 11*, 446-453. doi:10.1111/1467-9280.00287

Ross, L., Lepper, M. R., & Hubbard, M. (1975). Perseverance in self-perception and social perception: Biased attributional processes in the debriefing paradigm. *Journal of Personality and Social Psychology, 32*, 880-892. doi:10.1037/0022-3514.32.5.880

Ross, M. (1989). Relation of implicit theories to the construction of personal histories. *Psychological Review, 96*, 341-357. doi:10.1037/0033-295X.96.2.341

Rothbaum, B. O., & Schwartz, A. C. (2002). Exposure therapy for posttraumatic stress disorder. *American Journal of Psychotherapy, 56*, 59-75.

Schacter, D. L. (1999). The seven sins of memory: Insights from psychology and cognitive neuroscience. *American Psychologist, 54*, 182-203. doi:10.1037/0003-066X.54.3.182

Schacter, D. L., & Addis, D. R. (2008). The cognitive neuroscience of constructive memory: Remembering the past and imagining the future. In J. Driver, P. Haggard, T. Shallice, J. Driver, P. Haggard & T. Shallice (Eds.), *Mental processes in the human brain.* (pp. 27-47). New York, NY US: Oxford University Press.

Schwarz, N. (2004). Metacognitive experiences in consumer judgment and decision making. *Journal of Consumer Psychology, 14*, 332-348. doi:10.1207/s15327663jcp1404_2

Schwarz, N., Bless, H., Strack, F., Klumpp, G., Rittenauer-Schatka, H., & Simons, A. (1991). Ease of retrieval as information: Another look at the availability

heuristic. *Journal of Personality and Social Psychology, 61*, 195-202. doi:10.1037/0022-3514.61.2.195

Sharman, S. J., & Scoboria, A. (2009). Imagination equally influences false memories of high and low plausibility events. *Applied Cognitive Psychology, 23*, 813-827. doi:10.1002/acp.1515

Shechtman, Z., & Tanus, H. (2006). Counseling groups for Arab adolescents in an intergroup conflict in israel: Report of an outcome study. *Peace and Conflict: Journal of Peace Psychology, 12*, 119-137. doi:10.1207/s15327949pac1202_2

Shelton, J. N. (2003). Interpersonal concerns in social encounters between majority and minority group members. *Group Processes & Intergroup Relations, 6*, 171-185. doi:10.1177/1368430203006002003

Shelton, J. N., Richeson, J. A., Salvatore, J., & Trawalter, S. (2005). Ironic effects of racial bias during interracial interactions. *Psychological Science, 16*, 397-402. doi:10.1111/j.0956-7976.2005.01547.x

Shelton, J. N., Richeson, J. A., & Vorauer, J. D. (2006). Threatened identities and interethnic interactions. *European Review of Social Psychology, 17*, 321-358. doi:10.1080/10463280601095240

Sherif, M. (1966). *The psychology of social norms*. Oxford England: Harper Torchbooks.

Sherman, R. T., & Anderson, C. A. (1987). Decreasing premature termination from psychotherapy. *Journal of Social and Clinical Psychology, 5*, 298-312.

Sherman, S. J., Cialdini, R. B., Schwartzman, D. F., & Reynolds, K. D. (1985). Imagining can heighten or lower the perceived likelihood of contracting a

disease: The mediating effect of ease of imagery. *Personality and Social Psychology Bulletin, 11*, 118-127. doi:10.1177/0146167285111011

Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. New York, NY US: Cambridge University Press.

Snyder, M., & Swann, W. B. (1978). Hypothesis-testing processes in social interaction. *Journal of Personality and Social Psychology, 36*, 1202-1212. doi:10.1037/0022-3514.36.11.1202

Snyder, M., Tanke, E. D., & Berscheid, E. (1977). Social perception and interpersonal behavior: On the self-fulfilling nature of social stereotypes. *Journal of Personality and Social Psychology, 35*, 656-666. doi:10.1037/0022-3514.35.9.656

Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). A terror management theory of social behavior: The psychological functions of self-esteem and cultural worldviews. In M. Zanna (Ed.), *Advances in experimental social psychology* (24th ed., pp. 93-159). San Diego, CA US: Academic Press.

Spencer, S. J., Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining psychological processes. *Journal of Personality and Social Psychology, 89*, 845-851. doi:10.1037/0022-3514.89.6.845

Stangor, C., Sullivan, L. A., & Ford, T. E. (1991). Affective and cognitive determinants of prejudice. *Social Cognition, 9*, 359-380.

Stathi, S., & Crisp, R. J. (2008). Imagining intergroup contact promotes projection to outgroups. *Journal of Experimental Social Psychology, 44*, 943-957. doi:10.1016/j.jesp.2008.02.003

Stathi, S., Crisp, R. J., & Hogg, M. A. (2011). Imagining intergroup contact enables member-to-group generalization. *Group Dynamics: Theory, Research, and Practice.* Advance online publication. doi:10.1037/a0023752

Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist, 52*, 613-629. doi:10.1037/0003-066X.52.6.613

Stephan, E., Sedikides, C., Wildschut, T., Routledge, C., Zhou, X., Kang, L., & Vingerhoets, A. J. J. M. (2011). *Nostalgia regulates avoidance and approach motivation.* Manuscript submitted for publication.

Stephan, W. G., Boniecki, K. A., Ybarra, O., Bettencourt, A., Ervin, K. S., Jackson, L. A., . . . & Renfro, C. L. (2002). The role of threats in the racial attitudes of blacks and white. *Personality and Social Psychology Bulletin, 28*, 1242-1254. doi:10.1177/01461672022812009

Stephan, W. G., & Stephan, C. W. (1985). Intergroup anxiety. *Journal of Social Issues, 41*, 157-175.

Stephan, W. G., & Stephan, C. W. (2000). An integrated threat theory of prejudice. In S. Oskamp, & S. Oskamp (Eds.), *Reducing prejudice and discrimination.* (pp. 23-45). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Stephan, W. G., Stephan, C. W., & Gudykunst, W. B. (1999). Anxiety in intergroup relations: A comparison of anxiety/uncertainty management theory and integrated threat theory. *International Journal of Intercultural Relations, 23*, 613-628. doi:10.1016/S0147-1767(99)00012-7

Strack, F., Schwarz, N., & Gschneidinger, E. (1985). Happiness and reminiscing: The role of time perspective, affect, and mode of thinking. *Journal of*

Personality and Social Psychology, 49, 1460-1469. doi:10.1037/0022-3514.49.6.1460

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology, 18*, 643-662. doi:10.1037/h0054651

Swart, H., Hewstone, M., Christ, O., & Voci, A. (2011). Affective mediators of intergroup contact: A three-wave longitudinal study in South Africa. *Journal of Personality and Social Psychology.* Advance online publication. doi:10.1037/a0024450

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin, & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Monterey, CA US: Brooks/Cole.

Tarrier, N., Pilgrim, H., Sommerfield, C., Faragher, B., Reynolds, M., Graham, E., & Barrowclough, C. (1999). A randomized trial of cognitive therapy and imaginal exposure in the treatment of chronic posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 67*, 13-18. doi:10.1037/0022-006X.67.1.13

Taylor, S. E. (1991). Asymmetrical effects of positive and negative events: The mobilization-minimization hypothesis. *Psychological Bulletin, 110*, 67-85. doi:10.1037/0033-2909.110.1.67

Taylor, S. E., Pham, L. B., Rivkin, I. D., & Armor, D. A. (1998). Harnessing the imagination: Mental stimulation, self-regulation, and coping. *American Psychologist, 53*, 429-439. doi:10.1037/0003-066X.53.4.429

Taylor, S. E., & Schneider, S. K. (1989). Coping and the simulation of events. *Social Cognition, 7*, 174-194.

The Guardian (2005). *Islamophobia blamed for attack.* Retrieved August, 2011, from http://www.guardian.co.uk/uk/2005/jul/13/race.july7

The New Oxford Dictionary of English (1998). Oxford, England: Oxford University Press.

Trawalter, S., & Richeson, J. A. (2006). Regulatory focus and executive function after interracial interactions. *Journal of Experimental Social Psychology, 42*, 406-412. doi:10.1016/j.jesp.2005.05.008

Tropp, L. R., & Pettigrew, T. F. (2005a). Differential relationships between intergroup contact and affective and cognitive dimensions of prejudice. *Personality and Social Psychology Bulletin, 31*, 1145-1158. doi:10.1177/0146167205274854

Tropp, L. R., & Pettigrew, T. F. (2005b). Relationships between intergroup contact and prejudice among minority and majority status groups. *Psychological Science, 16*, 951-957. doi:10.1111/j.1467-9280.2005.01643.x

Turner, R. N., & Crisp, R. J. (2010). Imagining intergroup contact reduces implicit prejudice. *British Journal of Social Psychology, 49*, 129-142. doi:10.1348/014466609X419901

Turner, R. N., Crisp, R. J., & Lambert, E. (2007). Imagining intergroup contact can improve intergroup attitudes. *Group Processes & Intergroup Relations, 10*, 427-441. doi:10.1177/1368430207081533

Turner, R. N., Hewstone, M., & Voci, A. (2007). Reducing explicit and implicit outgroup prejudice via direct and extended contact: The mediating role of self-disclosure and intergroup anxiety. *Journal of Personality and Social Psychology, 93*, 369-388. doi:10.1037/0022-3514.93.3.369

Turner, R. N., Hewstone, M., Voci, A., Paolini, S., & Christ, O. (2007). Reducing prejudice via direct and extended cross-group friendship. *European Review of Social Psychology, 18*, 212-255. doi:10.1080/10463280701680297

Turner, R. N., Hewstone, M., Voci, A., & Vonofakou, C. (2008). A test of the extended intergroup contact hypothesis: The mediating role of intergroup anxiety, perceived ingroup and outgroup norms, and inclusion of the outgroup in the self. *Journal of Personality and Social Psychology, 95*, 843-860. doi:10.1037/a0011434

Turner, R. N., Sedikides, C., & Wildschut, T. (in press). Dropping the weight stigma: Nostalgia improves attitudes toward persons who are overweight. *Journal of Experimental Social Psychology.*

Turner, R. N., West, K., & Christie, Z. (in press). Outgroup trust, intergroup anxiety, and outgroup attitude as mediators of the effect of imagined intergroup contact on intergroup behavioural tendencies. *Journal of Applied Social Psychology.*

Turner, R. N., & West, K. (2011). Behavioural consequences of imagining intergroup contact with stigmatized outgroups. *Group Processes and Intergroup Relations.* Advance online publication. doi:10.1177/1368430211418699

Turner, R. N., & West, K. (in press). Behavioural consequences of imagining intergroup contact with stigmatized outgroups. *Group Processes and Intergroup Relations.*

Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology, 5*, 207-232. doi:10.1016/0010-0285(73)90033-9

Tversky, B., & Marsh, E. J. (2000). Biased retellings of events yield biased memories. *Cognitive Psychology, 40*, 1-38. doi:10.1006/cogp.1999.0720

UNESCO (1945). *Constitution of the united nations eucational, sientific, and cultural organization.* Retrieved August, 2011, from http://www.icomos.org/unesco/unesco_constitution.html

Vala, J., Pereira, C., & Costa-Lopes, R. (2009). Is the attribution of cultural differences to minorities an expression of racial prejudice? *International Journal of Psychology, 44*, 20-28. doi:10.1080/00207590802057837

Van Rijswijk, W., Hopkins, N., & Johnston, H. (2009). The role of social categorization and identity threat in the perception of migrants. *Journal of Community & Applied Social Psychology, 19*, 515-520. doi:10.1002/casp.1011

Van Selst, M., & Jolicoeur, P. (1994). A solution to the effect of sample size on outlier elimination. *The Quarterly Journal of Experimental Psychology A: Human Experimental Psychology, 47*, 631-650. doi:10.1080/14640749408401131

Vescio, T. K., Sechrist, G. B., & Paolucci, M. P. (2003). Perspective taking and prejudice reduction: The mediational role of empathy arousal and situational attributions. *European Journal of Social Psychology, 33*, 455-472. doi:10.1002/ejsp.163

Voci, A., & Hewstone, M. (2003). Intergroup contact and prejudice toward immigrants in italy: The mediational role of anxiety and the moderational role of group salience. *Group Processes & Intergroup Relations, 6*, 37-52. doi:10.1177/1368430203006001011

von Hippel, W., Silver, L. A., & Lynch, M. E. (2000). Stereotyping against your will: The role of inhibitory ability in stereotyping and prejudice among the elderly. *Personality and Social Psychology Bulletin, 26*, 523-532. doi:10.1177/0146167200267001

Vorauer, J. D., Hunter, A. J., Main, K. J., & Roy, S. A. (2000). Meta-stereotype activation: Evidence from indirect measures for specific evaluative concerns experienced by members of dominant groups in intergroup interaction. *Journal of Personality and Social Psychology, 78*, 690-707. doi:10.1037/0022-3514.78.4.690

Vorauer, J. D., & Kumhyr, S. M. (2001). Is this about you or me? self- versus other-directed judgments and feelings in response to intergroup interaction. *Personality and Social Psychology Bulletin, 27*, 706-719. doi:10.1177/0146167201276006

Vorauer, J. D., & Turpie, C. A. (2004). Disruptive effects of vigilance on dominant group members' treatment of outgroup members: Choking versus shining under pressure. *Journal of Personality and Social Psychology, 87*, 384-399. doi:10.1037/0022-3514.87.3.384

Wagner, U., Christ, O., Pettigrew, T. F., Stellmacher, J., & Wolf, C. (2006). Prejudice and minority proportion: Contact instead of threat effects. *Social Psychology Quarterly, 69*, 380-390. doi:10.1177/019027250606900406

Walker, I. (1994). Attitudes to minorities: Survey evidence of western australians' attitudes to aborigines, asians, and women. *Australian Journal of Psychology, 46*, 137-143. doi:10.1080/00049539408259488

Wänke, M., Bohner, G., & Jurkowitsch, A. (1997). There are many reasons to drive a BMW: Does imagined ease of argument generation influence attitudes? *Journal of Consumer Research, 24*(2), 170-177. doi:10.1086/209502

Watson, G. (1947). *Action for unity*. Oxford England: Harper.

Weber, R., & Crocker, J. (1983). Cognitive processes in the revision of stereotypic beliefs. *Journal of Personality and Social Psychology, 45*, 961-977.

West, K., Holmes, E., & Hewstone, M. (2011). Enhancing imagined contact to reduce prejudice against people with schizophrenia. *Group Processes & Intergroup Relations, 14*, 407-428. doi:10.1177/1368430210387805

Whittlesea, B. W. A., & Leboe, J. P. (2000). The heuristic basis of remembering and classification: Fluency, generation, and resemblance. *Journal of Experimental Psychology: General, 129*, 84-106. doi:10.1037/0096-3445.129.1.84

Wilder, D. A. (1993). The role of anxiety in facilitating stereotypic judgments of outgroup behavior. In *Affect, cognition, and stereotyping: Interactive processes in group perception.* (pp. 87-109). San Diego, CA US: Academic Press.

Wilder, D. A., & Shapiro, P. (1991). Facilitation of outgroup stereotypes by enhanced ingroup identity. *Journal of Experimental Social Psychology, 27*, 431-452. doi:10.1016/0022-1031(91)90002-N

Wilder, D. A., & Shapiro, P. N. (1989). Role of competition-induced anxiety in limiting the beneficial impact of positive behavior by an out-group member. *Journal of Personality and Social Psychology, 56*, 60-69. doi:10.1037/0022-3514.56.1.60

Wildschut, T., Sedikides, C., Arndt, J., & Routledge, C. (2006). Nostalgia: Content, triggers, functions. *Journal of Personality and Social Psychology, 91*, 975-993. doi:10.1037/0022-3514.91.5.975

Wildschut, T., Sedikides, C., Routledge, C., Arndt, J., & Cordaro, F. (2010). Nostalgia as a repository of social connectedness: The role of attachment-related avoidance. *Journal of Personality and Social Psychology, 98*, 573-586. doi:10.1037/a0017597

Williams, R. M., Jr. (1947). The reduction of intergroup tensions: A survey of research on problems of ethnic, racial, and religious group relations. *Social Science Research Council Bulletin, 57.*

Wilson, A. E., & Ross, M. (2003). The identity function of autobiographical memory: Time is on our side. *Memory, 11*, 137-149. doi:10.1080/741938210

Wilson, T. D., & Capitman, J. A. (1982). Effect of script availability on social behavior. *Personality and Social Psychology Bulletin, 8*, 11-19. doi:10.1177/014616728281002

Winkielman, P., & Cacioppo, J. T. (2001). Mind at ease puts a smile on the face: Psychophysiological evidence that processing facilitation elicits positive affect. *Journal of Personality and Social Psychology, 81*(6), 989-1000. doi:10.1037/0022-3514.81.6.989

Winkielman, P., Schwarz, N., & Belli, R. F. (1998). The role of ease of retrieval and attribution in memory judgments: Judging your memory as worse despite recalling more events. *Psychological Science, 9*, 124-126. doi:10.1111/1467-9280.00022

Wolpe, J. (1959). Psychotherapy based on the principle of reciprocal inhibition. In A. Burton (Ed.), *Case studies in counseling and psychotherapy.* (pp. 353-

381). Oxford Englewood Cliffs, NJ EnglandUS: Prentice-Hall; Prentice-Hall, Inc. doi:10.1037/10575-013

Wolsko, C., Park, B., Judd, C. M., & Bachelor, J. (2003). Intergroup contact: Effects on group evaluations and perceived variability. *Group Processes & Intergroup Relations, 6*, 93-110. doi:10.1177/1368430203006001014

Woodman, T., & Hardy, L. (2003). The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. *Journal of Sports Sciences, 21*, 443-457. doi:10.1080/0264041031000101809

Wright, S. C., Aron, A., McLaughlin-Volpe, T., & Ropp, S. A. (1997). The extended contact effect: Knowledge of cross-group friendships and prejudice. *Journal of Personality and Social Psychology, 73*, 73-90. doi:10.1037/0022-3514.73.1.73

Wundt, W., Creighton, J. E. (., & Titchener, E. B. (. (1894). *Lectures on human and animal psychology (trans. from german 2nd ed.)*. New York, NY US: Swan Sonnenschein & Co.

Yerkes, R. M., & Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit formation. *Journal of Comparative Neurology & Psychology, 18*, 459-482. doi:10.1002/cne.920180503

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology, 9*, 1-27. doi:10.1037/h0025848

Zhou, X., Sedikides, C., Wildschut, T., & Gao, D. (2008). Counteracting loneliness: On the restorative function of nostalgia. *Psychological Science, 19*, 1023-1029. doi:10.1111/j.1467-9280.2008.02194.x

APPENDIX A: MEANS, STANDARD DEVIATIONS, AND CORRELATIONS

Table A1

Means and standard deviations of all measures as a function of imagery task (Experiment 1)

	Imagery Task	
	Imagined Contact	**Control**
Intergroup Anxiety	2.83 (0.41)	3.22 (0.77)
Tolerance	4.52 (0.41)	4.14 (0.90)

Note: Standard deviations shown in parentheses.

Table A2

Pearson Correlation Matrix among all measures as a function of imagery task (Experiment 1)

	Imagery Task			
	Imagined Contact		**Control**	
	Anxiety	Tolerance	Anxiety	Tolerance
Anxiety		.04		-.71*
Tolerance				

Note: *$p < .05$

Table A3

Means and standard deviations of all measures as a function of imagery task (Experiment 2)

	Imagery Task	
	Imagined Contact	**Control**
Intergroup Anxiety	2.41 (0.73)	2.83 (1.01)
Tolerance	4.57 (0.59)	3.96 (0.94)
Enjoyment	6.36 (1.55)	5.56 (1.68)

Note: Standard deviations shown in parentheses.

Table A4

Pearson Correlation Matrix among all measures as a function of imagery task (Experiment 2)

	Imagery Task					
	Imagined Contact			**Control**		
	Anxiety	Tolerance	Enjoyment	Anxiety	Tolerance	Enjoyment
Anxiety		-.04	-.13		-.51**	-.63**
Tolerance			.35*			.50**
Enjoyment						

Note: *$p < .05$, **$p < .01$

Table A5

Means and standard deviations of all measures as a function of imagery task (Experiment 3)

	Imagery Task	
	Imagined Contact	**Control**
Performance Anxiety	4.02 (1.26)	3.77 (0.96)
Communication Quality	6.66 (0.94)	6.43 (1.48)
Stroop Interference	90.37 (68.24)	72.60 (61.41)

Note: Standard deviations shown in parentheses.

Table A6

Pearson Correlation Matrix among all measures as a function of imagery task (Experiment 3)

	Imagery Task					
	Imagined Contact			**Control**		
	Anxiety	Quality	Stroop	Anxiety	Quality	Stroop
Anxiety		.02	.59*		-.53*	-.34
Quality			.39			.36
Stroop						

Note: *$p < .05$

Table A7

Means and standard deviations of all measures as a function of imagery task (Experiment 4)

	Imagery Task	
	Imagined Contact	**Control**
Intergroup Anxiety	2.24 (0.78)	2.15 (0.63)
Communication Difficulty	2.31 (1.25)	3.46 (1.66)
Stroop Interference	78.17 (59.38)	70.12 (44.66)

Note: Standard deviations shown in parentheses.

Table A8

Pearson Correlation Matrix among all measures as a function of imagery task (Experiment 4)

	Imagery Task					
	Imagined Contact			**Control**		
	Anxiety	Difficulty	Stroop	Anxiety	Difficulty	Stroop
Anxiety		-.13	.56*		.57*	-.15
Quality			.03			-.16
Stroop						

Note: *$p < .05$

Table A9

Means and standard deviations of all measures as a function of imagery task (Experiment 6)

	Imagery Task	
	Imagined Contact	**Control**
Contact Quality	4.23 (0.87)	4.43 (0.95)
Outgroup Evaluation	65.16 (16.41)	67.87 (24.71)
Imagery Difficulty	3.01 (1.25)	2.70 (1.19)

Note: Standard deviations shown in parentheses.

Table A10

Pearson Correlation Matrix among all measures as a function of imagery task (Experiment 6)

	Imagery Task					
	Imagined Contact			**Control**		
	Contact	Evaluation	Difficulty	Contact	Evaluation	Difficulty
Contact		.54**	-.38*		.78*	.10
Evaluation			-.34			.06
Difficulty						

Note: *$p < .05$, **$p < .01$

Table A11

Means and standard deviations of all measures as a function of imagery task (Experiment 7)

	Imagery Task	
	Imagined Contact	**Control**
Contact Quantity	3.04 (1.18)	3.23 (1.17)
Uncertainty	2.67 (1.21)	3.30 (1.39)
Intention	6.20 (1.46)	5.13 (2.04)

Note: Standard deviations shown in parentheses.

Table A12

Pearson Correlation Matrix among all measures as a function of imagery task (Experiment 7)

	Imagery Task					
	Imagined Contact			**Control**		
	Contact	Uncertainty	Intention	Contact	Uncertainty	Intention
Contact		-.07	-.03		-.46*	.55*
Uncertainty			-.54*			-.48*
Intention						

Note: *$p < .05$

Table A13

Means and standard deviations of all measures as a function of imagery task (Experiment 7)

	Imagery Task	
	Imagined Contact	**Control**
Vividness Ability	3.69 (0.61)	3.49 (0.63)
Vividness of Scenario	6.68 (1.38)	7.55 (0.93)
Anxiety	2.42 (0.49)	2.86 (0.62)
Uncertainty	3.72 (1.07)	5.06 (1.56)

Note: Standard deviations shown in parentheses.

Table A14

Pearson Correlation Matrix among all measures as a function of imagery task (Experiment 7)

	Imagery Task							
	Imagined Contact				**Control**			
	1	2	3	4	1	2	3	4
1. Ability		.62**	-.53*	-.22		.18	.20	.23
2. Scenario			-.33	.06			-.07	-.15
3. Anxiety				.38				.49*
4. Uncertainty								

Note: *$p < .05$, ** $p < .01$

APPENDIX B: EXAMPLE QUESTIONNAIRE EXPERIMENT 4

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Participant Information Sheet and Consent Form

Visual Imagery and Stroop I

Dear participant

Please take a few minutes to read the following information on this research carefully before you agree to participate. If at any time you have a question regarding the study, please feel free to ask the researcher who will provide more information.

This study is being conducted by Michèle Birtel, a PhD student at the University of Kent. It aims to investigate Visual Imagery and Stroop. The study should take no more than 40 minutes to complete.

Of course, you are not obliged to participate in this research and are free to refuse to participate. You may also withdraw from the study at any point without giving any reason. In this case, all of your responses will be destroyed and omitted from the research. If you agree to participate in and complete the study, all responses and questionnaires will be treated confidentially. Your name and identifying information will be kept securely and separately from the rest of your questionnaire. Data will be stored for a maximum of five years after the study. Once the data is analyzed, a report of the findings may be submitted for publication.

To signify your voluntary participation, please complete the consent form below.

CONSENT FORM

Research Title: Visual Imagery and Stroop I.
Name of Researcher: Michèle Birtel: mdb29@kent.ac.uk, 01227 827770
Name of Supervisor: Prof Richard Crisp: R.Crisp@kent.ac.uk, 01227 827998
Centre for the Study of Group Processes, School of Psychology, Keynes College, University of Kent, Canterbury, Kent CT2 7NP.

Please tick the boxes to confirm that you agree to each statement.

1. I confirm that I have read and understood the information sheet for this study and have had the opportunity to ask any questions. ☐
2. I understand that my participation is voluntary and that I may withdraw from the study at any time without explanation. ☐
3. I agree to take part in this study. ☐

Name of Participant	Date	Signature
_____	_____	_____

If you have any concerns about the ethical conduct of this study, please inform the Chair of the Psychology Research Ethics Committee (via the Psychology Departmental Office) in writing, providing a detailed account of your concern.

This is a project about people's experiences with and feelings about international students. Furthermore, we are looking at whether visual imagery has an effect on a categorization task.

1. Everyday Contact with and Feelings about International Students

Please answer the following questions about your **everyday contact and feelings with international students**. There are **no right or wrong answers**, we are only interested in gaining an accurate overall impression. Please cross a number between 1 and 7.

How many international students do you know?
None ① ② ③ ④ ⑤ ⑥ ⑦ A lot

How many friends do you have <u>at</u> university who are international students?
None ① ② ③ ④ ⑤ ⑥ ⑦ A lot

How many friends do you have <u>outside</u> university who are international students?
None ① ② ③ ④ ⑤ ⑥ ⑦ A lot

How often do you spend time with international students at <u>university</u>?
Never ① ② ③ ④ ⑤ ⑥ ⑦ Very often

How often do you spend time with international students as <u>neighbours</u>?
Never ① ② ③ ④ ⑤ ⑥ ⑦ Very often

How often do you spend time with international students as <u>close friends</u>?
Never ① ② ③ ④ ⑤ ⑥ ⑦ Very often

How often do you have <u>informal talks</u> with international students?
Never ① ② ③ ④ ⑤ ⑥ ⑦ Very often

How often do you <u>visit</u> an international student at home?
Never ① ② ③ ④ ⑤ ⑥ ⑦ Very often

How would you characterize the contact you have with international students?

Superficial	①	②	③	④	⑤	⑥	⑦	**Deep**
Natural	①	②	③	④	⑤	⑥	⑦	**Forced**
Unpleasant	①	②	③	④	⑤	⑥	⑦	**Pleasant**
Competitive	①	②	③	④	⑤	⑥	⑦	**Cooperative**
Intimate	①	②	③	④	⑤	⑥	⑦	**Distant**
Unequal	①	②	③	④	⑤	⑥	⑦	**Equal**
Distant	①	②	③	④	⑤	⑥	⑦	**Close**
Involuntary	①	②	③	④	⑤	⑥	⑦	**Voluntary**

If you were to meet an international student in the future, how do you think you would feel?

Awkward								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Suspicious								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Embarrassed								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Defensive								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Anxious								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Happy								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Comfortable								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Self-conscious								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Confident								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Careful								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much

2. Visual Imagery

In the first part of the study, we are interested in mental images.

We would like you to imagine the following scenario as **vividly and in as much detail** as possible.

I will come back in a few minutes and give you the next task. If you have any questions, please let me know.

Now start imagining the following scenario:

Please take a moment to imagine yourself meeting an **international student stranger** for the first time. Imagine that the interaction is positive, relaxed, and comfortable.

Describe what you have just imagined in as much detail as possible:

_____

_____

_____

_____

_____

_____

If you were now asked to have a conversation with an international student stranger, how <u>uncertain</u> would you be about it?

Not at all ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ Very much

If you were now asked to have a conversation with an international student stranger, how <u>able to understand this person</u> would you be?

Not at all ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ Very much

If you were to meet an international student now, how do you think you would feel?

Awkward								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Suspicious								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Embarrassed								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Defensive								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Anxious								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Happy								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Comfortable								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Self-conscious								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Confident								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much
Careful								
Not at all	①	②	③	④	⑤	⑥	⑦	Very much

Project: Integration of International Students

Centre for the Study of Group Processes
School of Psychology
University of Kent
Canterbury, CT2 7NP

University of Kent

Dear Student

The University of Kent has many international students. These students often are new to the UK and to Canterbury when they come to study here. The Social Group is carrying out a project to encourage 'buddying' of British students with international students at the University of Kent. We want to provide a project that helps new international students to find friends, and helps them to grips with their coursework. For this reason, we are asking British students whether they would be willing to write an email to an international student, talking about their experiences as a student at the University of Kent, life in Canterbury, or any other topics they would like to share. We have prepared several topics to discuss that are useful for this student.

Would you be willing to write this email to an international student?

❑ yes ❑ no

Would you be willing to give your email address to an international student so she/he could write to you?

❑ yes ❑ no

Email: _____

Would you be willing that we contact you about this project in the future?

Very unwilling ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ **Very willing**

Project: Integration of International Students

Centre for the Study of Group Processes
School of Psychology
University of Kent
Canterbury, CT2 7NP

University of Kent

Dear Participant

Thank you for agreeing to get in contact with one of our new international students.
Your help is greatly appreciated.

It would be useful for our international students if you could write about your experiences about

- life at University
- getting along with other international students
- Canterbury
- things you think the other student might find useful to know

We ask you to log in into your email account now, and send the email when you are finished. Take as much time as you like.

You will write to Fatima, 23, who is studying economics at the University of Kent.
Her email address is: fatima.abdullah86@hotmail.co.uk

How easy or difficult was it for you to write this email?

Extremely easy ① ② ③ ④ ⑤ ⑥ ⑦ Extremely difficult

3. Stroop

The next task we would like you to carry out is a **colour categorization** task – the "Stroop test". The instructions will be presented by the computer.

Examples can be found on the sheet next to you.

If you have any questions or do not understand the task, let the experimenter know before doing the task.

4. Opinions about International Students

In this part, we are interested in opinions about international students in the UK.

Please describe how you feel about international students in general.

Cold	①	②	③	④	⑤	⑥	⑦	**Warm**
Positive	①	②	③	④	⑤	⑥	⑦	**Negative**
Friendly	①	②	③	④	⑤	⑥	⑦	**Hostile**
Suspicious	①	②	③	④	⑤	⑥	⑦	**Trusting**
Respectful	①	②	③	④	⑤	⑥	⑦	**Contempt**
Admiration	①	②	③	④	⑤	⑥	⑦	**Disgust**

How much do you agree with the following statements concerning international students?

I am confident in my ability to predict their behaviour.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

I am confident in my ability to predict their attitude.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

I am confident in my ability to predict their feelings.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

I am confident in my ability to predict their values.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

I am confident in my ability to predict their willingness to communicate.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

I am confident in my ability to predict their feelings about themselves.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

I am confident in my ability to predict what they mean when they communicate.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

I am confident that they make allowances for me when we communicate.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

I am confident that they can understand my feelings.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

I am confident that they would like me.

Strongly disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly agree

Thinking about the next time you find yourself in a situation where you could interact with an international student (e.g., queuing for a bus, with friends in a café, etc.) ...

How likely do you think it is that you would strike up a conversation?

Not at all likely ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ Highly likely

How interested would you be in striking up a conversation?

Not at all interested ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ Highly interested

How much do you think you'd like to strike up a conversation?

Not at all ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ Very much

In general:

How much do you intend to interact with international students in the future?

Not at all ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ A lot

How much do you expect to enjoy interacting with international students in the future?

Not at all ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ A lot

How much time do you think you might spend learning about the problems international students face?

Not at all ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ A lot of time

How important do you think interacting with international students is?

Not at all important ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ Highly important

How important do you think it is to learn more about international students and the problems they face?

Not at all ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ A lot

With respect to some possible future research we are planning:

How willing would you be to participate in a discussion group that includes both international students and British students that will focus on issues of integration and intercultural differences?

Not at all willing ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ Very willing

How willing would you be to attend a trip to an international student's home to learn more about international students?

Not at all willing ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ Very willing

How many international students do you think you might know in 5 years time? ____

How many international students do you think you might know in 10 years time? ___

Feedback Questions

Please write down your personal code here. We ask for this code only so that we can identify your responses in the event that you would like us to remove them from the summary of results. Please note that your participant code will not be associated with your name and surname. In fact, you are the only person who will be able to identify your questionnaire on the basis of this code.

Personal code: _ _ _ - _ _

(please write down last three letters of your mother's maiden name and your month of birth, e.g. LIK09)

What do you think this study was about?

_____

_____

Were you suspicious at any point that the study was looking at something other than what was stated? ❑

Not at all ❑ A little ❑ A lot

Please answer a few questions about yourself.

Age: _____ Gender: _____

Nationality: _____ Ethnicity: _____

Religion: _____ What are you studying? _____

Year of study: _____

Are you colour-blind? ❑ No ❑ Yes

Have you taken part in a study like this before? ❑ No ❑ Yes

If yes, please describe on a few lines how it was similar:

_____

_____

Thank you for your participation