

The Secondary Transfer Effect of Contact

Simon Dominic Lolliot

New College



Thesis submitted for the degree of

Doctor of Philosophy

Department of Experimental Psychology

University of Oxford

January 2013

ACKNOWLEDGEMENTS

First of all, I would like to thank my supervisor, Miles Hewstone, and my co-supervisor, Katharina Schmid. Their guidance, advice, encouragement, and patience over the past four years have not only helped me develop as a social psychologist, but as a person as well.

I am, of course, indebted beyond measure to my parents, Alain and Felicity, who have always supported me unconditionally in whichever direction(s) my interest have taken me. Their unwavering love for and faith in me has made me who I am today. This thesis is dedicated to them.

I would also like to dedicate this thesis to the late Dr. Marietjie Grobler. Marietjie, you are a role model in every sense of the word. If it were not for you, I would not be where I am today. You are sorely missed.

A special thanks goes to Joanne Hughes who not only provided the data set for Study 4, but has also become a valued collaborator. To Hermann Swart, thank you for your constant statistical advice and patient replies to panicked e-mails. From afternoons in Forelle Crescent to the laboratory, it has been an honour and a pleasure. To the rest of the fantastic Oxford social psychology group, Maria Ioannou, Huseyin Cakal, Kemi Adesokan, and Ananthi Al Ramiah, thank you for making the department a fun place to work in.

Then, a sincere thanks to my friends who have stuck with me throughout the years; Henry Cloete, Petrus Maree, Ashley Payne, Auke Slotegraaf, Aisling McConnell, Amit Gill, Ilmo van der Löwe, Jacobus Cilliers, Christopher Trisos, Jaden Hastings, Zita Patai, Rob McInerney, Sarah Rudebeck, the awesome 26 Western Road crew, and to those of you who I have not mentioned. A special thanks to Kayli Johnson who was there during, literally and figuratively, the darkest times. You have all managed to fill the last (almost) three-decades with laughs, great conversation, and help when I have needed it. Thank you.

To my brother, Alain, who has served the much need role of home-away-from-home. Al, bank you very much!

Now, for some weird reason, I remember the last word that I ever wrote in my secondary school career. As my student days draw to a close, I feel it only fitting to end my thesis, the culmination of decade-long innings in tertiary education, with the same word. So here it goes. Glucose.

CONTENTS

ACKNOWLEDGEMENTS.....	ii
CONTENTS.....	iii
DETAILED ABSTRACT.....	xix
CHAPTER ONE: THE SECONDARY TRANSFER EFFECT OF CONTACT.....	1
Introduction.....	1
Intergroup Contact Theory.....	3
Allport's Conditions: Essential or Facilitating?.....	7
Direct Contact: The Special Case of Cross-Group Friendships.....	8
Extended Contact.....	11
Attitude Generalization.....	14
Attitude Generalization From an Outgroup Member to the Outgroup as a Whole.....	15
Attitude Generalization Across Situations.....	16
Attitude Generalization From One Outgroup to Another, Uninvolved Outgroup: The Secondary Transfer Effect.....	18
Mediators of the Secondary Transfer Effect.....	22
The Attitude Generalization Hypothesis.....	23
Threats to the Attitude Generalization Hypothesis.....	31
Similarity Gradients.....	35
The Deprovincialization Hypothesis.....	40

Mixed Evidence for the Deprovincialization Hypothesis	41
Deprovincialization Hypothesis and Ingroup Identification: Theoretical Extensions	43
Summary and Contributions of this Thesis.....	54
CHAPTER TWO: METHODOLOGICAL CONSIDERATIONS	57
Introduction.....	57
From Regression to Structural Equation Modelling	58
Model Fit.....	66
Chi-Square Test.....	68
The Root Mean Square Error of Approximation (RMSEA).....	70
The Standardized Root Mean Square Residual (SRMR).....	70
The Comparative Fit Index (CFI)	71
Mediation	72
The Causal Steps Approach	74
Product-of-Coefficients Approach	75
Bootstrapping Techniques.....	75
Multiple Mediator Models	77
Method of Mediational Analysis Used in this Thesis	81
A Note on Direct Effects and Mediation in the Context of this Thesis	82
Moderations	84
Summary.....	89
Concluding Remarks.....	92

CHAPTER THREE: THE SECONDARY TRANSFER EFFECT IN ENGLAND.....	95
Introduction.....	95
South Asians in Britain	96
Homosexuality in England	99
The Homeless in the United Kingdom.....	101
Study 1	103
Hypotheses	103
Participants	104
Measures.....	104
Contact measures.	105
Attitude measures.	105
Control variables.	106
Results.....	107
Preliminary Analysis	107
Path Analysis.....	108
Study 1a: Asians as the Focal Outgroup	109
Study 1b: Gay Men as the Focal Outgroup	110
Discussion.....	111
Study 2	115
Hypotheses	117
Bivariate hypotheses.	117
Mediation and three-path mediation hypotheses.	117
Moderation hypotheses.	118
Participants and Procedure	118

Materials.....	119
Contact variables.	119
Diversity beliefs variables.	120
Attitude variables.	120
Moderator variables.	121
Control variables.	121
Results.....	121
Preliminary Data Analysis	121
Path Analysis.....	122
Study 2a: Asians as the Focal Outgroup	122
Study 2b: The Homeless as the Focal Outgroup	129
Study 2c: Gay Men as the Focal Outgroup	132
Study 2d: Homosexual Women as the Focal Outgroup	135
Discussion.....	140
Summary.....	142
 CHAPTER FOUR: THE SECONDARY TRANSFER EFFECT IN NORTHERN IRELAND.....	
Introduction.....	143
The History of the Northern Irish Conflict	145
Northern Ireland: From the Ulster Plantations to the 1960s	145
The Troubles (c.a. 1969– 1998)	148
The Good Friday Agreement to Present Day Northern Ireland	151
The History and Current Status of Travellers, Gay Men, and Racial Minorities in Northern Ireland.....	153

Travellers in Northern Ireland.....	153
Racial and Ethnic Minority Immigrants in Northern Ireland.....	156
Homosexuals in Northern Ireland	158
Intergroup Contact with Travellers, Racial Minorities, and Homosexuals in Northern Ireland.....	161
Study 3	164
Hypotheses	164
Participants.....	166
Measures	166
Control variables.	166
Contact variables.	167
Moderator variables.	167
Attitude variables.	167
Preliminary Analysis.....	168
Study 3a: Ethno-religious Outgroup as the Focal Outgroup.....	170
Moderations of the path between ingroup identification and attitudes towards the outgroups by social dominance orientation.	176
Group comparisons.	179
Reverse Secondary Transfer Effect Models.....	180
Study 3b: Gay Men as the Focal Outgroup	181
Study 3c: Racial Minorities as the Focal Outgroup	184
Discussion.....	187
Evidence for the Reformulated Deprovincialization Hypothesis.....	187
Evidence for the Attitude Generalization Hypothesis and Similarity Gradients	189

Summary of Findings.....	192
Study 4	193
Introduction.....	193
Hypotheses	196
Participants.....	198
Procedure.....	198
Materials.....	198
Contact variables.	199
Multiculturalism variables.	199
Perceived intergroup similarity variables.	199
Attitude variables.	200
Results.....	200
Preliminary Analyses	200
Structural Equation Modelling with Latent Constructs.....	202
Mediation Results.....	206
Mediation by attitude generalization.	206
Mediation by deprovincialization.	206
Three-path mediation by multiculturalism and attitude generalization.	210
Tests for Similarity Gradients	210
Similarity according to Goffman (1963).	210
Individual measures of perceived similarity.	211
Group comparisons.	213
Reverse Secondary Transfer Effect Models.....	214
Study 4b: The Disabled as the Focal Outgroup	214
Study 4c: Racial Minorities as the Focal Outgroup	217

Discussion	220
Evidence for Multiculturalism as a Mediator of the Secondary Transfer Effect	220
Attitude Generalization and Similarity Gradients	222
Summary and Conclusion	227
 CHAPTER 5: LONGITUDINAL AND EXPERIMENTAL INVESTIGATIONS INTO THE SECONDARY TRANSFER EFFECT IN SOUTH AFRICA.....	
230	230
Introduction.....	230
Bias in Cross-Sectional Studies Testing Mediational Hypotheses	233
Longitudinal Evidence for the Secondary Transfer Effect	235
Longitudinal Mediation: Cross-Sectional Extensions.....	240
Time Lags in Longitudinal Designs.....	242
The Present Research.....	248
The South African Context.....	249
Study 5	254
Hypotheses	255
Tests for Longitudinal Mediation Assumptions.	255
Primary hypotheses.	256
Secondary hypotheses.	256
Tertiary hypotheses.	257
Participants	257
Time 1 sample.	257
Time 2 sample.	258
Time 3 sample.	258
Data matching.	258
Materials.....	259

Contact variables.	259
Attitude variables.	260
Procedure.....	260
Results.....	261
Preliminary Analyses	261
Investigating the presence of non-random sampling using logistic regression.....	263
Checks for mean differences.	263
Checks for differences in variances.	264
Test for differences in structural paths.	266
Longitudinal Structural Equation Modelling with Latent Constructs	272
Testing the individual factor models.	272
Tests for measurement invariance.	274
Tests for stationarity.	276
Coloured and Black South African Target Outgroups	280
Coloured South African and African Immigrant Outgroups:.....	285
Coloured South African and South African Indian Target Outgroups.....	289
Black South African and African Immigrant Target Outgroups	293
African Immigrants and South African Indian Outgroups	301
Discussion	305
Study 6	310
Introduction.....	310
Hypotheses	313
Design.....	314
Participants	314

Materials.....	314
Variables used to match participants' questionnaires.	314
Demographics and variables to check the random assignment of participants.	315
Characteristics of experimental intervention.	315
Attitude variables.	316
Procedure.....	316
Results.....	319
Preliminary Analyses	319
Primary Transfer Effects	322
Secondary Transfer Effects	324
Discussion	325
Summary and Conclusions	327
CHAPTER SIX: SUMMARY AND CONCLUSION.....	330
Key Empirical Findings	330
Key Findings: The Attitude Generalization Hypothesis	331
Key Findings: The Deprovincialization Hypothesis	336
Key Findings: Experimental Evidence for the Secondary Transfer Effect.....	340
Contributions to Contact Research	341
Theoretical and Practical Implications	341
Practical Implications.....	344
Criticism and Limitations	345
Directions for Future Research	347
Replication, Replication, Replication.....	347

Deprovincialization	348
Deprovincialization by Social Identity Complexity	348
Attitude Generalization and Extensions to the Similarity Gradient Hypothesis	350
Potential Moderators of the Secondary Transfer Effect	351
Attitude strength.	351
Group saliency.	352
Extended Contact and the Secondary Transfer Effect	352
Normative and Contextual Effects	354
Summary and Conclusions	355
References	357
Appendix	407

LIST OF TABLES

Table 3.1.	Inter-item Correlations, Means, and Standard Deviations of the Key Variables (Study 1).	108
Table 3.2.	Inter-item Correlations, Means, and Standard Deviations of the Key Variables (Study 2).	124
Table 4.1.	Means, Standard Deviations, and Correlations Among Key Variables (Study 3).	172
Table 4.2.	Table Illustrating Differences in Mean, Median, and Mode Differences in Contact Quantity between Racial Minorities, Homosexual Men, and Travellers (Study 3).	181
Table 4.3.	Means, Standard Deviations, and Correlations Amongst the Key Variables (Study 4).	209
Table 4.4.	Mediation and Double Mediation Results for Study 4a.	209
Table 5.1.	Comparison of Variances for Time 1 and Time 2 Stayers vs. the Whole Sample.	265
Table 5.2.	Comparison of Variances for Time 2 and Time 3 Stayers vs. the Whole Sample.	266
Table 5.3.	Means, Standard Deviations, and Reliabilities for All Variables the Three Time Points. Correlations amongst Key Variables for Time 1 and Time 2.	268
Table 5.4.	Correlations amongst Key Variables for Time 2 and Time 3 (Study 5).	269
Table 5.5.	Correlations amongst Key Variables for Time 1 and Time 3 (Study 5).	270
Table 5.6.	Model Fit for the Factor Model at Each Time Point (Study 5).	273
Table 5.7.	Autoregressive and Cross-lagged Stationarity Model Fit for the Coloured and Black South African Model (Study 5).	283
Table 5.8.	Autoregressive and Cross-lagged Stationarity Model Fit for the Coloured South African and African Immigrant Model (Study 5).	287
Table 5.9.	Autoregressive and Cross-lagged Stationarity Model Fit for the Coloured South African and South African Indian Model (Study 5).	291

Table 5.10.	Autoregressive and Cross-lagged Stationarity Model Fit for the Black South African and African Immigrant Model (Study 5).	294
Table 5.11.	Autoregressive and Cross-lagged Stationarity Model Fit for the Black South African and South African Indian Model (Study 5).	298
Table 5.12.	Autoregressive and Cross-lagged Stationarity Model Fit for the African Immigrant and South African Indian Model (Study 5).	302
Table 5.13.	Mean Ratings of the Experience of Various Aspects of the Experimental Intervention.	321
Table 5.14.	Intraclass Correlations between the Dependent Variables for the Experimental Group at the Different Time Points.	322

LIST OF FIGURES

Figure 1.1.	Structural model illustrating the attitude generalization and deprovincialization hypotheses.	23
Figure 1.2.	A reprint of the structural model illustrating the attitude generalization and deprovincialization hypotheses.	41
Figure 2.1.	Path model showing a simple cross-sectional mediation.	73
Figure 2.2.	Structural model illustrating a multiple mediation model of the secondary transfer effect proposed by Pettigrew (1997, 2009; see also Tausch et al., 2010).	78
Figure 2.3.	Structural model illustrating how intergroup contact with a primary outgroup can improve attitudes towards secondary outgroups through the double mediated mechanisms of primary outgroup empathy and primary outgroup attitude	79
Figure 2.4.	Structural model illustrating the hypothesised relationship between the deprovincialization and attitude generalization hypotheses regarding how intergroup contact with a primary outgroup can improve attitudes towards secondary outgroups through the double mediated mechanisms of primary outgroup empathy and primary outgroup attitude. The paths associated with a_2' and b_1' are dashed lines in order to help highlight the double mediated path.	80
Figure 2.5.	Figure illustrating how the relationship between two variables can differ depending on a third variable.	84
Figure 2.6.	This figure illustrates two possibilities of the moderated mediation model.	88
Figure 3.1.	The path analysis testing the STE between Asians (focal outgroup) and gay men (target outgroup; N = 116; Study 1a).	110
Figure 3.2.	The path analysis testing the STE between gay men (focal outgroup) and Asians (target outgroup; N = 116; Study 1b).	111
Figure 3.3	The path model illustrating the hypothesised three-path mediation effect.	118
Figure 3.4.	Path analytic model showing the hypothesised relationship between contact with the focal outgroup (Asians) and attitudes towards the target outgroup as mediated by attitudes towards the focal outgroup and diversity beliefs (N = 157; Study 2a).	126
Figure 3.5.	Path analytic model showing the hypothesised relationship between contact with the focal outgroup (the homeless) and attitudes towards the target outgroup as mediated by attitudes	

	towards the focal outgroup and diversity beliefs (N = 157; Study 2b).	131
Figure 3.6.	Path analytic model showing the hypothesised relationship between contact with the focal outgroup (gay men) and attitudes towards the target outgroup as mediated by attitudes towards the focal outgroup and diversity beliefs (N = 157; Study 2c).	134
Figure 3.7.	Path analytic model showing the hypothesised relationship between contact with the focal outgroup (homosexual women) and attitudes towards the target outgroup as mediated by attitudes towards the focal outgroup and diversity beliefs (N = 157; Study 2d).	137
Figure 4.1.	Mean attitude scores towards the difference outgroups (Study 3).	171
Figure 4.2.	The path analysis denoting the hypothesised structural relationships between the variables (Study 3a).	174
Figure 4.3.	Illustration of the moderated three-path mediation deprovincialization hypothesis.	178
Figure 4.4	The moderated three-path mediation model for the integrated deprovincialization and attitude generalization hypothesis showing the effect of cross-group friendships with the ethno-religious outgroup on attitudes towards gay men (target outgroup) as sequentially mediated by ingroup identification and attitudes towards the ethno-religious outgroup, and moderated by social dominance orientation (SDO).	179
Figure 4.5	The moderated three-path mediation model for the integrated deprovincialization and attitude generalization hypothesis showing the effect of cross-group friendships with the ethno-religious outgroup on attitudes towards racial minorities (target outgroup) as sequentially mediated by ingroup identification and attitudes towards the ethno-religious outgroup, and moderated by social dominance orientation (SDO).	179
Figure 4.6	The moderated three-path mediation model for the integrated deprovincialization and attitude generalization hypothesis showing the effect of cross-group friendships with the ethno-religious outgroup on attitudes towards Travellers (target outgroup) as sequentially mediated by ingroup identification and attitudes towards the ethno-religious outgroup, and moderated by social dominance orientation (SDO).	179
Figure 4.7.	The path analysis denoting the hypothesised structural relationships between the variables treating gay men as the focal outgroup (Study 3b).	183
Figure 4.8.	The path analysis denoting the hypothesised structural relationships between the variables treating gay men as the focal outgroup (Study 3c).	186

Figure 4.9.	The structural equation modelling showing the relationship between friendships with the ethno-religious outgroup and attitudes towards multiculturalism and the various outgroups (N = 356; Study 4a).	208
Figure 4.10.	Illustration of the influence of perceived similarity between the ethno-religious outgroup and Travellers on the attitude generalization path.	212
Figure 4.11	Illustration of the influence of perceived similarity between the ethno-religious outgroup and racial minorities on the attitude generalization path.	213
Figure 5.1.	A basic two-wave longitudinal model illustrating the concepts of autoregressive and cross-lagged paths.	230
Figure 5.2.	Path model showing a simple cross-sectional mediation.	234
Figure 5.3.	Path model showing a longitudinal mediation model	241
Figure 5.4.	A longitudinal SEM showing the relationship between contact with, and attitudes towards Coloured and Black South Africans over twelve months amongst White high school students (N = 480).	284
Figure 5.5.	A longitudinal SEM showing the relationship between contact with, and attitudes towards Coloured South Africans and African immigrants over twelve months amongst White high school students (N = 480).	288
Figure 5.6.	A longitudinal SEM showing the relationship between contact with, and attitudes towards Coloured South Africans and South African Indians over twelve months amongst White high school students (N = 480).	292
Figure 5.7.	A longitudinal SEM showing the relationship between contact with, and attitudes towards Black South Africans and African immigrants over twelve months amongst White high school students (N = 480).	295
Figure 5.8.	A longitudinal SEM showing the relationship between contact with, and attitudes towards Black South Africans and South African Indians over twelve months amongst White high school students(N = 480).	299
Figure 5.9.	A longitudinal SEM showing the relationship between contact with, and attitudes towards South African Indians and African immigrants over twelve months amongst White high school students (N = 480).	303
Figure 5.10.	Bar graph displaying respondents' attitudes towards Black South Africans per condition, across time (Study 6).	323
Figure 5.11.	Bar graph displaying respondents' attitudes towards Coloured South Africans per condition and across time (Study 6).	325

ABSTRACT

This thesis aims to investigate the *secondary transfer effect of contact*, a phenomenon whereby contact with one outgroup leads to improved attitudes towards other, non-contacted outgroups. While evidence mounts for the existence of secondary transfer effects, its underlying mediation processes remain poorly conceptualised and thus, poorly understood. Thus, in this thesis, I aimed to clarify the conditions under and the processes by which the secondary transfer effect works. Chapter 1 introduces intergroup contact theory and traces its development from the contact hypothesis (Allport, 1954) to the uncovering of the secondary transfer effect. Based on theory from all aspects of intergroup contact research, Chapter 1 proposes a theoretically reformulated approach to understanding the deprovincialization hypothesis by way of (1) diversity beliefs, (2) the development of a multicultural outlook on intergroup relations, and (3) a more nuanced understanding of when ingroup identity is likely to relate ethnocentrically to outgroup attitudes. Point three more specifically looks at the role of social dominance orientation as a moderator of the relationship between ingroup identification and outgroup attitude. Chapter 1 also provides an extension to the attitude generalization hypothesis by considering the role that similarity gradients play. Chapter 2 discusses methodological considerations important to the analysis strategy used throughout the thesis.

Six empirical investigations across three contexts—England (Studies 1 and 2), Northern Ireland (Studies 3 and 4) and South Africa (Studies 5 and 6) set out to test the secondary transfer effect and the hypotheses offered in Chapter 1. Across three cross-sectional studies (Studies 1, 2, 3, and 4), a three-wave longitudinal study (Study 5) and an experimental study (Study 6), I was able to show the following: (a) that attitude generalization is a robust mediator of the secondary transfer effect (Studies 1, 2, 3, 4, and 5); (b) similarity gradients qualify the attitude generalization process such that attitudes generalize more strongly between outgroups that are perceived to be similar (Studies 3, 4, and 5); (c) that diversity beliefs (Study 2) and multiculturalism (Study 4), as alternative interpretations of the deprovincialization effect, mediate the secondary transfer effect; (d) social dominance orientation moderates the relationship between ingroup identification and outgroup attitude (Study 3); (e) that the deprovincialization and attitude generalization hypotheses are not independent, but rather interrelated processes of the secondary transfer effect (Studies 2, 3, and 4); (f) that experimentally manipulated forms of extended contact can lead to the secondary transfer effect because group categories and membership are made salient during the extended contact experience (Study 6); and (g) that it is contact that leads to wider attitude generalization rather than less prejudiced people seeking contact from a wider pool of social groups (Study 5). Furthermore, owing to their three-wave longitudinal (Study 5) and experimental (Study 6) designs, these two studies provide the most convincing evidence of the causal nature—from contact to reduced prejudice—of the secondary transfer effect to date.

Taken together, these six studies provide a wealth of critical support for the secondary transfer effect as well as for the reformulated deprovincialization and the extended attitude generalization hypotheses.

DETAILED ABSTRACT

The aim of this thesis was to investigate a relatively understudied phenomenon of intergroup contact: that contact with one outgroup, known either as the *primary* or *focal* outgroup, leads to improved attitudes towards other, non-contacted outgroups, also referred to as *secondary* or *target* outgroups. Known as the *secondary transfer effect of contact* (Pettigrew, 2009), this phenomenon represents the most far reaching effects of intergroup contact on attitude amelioration (Lolliot, Schmid, Hewstone, Al Ramiah, Tausch, & Swart, 2012; Tausch et al., 2010). To date, two mediational hypotheses have been proposed that try to explicate the underlying mechanisms behind the secondary transfer effect, namely the attitude generalization hypothesis and deprovincialization hypothesis. The attitude generalization hypothesis states that contact with one outgroup will improve attitudes towards that outgroup, and these improved attitudes will then generalize to more favourable attitudes towards other, non-contacted outgroups. The deprovincialization hypothesis describes a process by which contact with one outgroup improves attitudes towards other, non-contacted outgroups by causing the individual to re-evaluate the ingroup's relative stance in relation to their broader social context. In other words, through intergroup contact, one learns that one's ingroup's norms, values, and customs are not the only way in which one can view the social world.

Still relatively understudied, the reliability of the attitude generalization and deprovincialization hypotheses as mediators of the secondary transfer effect are affected by methodological and theoretical shortcomings. Thus, this thesis represents a systematic investigation into both the methodological and theoretical shortcomings of these hypotheses and endeavours to offer advanced formulations of these mediational processes. Furthermore, this thesis offers six studies, conducted in three different contexts, using all three study

Detailed Abstract

designs—cross-sectional, longitudinal, and experimental—specifically aimed at empirically testing the attitude generalization and deprovincialization hypotheses and the proposed theoretical extensions.

Chapter 1 describes the continued, indeed, even heightened relevance of contact theory in our increasingly diversifying societies. Furthermore, Chapter 1 outlines the theoretical development of contact theory from its earliest formulations (Allport, 1954; Williams, 1947) to its most far reaching beneficial effects as encapsulated by the secondary transfer effect. Lastly, Chapter 1 explores the two major mediating processes that have been hypothesised to help explain the phenomenon, the attitude generalization and the deprovincialization hypotheses. Based on a combination of empirical findings and theory, Chapter 1 explicates the main theoretical advancements to these two mediational processes that the studies in this thesis set out to test.

With five of the six studies in this thesis adopting advanced regression techniques, such as path analysis (Studies 1, 2, and 3) and structural equation modelling with latent variables (Studies 4 and 5), as the analysis strategy, Chapter 2 considers the latest developments and considerations prevalent to these statistical practices. Chapter 2 then sets out the analysis strategy to be applied throughout the thesis. It focuses specifically on the advantages that path analysis and structural equation modelling have to offer over traditional regression analysis and provides a nuanced, empirically driven framework in which model fit will be assessed. Furthermore, it clarifies the data analytic approach to be adopted with regards to mediation, moderation, and mediated moderation tests and outlines the appropriate statistical techniques (such as bias-corrected bootstrapping) that will be used when testing these extensions of the traditional independent-dependent variable relationship.

Detailed Abstract

Chapter 3 contains two cross-sectional studies using British undergraduate psychology students to investigate the secondary transfer effect. More specifically, Study 1 set out to replicate and extend previous evidence for the robustness of the attitude generalization hypothesis. It set out to replicate previous research (Schmid, Hewstone, Küpper, Zick & Wagner, 2012) by exploring the attitude generalization hypothesis while controlling for a powerful predictor of intergroup prejudice, social dominance orientation. Study 1 extends on previous research by way of including a more detailed, multi-item measure of contact with the secondary, or target, outgroup. Study 2 extended on the single mediation model tested in Study 1 by simultaneously testing both the deprovincialization and attitude generalization hypotheses.

Study 2 (Chapter 3) expanded on previous research and theory in three important ways. First, it tested a new theoretical proxy for the deprovincialization hypothesis—diversity beliefs. Second, it tested the hypothesis that the deprovincialization and attitude generalization hypothesis are not separate mediational processes, but also serve as a double mediating process. In other words, these two processes work in conjunction with each other to bring about wider attitude change. This is the first test for such an integrated understanding of the interplay between the two mediational processes thought to underlie the secondary transfer effect. Third, Study 2 provides the first test for the existence of a within-outgroup similarity gradient, as rated by the participants themselves, moderating the attitude generalization path. Within-outgroups similarity gradient hypotheses (Lolliot et al., 2012) predict that the secondary transfer effect, and more specifically, the attitude generalization path, will be larger for individuals who perceive two outgroups to be more similar to each other than for individuals who perceive the two outgroups to be less similar to each other.

Chapter 4 reports two cross-sectional studies (Studies 3 and 4) that replicate the findings from Chapter 3. Furthermore, the studies in Chapter 4 tested two new reformulations

Detailed Abstract

of the deprovincialization hypothesis and replicated the findings from Study 2 that the deprovincialization and attitude generalization hypothesis are interrelated mechanisms. Studies 3 and 4 also uncovered evidence attesting to the functioning of similarity gradients in the attitude generalization process. Study 3, using a university sample of Northern Irish participants, found evidence for the secondary transfer effect by the process of attitude generalization while controlling for contact with the target outgroups and social dominance orientation, thus replicating the findings from Study 1 in a new context. Study 3 also tested a moderated reformulation of the deprovincialization hypothesis such that the relationship between ingroup identity and outgroup attitudes was negative for individuals high in social dominance orientation, but non-significant for individuals low in social dominance orientation. Thus, ingroup identification mediated the relationship between contact with and attitudes towards the focal (or primary) outgroup for individuals high in social dominance orientation. Furthermore, Study 3 also found evidence for intergroup contact affecting attitudes towards target (or secondary) outgroups through the interrelated, double mediated process. In other words, the relationship between contact with the focal outgroup and attitudes towards the focal outgroup was mediated by ingroup identification. These more positive focal outgroup attitudes then generalized to more positive attitudes towards the target outgroups. This double mediated path held only for individuals high in social dominance orientation. Study 3 also provided evidence for the existence of a between-outgroups similarity gradient by applying Goffman's (1963; see Lolliot et al., 2012) typology of stigma. Outgroups who could be labelled as experiencing similar types of stigmatization showed stronger attitude generalization effects than those who experienced different types of stigma.

Study 4, using a large sample of Northern Irish secondary school children, provided evidence for a third reformulation of the deprovincialization hypothesis. Study 4 found that intergroup contact with a focal outgroup had a positive effect on attitudes towards the focal

Detailed Abstract

and target outgroups by increasing the participants' acceptance and celebration of multicultural values. Furthermore, Study 4 replicated the findings from Studies 2 and 3 by finding evidence for the secondary transfer effect occurring by the interrelated, double mediated process of deprovincialization and attitude generalization. Study 4 also replicated the findings from Studies 2 and 3 in that it uncovered evidence for both within- and between-outgroups similarity gradients. Considering the within-outgroups similarity effects, the analysis showed that individuals who perceived the ethno-religious outgroup and racial minorities (Irish Travellers) as similar, showed stronger attitude generalization effects between the ethno-religious outgroup and racial minorities (Irish Travellers) than those respondents who perceived them to be less similar. These analyses were run in a structural equation model using latent constructs.

Chapter 5 contains two studies in that garnered critical evidence for the existence of the secondary transfer effect by using a three-wave longitudinal (Study 5) and experimental (Study 6) study design. These two studies were performed in South Africa. Study 5, studying the effects of White South Africans' contact experience with Coloured and Black South Africans as well as African immigrants and South African Indians, found the most robust evidence for the attitude generalization hypothesis to date. Using a three-wave longitudinal structural equation model with latent constructs, Study 5 found support for both direct secondary transfer effects (i.e., contact with a focal outgroup directly led to improved attitudes towards the target outgroup) and indirect secondary transfer effects by the process of attitude generalization. These effects remained significant even after controlling for prior levels of contact with and attitudes towards all the outgroups. Furthermore, Study 5 uncovered little evidence for the reverse causal process by which less prejudiced people seek intergroup contact from a wider pool of social groups. Study 5, in its design and analytic

Detailed Abstract

strategy, contributes to our understanding of the secondary transfer effect by providing the soundest evidence for the secondary transfer effect to date.

Study 6 aimed to test the secondary transfer effect experimentally. Furthermore, Study 6 sought not only to test the secondary transfer effect of direct contact, but also aimed to investigate if a more vicarious experience of intergroup contact, such as *extended* contact (knowing that an ingroup friend has a friend from the outgroup), would lead to improved attitudes towards a target outgroup. The study found that an extended contact experience did indeed result in more favourable attitudes towards a secondary outgroup. Study 6 failed to find evidence for the secondary transfer effect for participants in the direct contact condition. This could be because the participants in the extended contact condition, as hypothesised, experienced the contact intervention as happening on more of an intergroup rather than interpersonal level, more so than participants in the direct contact condition.

Chapter 6 provides a summary of the conceptual overview and key findings in this thesis. It highlights the contributions of the findings from the six presented studies, but also acknowledges the limitations of the research presented in this thesis. Lastly, Chapter 6, building on the findings presented in this thesis, suggests interesting avenues for future research. I thus conclude Chapter 6 by relating the findings from this thesis to the context of diversifying societies.

CHAPTER ONE: THE SECONDARY TRANSFER EFFECT OF CONTACT

“If a person is anti-Jewish, he is likely to be anti-Catholic, anti-Negro, anti any out-group.”

(Allport, 1954, p. 66).

“Apparently there is evidence to suggest that degree of tolerance expressed by individuals is a generalized function of the individual and is not completely determined by the specific group toward which the attitude is directed.”

(Hartley, 1946/1969, p. 25).

“While previous studies have pointed to the ‘generalizability of prejudice’, this study has lent some support to the utility of an analogous spelling idea, i.e., the ‘generalizability of contact.’”

(Weigert, 1976, p. 122).

Introduction

Societies are becoming more diverse. For example, citizens from more than 170 countries worldwide reside in London alone (Vertovec, 2007b). As technology increases, international transport becomes more feasible, and international borders become more permeable, it is with little surprise that we read: “There are far more international migrants in the world today than ever previously recorded, and their number has increased rapidly in the last few decades” (World Migration Report, 2010, p. 3). In 2010, for example, an estimated 214 million people in the world were migrants (United Nations Department of Economic and Social Affairs, 2010). Therefore, it is no wonder that some authors refer to modern cities as “super-diverse” (Vertovec, 2007a, 2007b; see also Benedictus, 2006). Hodson and Hewstone (2012) warn that the increasing nature of migratory patterns places added strain on increasingly scarce physical resources, like water and oil. With a growing body of migrants who are of working age (United Nations Department of Economic and Social Affairs, 2010), competition over employment, health, and education serves to heighten intergroup tensions in societies (McQuaid, Hollywood, & Canduela, 2010; Russell, 2012). Given that intergroup

contact between groups competing for limited resources exacerbates prejudice (Sherif, Harvey, White, Hood, & Sherif, 1961), one need not look far for examples of these tensions boiling over into intergroup conflict (for example, the xenophobic attacks in Northern Ireland and South Africa, the Israel-Palestine conflict, the war in Somalia, the Ituri conflict, the London bombings, the USA-Iraq war). The obvious challenge, then, is for societies to find some way in which this myriad of social groups can function peacefully.

Intergroup contact has long been heralded as a means by which social relations can be improved (Baker, 1934; Bogardus, 1928; Williams, 1947). The ideas put forward by these early theorists were summed up neatly by noted social psychologist, Gordon Allport (1954) in Chapter 16 of his seminal book, *The Nature of Prejudice*. Allport parsimoniously hypothesised that under the conditions of equal status, collaborative work towards a common goal, and when contact is sanctioned by authorities, there will be a reduction in intergroup prejudice. This was to become known as the ‘contact hypothesis’. This hypothesis has received overwhelming support for the basic contention that contact does reduce prejudice (see Brown & Hewstone, 2005; Dovidio Gaertner, & Kawakami, 2003; Pettigrew & Tropp, 2006). As the increasingly globalizing world edges further into the second decade of the 21st century, Hodson and Hewstone (2012) take note of the important role that contact still has to play:

Understanding how, when, why, and for whom contact works therefore represents an urgent *practical* concern for policymakers and governments. It is small wonder that leading academics in the social sciences are converging on a recognition of intergroup contact as one of the most serious social and political concerns we face. It is likely, therefore, that the recent surge of interest in contact theory is borne by the inherent

promise in the concept, the simple idea that contact *can* improve intergroup attitudes and relation. (p. 10)

The aim of this thesis is to explore one of the most understudied phenomena in contact theory (Hodson & Hewstone, 2012), the idea that contact with one outgroup not only leads to more favourable attitudes towards that outgroup, but also improves attitudes towards other, noncontacted outgroups (Pettigrew, 2009; Tausch et al., 2010). This is known as the *secondary transfer effect of contact* (STE). The six studies that comprise this thesis represent a systematic investigation into the STE and its underlying processes. The aim of this chapter, then, is to place the STE in the wider context of contact theory

Intergroup Contact Theory

Slavery in North America was firmly entrenched by the time America sought independence from Great Britain in 1776 (Tise, 1987). By 1804, the northern states of the United States of America had begun to abolish legalized slavery, a practice that was not mirrored by the southern states (Tise, 1987). Growing tensions between the northern and southern states, fuelled by the issue of slavery, led to the American Civil War (1861-1865). The southern states lost the war and slavery was abolished. Subsequent to the end of the Civil War, a series of laws—The Constitution, the Bill of Rights, the Fourteenth and Fifteenth Amendments—sought to secure equal rights for White and Black Americans (Allport, 1954). However, the manner in which the laws were stated allowed for broad interpretations, such that in some southern states, segregationist laws were immediately drawn up and passed (Allport, 1954). While race equality was sought in legislation, towards the end of the 19th century research started to appear attesting to the ostensible innate superiority of White Americans over Black Americans (Meade Bache, 1895). In comparing reaction times

between White, Black, and Indian Americans to verbal, auditory, and electric shock tests, Meade Blanche endeavoured to show the superiority of White Americans over Black and Indian Americans by virtue of their *slower* reaction times.

This view that Black Americans were biologically inferior to White Americans dominated public opinion (Haller, 1971) and scientific investigations into racial attitudes throughout the early 20th century (Samelson, 1978). Between 1920 to 1940, however, and accompanying the civil rights movement in the 1920s, social psychologists began to look at the ostracism experienced by Black Americans as a function of White racial attitudes rather than Black Americans' (perceived) inferiority (Duckitt, 1992). Accompanying this shift in perspective in social psychology, the importance of intergroup contact was recognised as a possible means by which intergroup attitudes could be improved. For example, Bogardus (1928), in his book *Immigration and Race Attitudes*, commented, "Friendly feelings arising out of a long series of favourable experiences with certain races become crystallized into permanent attitudes of race friendliness" (p. 151). Similarly, Baker (1934) also commented on the necessity of intergroup contact for interracial attitude amelioration in saying, "...personal contacts may help to build understanding, appreciation, sympathy, and interest. Friendship between members of the races may help to prevent violence and rioting, or it may be used to help heal the wounds left by such a struggle" (p. 197).

World War II, however, was to change the face of social psychology (Cartwright, 1979) as social psychologists took note of the effect that contact between Black and White soldiers had on White attitudes towards Black Americans (Dovidio et al., 2003; see Singer, 1948). In one of the earliest studies to evidence prejudice reduction through intergroup contact, Brophy (1946) found that White American sailors who had gone on more voyages with Black American sailors in the Merchant Marine held more favourable attitudes towards

Black Americans than those who had been on fewer voyages.¹ For instance, 32.8% of White American sailors who had not yet been on a voyage with a Black American sailor reported favourable attitudes towards Black Americans. Compare this to 46.6% of White sailors claiming favourable attitudes towards Black Americans who had been on one trip with Black Americans and 62.2% who had been on two trips. The highest percentage of White American sailors claiming favourable attitudes towards Black Americans had been on four trips with Black Americans. The effects of intergroup contact were, however, not only being investigated under conditions of war. Allport and Kramer (1946), reporting on the attitudes of 437 psychology undergraduates from Dartmouth ($N = 214$), Harvard ($N = 166$) and Radcliffe ($N = 57$) universities, found that those students reporting more equal status contact with Jews and Black Americans, held more favourable attitudes towards both groups.

Given the pressing nature of intergroup relations in the United States of America during this time (Cartwright, 1979) and the growing body of research attesting to the beneficial effects of intergroup contact on racial prejudice, the sociologist, Robin Williams, was asked by the Social Science Research Council to assess the research that had been conducted into group relations (Pettigrew & Tropp, 2006; Pettigrew, Tropp, Wagner, & Christ, 2011). In the resulting monograph, amongst 102 testable hypotheses, Williams (1947) set out the initial formulation of intergroup contact theory. More specifically, he hypothesised that intergroup contact would have its most powerful effect on prejudice when the two groups are of similar status (see Allport & Kramer, 1946), shared kindred interests, and when the contact was intimate rather than superficial (Pettigrew & Tropp, 2006). Armed with these testable hypotheses, a series of studies in the 1950s sought to more rigorously test the

¹ Merchant Marines were a fleet of U.S owned ships used primarily for commercial purposes (Beeler, 2000) but who could be called upon in times of war to act as auxiliary boats (Dewey, 1937). An interesting finding from Brophy's study is that the more times sailors had been shot at, the more favourable their attitudes were towards Black Africans. This could be because of an increase in shared fate (see Gaertner et al., 1999).

veracity of the claims that intergroup contact results in less prejudice. For example, in a quasi-experimental design, Deutsch and Collins (1951) found that White housewives living in desegregated neighbourhoods alongside Black Americans in New York held Black Americans in higher esteem and showed more support for interracial housing initiatives than did White housewives living in segregated neighbourhoods.

In Chapter 16 of *The Nature of Prejudice*, Allport (1954) amalgamated these ideas and set out what was to become one of the most influential hypotheses in social psychology today, the contact hypothesis. At its simplest, the contact hypothesis states that intergroup contact between two social groups will lead to a reduction in prejudice. It was recognised that more than just indiscriminate contact between two groups was needed to improve intergroup attitudes. To this end, Allport stipulated four conditions under which contact would have optimal effects of attitudes. These included (1) equal status between the two groups in contact, (2) that the two groups work collaboratively (3) towards a common goal, and (4) the contact is sanctioned by authorities. Inspiring a slew of research into contact's relationship with prejudice, researchers were quick to add on additional "essential conditions" under which contact would maximally relate to reduced prejudice. The resulting 'laundry list' of conditions essentially rendered the contact hypothesis uninteresting as, with an ever expanding list of essential conditions, the hypothesis could never be falsified (Pettigrew, 1986) nor would any contact be likely to happen under the cascade of conditions (Pettigrew, 1998). The sheer number of essential conditions burdened the contact hypothesis, robbing it of its simple appeal; as a result, social psychologists started losing interest in it. Further stripping the contact hypothesis of its ecological validity was the fact that, while Allport explicated the conditions under which contact would reduce prejudice, he failed to comment on the processes by which contact worked (Brown & Hewstone, 2005). Furthermore, Allport

had also left the question of attitude generalization unanswered. If contact were to have wider application, its effects would need to generalize from one outgroup member to the outgroup as a whole, and across situations.

These three questions of (a) whether the effects of contact generalize, (b) the processes by which contact works, and (c) essential versus facilitating conditions, have fuelled the agenda of contact research for the past 30 years. I will now briefly discuss whether Allport's original conditions for optimal contact are essential or facilitating which will lead into a discussion about the different types of contact that more recent work has highlighted. After this, I will discuss the question of attitude generalization...

Allport's Conditions: Essential or Facilitating?

Pettigrew (1998) argues that many contact theorists confused *essential* with *facilitating* conditions. He states that while many conditions may lead to contact that has powerful effects on prejudice reduction (optimal contact), they are not necessary for contact to lead to improved attitudes. In other words, contact may still result in ameliorated attitudes in the absence of such conditions. Pettigrew, however, posited this as a change in the conceptual approach to the contact hypothesis. In an authoritative meta-analysis of 515 studies including 713 independent samples, Pettigrew and Tropp (2006) tested the strength of the relationship between contact and prejudice when Allport's conditions were present versus absent. The results revealed that the studies including Allport's conditions yielded a significantly stronger relationship between contact and prejudice ($r = -.287$) than did those that did not include any of the conditions ($r = -.204$), $Q(1) = 20.19$, $p < .0001$. Therefore, Pettigrew (1998) was correct in both assertions: contact did indeed result in less prejudice when none of the conditions stipulated by Allport were present, i.e., the conditions are not

essential. However, contact exerted a stronger effect on prejudice if Allport's conditions were included. In other words, the conditions facilitate the effect of contact on prejudice. To summarize, while Allport's conditions may not be essential for contact to reduced prejudice, they do indeed aid in the process.

Direct Contact: The Special Case of Cross-Group Friendships

Cross-group friendship has been highlighted as, and shown to be, an especially potent form of intergroup contact as it is said to embody most of Allport's facilitating conditions (Davies, Tropp, Aron, Pettigrew, & Wright, 2011; Davies, Wright, Aron, & Comeau, 2012; Hamberger & Hewstone, 1997; Hodson, Hewstone, & Swart, 2012; Pettigrew, 1997). Special interest has long been placed on the potential importance of cross-group friendships in the relationship between contact and prejudice. Bogardus (1928), once again, hints at the importance of friendships in stating that stable positive racial attitudes stem from "a long series of favourable experiences with certain races" (p. 151). More directly, Baker (1934) comments, "Friendships between members of the races may help to prevent violence and rioting, or it may be used to help heal the wounds left by such a struggle" (p. 197). Allport (1954), in stating a preference for intimate over superficial contact—which Cook (1962) later referred to as "acquaintance potential"—indirectly pointed towards the importance of cross-group friendships.

Herek and Capitanio (1996, Study 1) provided striking evidence for the differences in strength between the contact-attitudes relationship according to the intimacy of contact from Wave 1 of a two-wave longitudinal study. Surveying responses from 505 heterosexual Americans, they found that respondents who reported having a close gay friend showed significantly more favourable attitudes towards gay men ($M = 6.65$)—as evidenced by lower

mean scores—than respondents who reported being acquainted with a homosexual male ($M = 9.07$) or having one as a distant ($M = 9.97$) or immediate family member ($M = 8.39$; $F(3, 50) = 3.25, p < .05$). While they did not test these intimacy effects longitudinally, they were able to show that contact explained more variance in attitudes towards gay men than the amount of variance accounted for in the reverse path. In other words, while less prejudiced people did report more contact, contact had a stronger effect on ameliorating anti-gay prejudice.

Pettigrew (1997), performing a secondary analysis of the Euro-Barometer Survey (No. 30 of 1988) which included samples from several European countries (total $N = 3806$), found that cross-group friendships with immigrants were more closely related to a range of attitude measures (including blatant, subtle, and affective prejudice scales) and more support for immigration policy than were measures of contact with immigrants as co-workers or neighbours (see Hamberger & Hewstone, 1997, for an alternative, yet complementary, analysis of the same data set). Pettigrew (1997, 1998) along with earlier scholars (Baker, 1934; Bogardus, 1928; Cook, 1962) reiterates the importance of cross-group friendships in ameliorating intergroup attitudes. Pettigrew (1997) states that cross-group friendships hold “special importance” as they necessitate long-term contact affecting both affective and cognitive processes. Since Pettigrew’s (1997) study, a number of intergroup studies have appeared attesting to the effectiveness of intergroup friendships. Cross-group friendships have been associated with less intergroup anxiety (self-reported measures: Paolini, Hewstone, Cairns, & Voci, 2004; Swart, 2009; Swart, Hewstone, Christ, & Voci, 2010, 2011; Turner & Feddes, 2011; Turner, Hewstone, & Voci, 2007; physiological measures, i.e., lower cortisol levels: Page-Gould, Mendoza-Denton, Alegre, & Siy, 2010, Study 3; Page-Gould, Mendoza-Denton, & Tropp, 2008), more inclusion of the outgroup in the self (Page-Gould et al., 2010), less intergroup bias (Levin, Van Laar, & Sidanius, 2003), implicit and explicit measures of

attitudes (Page-Gould et al., 2010; Turner et al., 2007), increased intergroup empathy (Swart et al., 2011), meta-attitudinal strength and attitude accessibility (Vonofakou, Hewstone, & Voci, 2007), more perceived outgroup variability (Paolini et al., 2004) and have even been shown to be especially effective among highly authoritarian (Hodson, Harry, & Mitchell, 2009) individuals.

Solidifying the role of cross-group friendships as an important tool in prejudice reduction, Pettigrew and Tropp's (2006) meta-analysis comparing the 154 tests that used measures of intergroup contact against 1211 that used other measures of contact, found that the relationship between friendships and reduced prejudice ($r = -.25$) was significantly stronger than the relationship between general contact and reduced prejudice ($r = -.21$), $Q(1) = 4.42, p < .05$. Owing to the increase in number of studies exploring the effects of cross-group friendships and prejudice, and expanding on Pettigrew and Tropp's (2006) meta-analysis, Davies, Tropp, Aron, Pettigrew, and Wright (2011) performed an updated meta-analysis that included 135 studies from 208 different samples with an overall 501 individual tests of the effect of friendship on intergroup attitudes. Davies and colleagues moved beyond the simple question of does cross-group friendship relate to prejudice and asked if the *quality* of the friendship (quantity of friendships, percentage of friendship circle, time spent with friends, self-disclosure of friendships) influenced its relationship with prejudice. In line with the results showing that it is the *quality* rather than *quantity* of contact that counts, the strongest relationship between positive attitudes and cross-group friendships was seen for time spent in activities with the outgroup friend ($r = .27$) and friendships built around self-disclosure ($r = .26$). These two more qualitative measures of friendship were more strongly related to prejudice than more quantitative measures such as number of outgroup friends ($r = .220$) and the percentage of the friendship circle that were outgroup members ($r = .220$).

Therefore, once again, we find that it is the quality over quantity of cross-group friendships that has the most robust effect on prejudice.

Extended Contact

Often, however, when segregation and chronic conflict plague society, direct face-to-face contact with an outgroup member is not always feasible. In such situations, indirect forms of intergroup contact are of considerable practical and theoretical importance (Dovidio, Eller, & Hewstone, 2011). An important extension of the contact hypothesis is the finding that knowing that one of your ingroup friends has a friend from the outgroup is enough to reduce one's prejudice towards that outgroup. This kind of contact is known as *extended contact* (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). Wright and colleagues highlight three major benefits of extended over direct contact. Firstly, the knowledge that an ingroup member has successfully interacted with an outgroup member reduces one's negative expectations about future contact with people from other social groups, thus reducing one of the most impervious boundaries to amenable attitudes, intergroup anxiety (see Stephan & Stephan, 1985). Secondly, and especially in contexts where intergroup contact is rare, extended contact means that cross-group friendships that have formed are able to have wider impact beyond the contacted ingroup member. Lastly, seeing a member of the ingroup interact with a member of the outgroup should result in higher perceived salience of group memberships thus facilitating the generalization of positive attitudes (see Hewstone & Brown, 1986). This point will be discussed in more detail shortly.

Christ et al. (2010) endeavour to add a fourth advantage to the extended contact hypothesis. They state that extended contact offers a relatively easy way to promote positive intergroup relations in places where little opportunity for contact exists. The authors back up

their contention with two studies, one using a cross-sectional (Study 1) and the other, a longitudinal (Study 2) design. They hypothesised that individuals from segregated areas would show a stronger relationship between extended contact and prejudice than individuals from desegregated areas. Furthermore, they state that this relationship would be further accounted for by differing levels of direct contact. In other words, individuals in desegregated contexts would have more direct contact with members of the outgroup than individuals in segregated areas. Therefore, individuals in desegregated areas would rely more on their direct contact experiences for information about the outgroup, whereas individuals' attitudes in segregated areas would be more influenced by the knowledge that a friend(s) has an outgroup friend.

In Study 1, using a representative German sample ($N = 1,024$), Christ et al. (2010) confirmed both hypotheses showing that the relationship between extended contact with foreigners and attitudes towards foreigners was weaker for individuals living in West Germany—which has a high proportion of foreigners—than East Germany—which has a low proportion of foreigners. This relationship, as hypothesised, was then qualified by the effect of direct contact with foreigners; individuals who reported lower levels of direct contact showed a stronger relationship between extended contact and attitudes than individuals who reported more direct contact experiences. Study 2 used a Northern Irish sample that was matched over two waves of data spanning one year ($N = 404$). Once again, Christ and colleagues found that participants living in segregated neighbourhoods showed a strong significant relationship between extended contact with the ethno-religious outgroup (Catholics for Protestants, and Protestants for Catholics, see Chapter 4) and more positive behavioural intentions. On the other hand, individuals living in desegregated neighbourhoods displayed no such relationship.

Replicating and extending Christ et al.'s findings, Dhont and Van Hiel (2011), using a representative Dutch sample ($N = 1,238$), not only found that direct contact with immigrants moderated the relationship between extended contact with immigrants and anti-immigrant prejudice, but that it also moderated the relationships between extended contact and trust and threat. In each case, the relationship between extended contact and threat, trust, and prejudice was stronger for those respondents reporting less direct contact than it was for respondents with higher levels of direct contact. Furthermore, Dhont and Van Hiel found a three-way moderated effect between extended contact, direct contact, and right-wing authoritarianism such that the relationship between extended contact and trust, threat, and prejudice was stronger for highly right-wing authoritarian individuals reporting low levels of direct contact than it was for the other combinations for the variables.

These two articles already demonstrate the power of extended contact at influencing a wide range of attitudinal measures including attitude strength and behavioural intentions (Christ et al., 2010) and trust, threat, and prejudice (Dhont & Van Hiel, 2011). But what are the processes by which extended contact works? Wright et al. (1997) hypothesised that extended contact would lead to a reduction in prejudice chiefly through four mechanisms: reduced intergroup anxiety, more inclusive ingroup and outgroup norms, and the inclusion of other in self. While the number of studies attesting to the effectiveness of extended contact at improving intergroup attitudes is impressive (for reviews, see Dovidio, Eller & Hewstone, 2011, and Turner, Hewstone, Voci, Paolini, & Christ, 2007), Turner, Hewstone, Voci, and Vonofakou (2008) were the first to simultaneously test all four mediating processes put forward by Wright et al. (1997). In two studies, one using White-British psychology undergraduates (Study 1, $N = 142$) and the other using White-British high school students (Study 2, $N = 120$), Turner et al. (2008) showed that, when all four mediating processes were

entered into the model simultaneously, all four mediators successfully mediated the relationship between extended contact and attitudes towards the outgroup. Furthermore, the mediations remained significant while controlling for cross-group friendships.

With 50 years of research confirming that contact is associated with reduced intergroup animosity (see Brown & Hewstone, 2005; Dovidio, et al., 2003; Pettigrew & Tropp, 2006), there is little doubt left as to its effectiveness at improving intergroup relations. Having specified which conditions are essential and which are facilitative in the contact-prejudice link, as well as having identified a number of important processes that inform the relationship between contact and prejudice (Pettigrew & Tropp, 2008), one can surely afford Allport's 'hypothesis' the title of a bona fide *theory* (Hewstone, 2009; Hewstone & Swart, 2011). I have, however, left one important question facing the contact hypothesis unanswered. Do the effects of intergroup contact generalize? The question of attitude generalization has been one of the earliest questions to face social psychologists interested in intergroup contact research. If contact theory is to have wider consequences its effects need to generalize (Brown & Hewstone, 2005).

Attitude Generalization

Three forms of attitude generalization have been identified in the literature (Pettigrew, 1998) and their effect size estimated by Pettigrew and Tropp (2006) in their authoritative meta-analysis of over 500 studies: (a) whether a change in attitude towards one outgroup member generalizes to the outgroup as a whole, (b) whether attitudes towards an outgroup generalize across situations, and (c) whether attitudes generalize from one outgroup to another, uninvolved outgroup. I will briefly discuss the first two forms of attitude

generalization before focusing in this chapter, and this thesis, on the third aspect of attitude generalization, namely generalization across multiple outgroups.

Attitude Generalization From an Outgroup Member to the Outgroup as a Whole

This is the most widely studied type of generalization and, despite earlier pessimism (e.g., Amir, 1969; Hewstone & Brown, 1986), there is now extensive evidence demonstrating generalization from specific individuals to the outgroup as a whole (see Brown & Hewstone, 2005, for a review; see also Pettigrew & Tropp, 2006).

There are a substantial number of studies demonstrating that attitude generalization from an outgroup member to the outgroup as a whole is most likely to happen when, during contact, group categories are made salient (see Hewstone & Brown, 1986) and when the encountered group member is perceived as a typical exemplar of the outgroup (see Rothbart & John, 1985). For example, Wilder (1984), in manipulating both the behaviour (pleasant vs. unpleasant) and the typicality (typical vs. atypical) of an outgroup member in a contact situation, found that intergroup attitudes became more favourable towards the outgroup only when the encountered group member behaved in a pleasant way and was typical of her group. Similarly, Van Oudenhoven, Groenewald, and Hewstone (1996) demonstrated that Dutch students held more favourable attitudes towards Turkish people in general after having interacted with a Turkish confederate when his nationality was explicitly mentioned during the contact than when it was not mentioned. Moreover, evidence from correlational studies show that contact is more strongly positively associated with outgroup attitudes for respondents who report having been aware of the group memberships during contact (e.g., Brown, Vivian, & Hewstone, 1999; Voci & Hewstone, 2003). Based on 1,164 tests, Pettigrew and Tropp (2006) found a reliable relationship between contact with an individual outgroup

member and attitudes towards the outgroup as a whole ($r = -.213, p < .001$). Thus, there is substantial evidence that creating awareness of social categories during contact, either by making categories explicitly salient or by presenting representative outgroup members, can lead to generalized attitude change.

Attitude Generalization Across Situations

Demonstrating that the effects of intergroup contact generalize from an individual outgroup member to the whole outgroup represents a significant positive step in the validity of the contact hypothesis. If, however, intergroup contact and its positive effects remain bound to the social context in which it took place, this would surely limit the usefulness of contact as a tool for reducing prejudice. Worryingly so, a handful of studies from the 1950s reported evidence that intergroup contact did not generalize across settings (Biesanz & Smith, 1951; Harding & Hogrefe, 1952; Minard, 1952; Reitzes, 1953). For example, Minard (1952), who studied the behaviour of White miners to their Black colleagues in a West Virginia coal mine, observed that while race relations were friendly below ground, lack of contact and segregation were the norm above ground. Similarly, Harding and Hogrefe (1952) found in their study of White department store employees that equal status contact with Blacks at work increased willingness to work with Blacks, but had no effect on willingness to accept other kinds of interracial relationships (see Amir, 1969, for a review).

Todd and Nesdale (1997) report more encouraging results on the context-generalization of intergroup contact. Using international ($N = 78$) and Australian ($N = 69$) students attending one of four residential colleges at an Australian university, they compared the effect of an intervention designed to promote interactive, co-operative, meaningful contact between international students (the majority of whom were Asian) that was

implemented in one of the colleges against no such intervention in the other three colleges (which were treated as a control condition). Their dependent variables included measures of wider contact (a) at university in general, (b) during students' leisure time, and (c) travelling. Todd and Nesdale found that, when compared to baseline measures taken at the beginning of the students' residencies, Australian students who resided at the intervention college not only reported more intergroup contact at the college than did Australian students in the control colleges, but they also reported more intergroup contact at university, during their social time, and travelling seven months later.

These effects were, however, less pronounced for the international students insofar as there were few differences between the contact scores reported by international students residing in the intervention and control colleges. There are two possible reasons for this lack of effects. First of all, international students attending an Australian university would be more likely to come into contact with the numerical majority group, Australians, than would be Australians with international students. Supporting this contention, international students in the intervention and control colleges reported equivalent 'contact with Australians' scores at college, university, leisure, and travel. Furthermore, these scores were comparable to the scores reported by the Australian respondents in the intervention college. Secondly, and in line with Pettigrew and Tropp's (2006) meta-analytic findings, the effects of contact were strongest for Australian students, who at the beginning of the study reported less interest than the international students in taking part in activities designed to encourage intergroup contact with international students (see also Nesdale & Todd, 1993).

Most recently, in a multi-phase experiment, Gaither and Sommers (2012) demonstrated that White students attending a private American university who were randomly assigned a roommate of a different ethnicity in their first year reported having

significantly more non-White friends four months later than students who were randomly assigned a same-race roommate. Furthermore, in their second semester, and under the pretence that they were participating in a separate study, the participants were brought into contact with a gender-matched Black confederate and were told to engage in a five minute interview simulation, which was videotaped. The intervention was rigged so that the Black confederate always played the role of the interviewer. The interviewer (i.e., the confederate) then asked the participants questions relating to affirmative action. Respondents who had been assigned a roommate of another ethnicity rated themselves as being significantly less anxious during the conversation. Furthermore, the video material (as rated by independent coders) showed that participants who had been assigned a non-White roommate were less anxious, more pleasant, and smiled more during the conversation than the participants who had been assigned a same-race roommate. These results indicate that contact with an outgroup member in one setting (residential halls) results in a skill set that generalizes to other cross-race interactions in different settings. To summarize, as evidenced by Pettigrew and Tropp's (2006) meta-analysis of 17 tests from 9 samples, intergroup contact effects do indeed generalize across situations ($r = -.244, p < .001$).

Attitude Generalization From One Outgroup to Another, Uninvolved Outgroup: The Secondary Transfer Effect

Initial evidence from three studies conducted in the 1970's provided the first evidence that intergroup contact is, indeed, influential enough to generate widespread attitude change. First, in one of the earliest studies showing the generalizability of contact, Weigert (1976) found cross-sectionally that Black U.S. soldiers' friendships with White soldiers while stationed in Germany was associated with less prejudice towards German civilians ($r = -.18$). This correlation held even after controlling for demographics, ideological orientation, and—

most impressively—previous contact with Germans. Second, Clément, Gardner, and Smythe (1977) found incidental evidence for the STE in a quasi-experimental study. The researchers primarily sought to evaluate the effectiveness of a second language learning program—which constitute an excursion to Québec City—on eighth grade Canadian Anglophones' attitudes towards learning French. To evaluate the effectiveness of the program, the researchers compared pre- and post-test questionnaire scores between two groups of respondents: an experimental group that travelled to Québec City where French is a native language ($N = 181$) and a control group (who did not go on the excursion; $N = 198$). The researchers further divided the experimental group into high or low contact groups. These two sub-groups were determined by the amount of contact with French Canadians that the respondents reported having had during the outing. The pre-test questionnaires were handed out two weeks before the trip, and the post-test questionnaires were completed four weeks after the excursion. Garnering support for the second language learning program, Clément et al. found that attitudes, desire, and motivation to learn French were all significantly higher than the control group for both high and low contact groups. What they also found was that the respondents in the high contact group showed more favourable attitudes towards both French Canadians and European French people than participants in the low contact and control conditions.

The third study to come out of the 1970s was conducted by Cadizt (1976). She found cross-sectionally that, of her 204 participants sampled from an American politically liberal organization, those who moved in more religiously diverse circles were more supportive of policies aimed at racial integration than those who were part of more homogenous friendship networks.

Thirty years later, analysing data from several European national probability samples, Pettigrew (1997) found that measures of cross-group friendships with immigrants in each

country predicted more favourable attitudes towards both those immigrants groups as well as towards a variety of other immigrant outgroups, even those not found in the respondent's country. Pettigrew noticed that it was not just intergroup friendships that showed wider attitude influence; intergroup contact as co-workers was also associated, albeit to a lesser degree, with improved attitudes towards a variety of outgroups. This article was instrumental in reviving research interest in the generalizability of contact.

More recently, Eller and Abrams (2004, Study 1) provided the first longitudinal test of the STE. Using a small sample size of 34 British undergraduates, they were able to show that having more French friends directly predicted less prejudiced attitudes towards Algerians six months later. Corroborating Pettigrew's (1997) assertion that intergroup friendships are an especially effective form of intergroup contact, general contact with French people at university failed to relate directly with attitudes towards Algerians. More impressively, Van Laar, Levin, Sinclair, and Sidanius (2005) collected longitudinal data spanning a period of five years based on over 2100 students at University of California, Los Angeles (UCLA). Among other hypotheses, the researchers investigated the effects of living with White, Latino, African American, and Asian American outgroup roommates on attitudes towards the respective groups. The authors found that those participants who were randomly assigned a Latino roommate during their second and third year at UCLA not only held less prejudiced attitudes towards Latinos during their fourth year, but their attitudes towards African Americans also showed improvement. A similar, reciprocal relationship held for those who were randomly assigned an African American roommate, in that respondents' attitudes towards Latinos improved as well. What is more, the authors were able to control for both previous contact and attitudes towards the various outgroups.

Pettigrew and Tropp's (2006) meta-analysis reported on 18 samples that tested this relatively understudied form of attitude generalization from primary to secondary outgroups; they found a small but significant effect size ($r = -.19, p < .001$). Of these 18 tests, 14 were taken from relatively loosely controlled studies that were therefore not able to rule out alternative explanations (Pettigrew, 2009).

Before moving on to the mediators of the STE, a note on terminology is warranted. Since the secondary transfer effect involves at least two outgroups, one needs to distinguish the outgroup from which the effect originates, and the outgroup to which the effect is said to transfer. Current parlance has adopted the terminology *primary* and *secondary* outgroups. The primary outgroup refers to the outgroup from which the effect originates, and the secondary outgroup is the outgroup in which the effect is measured. Therefore, contact with the primary outgroup is said to reduce prejudice in the secondary outgroup. This distinction can become tricky for studies that measure contact with the secondary outgroups, as a secondary outgroup in one analysis can act as a primary outgroup in a reverse model. Specifying one outgroup as the primary outgroup and another as a secondary does not necessarily denote primary and secondary importance to those groups in the given context. STEs are typically tested with the more prevalent outgroup—and I use the term prevalent in a broad sense—first (Tausch et al., 2010; Schmid et al., 2012; Vezzali & Giovannini, 2011). For example, Tausch et al. (2010) in Study 3 first test the STE *from* the ethno-religious outgroup (the primary outgroup as the authors refer to it) *to* racial minorities (the secondary outgroup). In testing their reverse model, they refer to racial minorities as the secondary outgroup and the ethno-religious outgroup as the primary outgroup.

The possibility for these terms to cause confusion increases as (a) the STEs between more outgroups are (b) tested simultaneously. The studies reported in this thesis fulfil both

these criteria. Study 2, 3, 4, and 5 all investigate the STE with at least three secondary outgroups. Study 5, especially, represents a three-wave longitudinal study that tests both forward and reverse STE models simultaneously. Therefore, to aid in clarification, the term *focal* outgroup will refer to the outgroup from which the effects of contact on other outgroup attitudes begins, i.e., the primary outgroup. *Target outgroups* will be used to specify the outgroups on which the STE is said to have its effects, i.e., the secondary outgroups. Therefore, in testing reverse STE models, the target outgroup becomes the focal outgroup (from which the effect originates), and the focal outgroup becomes the target outgroup.

Mediators of the Secondary Transfer Effect

With mounting evidence that contact with one outgroup is directly associated with attitudes towards a second outgroup, interest has turned to unveiling the processes by which intergroup contact has such wide reaching positive effects. In other words, what are the mediating processes that underlie the STE? Although his study only tested direct STEs, Pettigrew (1997) offered three potential mediating processes: (1) the generation of close affective ties, (2) by a process of *deprovincialization*, and (3) by an increase in intergroup empathy. It was not until twelve years after Pettigrew's (1997) initial study, however, that the first formal paper studying the STE and its underlying mechanisms appeared (Pettigrew, 2009). In this next section, I will explore the theoretical advances that have been made with regard to each of these processes and the research used to demonstrate their effectiveness. To date, the attitude generalization hypothesis, which states that contact with one outgroup improves attitudes towards a second outgroup by improving attitudes towards the first outgroup (see Paths a_2 through b_2 in Figure 1.1), and the deprovincialization hypothesis (see Paths a_1 through b_1 in Figure 1.1) have received the most attention in research testing the mediators of the STE (Pettigrew, 2009; Tausch et al., 2010).

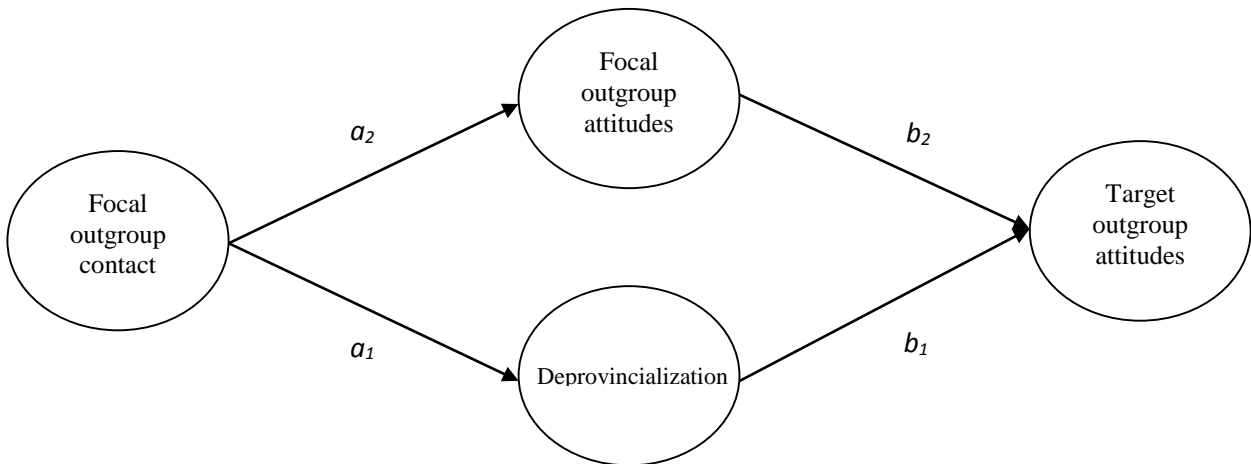


Figure 1.1. Structural model illustrating the attitude generalization and deprovincialization hypotheses.

Therefore, in this section, I will first review the research exploring the attitude generalization hypothesis, its shortcomings, and how, in this thesis, I aim to contribute to our understanding of this process. Next, I will do the same with the deprovincialization hypothesis.

The Attitude Generalization Hypothesis

In 1946 social psychologist, E. L. Hartley asked 604 American college students about their attitudes towards 49 different social groups. These social groups fell into one of three categories: ethnic (35 groups), religious (7 groups), or political (7 groups). Of the 35 ethnic groups, 32 were real and three were fictitious, the Daniereans, Pireneans, and the Wallonians. What Hartley found was quite surprising: not only were attitudes to the 32 real groups highly correlated ($r > .90$), but the correlations between the real and fictitious groups were also extremely high (around .80). Indeed, one of the more prejudiced participants remarked, “I don’t know anything about [the fictitious groups]; therefore I would exclude them from my country” (p. 66).

This study by Hartley (1946/1969) demonstrated that there is indeed a generality to our prejudices. What his study failed to investigate was whether improving attitudes towards one of the outgroups would result in an improvement in attitudes towards other outgroups. Perhaps one of the earliest studies to show that improving attitudes to one outgroup could lead to improved attitudes to another was performed by Lever (1965). Adopting an experimental design using 210 first-year sociology students at a South African University, Lever tested if (a) attending a lecture dispelling the myth that African Americans are inherently scholastically weaker than White Americans owing to biological differences ($N = 54$); (b) reading a transcript of the lecture and being involved in a discussion of it afterwards ($N = 30$); (c) just reading the transcript of the lecture with no discussion afterwards ($N = 51$); or (d) sitting in on a lecture covering the sociology of art (control group, $N = 75$) had any influence on participants' social distance scores towards Black (persons of black African ancestry) and Coloured (persons of mixed racial heritage) South Africans. Social distance scores towards Black and Coloured South Africans were obtained prior to the experimental manipulation, and once again, 12 weeks later. Lever found that participants in the experimental group who sat in on the lecture showed significantly more favourable attitudes towards Black South Africans 12 weeks later ($p < .01$, one-tailed). Attitudes towards Coloured South Africans showed a significant decrease in social distance scores 12 weeks later for the group who read the transcript of the lecture and followed up with a discussion ($p < .05$, one-tailed).

In another study using Jane Elliot's blue eyes-brown eyes social experiment, Weiner and Wright (1973) divided a classroom into two groups, an orange and a green group (by way of a coloured arm band). On the first day, the orange people were considered superior to the green, and on day two, the power relations were switched and green people were considered

superior to the orange. On the third day, all power relations were abolished and the children, as well as a class that had not been involved in the experimental manipulation (acting as a control group), were handed a questionnaire to complete. The researchers found that those in the experimental class were both less prejudiced and more willing to go on a picnic with black learners from another school compared to the control group. This study demonstrates that the experience of unfair treatment because of membership of a “minimal group” (see Tajfel, Billig, Bundy, & Flament, 1971) led participants to hold more favourable attitudes towards an existing social group.

Both of these studies show that interventions designed to improve intergroup attitudes using an unfamiliar outgroup can indeed improve attitudes towards different groups more commonly found within a person’s context. Taken together, these studies point to the possibility of attitude generalization being a process behind wider attitude change. Could this attitude generalization process be a means by which contact improves attitudes towards other, secondary outgroups?

Based on research concerning attitude generalization—a process whereby attitudes towards an object generalize to other, similar objects (Fazio, Eiser, & Shook, 2004; Shook, Fazio, & Eiser, 2007)—the attitude generalization hypothesis describes a process by which attitudes towards the focal outgroup mediate the relationship between contact with the focal outgroup and attitudes towards the target outgroup (Pettigrew, 2009; Tausch et al., 2010). Indeed, this hypothesis combines traditional primary transfer effects—that contact with an outgroup member changes attitudes towards that outgroup—with the finding that a change in one attitude is associated with a change in another attitude (e.g., Hartley, 1946/1969; Lever, 1965; Weiner & Wright, 1973). In the relatively sparse literature on the STE, this mediational hypothesis has received the most support (Al Ramiah, 2009; Harwood, Paolini, Joyce, Rubin,

& Arroyo, 2011; Pettigrew, 2009; Schmid, Hewstone, Küpper, Zick, & Wagner, 2012; Tausch et al., 2010; see Lolliot, Schmid, Hewstone, Tausch, Al Ramiah, & Swart, 2012 for a review).

Attitude generalization is now, as I will argue, an important and robust mechanism underlying STEs. I first consider cross-sectional evidence and then more compelling longitudinal and experimental evidence for mediation of the STE via attitude generalization.

Pettigrew (2009), in analysing two German national probability samples (Sample 1 collected in 2002: $N = 2,559$; Sample 2 collected in 2004: $N = 1,275$), provides the first evidence for the attitude generalization hypothesis. Pettigrew's data set contained attitude scores towards a variety of outgroups, including foreigners, Muslims, the homeless, gay men and lesbians, non-traditional women, and Jews². Treating foreign residents as the focal outgroup, Pettigrew reported significant negative correlations (all $ps < .01$ unless otherwise stated) between contact with foreign residents in Germany and prejudice towards Muslims ($r_{2004} = -.34$), non-traditional women ($r_{2004} = -.20$), the homeless ($r_{2002} = -.21$; $r_{2004} = -.20$), gay men and lesbians ($r_{2002} = -.20$; $r_{2004} = -.20$), and Jewish people ($r_{2002} = -.11$; $r_{2004} = -.06$, $p < .05$). Pettigrew, however, only tested mediation models for contact with foreign residents and attitudes towards two target outgroups: the homeless and homosexuals. In the models using the 2002 sample, Pettigrew found that contact with foreign residents was associated with more favourable attitudes towards foreign residents. These less prejudiced attitudes towards foreign residents then generalized to less prejudiced attitudes towards both homosexuals and the homeless. The mediation of the effect of contact on attitudes towards homosexuals and the homeless by attitudes towards foreign residents reached significance in

² Attitudes towards Muslims and non-traditional women were only ascertained in the 2004 sample.

both analyses. Pettigrew successfully replicated these mediation results using the 2004 sample.

In two South African samples—one using White and the other Coloured South African respondents—Swart (2008) found seemingly contradictory secondary transfer effects. For his White sample, cross-group friendships with Coloured South Africans improved attitudes towards Black South Africans, via improved attitudes towards Coloured South Africans (while controlling for friendships with Black South Africans). Swart also found support for the secondary transfer effect whereby contact with Black South Africans improved attitudes towards Coloured South Africans via improved attitudes towards Black South Africans (while controlling for friendships with Coloured South Africans). For his Coloured South African sample, however, cross-group friendships with White South Africans predicted less prejudiced attitudes towards White South Africans, but these attitudes failed to generalize towards Black South Africans (while controlling for friendships with Black South Africans). Swart found similar results for Coloured students: cross-group friendships with Black South Africans which, although associated with less prejudiced attitudes towards Black South Africans, failed to improve attitudes towards White South Africans (while controlling for friendships with White South Africans). In explaining why secondary transfer effects were witnessed for the White sample and not for the Coloured sample, Swart hypothesised that Coloured and Black South Africans seem to share greater historical and political similarity than White and Black South Africans do. These results are also in line with Tropp and Pettigrew's (2005) findings that contact functions differently for majority versus minority groups.

In a study assessing the effects of a three-month nation-building program of 'National Service' camps run for young people in Malaysia, Al Ramiah (2009) provides an interesting

investigation into the STE. Ethnic Malay, Chinese, and Indian participants were randomly assigned to mixed camps for which participation was mandatory. She found that for ethnic Malay and Chinese respondents, camp contact with the respective outgroup not only improved attitudes towards that outgroup, but attitudes towards Indians also showed improvement. Attitudes towards the focal outgroup (Malays for Chinese respondents, and vice versa) mediated this relationship. What is impressive about this study is that the contact was a result of mandatory participation in a structured contact intervention (thus removing concerns about self-selection), and these effects were evident even after controlling for prior attitudes towards the target outgroups. By controlling for prior attitudes towards the target outgroup, Al Ramiah was able to partial out the part of the variance in attitudes towards the target outgroups that was explained by prior attitudes, thus resulting in more accurate parameter estimates (see Chapter 2 and 5). It should be mentioned that, somewhat similar to Swart's (2008) findings, Al Ramiah found no evidence for either a direct or mediated STE for her Indian sample. In explaining why there were no STEs found for this group, Al Ramiah noted that Indians hold Chinese in admiration but express contempt towards Malays. This finding will be explored in more detail in Chapter 6.

Tausch and colleagues (2010) provide some of the most extensive research to explore the STE, finding support for the attitude generalization hypothesis in all three of their cross-sectional studies (Study 1, 2, and 3). Lending further confidence to the attitude generalization hypothesis, these three studies showed consistent support in diverse contexts ranging from Cyprus (Study 1) to Northern Ireland (Study 2) to America (Study 3). In Study 1 ($N = 1,653$), Tausch et al. found that contact with the Cypriot outgroup (Greek Cypriots for Turkish Cypriot respondents and vice versa) was associated with more favourable attitudes towards mainland Greeks / Turks, and that the path was mediated by attitudes towards the Cypriot

outgroup. While Study 1 did not control for contact with the target outgroup, Study 2 ($N = 1,973$), which investigated the STE in Northern Ireland, included contact measures with the target outgroup. Tausch and colleagues found that contact with the ethno-religious outgroup (Protestants for Catholic respondents and vice versa) was associated with more favourable attitudes towards racial minorities, with evidence found for attitudes towards the ethno-religious outgroup mediating this path. Their third study looked at the STE with a North American sample (Study 3, $N = 275$). In this study, Tausch et al. not only included measures of contact with the target outgroup, but also ruled out the possibility that respondents were responding in socially desirable ways (such as by reporting higher contact and outgroup attitude scores). While controlling for socially desirable responding and contact with the target outgroups, Tausch et al. found further evidence for the attitude generalization hypothesis such that contact with Hispanics was associated with more favourable attitudes towards Hispanics, which, in turn, was associated with more favourable attitudes towards Vietnamese people / Asian Indians.

Even though these studies provide consistent evidence for the STE by way of attitude generalization, they remain nonetheless cross-sectional. Therefore, one cannot confidently claim any causal relationships between the variables under investigation. Therefore, I will now discuss those few studies reporting longitudinal and experimental evidence for the STE, both methodologies permitting more confidence in inferences about the causal relationship between the variables under consideration (MacCallum & Austin, 2000).

In addition to the direct relationship from primary outgroup contact to secondary outgroup attitude reported on earlier, Eller and Abrams (2004) provided initial longitudinal support for the attitude generalization hypothesis. Eller and Abrams showed that having more French friends improved British students' attitudes towards Algerians six months later by

increasing affective ties to French people; the mediation, however, failed to reach significance. This is likely because of the combination of their smaller sample size ($N = 34$) and their use of the Sobel test for mediation, which is known to lack power with small sample sizes in testing the indirect effect (Fritz & MacKinnon, 2007). Tausch et al. (2010, Study 4), using a second Northern Ireland sample ($N = 411$), did, however, test for and find support for the attitude generalization hypothesis longitudinally. They found that contact with the ethno-religious outgroup at time 1 improved attitudes towards racial minorities one year later by improving attitudes towards the ethno-religious outgroup (which was treated as a residualized score), even after previous contact with and attitudes towards racial minorities were controlled for. The mediation was deemed significant using both the Sobel and the more modern bootstrapping tests for mediation (see Chapter 2).

Lastly, Harwood and colleagues (2011) provided the first experimental evidence for the attitude generalization hypothesis, but using a different kind of indirect contact: *imagined contact*. An imagined contact paradigm asserts that imagining a contact scenario with an outgroup member is enough to improve attitudes towards that outgroup (see Crisp, Stathi, Turner, & Husnu, 2008), a contention that has received support (Crisp, Husnu, Meleady, Stathi, & Turner, 2010; see Crisp & Turner, 2009). Harwood et al. (2011) instructed 128 American undergraduates to imagine one of three scenarios: (1) a positive or (2) negative interaction with an illegal immigrant (primary outgroup), or (3) an outdoor scene (control group). After the imagination exercise, they assessed participants' attitudes towards various outgroups. The authors found that those who imagined a positive interaction with an illegal immigrant (the focal outgroup) showed improved attitudes towards a handful of the target outgroups, with the relationship being mediated by attitudes towards illegal immigrants. They did not, however, control for previous contact with the secondary outgroups. We return to

this study below, and speculate as to why the effects of focal outgroup contact generalized to some, but not all, target outgroups.

I have now reviewed the basic literature on attitude generalization as one of the mechanisms by which the STE works. As encouraging as these findings are, some methodological concerns remain. I will now consider the most pertinent threats to the validity of the attitude generalization hypothesis, which include concerns relating to shared method variance and *the secondary contact problem* (Tausch et al., 2010).

Threats to the Attitude Generalization Hypothesis

The use of similar measures may inflate the relationship between the variables being considered (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) resulting in undue confidence in the relationship(s) between the variables under consideration. This is a valid concern for research regarding the STE as many of the studies reported here used the same rating scales when measuring attitudes towards the various primary and secondary outgroups. The other issue facing studies involving the attitude generalization hypothesis is that people who have more contact with one outgroup will tend to have more contact with other outgroups, also known as the secondary contact problem (Tausch et al., 2010). In this section, we briefly evaluate concerns relating to both these forms of potential bias and evaluate the extent to which they limit the conclusions we can draw about STEs.

As mentioned, most research on the STE has relied on using the same attitudinal measures when measuring attitudes towards the primary and secondary outgroups (Al Ramiah, 2009; Harwood et al., 2011; Tausch et al., 2010). For example, Tausch et al. (2010) and Harwood et al. (2011) both used feeling thermometers when measuring attitudes towards the various outgroups under investigation. Using the same outcome measures may inflate the

attitude generalization link simply by virtue of the similarity between the measures rather than because of a bona fide relationship between the attitudes of different outgroups. Research reported by Pettigrew (2009) helps to reduce concerns about shared method variance. He found strong evidence for the attitude generalization hypothesis using different attitude scales when investigating the STE between Germans' contact with and attitudes towards immigrants (the focal outgroup), and their attitudes towards homosexuals and the homeless (target outgroups). Schmid, Hewstone, Küpper et al. (2012) conducted a large cross-national survey of eight European countries using different measures for attitudes towards focal (immigrants) and target (homosexuals and Jews) outgroups. Thus, both of these studies used different attitude measures for the target and focal outgroups, bolstering our confidence that attitude generalization is a genuine process. Threatening the veracity of these studies' findings, however, neither Pettigrew (2009) nor Schmid, Hewstone, Küpper et al.'s (2012) analyses controlled for contact with the secondary outgroups, leaving them prone to concerns about selection biases and inflated effects. Failing to control for contact with the target outgroups means that the variables included in the model are likely explaining variance in the attitude scores that is better explained by contact with the target outgroups. Put differently, the included variables might be explaining redundant variance rather than unique variance.

Schmid, Hewstone, Tausch et al. (2011, Study 2) showed in a study conducted in Northern Ireland that intergroup friendships with people from the other religious community improved attitudes towards immigrants and homosexuals—measured using feeling thermometers—by increasing the perceived group variability of the ethno-religious outgroup. Perceived variability of the ethno-religious outgroup still mediated the relationship between friendships with people from the other ethno-religious community and attitudes towards gay

men and immigrants even after controlling for contact with the target outgroups. This study provides strong evidence that selection and common method biases are not sufficient to explain STEs. Even though these studies afford us more confidence in the attitude generalization processes, however, they need to be replicated both longitudinally and experimentally before we can confidently rule out any possible spurious effects owing to shared method biases.

Tausch et al. (2010) argue that their longitudinal study (Study 4) helps circumvent issues relating to both the secondary contact problem (by controlling for contact with the target outgroup) and common method biases. Their study included a measure of ingroup and outgroup attitudes, assessed using feeling thermometers. Yet, only attitudes towards the ethno-religious outgroup mediated the relationship between contact with the ethno-religious outgroup and attitudes towards racial minorities. They argue that an indication of shared method bias would have been evidenced by a positive relationship between their measures of ingroup and outgroup attitude. The relationship between their measures of ingroup and outgroup attitude was non-significant. There are, however, two concerns with this study and its interpretation. First of all, the ingroup feeling thermometer might well be negatively associated with attitudes towards the outgroups, but an inflated positive relationship between the two attitude measures owing to common method variance may have resulted in the witnessed non-significant relationship. Secondly, the authors only used a two-wave longitudinal design to test a process that inherently requires three waves. In doing so, some assumptions are made about the relationship between the variables (i.e., autoregressive and cross-lagged stationarity) which, if violated, threaten the veracity of the results. These assumptions and the consequences of violating them will be discussed in more depth in Chapters 2 and 5 in this thesis.

While plenty of the studies investigating the STE have controlled for contact with the target outgroups, these are often single item measures of contact quantity (for an exception, see Swart, 2008). Including multiple measures of more intimate forms of contact with the target outgroups would thus provide a stricter test of the secondary contact problem.

Thus, research on attitude generalization suffers in three major areas. The first is that few strictly controlled longitudinal or experimental studies have been conducted testing the relevant hypothesis. Furthermore, the studies that have used longitudinal designs suffer in various ways: (1) They either use small sample sizes thus lacking statistical power (Eller & Abrams, 2004); (2) they do not take advantage of more robust statistical approaches, such as structural equation modelling with latent variables, in analysing the data (Eller & Abrams, 2004; Tausch et al., 2010; Van Laar et al., 2005); and (3) either do not test for longitudinal mediators (Van Laar et al., 2005) or (4) do not use the prerequisite number of waves—three, see Chapters 2 and 5—in testing for longitudinal mediation (Eller & Abrams, 2004; Tausch et al., 2010). Study 5 aims to contribute to the research on the STE and the attitude generalization process by tackling these four shortcomings. Furthermore, Studies 1 through 5 in this thesis include both multi-item measures of contact quality and cross-group friendships with the various outgroups. Both the meta-analyses performed by Pettigrew and Tropp (2006) and Davies et al. (2011) show that studies using multi-item contact measures, especially those with higher reliabilities ($\alpha \geq .70$), show a stronger contact to prejudice relationship than studies using low reliability multi-item measures ($\alpha < .70$), or single item indicators of contact. Therefore, by using reliable, multi-item measures of intergroup contact and friendships with the target outgroups, especially in a latent variable framework (Studies 4 and 5), I am able to provide a stricter test of the STE and the attitude generalization hypothesis. While some studies have tested attitude generalization between more than two outgroups

(Pettigrew, 2009), with the exception of Schmid, Hewstone, Küpper et al. (2012), they analysed the mediation models separately. Studies 2, 3, 4, and 5 in this thesis test the STEs towards multiple outgroups in the same model thus taking the correlations between the attitudes towards the target outgroups into consideration (see Chapter 2).

Similarity Gradients

Returning to Hartley's (1946/1969) study, an interesting pattern of correlations emerged. Recall that I only spoke about the correlations between the non-existent outgroups (Danireans, Pirenean, and Walonian) and the other national groups; these correlations were around the $r = .80$ mark. Hartley also inspected the correlations between the three fictitious groups and students' ratings of the religious and political groups. While these correlations were positive, they covaried to a lesser degree ($.23 \leq r \leq .68$) in comparison to the correlations between the fictitious and national groups. Indeed, Hartley aimed to create some semblance of similarity between the fictitious and national groups saying that these groups "sound plausible" (p. 26) and admitting that some students may confuse Walonians with the Walloons of Belgium and Pireneans with people from the Pyrenees. These results point towards the possibility that, while our attitudes are strongly generalized, there is some gradient along which certain attitudes are more and others less related to other attitude objects. If this is the case, then one could expect differences in the STE contingent on the pairing of attitude objects.

Indeed, there is plenty of evidence to be found from the various corners of social psychology showing that objects that appear similar to each other do show stronger attitude generalization effects than dissimilar attitude objects. These instances include evidence from mere exposure effects (Monahan, Murphey, & Zajonc, 2000; Zajonc, 2001) to objects in a

computer game (Fazio et al., 2004; Shook et al., 2007); from attitude generalization from a single group member to the outgroup as a whole (Brown & Hewstone, 2005; Hewstone & Brown, 1986), to implicit attitude generalization (Ranganath & Nosek, 2008); from the generalization of emotions of guilt (Walther, 2000), to group entitativity (Crawford, Sherman, & Hamilton, 2002).

In the field of mere exposure effects, Monahan, Murphy, and Zajonc (2000, Study 2) uncovered evidence for wider attitude generalization as well as attitude generalization along a similarity gradient. The mere exposure hypothesis states that repeated exposure to a stimulus object leads to more favourable attitudes towards the object (Zajonc, 1968). Monahan et al. (2000, Study 2) showed one group of participants five Chinese ideographs five times each while another group of participants were shown 25 Chinese ideographs only once. Participants were then asked to rate their liking for previously seen Chinese ideographs; new, yet, similar Chinese ideographs; and new, distinct objects (polygons). Participants who had been exposed to the five stimuli five times each showed significantly more favourable attitudes towards novel, similar Chinese ideographs and, showing wider attitude generalization effects, participants also rated the distinct polygons more favourably. Showing evidence for a similarity gradient, the participants in the repeat exposure condition showed comparable attitudes towards the novel ideographs and previously seen ideographs, but their attitudes towards the distinct polygons were significantly lower when compared to the previously seen and novel ideographs.

Of the most interesting examples of seemingly disparate attitudes generalizing along a similarity gradient, Martin, Laing, Martin and Mitchell (2005) found that participants who scrutinized an argument in favour of voluntary euthanasia not only showed attitude change to euthanasia in the direction of the argument, but a similar attitude change was also witnessed

towards abortion. Similarly, Martin and Hewstone (2008) showed that participants who read an argument put forward by a minority group in favour of euthanasia showed attitude change to both voluntary euthanasia as well as genetic screening. Martin et al. (2005) argue that the attitudes generalized from their direct measure (voluntary euthanasia) to their indirect measure (pro-abortion) because, as in Martin and Hewstone's (2008) study, both attitudinal objects referred to a common superordinate theme: the control of life.

In the field of intergroup contact, Pettigrew (2009) noticed that contact with a focal outgroup had stronger effects on attitudes towards a target outgroup when that target outgroup bore some similarity to the focal outgroup. Based on this eyeball analysis, Pettigrew hypothesised that, while it may be difficult to define exactly what is meant by similarity, outgroups that share some common aspect would show stronger STEs than less similar outgroups would. Only two studies have directly tested for evidence of similarity gradients (Asbrock, Christ, Hewstone, Pettigrew, & Wagner, 2011; Harwood et al., 2011). Asbrock, et al. (2011) showed stronger STEs for target outgroups that were rated as more similar to the focal outgroup on the warmth and competence dimensions of Fiske, Cuddy, Glick, and Xu's (2002) Stereotype Content Model. In other words, direct contact with foreigners in Germany (focal outgroup) was directly associated with improved attitudes to all target outgroups (with the exception of attitudes towards Jews) and this direct link was stronger for those groups rated more (Muslims, homeless people, homosexuals) than those rated less (non-traditional women, Jews) similar to the focal outgroup in terms of the warmth and competence dimensions of the stereotype content model (Fiske et al., 2002).

As mentioned earlier in the chapter, Harwood and colleagues (2011) tested the effect of imagining an intergroup encounter with an illegal immigrant on attitudes towards various outgroups. Recall that I mentioned that the experimental manipulation showed wider positive

attitude generalization to some but not all of the outgroups investigated in the study.

Harwood et al. explored the possibility that the experimental manipulation improved attitudes towards the target outgroups that were rated similarly to the focal outgroup. Their measure of similarity was obtained by asking three undergraduate students, who did not form part of the study sample, to rate the similarity between the focal and target outgroups. While their results are equivocal, the general pattern is that the imagined contact manipulation generally improve attitudes towards target outgroups who were rated as more similar to the focal outgroup than those who were rated as less similar.

In this thesis, I would like to propose a new way of testing for similarity gradients, one which uses Goffman's (1963) typology of social stigma to predict when stronger STEs will occur. Goffman's typology categorizes social stigma as falling into one of three types (which we have re-labelled in more acceptable contemporary language); 'tribal stigma' (e.g., devalued ethnic, racial or religious groups; henceforth referred to as *category stigma*), 'abominations of the body' (e.g., physically handicapped groups; henceforth referred to as *physical stigma*) and 'blemishes of individual character' (e.g., homosexuals, homeless, drug-addicts; henceforth referred to as *character stigma*). Early studies on STE mainly test attitude generalization within the same type of stigma, chiefly concerning the category stigma; for example, attitude generalization from French Canadians towards European French (Clément et al., 1975). There is evidence, however, of attitudes generalizing across types of stigma, such as from an ethnic outgroup attitude (category stigma) to attitudes towards homosexual men (character stigma; Schmid, Hewstone, Tausch et al., 2011; Schmid, Hewstone, Küpper et al., 2012). I predict, then, that contact with the focal outgroup will have a stronger effect on attitudes towards the target outgroup if both outgroups can be classified under the same group

than when the two outgroups come from different groups according to Goffman's (1963) typology. In this thesis, Studies 3, 4, and 5 tested this hypothesis.

It should be noted, however, that the two studies testing for similarity effects (Asbrock et al., 2011; Harwood et al., 2011), as well as the similarity hypothesis I have just put forward, rely on, what I like to call, *global measures of similarity*. Global measures of similarity represent external systems denoting similarity between various outgroups. In other words, they are not rated by the participants themselves. Would we still see evidence for a similarity gradient if we asked our participants what their perception of intergroup similarity is? Study 2 and 4 included participant rated measures of between-group similarity and therefore provide the first tests for the existence of similarity gradients as rated by the individual themselves.

Lastly, it should be noted that Asbrock et al. (2011), Harwood et al. (2011), and Pettigrew (2009) looked for evidence of similarity gradients between contact with the focal outgroup and attitudes towards the target outgroup. Keeping the pattern of correlations between the attitude ratings for the different outgroups reported by Hartley (1946/1969) in mind, and given the importance of the attitude generalization hypothesis (Lolliot et al., 2012), I decided to look the effect of similarity gradients of the STE for the path between attitudes towards the focal and target outgroups. This represents an extension of the attitude generalization hypothesis in that it seeks a more refined understanding of how our attitudes are connected. Therefore, I propose the similarity gradient hypothesis of the attitude generalization effect: Attitudes should generalize more readily between two outgroups who are perceived as more similar according to a similarity classification scheme, be it global or individual, than between those outgroups who are seen as less similar. By extension, contact

with a focal outgroup should have a stronger effect on attitudes towards a target outgroup if the focal and target outgroup are deemed as more, rather than less, similar.

In summary, this thesis aims to replicate evidence for the attitude generalization hypothesis (Studies 1 through 5). I also aim to extend on previous studies by employing stricter multi-item measures of intergroup contact (Studies 1 through 5) and cross-group friendships (Studies 2 and 5). Furthermore, I aim to investigate the attitude generalization hypothesis while controlling for social dominance orientation (Study 1 and 3) and by including other relevant mediators in the same model (Study 2 through 5; see Chapter 2). I aim to extend the attitude generalization hypothesis by testing for the existence of similarity gradients of the attitude generalization process using both a global measure of similarity (according to Goffman's typology, 1963; Studies 3, 4, and 5) and individual measures of intergroup similarity (Studies 2 and 4). Lastly, I endeavour to uncover moderated mediations (see Chapter 2) such that attitudes towards the focal outgroup will mediate the relationship between contact with the focal outgroup and attitudes towards the target outgroup for groups that are perceived as more and less similar (Studies 2 through 5).

The Deprovincialization Hypothesis

Pettigrew (1997) stated that cross-group contact (especially in the form of cross-group friendships) leads ingroup members to realize that the ingroup is not the only yardstick by which to judge the social world. He termed this broadening of perspective, *deprovincialization*. In addition to broadening one's gaze beyond the ingroup's norms, customs, and lifestyles, intergroup contact serves to humanize outgroup members and distance oneself from the ingroup (see Figure 1.2 paths a_1 through b_2).

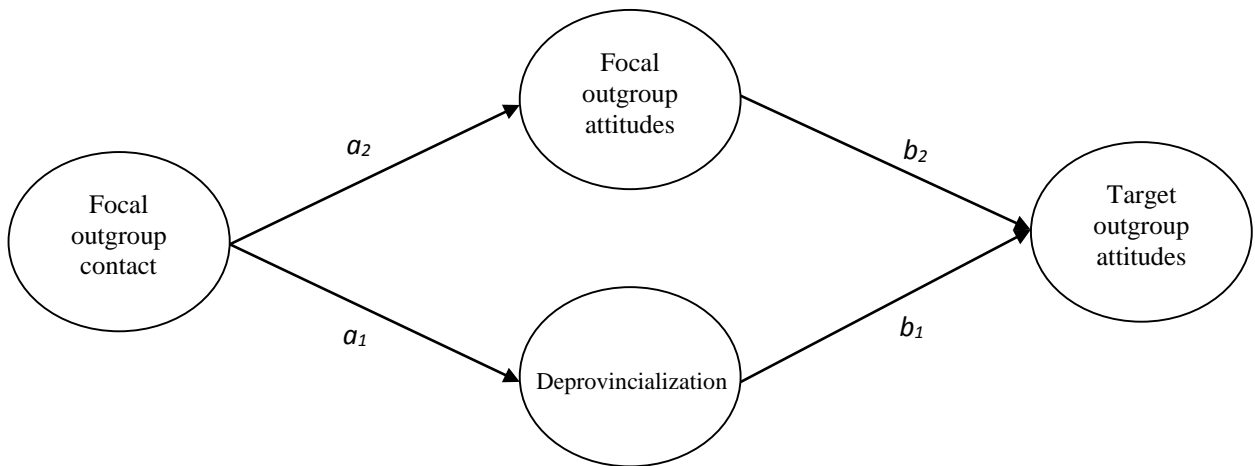


Figure 1.2. The structural model illustrating the attitude generalization and deprovincialization hypotheses.

In short, Pettigrew states that intergroup contact leads ingroup members to have a less provincial view of the world. To date, the deprovincialization hypothesis has received mixed support, with some studies providing confirming evidence (Pettigrew, 2009; Tausch et al., 2010, Study 1), and others not (Tausch et al., 2010, Studies 2-4). As will be discussed, one possible reason for these inconsistent results is that most studies testing the deprovincialization hypothesis used a narrow operationalization of the process, namely ingroup identification (Pettigrew, 2009) or ingroup attitude (Tausch et al., 2010). I will first discuss the mixed evidence for the deprovincialization hypothesis in the context of the STE. Then, I will argue that multiculturalism and social identity complexity are more appropriate and nuanced alternative conceptualisations of the deprovincialization hypothesis.

Mixed Evidence for the Deprovincialization Hypothesis

Pettigrew (2009) provided the first evidence for the deprovincialization hypothesis. He found that identification with Germany significantly mediated the relationship between Germans' positive contact with German immigrants and their attitudes towards homosexuals and the homeless. Positive contact with immigrants predicted lower identification with

Germany, which, in turn, was associated with improved secondary outgroup attitudes.

Pettigrew did concede, however, that German identity was a weaker mediator of the STE than was attitude generalization. Tausch et al. (2010, Study 1) also reported evidence for the deprovincialization hypothesis; they found that for Greek and Turkish Cypriots in Cyprus ingroup attitude (operationalized as private collective self-esteem) mediated the relationship between contact with the primary outgroup (i.e., Turkish/Greek Cypriots, respectively) and attitudes towards mainland Turks/Greeks (i.e., Greeks in Greece, or Turks in Turkey). Thus, contact with the Cypriot outgroup predicted lower private collective self-esteem which, in turn, predicted more positive attitudes towards the mainland (secondary) outgroup.

Contrasting the mediation effects of attitude generalization and deprovincialization, Tausch et al. (2010) also found that attitudes to the primary outgroup were a stronger mediator of the STE than were ingroup attitudes.

In their remaining three studies, however, Tausch et al. (2010) failed to find evidence for the deprovincialization hypothesis. Using feeling thermometers (Studies 2, 3 and 4) and private collective self-esteem (Study 4) as an indicator of ingroup attitude, contact with the primary outgroup reliably failed to predict attitudes towards the ingroup in all three studies, while in only two of their four studies did ingroup attitude predict outgroup attitude (Studies 2 and 3). In their longitudinal study (Study 4), neither the ingroup feeling thermometer nor the measure of private collective self-esteem was predicted by contact, nor did they predict outgroup attitude. The tenuous relationship between contact, ingroup attitude and outgroup attitude is not as surprising as one may think. Commenting on the mixed relationship between ingroup and outgroup attitudes, Brewer (1999) stated that "...most contemporary research on intergroup relations, prejudice, and discrimination appears to accept, at least implicitly, the idea that ingroup favouritism and outgroup negativity are reciprocally related" (p. 430).

Brewer goes on to highlight that the varying nature of the ingroup-outgroup attitude link is not as uncommon as thought. Discrimination in favour of the ingroup over outgroups may be just that—preferential treatment of the ingroup, rather than outgroup derogation.

In light of this evidence, as well as Pettigrew's (1997) wider-reaching definition of deprovincialization, it remains questionable whether research focusing more narrowly on ingroup attitudes as a mediator of STEs has, to date, adequately operationalized deprovincialization (see also Tausch et al., 2010). I will thus argue two positions. First, a more nuanced view of the relationship between ingroup identification and outgroup attitudes is surely warranted. Second, I will put forward that an alternative approach to Pettigrew's (1997) deprovincialization hypothesis, one based on increasing multicultural ideals, may prove more fruitful.

Deprovincialization Hypothesis and Ingroup Identification: Theoretical Extensions

I believe that the chief cause of the inconsistent findings relating to the deprovincialization hypothesis stems from how it has been tested in the literature—by various versions of an ingroup identification scale or ingroup attitude measures. These items have been used to test one of the operationalizations of the deprovincialization hypothesis, that intergroup contact, “serves to distance you from your in-group” (Pettigrew, 1997, p. 174). Inherent in this formulation is the assumption that the ingroup-outgroup attitude relationship is ethnocentric. In other words, it assumes that the relationship between ratings of the ingroup and outgroup is negative. This ethnocentric interpretation of the link between ingroup-outgroup attitudes has, however, been called into question (see Brewer, 1999) as an increasing number of studies report positive, negative, or non-significant relationships between ingroup and outgroup attitudes (Brown, Maras, Masser, Vivian, & Hewstone, 2001;

Duckitt & Mphuthing, 1998; Jackson, 2002; Mummendey, Klink, & Brown, 2001; Lyons, Kenworthy, & Popan, 2010), sometimes all in the same study (Duckitt, Callaghan, & Wagner, 2005; Duckitt & Parra, 2004). Therefore, if this specific conceptualization of the deprovincialization hypothesis is to be of theoretical interest, a more nuanced understanding of the relationship between ingroup and outgroup attitudes is needed.

This need for a reformulated deprovincialization hypothesis is well illustrated in Study 2 of Tausch and colleagues' paper on the STE. In exploring the differences between Catholic and Protestant respondents, the authors found that, as predicted by the deprovincialization hypothesis, for Catholics, positive contact with Protestants was associated with less favourable attitudes towards the ingroup. However, they uncovered a positive relationship between attitudes towards Catholics (i.e., the ingroup) and attitudes towards racial minorities. Therefore, for Catholics, contact with the ethno-religious outgroup *negatively* influenced attitudes towards racial minorities, a relationship mediated by attitudes towards the ingroup, a finding inconsistent with the deprovincialization hypothesis. In explaining this inconsistent finding, the authors speculate that because Catholics do not enjoy dominant group status (as do the Protestants), they are less likely to see racial minorities as a threat to them.

Tausch and colleagues' explanation seems to draw from realistic group conflict theory (Campbell, 1965) which predicts that intergroup animosity will arise when there is competition for limited resources which results in increased ingroup identification. Past research has indeed shown that ingroup identification and attitudes relate negatively to outgroup attitudes under conditions of threat (Brown et al., 2001; Jackson, 2002; Lyons et al., 2010). For example, in a quasi-experimental design, Brown et al. (2001) compared the relationship between ingroup identification and outgroup attitude towards the French for

British respondents wanting to cross the channel to France. Two groups formed the focus of their study, one group who were prevented from crossing the channel by French fishermen (intergroup conflict condition, $N = 62$) and another group whose travel plans had not been disrupted (no conflict condition, $N = 178$). The authors found that high ingroup identifiers in the conflict group showed more negative evaluations of the French than high identifiers in the no conflict group. The researchers also found that individuals who displayed lower levels of ingroup identification and were in the intergroup conflict condition also showed more negative attitudes towards the French than did low identifiers in the no conflict group.

Jackson (2002) also found evidence for intergroup conflict moderating the relationship between ingroup identification—measured as attraction to the ingroup—and outgroup attitudes. Jackson asked his 872 respondents who were attending an introduction to psychology course at university (he does not state at which university) to choose an ingroup to which they felt they belonged and to identify another group of the same category as their ingroup, but to which they did not belong (this served as the outgroup). Jackson obtained ratings for perceived conflict between the ingroup and outgroup, attitudes towards the ingroup and outgroup, and multiple ratings of ingroup identification, including affective ties to the ingroup, attraction to the ingroup, and self-categorization. Perceived conflict interacted with ingroup attraction in predicting attitudes towards the outgroup such that for low perceptions of conflict, respondents reporting high or low levels of ingroup attraction rated the outgroup statistically similarly (i.e., $p > .05$). Though when perceived conflict was high, individuals scoring high on the ingroup attraction measure showed significantly more prejudiced attitudes towards the outgroup than did individuals reporting lower levels of ingroup attraction. A similar pattern of results emerged for the interaction between ingroup-outgroup similarity and perceived conflict. Once again, when perceived conflict between the

ingroup and outgroup was low, participants scoring high or low on the self-categorization measure held equivalent attitudes towards the outgroup. On the other hand, when perceived conflict was high, high self-categorizers held significantly more prejudiced attitudes towards the outgroup than did low self-categorizers.

As a last example, Lyons et al. (2010) explored the role of group narcissism as a moderator of the relationship between ingroup attitude and attitudes (Studies 2 and 4) and behaviour (Study 4) towards Arab, Latino, Asian, and European immigrants amongst 390 (Study 2) and 133 (Study 4) American students. Lyons and colleagues found that those scoring at mean to high levels on their group narcissism scale showed a stronger negative relationship between ingroup identity, prejudice, and negative behavioural tendencies towards Arabs than those scoring below the mean. The other moderation terms predicting attitudes towards Latino, Asians, and European immigrants, however, failed to reach significance. Why did group narcissism moderate the effect for only one of the four outgroups investigated? In the first of their four studies, Lyons et al. show that American undergraduate participants rated Arabs as posing the greatest (perceived) threat to harm the United States and evoking the most anxiety in the respondents when compared to the other groups.

Taken together, these three studies, although not the only of their kind, demonstrate that perceived threat and competition influence the relationship between ingroup identification and attitudes towards various outgroups. More specifically, ingroup identification will relate ethnocentrically to outgroup attitudes under high levels of perceived threat, an effect that is pronounced for high ingroup identifiers, but will not necessarily relate to outgroup attitudes for both high and low ingroup identifiers when there is no perceived threat. These studies, especially Jackson (2002), highlight that not all measures of ingroup

identification will relate to outgroup attitudes, even under threatening conditions. Indeed, ingroup identification is a multifaceted dimension (see Leach et al., 2008). So, specifically, which dimensions of ingroup identification are more likely to relate to outgroup attitudes?

Duckitt, Callaghan, and Wagner (2005) studied the relationships between four aspects of ingroup identification and their relationship to outgroup attitudes for White Afrikaans South Africans ($N = 350$), White English South Africans ($N = 165$), Black South Africans ($N = 325$), and South African Indians ($N = 211$) attending undergraduate courses across three universities in South Africa. Out of the four identification measures—ingroup involvement, attachment, salience, and evaluation—Duckitt and colleagues found that it was the evaluative component of ingroup identification that related to attitudes towards the various outgroups. Furthermore, the relationship between ingroup evaluation and outgroup attitudes for groups that have historically had a history of conflict (i.e., White Africans and Black South Africans) was reliably negative. For the groups that have been seen as allies or sympathetic towards each other (e.g., White English and Indian South Africans), the relationship between ingroup evaluation and outgroup attitudes was positively related. There were no other reliable relationships between the other measures of ingroup identification and attitudes towards the outgroups (see also Duckitt & Mphuthing, 1998). Duckitt and Parra (2004) replicated the finding that evaluative measures of ingroup identification serve as more reliable predictors of outgroup attitudes than other measures of ingroup identification with a New Zealand sample.

Similarly, across four studies using participants from Germany (Study 1 and 2) and Britain (Study 3 and 4), Mummendey, et al. (2001) compared the relationship between ingroup identity, ingroup evaluation, and outgroup derogation under three different conditions. Participants were asked to make a positive evaluation of their own nation in relation to either (a) other nations (intergroup comparison condition), (b) their nation at an

earlier time (non-intergroup comparison), or by making no explicit comparisons (control condition). Mummendey et al. found that across all conditions, a positive relationship between ingroup identification and ingroup evaluation was present. Participants in the intergroup comparison condition, on the other hand, displayed positive correlations between ingroup identification/evaluation and outgroup derogation, a relationship that was non-significant for participants in the other two conditions (see Li & Brewer, 2004 for similar results).

In spite of all this evidence, the ingroup-outgroup attitude relationship continues to be understood as ethnocentric. The inconsistent results evidenced by the tests of the deprovincialization hypotheses attest to the need for a more nuanced view of how ingroup identity and attitudes relate to outgroup attitudes. Therefore, based on the replicated results found in the articles reported above, I would like to put forward the two hypotheses with which I hope to formally clarify when one can expect the relationship between ingroup attitude or identification and outgroup attitudes to be ethnocentric or not. Catton (1960-61) suggested that ethnocentrism serves to maintain certain group hierarchies in favour of the ingroup. Since social dominance orientation has been defined as the "...extent to which one desires that one's in-group dominate and be superior to out-groups" (Pratto, Sidanius, Stallworth, & Malle, 1994, p. 742), social dominance orientation could act as a moderator of the ingroup-outgroup attitude relationship. Therefore, I predict that one would expect a strong negative relationship between identification and outgroup attitudes for individuals high in social dominance orientation. For individuals low in social dominance orientation, one could expect either a positive or neutral (non-significant) relationship between ingroup and outgroup attitudes. Furthermore, socially dominant individuals' prejudices are activated by outgroups who threaten the ingroup's relative status and power (see Duckitt, 2006).

Therefore, social dominance orientation should only moderate the relationship between ingroup and outgroup attitudes for outgroups that threaten the ingroup's status and position, but not for outgroups that threaten social order, stability, or cohesion (Duckitt, 2006)—right-wing authoritarianism would moderate the relationship between ingroup and outgroup attitudes for such outgroups.

Having put forward a new theory on how ingroup attitude relates to outgroup attitude, I would now like to turn my attention to the rest of Pettigrew's deprovincialization hypothesis as there are some theoretical extensions that I would like to propose, and then test in this thesis.

Deprovincialization by Multiculturalism: Theoretical Extensions

“No culture can live if it attempts to be exclusive.”

—Mahatma Gandhi

While I have spoken about the relationship between ingroup identity/attitudes and outgroup attitudes in relation to Pettigrew's (1997, 1998) deprovincialization hypothesis, there are other aspects of the theory that provide fruitful avenues for future research. In this section, I wish to argue that multiculturalism—the acceptance and appreciation of others' culture and cultural practices—closely mirrors the processes whereby intergroup contact helps individuals realise that their groups' norms, values and customs are not the only compass one can use to navigate the social seas.

As societies become increasingly heterogeneous, so do the cultural practices. Thus, fostering an appreciation and acceptance of minority groups' identities and cultures becomes an increasingly important task for diverse societies. Recognising the challenges diverse

societies face, a number of nations have laid emphasis on the importance of nurturing such acceptance and appreciation for multicultural diversity (see, for example, Berman & Paradies, 2010; Moran, 2012). Making reference to the *rainbow nation*, both Archbishop Desmond Tutu and Nelson Mandela acknowledged the importance of accepting the diversity inherent in South African society in order to move forward from its troubled history of apartheid. In his inaugural speech as president of South Africa, Nelson Mandela stressed this point,

We enter into a covenant that we shall build a society in which all South Africans, both black and white, will be able to walk tall, without any fear in their hearts, assured of their inalienable right to human dignity—a rainbow nation at peace with itself and the world.

Indeed, the approach encapsulated by *multiculturalism* does not only acknowledge the multiplicity of group differences and memberships, but celebrates them (Takaki, 1993; Yinger, 1994). Multiculturalism, therefore, seems to embody Pettigrew's (1997, 1998) conceptualisation of the deprovincialization hypothesis in the sense that it broadens one's perception beyond in-group norms, customs, and lifestyles to include those of other social groups. Indeed, multiculturalism has been associated with improved attitudes towards outgroups (Levin, et al., 2012; Verkuyten, 2005) and less intergroup bias (Richeson & Nussbaum, 2003). Furthermore, in an interesting study, Plaut, Thomas, and Goren (2009) collected data on attitudes towards multiculturalism, colour-blindness, and psychological engagement from 3,758 employees working in 17 American health care organizations. Averaging the white respondents' multiculturalism and colour-blind scores across the departments, Plaut and colleagues regressed psychological engagement scores provided by the minority respondents onto the multiculturalism and colour-blind scores. They found that multiculturalism was significantly positively related to minority psychological engagement

while colour-blindness was negatively, yet significantly, related. These results are in line with research conducted by Apfelbaum, Sommers, and Norton (2008, Study 3) who found that White and Black participants who watched a video of an interracial pair (of actors) engaging in a conversation while adopting a colour-blind approach—in other words, making no reference to race—were viewed as more prejudiced than were two actors interacting in an interracial conversation whilst openly talking about race.

Two independent lines of research lend further credence to multiculturalism as a mediator of the STE. Verkuyten, Thijs, and Bekhuis (2010), in two studies using Dutch school children (Study 1, $N = 743$; Study 2, $N = 1,028$), found that intergroup contact was positively associated with the development of more multicultural attitudes. In four experimental (Study 1, 2, 5, and 6) and two cross-sectional studies (Study 3 and 4), across two diverse sample groups (White Americans: Studies 1, 2, 3, and 6; Native Israelis: Studies 4 and 5), Tadmor, Hong, Chao, Wiruchnipawan, and Wang (2012) reported on the extensive benefits of adopting a multicultural stance on a range of attitude measures. For example, in Study 4, Tadmor et al. found that multicultural experiences of 89 Israeli undergraduate students were negatively associated with accepting existing stereotypes towards Ethiopians, homosexuals, and Sabras as true. Furthermore, the need for cognitive closure—a construct that measures an individual's preference for definite answers and the avoidance of ambiguity (Kruglanski & Webster, 1996) which has been associated with higher levels of prejudice (Roets & Van Hiel, 2006; Van Hiel, Pandelaere, & Duriez, 2004)—mediated the relationship between multicultural experiences and the various stereotype endorsements.

Furthermore, Tadmor et al. showed the generalizability of the effect of multicultural attitudes in Study 1 and 2. They showed that viewing a presentation depicting different aspects of American and Chinese cultures led participants to endorse fewer negative

stereotypes towards African Americans (Study 1) and made them fairer in their hiring of high quality African American and White applicants for a job (Study 2); significantly more so than participants who viewed a presentation depicting only American or Chinese cultures and a control group who sat through a talk on geometric figures. One possible reason why multiculturalism leads to more favourable attitudes to many outgroups is that inherent in a multicultural ideology is the acknowledgement of the multiplicity of cultural identities and practices. Such acknowledgement makes group categories salient, which, as is hypothesised in the case of extended contact and is predicted by the intergroup contact theory (Brown & Hewstone, 2005), should thus aid in the generalization of its effects. Furthermore, multiculturalism should relate directly to ingroup norms given that an individual realises that one's own cultural practices and beliefs are not the only valid way of function in the social world. The more inclusive ingroup norms heralded by increased endorsement for multiculturalism, because they are not outgroup-specific, should lead to more positive attitudes towards a range of outgroups.

Taken together, research has shown a positive association between (a) intergroup contact and increased endorsement of multiculturalism; (b) endorsement of multiculturalism and positive outgroup attitudes; and (c) endorsement of multiculturalism brought on by one outgroup generalizes to improved attitudes towards other outgroups. Yet no research has shown that intergroup contact relates to outgroup attitudes as mediated by multiculturalism. Given that I propose that an acceptance of diversity through higher endorsement of multicultural attitudes serves as a good proxy for the deprovincialization aspect of the hypothesis, I further propose that intergroup contact has an effect on attitudes towards a number of outgroups via an increased endorsement of multiculturalism.

In this thesis, I aim to empirically test, and where possible, replicate the theoretical extensions I have offered in this section. With regards to the relationship between ingroup identity and outgroup attitude, Study 4 provided data that allowed me to investigate the hypothesis that ingroup identity will relate negatively to outgroup attitudes, specifically for outgroups deemed as threatening the ingroup's relative status (which happens to be the focal outgroup in Study 4), for individuals who score high on the social dominance orientation measure. On the other hand, the relationship between ingroup identity and outgroup attitudes will either be positive or non-significant for individuals low in social dominance orientation. By extension, ingroup identification should mediate the relationship between contact with and attitudes towards the focal outgroup for individuals high and not low in social dominance orientation. Lastly, I propose a moderated three-path mediation effect such that for individuals high in social dominance orientation, intergroup contact with the focal outgroup will influence attitudes towards the target outgroups by sequentially reducing ingroup identification which should lead to more favourable attitudes towards the focal outgroup.

Studies 2 and 4 provide the data to test the deprovincialization hypothesis as conceptualized as more favourable attitudes towards diversity (Study 2) and more endorsement of multicultural values (Study 4). Furthermore, I hypothesise that not only will intergroup contact affect attitudes towards the target outgroups as mediated by the new proxies of deprovincialization, but I also hypothesise that intergroup contact will have an effect on the multicultural items, which will, in turn, affect attitudes towards the focal outgroup which then, according to the attitude generalization hypothesis, will lead to more favourable attitudes towards the target outgroups. In other words, I am to test a second, double mediated path. Chapter 2 discusses double mediated models in more detail.

The three hypotheses I provide above not only contribute to our understanding of the deprovincialization hypothesis, but also change the way we understand how the deprovincialization and attitude generalization hypotheses influence wider attitudes. The hypotheses understand the deprovincialization and attitude generalization processes as interrelated processes that interact in the way they lead to more favourable attitudes towards focal and target outgroups. This, to my knowledge, is the first time the deprovincialization and attitude generalization hypotheses have been tested as interrelated mechanisms. Evidence for such an interrelated process would have important implications for how we understand, and therefore, test STEs.

Summary and Contributions of this Thesis

The STE represents an exciting avenue for future research. This is not only because the phenomenon is scientifically interesting, but because of its implications for informing policy. While a number of tests have been published attesting to the existence of the secondary transfer effect and its hypothesised mediators, a number of concerns remain. Thus, with the six studies to follow in this thesis, I aim to contribute substantially to our understanding of the STE in three important ways.

First, I wish not only to replicate findings that attest to the central role of the attitude generalization hypothesis, but I hope to plug the methodological gaps that constitute threats to its validity. To this end, I offer six studies that test the attitude generalization hypothesis by using multiple, high quality measures of contact with the secondary outgroup (i.e., cross-group friendships) in order to help lessen concerns of the secondary contact problem (Studies 1, 2, 3, 4, and 5). Furthermore, I aim to test the attitude generalization hypothesis using structural equation models with latent variables (Studies 4 and 5). I also hope to mitigate

concerns relating to shared method variances by using a three-wave longitudinal study (Study 5). Perhaps, most importantly, both in a methodological and theoretical sense, I hope to use the three-wave longitudinal structural equation model with latent variables to test the attitude generalization hypothesis in full (see Chapters 2 and 5). Where I hope to extend research on the attitude generalization hypothesis is in the systematic investigation into similarity gradients. In Studies 2 and 3, I provide evidence for similarity gradients according to Goffman's (1963) stigma typology. In Study 4, I provide more evidence for the existence of similarity gradients using participant rated similarity between the outgroups.

Second, I aim to provide clear evidence for my reformulation of the deprovincialization hypothesis. I argue that, while the relationship between ingroup identification and outgroup attitude has yielded inconsistent results, a more nuanced line of investigation can help provide clearer predictions as to when ingroup identity will relate negatively to outgroup attitudes. I aim to clarify this relationship in Study 3 by investigating the hypothesised moderating effect that social dominance orientation may play in the relationship between ingroup identification and outgroup attitudes. Furthermore, I aim to provide evidence for my other re-conceptualization of the deprovincialization hypothesis, that intergroup contact affects attitudes towards other outgroups by leading to higher endorsement of multicultural attitudes. I aim to achieve this in Studies 2 and 4.

Lastly, I aim to contribute meaningfully to the research exploring the STE by way of employing strict data analytic techniques across the three research designs, cross-sectional (Studies 1, 2, 3, and 4), longitudinal (Study 5), and experimental (Study 6). I endeavour to use the latest analytic techniques that are available including structural equation modelling with latent variables, bias-corrected bootstrapping techniques, and simple slopes analysis, all

using the modern maximum likelihood estimator with robust standard errors (Studies 1, 2, 3, and 4) and full information maximum likelihood (Study 5) techniques (see Chapter 2).

CHAPTER TWO: METHODOLOGICAL CONSIDERATIONS

Introduction

An impressive body of research has amassed attesting to the ability of intergroup contact to influence a wide range of attitude measures (Brown & Hewstone, 2005; Pettigrew & Tropp, 2006). While contact theory has weathered many storms raised by critics (see, for example, Dixon, Durrheim & Tredoux, 2005; Forbes, 1997), one of the most pressing criticisms it faces relates to the methodology used (Christ & Wagner, 2012). Therefore, in addition to attempting to expand on the current theory of the secondary transfer effect and its underlying processes, I will place heavy emphasis on the statistical methods used to investigate the theoretical advancements I propose. To this end, I will use a wide range of statistical procedures and the latest methodological developments available to investigate the hypotheses associated with each study. These include multivariate analysis of variance (MANOVA; Study 1, 2, 3, and 4), repeated measures analysis of variance (ANOVA; Study 5 and 6), as well as regression-based techniques such as path analysis (Study 1, 2, and 3), and structural equation modelling (Study 4 and 5). The bulk of the studies in this thesis rely on the latter two analytic strategies. Since path analysis and structural equation modelling have recently experienced a surge in methodological developments, I include a short primer on these two techniques.

What is to follow in this chapter, then, is (a) a brief exposition on traditional regression analysis, followed by (b) an introduction to path analysis and (c) structural equation modelling as well as (d) how to adjudge model fit. With regards to model fit, I will explore the various fit indices that have been developed and provide evidence for the chosen fit indices that will be used in this thesis. Once these techniques have been explored, I will

discuss (e) mediational, (f) moderational, and (g) moderated mediation processes. For the section on mediation, I will compare and contrast the various statistical tests that have been developed to analyse the mediated effect in both single mediator and multiple mediator models. I will also touch on the latest research extending traditional single and multiple mediator models to include multiple, sequential (or double-mediated) models. In the section on moderation, I will provide a brief introduction to what a moderation hypothesis is, and the way in which such hypotheses are tested. I will then combine the techniques used to uncover mediation and moderation effects to demonstrate how moderated mediations can be tested for. I will close this chapter with a short summary of what has been covered and how it has informed the data analytic techniques that permeate this thesis. Study 5 in Chapter 5 is a three-wave longitudinal investigation into the mediational processes underlying the secondary transfer effect (STE). In order to keep the length of this chapter to a manageable size, I will introduce the concept of mediation here, and then, in Chapter 5, extend these tests to model longitudinal data. In Chapter 5, I will argue why and where longitudinal analyses of mediational processes are superior to cross-sectional investigations of mediation hypotheses, with special reference to the superiority of three-wave over two-wave longitudinal designs.

From Regression to Structural Equation Modelling

Regression analysis is an approach to data analysis that seeks to quantify the relationship between two variables. More specifically, regression analysis stipulates a causal relationship between two variables; one variable—commonly referred to as the *independent variable*—is hypothesised to cause a change in the other variable—commonly referred to as the *dependent variable*. Regression analysis attempts to quantify this relationship by fitting a straight line to the collected data. The equation for the straight line is

$$Y_i = \alpha_0 + \beta_1 X_i + \varepsilon_i \quad (1)$$

Chapter Two: Methodological Considerations

In the above equation Y_i is the score of the dependent variable for the i^{th} participant and X_i the score on the independent variable for the i^{th} participant. The relationship between the independent and the dependent variables is represented by β_1 which is known as the *slope* of the line. Slopes are indicated by the regression weights obtained from a regression analysis and given an indication as to what change in Y one can expect given a one-unit change in X . The α_0 symbol represents the intercept (or mean value) of the dependent variable once the effect of the other variables has been accounted for. Error is inherent in any model, which is represented by ε_i . Primarily, this error term quantifies the discrepancy between the predicted score for participant i , and participant i 's actual score (Byrne, 2001; Field, 2005). The error term, however, is often ignored or forgotten about (Byrne, 2001; Field, 2005). The equation above represents a regression analysis whereby the dependent variable is only predicted by one independent variable. Equation 1 can, however, be extended to include multiple independent variables. This is achieved with the following equation

$$Y_i = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon_i \quad (2)$$

In equation two above, one can see that a second independent variable (X_2) and its associated slope (β_2) have been added as predictors of the dependent variable (Y). The term $\beta_n X_n$ simply represents the n^{th} independent variable (X_n) and its associated slope (β_n). Such single and multiple regressions are easily executed in statistical programs such as SPSS. While Equation 2 represents a more complex regression model than Equation 1, they both share something in common; they only include one dependent variable. For this section of the thesis, regression analyses involving only one dependent variable will be referred to as *traditional regression* analysis.

Chapter Two: Methodological Considerations

As psychological theories develop, so does the need to investigate more complex sets of interrelationships between multiple variables. Loehlin (2004) articulates this point succinctly,

Scientists dealing with behaviour, especially those who observe it occurring in its natural settings, rarely have the luxury of the simple bivariate experiment, in which a single independent variable is manipulated and the consequences observed for a single dependent variables. Even those scientists who think they do are mistaken (p. 1)

These complex relationships include investigating the effects of multiple independent variables on multiple dependent variables as well as mediational hypotheses. Just as MANOVA is preferred over ANOVA when more than one dependent variable is studied, because a MANOVA is able to take into consideration the correlations between dependent variables, regression analyses that are able to handle multiple dependent variables (and their pattern of interrelatedness) in the same model offer similar benefits. Path analysis and structural equation modelling are two approaches that, amongst other benefits, allow the researcher to simultaneously estimate the relationships between multiple variables that fulfil multiple roles (Bollen & Long, 1992; Raykov & Marcoulides, 2006).

Path analysis represents a statistical approach to data analysis that allows the researcher to model linear relationships between multiple independent and dependent variables. Furthermore, path analysis permits some variables to play the part of both independent and dependent variable, as in the case of mediation. By allowing the simultaneous estimation of the relationships between multiple variables in the same model, path analysis is able to partial out the effects of the other variables in the model while testing the relationship between two other variables. By partialling out the effect of the other

covariates in the model, one is able to more accurately estimate a variable's unique relationship with another variable. Another benefit of including more than one dependent and independent variable in the same model is that one is able to pit different theoretical hypotheses against each other.

Path analysis is also able to take advantage of maximum likelihood estimation techniques. Maximum likelihood estimation—as an alternative to ordinary least squares—is an approach to fitting a model to data and obtaining parameter estimates. Very briefly, maximum likelihood estimation asks the mathematical equivalent of the iterative question, “What is the likelihood of attaining this parameter estimate given the set of data?” This question is, in maximum likelihood terms, represented by the *probability density function* (Myung, 2003). The *maximum likelihood function* describes the process of finding the most accurate probability density function. In other words, one wants to maximize the maximum likelihood function (Myung, 2003). While maximum likelihood estimates place few restrictions on the distributional assumptions of the variables, they still require that the variables are multivariately normally distributed (Byrne, 2001). Whereas parameter estimates obtained using maximum likelihood estimation are likely to be unaffected by multivariate non-normality, their standard errors remain prone to bias (Dunn et al., 1993; Gold, Bentler, & Kim, 2003). Maximum likelihood estimators with robust standard errors (known as sandwich or Huber-White standard errors) have been developed that help overcome this problem (Huber, 1967; White, 1982). Using the maximum likelihood estimator is preferred over traditional (or more popular) techniques, such as least-squares estimation, because it requires minimal distributional assumptions (Myung, 2003), and has been shown to be accurate using categorical data (such as Likert scales) that have four or more categories (Bentler & Chou, 1987). Maximum likelihood techniques also outperform more modern estimation techniques, such as asymptotically distribution-free available-case methods (Gold et al., 2003). However,

as desirable as these advantages may be, path analysis suffers a similar flaw to that of regression analysis; it assumes that the variables entered into the analysis are error free.

Structural equation modelling, like path analysis and other regression-based techniques, is an analytic strategy that aims to estimate linear relationships amongst a set of variables (MacCallum & Austin, 2000). It is a statistical technique that is based on asymptotic theory, which is the study of how statistics behave in large samples (Bentler & Chou, 1987). Like path analysis, maximum likelihood estimation techniques are also available in analyses with structural equation models. Where structural equation modelling departs from other regression methods, however, is in its use of *latent* variables. While there are many ways in which one can define a latent variable (see Bollen 2002), for the purposes of this thesis, latent variables will refer to hypothetical constructs that cannot be directly measured but can be approximated from the covariation between a set of *manifest* (also known as *measured* or *observed*) variables. In other words, manifest variables are the questionnaire items that respondents answer when completing questionnaires. For example, attitudes towards outgroups are important variables for contact theorists, but how does one measure attitudes? There is no concrete way of measuring attitudes like there is for measuring distance, for example. Therefore, contact theorists ask a number of questions that they believe to represent the construct they wish to measure. They then use the combination of the multiple items to represent the latent construct. A latent construct (such as attitudes) can, theoretically, be measured by an infinite number of manifest variables. However, participant fatigue, time and financial constraints, as well as methodological concerns (such as the optimal number of manifest variables to latent construct; see Little, Cunningham, Shahar, & Widaman, 2002) limit the number of manifest variables that should be used to reliably

measure a latent variable. Little et al. (2002) suggests that three manifest variables per latent variable to be optimal.³

How does one go about testing if the measured variables relate to the hypothesised latent variables? This is achieved by way of factor analysis. Here, it is important to make the distinction between *exploratory* and *confirmatory* factor analysis. These two techniques are similar to each other in that they both seek to identify underlying latent constructs from the covariation between a set of variables (Brown, 2006; Harrington, 2009). Both tests are also based on the *common factor model* which partitions the variance of each indicator into two parts, (1) common and (2) unique variance (Brown, 2006; Harrington, 2009). Common variance is the variance in each indicator that is accounted for by the latent factor. Unique variance, on the other hand, consists of reliable indicator-specific variance and random error variance. In essence, both exploratory and confirmatory factor analysis try to, as parsimoniously as possible, reproduce the observed relationships amongst the variables (Brown, 2006). In other words, the techniques try to account for the observed relationships between the variables using as few latent variables as possible. They differ, however, in a very important, fundamental way. If the researcher is unsure about how the measured variables relate to the latent variables, if indeed they relate to any at all, an exploratory factor analysis can be used to ‘explore’ the underlying structure of the latent variable(s); this represents a data-driven approach (Brown, 2006).

On the other hand, in the confirmatory factor analysis, the researcher has an *a priori* idea, grounded in past research and theory, as to how the set of manifest variables relate to

³ While obtaining more than three manifest variables is often encouraged when estimating a latent construct, the three-manifest-variable-per-latent-construct is more of a mathematical than a theoretical constraint. If more than three manifest variables are obtained and one wants to take advantage of latent variables, then one option is to parcel the variables together. The interested reader is directed to Little et al. (2002) for an excellent review of parcelling and the various available parcelling techniques.

the underlying latent constructs. Because these patterns are specified *a priori*, confirmatory factor analysis moves from the descriptive, data-driven approach heralded by exploratory factor analysis, to a hypothesis-driven technique well suited to inferential purposes. The researcher sets up a model specifying the hypothesised set of relationships between the manifest and latent variables. Once these relationships have been specified, the underlying factor structure is then statistically tested (Byrne, 2001).

Once a satisfactory measurement model fit has been attained—what constitutes satisfactory to excellent model fit will be discussed shortly—one then specifies the hypothesised relationships between the variables. That is to say, one tests the *structural model*. Similar to the measurement model, once the set of hypothesised relationships between the variables have been stipulated, the model can then be evaluated by inspecting the model fit statistics. As should be clear, setting up a structural equation model with latent variables involves the specification and statistical testing of two models, the measurement model and the structural model (Anderson & Gerbing, 1988). Model misspecification in the measurement model can have serious implications for the estimates of the structural model, which, by extension, has direct implications for the results we deem to be significant or not. It is therefore important to first establish a good measurement model before moving onto estimating the structural model.

Another important feature of structural modelling techniques is that they are able to include both latent and manifest variables as independent theoretical constructs in the same model. Therefore, in order to avoid possible confusion regarding terminology, in this thesis, *manifest* variables will refer to the variables that are used to estimate a latent variable; *observed* variables, although technically synonymous with manifest variables, will refer to single item constructs used in the structural analysis. Although I would advocate as far as

possible the use of latent variables, sometimes acquiring multiple measures for multiple latent constructs is not always feasible. The decision to include multiple items for each latent variable in a questionnaire revolves around careful consideration of the pros of using latent variables versus the cons of introducing added bias into the questionnaire owing to participant fatigue and item characteristic and context effects (Podsakoff et al., 2003). Therefore, after careful consideration, the use of both observed and latent variables in a single model can be a beneficial practice.

Perhaps one of the most appealing virtues of structural equation modelling is its ability to estimate, and thus partial out, measurement error. Measurement error represents variation in the items that is not specifically modelled by the researcher. There are two sources of measurement error, (1) random measurement error, and (2) *error uniqueness*, which represents *non-random* error that stems from indicator-specific characteristics (Byrne, 2012). These types of error are associated with the manifest variables. Error associated with latent endogenous variables—variables that receive an influence from another variable—is presented in the *residual* terms. Exogenous variables, in structural equation modelling parlance, are variables that only exert an influence on other variables (e.g., an independent variable). By partialling out error associated with the variables in the structural equation model, one is able to obtain more accurate parameter estimates than other forms of structural modelling that ignore error.

While structural equation modelling is preferred over path analysis, there are a number of reasons why researchers may still choose path analysis over structural equation models. These mainly include only having measured one item per construct, making it impossible to create latent variables (see Hayduk & Littvay, 2012). However, in the studies presented in this thesis—specifically Studies 1, 2, and 3—multiple manifest variables for

each hypothesised latent construct were measured. The main reason for not taking advantage of a latent variable analysis stems from concerns relating to sample size; a problem that social psychologists often find themselves with (Bentler, 2007; Hau & Marsh, 2004). Boomsma and Hoogland (2001) highlight two problems that researchers are likely to encounter when trying to run structural equation models with latent variables on sample sizes with fewer than 200 participants: nonconvergence and improper solutions. Nonconvergence happens when the chosen estimation technique (such as maximum likelihood) is not able to find an optimal solution within a set number of iterations, usually 250 (Boomsma & Hoogland, 2001). Improper solutions refer to the attainment of negative variances and have been specifically linked to models dealing with smaller sample sizes (Boomsma & Hoogland, 2001). Therefore, because Studies 1 through 3 utilized smaller sample sizes, path analyses were conducted in order to safeguard against the pitfalls of nonconvergence and improper solutions.

Finally, while path models can be represented mathematically by using the equations presented in this chapter, in this thesis, I will rely on the conventional graphic representation of the path models as they are more readily interpretable and more able to clearly illustrate the models under investigation. As is now standard, in the figures to follow, ellipses will represent latent variables whereas rectangles will denote observed variables.

Model Fit

When using the equations expounded earlier in this chapter to quantify the directional relationship between two variables, what one is doing is applying certain restrictions on the relationship between two variables (X affects Y and not the other way round). These restrictions, essentially, specify a new covariance matrix. The fundamental goal in both path analysis and structural equation modelling is to estimate how well a hypothesised model and

its associated covariance matrix (henceforth referred to as the *model-implied covariance matrix*) reproduces the observed covariance matrix (Bentler & Bonett, 1980; Byrne, 2001; Hu & Bentler, 1999). In fitting the hypothesised covariance matrix to the sample covariance matrix, one is able to test how well the hypothesised model “fits” the observed data (this is not the only way to test for model fit, as will be discussed below). Therefore, many of the fit statistics discussed in this section represent different ways of quantifying the discrepancy between the model-implied and observed covariance matrices (Tomarken & Waller, 2003). The practice of model fit is a highly contentious subject, so much so that whole journal issues (see *Personality and Individual Differences*, 42(5), 2007) have been devoted to the debate of whether fit statistics are useful (e.g., Bentler, 2007; Steiger, 2007) or not (e.g., Barrett, 2007; Hayduk, Cummings, Boadu, Pazderka-Robinson, & Boulianne, 2007). While I do not deny the importance of this debate, it is unfortunately beyond the scope of this text. What I will attempt to do, however, is to synthesize the research on suggested cutoff criteria for acceptable model fit with the work that explores the idiosyncratic behaviour of the various fit indices. In doing so, I will attempt to provide a nuanced approach to model fit, one that maximizes the various fit statistics’ abilities to protect against Type I (rejecting a well-fitting model) and Type II (accepting a poor fitting model) errors. Therefore, I will rely on multiple indicators of model fit, a practice advocated by a number of methodologists (e.g., Hu & Bentler, 1999; Schermelleh-Engel, & Moosbrugger, 2003). In this section I will cover the four fit indices that will be used in this thesis. These include, and will be discussed in the following order, (1) the chi-square test; (2) the root mean square error of approximation; (3) the standardized root mean square residual; and (4) the comparative fit index.

Chi-Square Test

The chi-square statistic tests the null hypothesis that there are no differences between the observed and model-implied covariance matrices (Hu & Bentler, 1999; Schermelleh-Engel & Moosbrugger, 2003). While the chi-square still enjoys a central role as a measure of model fit in the modern practice of structural equation modelling, there are a number of concerns that surround the use and accuracy of the statistic. For instance, by testing the hypothesis that model-implied and sample covariance matrices are the same, the chi-square test imposes the restriction that the model-implied covariance matrix is a perfect reproduction of the observed covariance matrix. By doing so, it offers a dichotomous decision making strategy as to whether a model is accepted or rejected. This is quite a strict (even unrealistic) criterion to impose (Bentler, 2007; Curran, Bollen, Chen, Paxton, & Kirby, 2003; Jöreskog, 1978; Steiger, 2007), especially considering (a) that structural equation models are highly restrictive and (b) that hypothesised models are best understood as approximations of reality (Hu & Bentler, 1998). Furthermore, Steiger (2007) criticizes this approach as being logically weak: “Lack of sufficient evidence to disprove an assertion is not necessarily good evidence that the assertion is true” (p. 894; also see Cliff, 1983). Bentler (2007), in offering another criticism of the *accept-reject* approach, argues that a model with 400 degrees of freedom provides just as many ways in which the model can be incorrectly specified. I, too, share Bentler’s scepticism that any researcher has enough information to specify a model that is accurate in each possible way.

One of the most well-known, and possibly most ironic, problems associated with the chi-square test is that it is influenced by large sample sizes (Bentler, 1990; Bentler & Bonett, 1980; MacKinnon, 2008; Schermelleh-Engel & Moosbrugger, 2003; Wheaton, Muthén, Alwin, & Summers, 1977; Widaman & Thompson, 2003); in medium to large sample sizes,

the high power of the chi-square test can lead to the rejection of models with nominal misspecifications (Curran et al., 2003). This is ironic because the chi-square test is based on asymptotic theory. Conversely, in smaller sample sizes the chi-square test may lack the required power to discriminate between well and poor fitting models (Kenny & McCoach, 2003). Another issue with the chi-square test is that it is sensitive to multivariate non-normality. As a consequence, models with non-normal data, even though correctly specified, run the risk of being rejected (Bentler, 1990). Despite these problems, however, researchers prominent in the field of fit statistics still recognise the importance of the chi-square test and recommend that it is reported in manuscripts (Bentler, 2007). Therefore, the chi-square test will be reported for each of the path models in this thesis.

Hu and Bentler (1995) state that, in only offering a dichotomous decision strategy, the chi-square test does not quantify the degree of fit along a continuum (see also Hu & Bentler, 1998; Schermelleh-Engel & Moosbrugger, 2003). Given these issues with the chi-square test, the *chi-square over df ratio* has been suggested as an alternative (Wheaton et al., 1977). By forming a ratio with the chi-square statistic and its associated *df*, this test resembles a descriptive goodness of fit test rather than a dichotomous decision making strategy (Schermelleh-Engel & Moosbrugger, 2003). A ratio between 2 and 3 is generally considered to indicate good or acceptable fit and will be used to supplement the chi-square statistic.

In light of the issues surrounding the chi-square statistic, a range of other fit statistics were developed to aid in the process of evaluating model fit (Bentler & Bonett, 1980). These include, and will be discussed in this order: the root mean square error of approximation, the standardized root mean square residual, and the comparative fit index.

The Root Mean Square Error of Approximation (RMSEA)

Since its development in the 1980s, the RMSEA has become one of the most popular indexes evaluating model fit. It informs one as to how well the specified model that has optimally chosen (but unknown) parameter estimates would fit the population covariance matrix (Curran et al., 2003; Hooper et al., 2008). An appealing function of the RMSEA is that it takes model complexity into account in favour of parsimonious models (Curran et al., 2003; Herzog & Boomsma, 2009). A benefit of this function of the RMSEA is that it forces the researcher to think carefully about which paths they want to include. Knowing the RMSEA's sampling distribution allows the computation of confidence intervals for the statistic, thus garnering further popularity (Curran et al., 2003; MacCallum et al., 1996). RMSEA has a lower limit of 0, but no upper limit (Marsh, Hau, & Wen, 2004). Though it is described as a *goodness of fit* test, it more closely represents a *badness of fit* test as smaller numbers indicate better model fit (Mulaik, 2009). Hu and Bentler (1999) suggest a $RMSEA \leq .06$ indicates good model fit. The RMSEA, however, does have some drawbacks. For instance, the test statistic and its associated confidence intervals perform poorly under small sample sizes (Byrne, 2001; Herzog & Boomsma, 2009; Chen et al., 2008; Hu & Bentler, 1999; Kenny & McCoach, 2003; Steiger, 2007). Therefore, the RMSEA will be afforded more weight in adjudging model fit for Studies 5 and 6 which have larger sample sizes (Study 4: $N = 3500$; Study 5: $N = 480$).

The Standardized Root Mean Square Residual (SRMR)

The SRMR is calculated by taking the square root of the average difference between the residuals of the observed and hypothesised covariance matrices (Hooper et al., 2008). The SRMR ranges between 0 and 1 with values closer to zero indicating better fit. Hu and Bentler (1999) suggest a $SRMR \leq .08$ as indicative of acceptable model fit while Byrne (2001)

suggests that a SRMR $\leq .05$ represents a well-fitting model. Bentler (2007) explains that the SRMR statistic is appealing because standardized residuals are intuitive to understand; a good model will always have small residuals. Small residuals indicate that the model-implied covariance matrix closely mirrors the observed covariance matrix. Steiger (2007) further clarifies the interpretation of the SRMR statistic: obtaining a SRMR of 0.03 means that the model-implied covariance matrix can explain the average correlations to within an average error of .03 (Byrne, 2001). The SRMR is thus inherently appealing, as a major goal in many statistical techniques is to minimize the discrepancy between the hypothesised model and a “true” model (Judd, McClelland, & Ryan, 2009). The SRMR’s pitfall is that it favours models with larger sample sizes and models with more estimated parameters (Hooper et al., 2008). Therefore, in this thesis, the SRMR will form the central fit statistic for Studies 1, 2, and 3 because of their smaller sample sizes (Study 1: $N = 116$, Study 2: $N = 157$, Study 3: $N = 132$).

The Comparative Fit Index (CFI)

Whereas the SRMR and RMSEA approach model fit by quantifying the discrepancies between the model-implied and observed covariance matrices, the CFI adopts a different approach. The CFI compares the chi-square for the hypothesised model against the chi-square statistic for a baseline model that assumes all variables are uncorrelated (Bentler, 1990; Hooper et al., 2008). It ranges from 0 to 1 with values closer to one indicating good fit (Bentler, 1990). The CFI is relatively uninfluenced by sample size (Fan, Thompson, & Wang, 1999). Hu and Bentler (1999) suggest a CFI $\geq .95$ as indicative of good model fit.

All in all, model fit in structural equation modelling is a complex task. While I have briefly summarised the various idiosyncrasies of the available model fit statistics, a word of caution is warranted. Barrett (2007), in my opinion, justifiably raises concern about the ability

to irresponsibly use various fit statistics to “explain away” potential serious model misfit (see also Hayduk et al., 2007). To this end, I agree with the approach advocated by MacCallum, Browne, and Sugawara (1996), who advocate the *test of not-close fit* (see also Chen et al., 2008). This approach requires researchers to specify stringent cutoff criteria to be used in the analyses *a priori* and on a per-sample basis. Good fit is then achieved if the fit statistic reaches the hypothesised criteria. Having said this, however, I came across this paper after I had finished analysing my data. Being well acquainted with the data sets, I felt that I would be too informed about how the models actually fit for me to adopt this approach and set per-study cutoff criteria. Therefore, throughout this thesis, I will continue to rely on the *a priori* specified cutoff criteria for the various fit statistics. The criteria used to adjudge model fit for this thesis will be as follows: the χ^2 statistic (preferably non-significant in Studies 1, 2, and 3); a χ^2/df ratio ≤ 3 (especially in Studies 4 and 5); RMSEA $\leq .06$ (Studies 4 and 5); SRMR $\leq .08$ (Studies 1, 2, and 3); and CFI $\geq .95$ (Studies 1-6).

Mediation

“[T]wo objects are connected together in the imagination, not only when the one is immediately resembling, contiguous to, or the cause of the other, but also when there is interposed betwixt them a third object, which bears to both of them any of these relations.”

(Hume, 1739-1740/2010, p. 15)

An important aim of social psychology is to understand the psychological processes that underlie many of the effects that social psychologists are interested in (Rucker, Preacher, Tormala, & Petty, 2011). Such an inquiry moves beyond demonstrating that an independent variable (*X*, e.g., intergroup contact) affects a dependent variable (*Y*, e.g., intergroup attitudes) to include a third variable that is hypothesised to reflect a hypothesised psychological process that aims to clarify *how X affects Y*. A third variable that is

hypothesised to fulfil the function of such a psychological process is known as a *mediator* variable (*M*).

In more formal terms, a mediator is a variable that accounts for some of the relationship between the independent and dependent variables (Baron & Kenny, 1986). A simple mediation model—a model that only explores the effect of one mediator—is depicted in Figure 2.1. In the figure, path *a'* represents the relationship between the independent variable and the mediator. Path *b'* denotes the relationship between the mediator and dependent variables. Path *c'* represents the direct effect of the independent variable on the dependent variable *before* the mediator variable is entered into the model, and path *c''* represents the relationship between the independent and dependent variable once the mediator has been entered into the model.

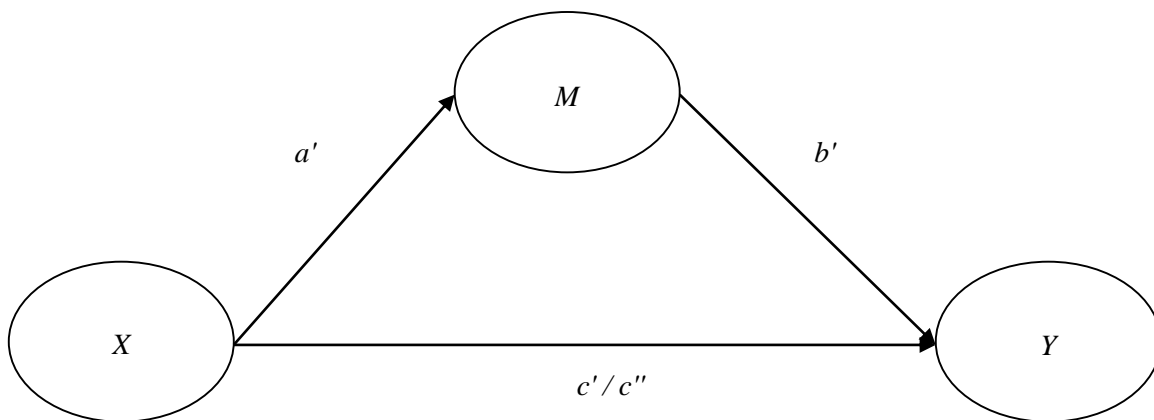


Figure 2.1. Path model showing a simple cross-sectional mediation. *X* = independent variable, *M* = mediator variable, *Y* = dependent variable. *a'* = cross-sectional path stipulating a relationship between the *X* and *M* variables. *b'* = cross-sectional path denoting the relationship between the *M* and *Y* variables. *c'* = the path between the *X* and *Y* variables before the mediator is entered into the model. *c''* = is the direct effect between the *X* and *Y* variables once the mediator *M* has been entered into the model. The arrow heads indicate the direction of the hypothesised effect.

The three main methods for testing mediation include the *causal steps approach* (Baron & Kenny, 1986; Judd & Kenny, 1981), the *product-of-coefficient* approach (e.g., Sobel tests; Sobel, 1982; see also Preacher & Hayes, 2008), and *resampling* (i.e.,

bootstrapping) methods (Efron, 1987; Preacher & Hayes, 2008; MacKinnon, Lockwood, & Williams, 2004; Shrout & Bolger, 2002). These techniques as well as their strengths and weaknesses will now be briefly discussed in turn.

The Causal Steps Approach

The causal steps approach is the most common method used to provide evidence for a mediated effect (Fritz & MacKinnon, 2007). Though it was first expounded by Judd and Kenny (1981), it was not until Baron and Kenny's (1986) seminal paper that the method gained popularity. The causal steps approach comprises three steps. First, the dependent variable is regressed onto the independent variable (path c in Figure 2.1); if the independent variable is associated with the dependent variable, then according to Baron and Kenny (1986), there is an effect to be mediated. The second step is to regress the mediator onto the independent variable (path a'). Third, the dependent variable is regressed onto both the mediator (path b') and the independent variable (path c''). A mediated effect is said to exist if the regression weight associated with path c'' is smaller than the regression weight associated with the path c' . Furthermore, if c'' becomes non-significant then *full mediation* is said to have occurred. If, on the other hand, the regression weight associated with path c'' is reduced but still significant, then one can only claim *partial mediation*. If full mediation occurs, then the mediator is said to completely account for the relationship between the independent and dependent variables (Judd & Kenny, 1981). If the mediation is partial, however, early methodologists believed that there was another underlying process by which the independent and dependent variables were related that was not being included in the model.

Product-of-Coefficients Approach

While the causal steps approach is said to indicate the presence of a mediated effect, it neither quantifies the *size* of the mediated effect nor does it provide a statistical test for its significance. The product-of-coefficients approach achieves both of these: (1) It multiplies the *a'* and *b'* paths together in order to quantify the indirect effect (*a'b'*) and (2) tests for its significance by dividing the *a'b'* term by the standard error of the indirect effect (Fritz & MacKinnon, 2007). The resulting statistic is a *z* score. The most common product-of-coefficients test is the Sobel (1982) test, though other approaches have been developed (see MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).⁴ The product-of-coefficients approach is intended for large samples (hence why a *z* score is preferred over the *t*-statistic which utilizes degrees of freedoms; Bollen & Stine, 1990; Shrout & Bolger, 2002). Large sample sizes are needed because the product term of two normally distributed variables is itself likely to be non-normally distributed (Craig, 1936; MacKinnon et al., 2002; Preacher & Hayes, 2008; Shrout & Bolger, 2002; Stone & Sobel, 1990; Zhao, Lynch, & Chen, 2010) but as the sample size increases, the distribution of the *a'b'* term tends to become more normal. Therefore, the larger the sample size, the more normally distributed the *z* statistic should be and the more power one has to detect a mediated effect (Fritz & MacKinnon, 2007; Shrout & Bolger, 2002).

Bootstrapping Techniques

Bootstrapping is a non-parametric re-sampling technique that provides parameter estimates for a hypothesised model by repeatedly drawing subsamples of cases from the

⁴ The various product-of-coefficients approaches all test for the significance of the indirect effect by dividing it by the indirect effect's standard error. Where the various approaches differ, however, is in estimation of the standard errors of the *a'b'* effect. In other words, they use different versions of the delta method—a method for estimating asymptotic variances of non-linear parameter estimates (Bollen & Stine, 1990)—in estimating the standard error of the indirect effect.

observed data, k -number of times (Bollen & Stine, 1992; Preacher & Hayes, 2008). With each resample, the model is fitted to the data and the parameters are estimated (Dunn, Everitt, & Pickles, 1993). The mean of the k -resampled estimates is known as the *point estimate* and is analogous to the regression weight quantifying the size of the estimated parameter. Furthermore, each of the k parameter estimates are used to create a distribution of the estimated effect. This distribution can then be used to set up confidence intervals to perform significance tests (Taylor, MacKinnon, & Tein, 2007). Preacher and Hayes (2008) suggest setting k to at least 1000 while Hayes (2009) recommends obtaining 5000 resamples (i.e., $k = 5,000$). Using the mediation test as an example with k set to 5,000 resamples, the a' and b' paths, as well as the indirect effect ($a'b'$), will be resampled 5,000 times. The mean of the 5,000 resampled $a'b'$ estimates will form the quantification of the indirect effect, and the distribution of the indirect $a'b'$ effect will then be used to set up confidence intervals to test for its significance. A significant mediation is evidenced if the bootstrap confidence intervals do not include zero.

Each case (i.e., respondent) in a data set can be drawn once, multiple times, or not at all (Dunn et al., 1993; Preacher & Hayes, 2008). Bootstrapping makes no assumptions about the sampling distribution of the estimated test statistic (Preacher, Rucker, & Hayes, 2007; Zhang & Wang, 2008) making it ideally suited to estimate the product of the a' and b' paths (i.e., the mediated effect). What is particularly attractive about bootstrapping techniques is their ability to estimate non-symmetric confidence intervals (Bollen & Stine, 1992; Shrout & Bolger, 2002). Non-symmetric confidence intervals are attractive because they encapsulate the sampling distribution of the $a'b'$ term (Preacher et al., 2007; MacKinnon & Fairchild, 2009). Furthermore, bias-corrected bootstrap tests correct for skew in the population thereby providing more accurate confidence intervals (Fritz & MacKinnon, 2007).

Multiple Mediator Models

Mediators play an important role in the development of psychological theory. As social psychological theories develop, more processes (i.e., mediators) are identified that are thought to help explain the link between two variables. Indeed, MacKinnon (2008) notes that the relationships between most variables are often complex enough to warrant the simultaneous estimation of multiple processes rather than multiple single mediator models (see also MacKinnon, Fairchild, & Fritz, 2007). Many articles that test multi-mediator models, however, do so by testing multiple simple mediation models (Preacher & Hayes, 2008). By running separate regressions one fails to take two important pieces of information into account. First, two mediators may account for similar parts of variance in the dependent variable that each of the mediators account for. Second, and related to the first point, performing two simple mediator models fails to take the correlation between the two mediators into account. In other words, multiple single mediator models are subject to possible bias owing to the omitted variable problem (Judd & Kenny, 1981).

In terms of the STE, Pettigrew (1997, 2009) proposed two processes by which contact with a focal outgroup is said to affect attitudes towards the target outgroup. The first such process is the attitude generalization hypothesis whereby attitudes towards the focal outgroup mediate the relationship between contact with the focal outgroup and attitudes towards the target outgroup. Pettigrew (1997) also hypothesised that contact with a focal outgroup would result in more favourable attitudes towards a target outgroup by a process of reappraising the ingroup's norms, values, and customs; he called this the deprovincialization hypothesis. Figure 2.2 demonstrates a model whereby both the attitude generalization and deprovincialization mediation processes are estimated concurrently.

The advent of path analytic techniques (such as SEM) has meant that extending the conventional simple mediation model (i.e., one mediator) to include multiple theoretically relevant mediators is a much easier feat than it previously was. Furthermore, the simultaneous estimation of multiple mediators reduces parameter bias because the effects of one mediator are partialled out of the model while the other mediated path is tested (Preacher & Hayes, 2008). Another advantage of testing multiple mediators in the same model is that it affords one the ability to compare competing theories (Preacher & Hayes, 2008). Doing so provides researchers with a more complete picture of how the effects of X are felt in Y (Briggs, 2006).

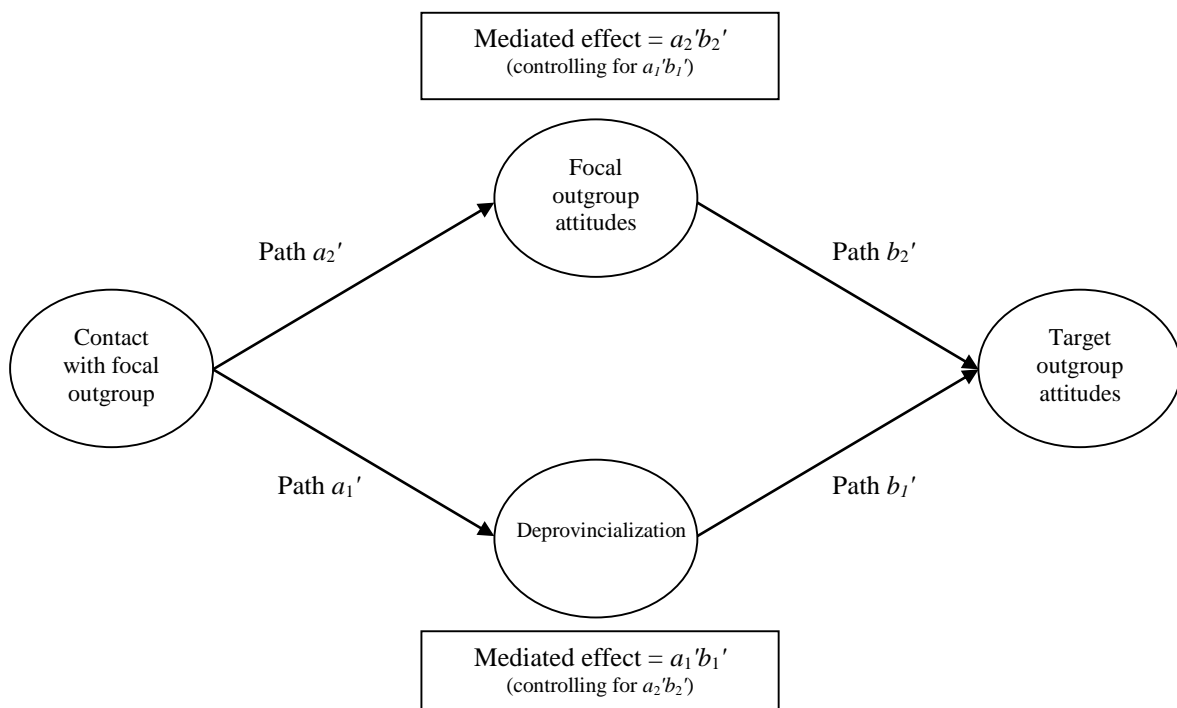


Figure 2.2. Structural model illustrating a multiple mediation model of the secondary transfer effect proposed by Pettigrew (1997, 2009; see also Tausch et al., 2010).

While these are attractive reasons for including multiple mediators in a model, one must be cognisant of the potential pitfalls of multiple mediator models. For example, two hypothesised mediators of a given path may correlate with each other raising concerns of

multicollinearity. The degree to which two mediator variables are correlated has a direct bearing on how attenuated the b paths will be (Preacher & Hayes, 2008).

A special case of the multi-mediator model is the *three-path* or *double mediated* effect (Taylor et al, 2007). In such a model two mediators act in series to transmit X 's effect on Y . Lollot et al. (2012), for instance, proposed a double mediated STE model (see Figure 2.3). In this model, contact with the focal outgroup is hypothesised to increase empathy felt for the focal outgroup (Path a_1'), which, in turn, leads to more favourable attitudes towards the focal outgroup (Path b_1' ; see Batson et al., 1997). Then, according to the attitude generalization hypothesis, attitudes towards the focal outgroup should generalize towards more favourable attitudes towards the target outgroup (Path b_2'). Therefore, the effect of intergroup contact with a focal outgroup has its effect on attitudes towards the target outgroup by sequentially influencing focal outgroup empathy and attitudes. This represents a *three-path mediation in series*.

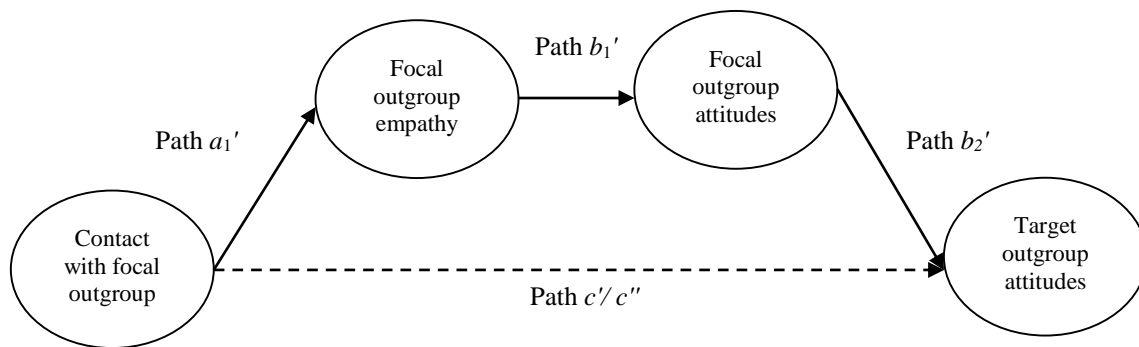


Figure 2.3. Structural model illustrating how intergroup contact with a primary outgroup can improve attitudes towards secondary outgroups through the three-path mediated mechanisms of primary outgroup empathy and primary outgroup attitude.

In this thesis, I propose a second kind of three-path mediation model (*three-path mediation in parallel*) where the two mediators occur more contemporaneously than the previous example. Three-path mediation is also sometimes referred to as *chain mediation* (Taylor et al., 2007). Importantly, this three-path mediation model advances our

understanding of intergroup contact theory in that it links up the attitude generalization and deprovincialization hypotheses (See Figure 2.4). In this three-path mediation approach, contact with the focal outgroup is hypothesised to lead to a less provincial view of the social world (Path a_1') which is hypothesised to be associated with more favourable attitudes towards the focal outgroup (Path b_3'), which, in turn, generalizes to more favourable attitudes towards the target outgroup (Path b_2').

Testing for such a double mediated model requires a simple extension of the formula required for testing simple mediator models (Taylor et al., 2007). Where estimates of simple mediation models revolve around, for example, the $a_2'b_2'$ coefficient, estimating the three-path mediation effect multiplies the regression coefficients associated with Path a_1' , b_2' , and b_3' (i.e., $a_1'b_2'b_3'$). If a bootstrap analysis is applied to this double mediated coefficient, k number

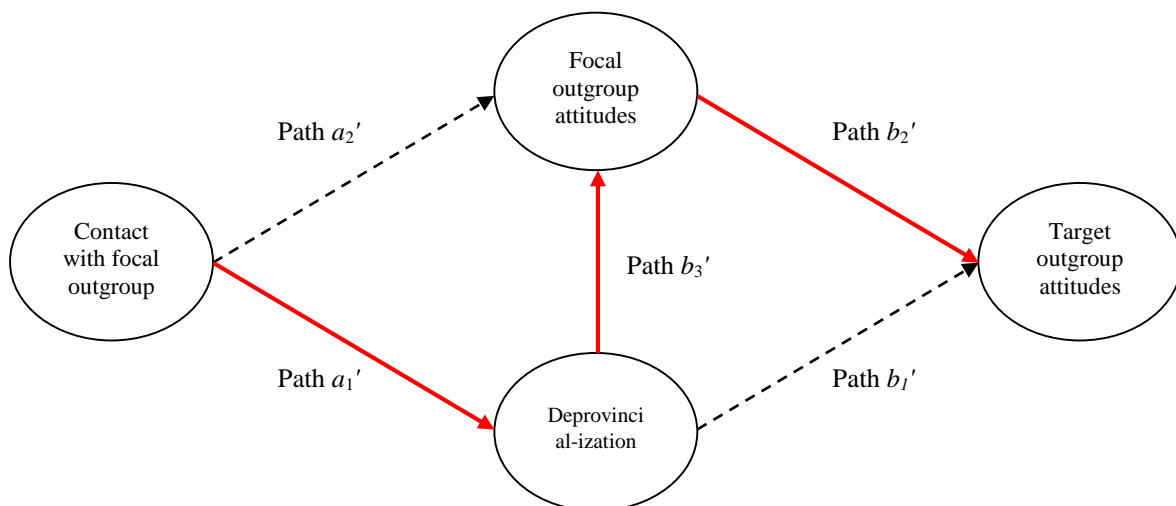


Figure 2.4. Structural model illustrating the hypothesised relationship between the deprovincialization and attitude generalization hypotheses regarding how intergroup contact with a primary outgroup can improve attitudes towards secondary outgroups through the three-path mediated mechanisms of primary outgroup empathy and primary outgroup attitude. The paths associated with a_2' and b_1' are dashed lines in order to help highlight the double mediated path.

of resamples of the estimate will be used to build the confidence intervals around the point estimate capturing the non-normal distribution of the multiplicative variable. Adopting a product-of-coefficient approach will divide the $a_1'b_2'b_3'$ by its estimated standard error (see Taylor et al., 2007 for the various delta methods that have been developed to estimate the standard error for the double mediated coefficient). It should be noted that, as in simple mediation models, the sample distribution of the $a_1'b_2'b_3'$ is likely to be non-normal (Taylor et al., 2007). Taylor et al. (2007) tested the performance of bootstrapping and product-of-coefficient methods in terms of power, Type I error, and coverage.⁵ Similar to simple mediation models, bootstrap estimates of the double mediated effect were superior to the product-of-coefficient methods in terms of power, Type I error rates, and coverage.

Method of Mediational Analysis Used in this Thesis

A growing body of research exists claiming the superiority of bootstrapping techniques—especially bias corrected bootstrapping—over conventional forms of mediation tests (e.g., Sobel's Z) because of their ability to (a) handle skewed data, (b) detect significant mediation effects with smaller sample sizes (when compared to other techniques) while (c) retaining the most power, and (d) returning accurate Type I error rates, especially in medium sized samples. Furthermore, research indicates these benefits held for simple mediation models (Briggs, 2006; Fritz & MacKinnon, 2007; Pituch, Stapleton, & Kang, 2006); multi-mediation models (Williams & MacKinnon, 2008); as well as double mediated models (Taylor et al., 2007). To illustrate this point, Fritz and MacKinnon (2007), using simulated data, compared the various approaches to testing for mediation specifically focusing on the required sample size to achieve .8 power in detecting a mediated effect. Their results indicate

⁵ Coverage refers to the proportion of replications which included the true mediated effect in the confidence intervals (Taylor et al., 2007).

that, given small regression weights for the *a* and *b* paths (both paths set to 0.14) and a *c'* path equal to zero, the required sample size to successfully detect a mediated effect with .8 power was 20 886 for Baron and Kenny's (1986) causal steps approach. The required sample size for Sobel technique, on the other hand, was 667; bias-corrected bootstrap techniques reached .8 power with a sample size of 462.

Preacher and Hayes (2008) strongly advocate the use of bias corrected bootstrapping techniques for the estimation of an indirect effect in multiple mediator models. Given that 22 of the 24 path models tested in this thesis test multiple mediator models, the bias corrected bootstrap point estimate and its associated 95 or 99% confidence intervals (CI) will be reported. While traditionally the product-of-coefficient tests usually supplement the causal steps approach (Hayes, 2009), in this thesis, it will be used to supplement the bootstrap estimates.

A Note on Direct Effects and Mediation in the Context of this Thesis

Many scholars have convincingly argued that a direct effect between the independent and dependent variable need not necessarily exist before researchers can test for a mediated process (Alwin & Hauser, 1975; Hayes, 2009; Kenny, 2008; Mathieu & Taylor, 2006; Rucker et al. 2011; Zhao et al., 2010). The arguments offered centre around the power of a given analysis to detect a direct effect. While a full discussion on the necessity of a direct effect existing before mediation can be tested is beyond the scope of this thesis, the argument does bear some relevance to the STE and the way the results will be reported in this thesis.

Rucker et al. (2011) highlight an important point, one that is especially applicable to the STE. They caution researchers to take note of the pattern of relationships between the variables involved in the mediation as they may have important implications for the

conclusions that are drawn from the analysis. For example, if the independent variable is more strongly associated with the mediator variable (path a') than it is with the dependent variable (path c'), then the effect size of the mediation will be larger than the direct path. Translating this into terms of the STE, contact with the focal outgroup (i.e., the independent variable) will be more strongly associated with attitudes towards the focal outgroup (i.e., the mediator; see Pettigrew & Tropp, 2006) than with attitudes towards the target outgroup(s) (i.e., the dependent variable). Therefore, a significant $a'b'$ estimate may very well be present when there is no path c' . This may especially be the case with smaller sample sizes as the probability of finding a direct path (both c' and c'') increases as the sample sizes does (Rucker et al., 2011). Indeed, MacKinnon et al. (2002), in comparing 14 methods of mediational analysis, showed that Baron and Kenny's (1986) requirement that a relationship between the independent and dependent variable exists before testing for a mediated effect led to the most Type II errors. In contrasting the Type I and II rates for the causal steps approach, they go on to say, "[s]tudies that use the causal steps methods described by Kenny and colleagues are the most likely to miss real effects but are very unlikely to commit a Type I error" (p. 96). While the above methodologists argue in favour of dropping the assumption that a direct relationship exists before one can test for mediation, the very definition of the STE predicts a direct effect—contact with a focal outgroup leads to more positive attitudes towards a target outgroup(s). This relationship has been established in the literature on the STE (Eller & Abrams, 2004; Pettigrew, 2009; Pettigrew & Tropp, 2006; Tausch et al., 2010).

Therefore, in this thesis, given (a) that a direct path between contact with a focal outgroup and attitudes towards a target outgroup has been established (Pettigrew & Tropp, 2006; Tausch et al., 2010), (b) the smaller sample sizes that constitute the studies ($N < 200$ for 3 of the 5 studies presented in this thesis), (c) the strict controls that are employed throughout the studies constituting this thesis (including social dominance orientation and

friendships with target outgroups), (d) the nature of the relationship between the independent, mediator, and dependent variables, and (e) the number of path models to be discussed in this thesis (24 in total), I will not test for a direct effect (i.e., path c') before investigating for a mediated effect, but will estimate the a' , b' , and c'' paths, as well as the $a'b'$ effect simultaneously. I will, however, report on the correlations concerned with the STE.

Moderations

Unfortunately, moderator functions are often confused with mediating functions (Baron & Kenny, 1986; Fritz & MacKinnon, 2007). While both forms of analysis explicate the relationship between independent and dependent variables, they do so in very different ways. Mediators, as just discussed, help one to understand *how* an independent variable has an effect on a dependent variable. Moderators, on the other hand, provide insight as to *when* an independent variable is likely to be associated with a dependent variable. That is to say that the relationship between an independent and dependent variable is a function of a third variable. Contact theory itself represents a moderational process (Hewstone & Swart, 2011). For example, one of the conditions under which Allport (1954) hypothesised that cross-group contact would lead to improved attitudes was in the absence of competition (see Figure 2.5).

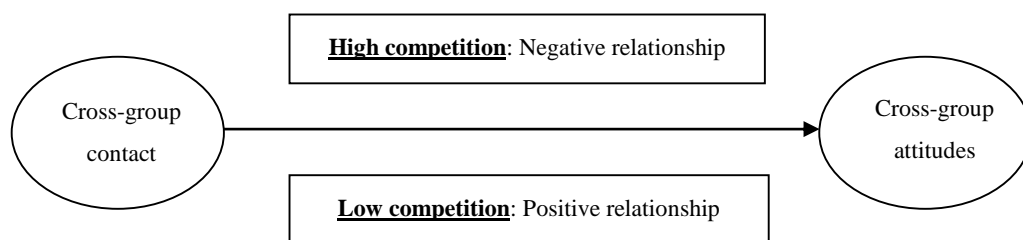


Figure 2.5. Figure illustrating how the relationship between two variables can differ depending on a third variable.

In the absence of competition, cross-group contact is more likely to lead to more favourable intergroup attitudes. If cross-group contact is experienced in a setting

characterised by intergroup competition, it would be unlikely for intergroup contact to be positively related to attitudes towards the outgroup (see Sherif, Harvey, White, Hood, & Sherif, 1961). Therefore, the presence or absence of a third variable (in this example, competition) influences the relationship between two other variables (contact and attitudes).

From this definition, it should be clear that, while a mediator variable follows after an independent variable and precedes a dependent variable, moderator variables occur at the same level as the independent variable and are not necessarily themselves related to either the independent or dependent variable (Baron & Kenny, 1986). Moderations are tested using the following formula:

$$Y = \alpha_0 + \beta_1 X + \beta_2 W + \beta_3 XW + \varepsilon \quad (3)$$

In the equation above, X represents the independent variable, Y the dependent variable, W the moderator variable, and their associated β terms represent the quantification of their relationship with the dependent variable. The error term is represented by ε . The XW variable is the multiplication of the independent and dependent variable and symbolizes the interaction between the two variables. A significant β_3 regression weight signifies a moderation effect. What a significant β_3 regression weight does not tell one is what the direction of the moderation is. Therefore, one needs to decompose the moderation effect. To aid in decomposing the interaction effect, one can rearrange this equation to better illustrate how the relationship between X and Y is contingent on values of W . This rearrangement looks as follows

$$Y = (\alpha_0 + \beta_2 W) + (\beta_1 + \beta_3 W) X + \varepsilon \quad (4)$$

From the above equation, it becomes clearer how the relationship between Y , the *simple slope*, and X is a function of the moderator ($\beta_1 + \beta_3 W$). Any significant moderation

effects found in this thesis were decomposed by performing a simple slopes analysis. In order to ascertain the nature of the relationship between the X and Y variables at different—or conditional—levels of the moderator, one standard deviation above ($+S$) and below ($-S$) the mean of the moderator was used to explore the relationship between the independent and dependent variables at high and low levels of the moderator variable respectively. This simple slopes analysis is based on the following formula

$$X_{High} = \beta_1 + \beta_3(+S) \quad (5.1)$$

$$X_{Low} = \beta_1 + \beta_3(-S) \quad (5.2)$$

It should be noted that creating the interaction term and entering it into the equation with the moderator and independent variable gives rise to possible complications owing to multicollinearity (see Cronbach, 1987). To circumvent possible issues brought about by multicollinearity, both the independent and moderator variables were centred prior to the creation of the interaction term. The centred independent and moderator variable, as well as the interaction term were then entered into the regression analysis.⁶

It should be clear as to why mediation and moderation analyses are important tools in the social psychologists' arsenal; they help one to understand when contact is likely to be related to attitudes (moderation) and by which processes this is achieved (mediation). Given the complex nature of social interactions, in order to obtain even more nuanced insights into the relationships between contact and attitudes, one is able to combine these two forms of analysis. One refers to such a model as a *moderated mediation* model (Preacher, Rucker, & Hayes, 2007; Muller, Judd, & Yzerbyt, 2005). In such a model, the mediation effect differs depending on the conditional effect of a third variable. In such a moderated mediation model,

⁶ See Dalal and Zickar (2012) for an interesting article challenging the necessity for centering independent and moderator variables prior to creating the interaction term.

the moderation can take place on the path between the independent and mediator variables, or between the mediator and dependent variables, or on both paths. The equation for a moderated mediation effect with the moderation occurring between the mediator and dependent variables as well as its re-expression as a simple slope can be found in Equations 6.1 and 6.2. Similarly, the equation for moderated mediation with the moderation occurring between the independent and mediator variables and its re-expression as a simple slope can be found in Equations 7.1 and 7.2

$$Y = \alpha_0 + \beta_1 X + \beta_2 M + \beta_3 W + \beta_4 MW + \varepsilon \quad (6.1)$$

Simple slopes: $Y = (\alpha_0 + \beta_3 W + \beta_1 X) + (\beta_2 + \beta_4 W)M + \varepsilon \quad (6.2)$

$$M = \alpha_1 + \beta_5 X + \beta_6 W + \beta_7 XW + \varepsilon \quad (7.1)$$

Simple slopes: $M = (\alpha_1 + \beta_6 W) + (\beta_5 + \beta_7 W)X + \varepsilon \quad (7.2)$

variable. M denotes the mediator variable and W , the moderator. MW illustrates the interaction term associated with the hypothesis that W moderates the path between the M and Y variables. Lastly, WX illustrates the interaction term associated with the hypothesis that W moderates the path between the X and Y variables. The following parts from the equations above correspond to the a' , b' , and c'' paths of the mediated model found in Figure 2.1 above:

$$\text{Path } a': M = \alpha_1 + \beta_5 X + \varepsilon \quad (8)$$

$$\text{Path } b': Y = \alpha_0 + \beta_2 M + \varepsilon \quad (9)$$

$$\text{Path } c'': Y = \alpha_0 + \beta_1 X + \varepsilon \quad (10)$$

Where X at plus or minus one standard deviation is equal to,

$$X = (\beta_5 + \beta_7(\pm S)) \quad (11)$$

In a moderated mediation where the moderation occurs between the mediator variable and the dependent variable, Path *b* becomes,

$$\text{Path } b: Y = (\beta_2 + \beta_4 W)M \quad (12)$$

Where *M* at plus or minus one standard deviation is equal to,

$$M = (\beta_2 + \beta_4(\pm S)) \quad (13)$$

Figure 2.6 demonstrates the equations needed to test for possible moderated mediation paths that occur along both paths *a* and *b* in the mediated model.

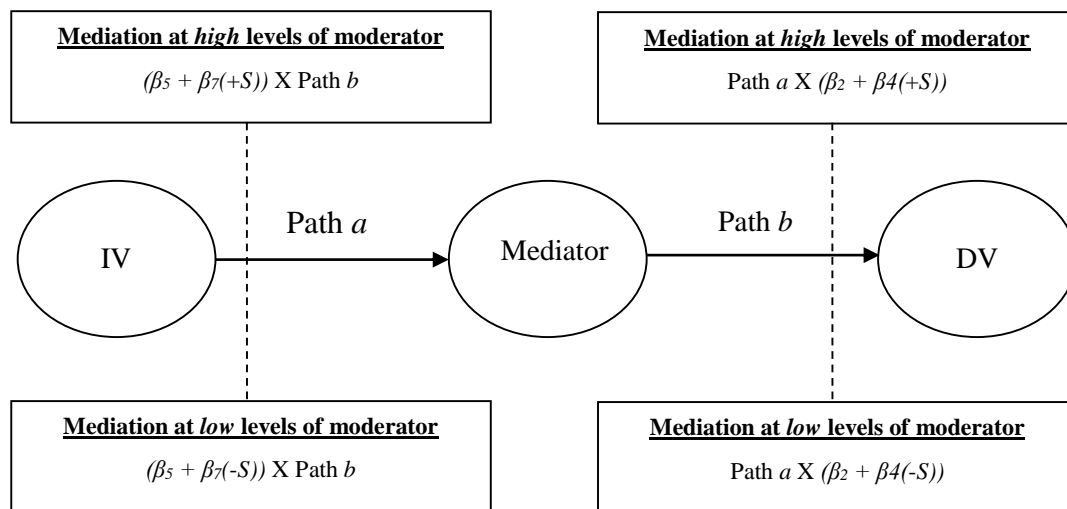


Figure 2.6. This figure illustrates two possibilities of the moderated mediation model. See Preacher, Rucker, and Hayes (2007) for a more complete exposition of the 5 possible moderated mediation models. Included in the models above are the various equations needed to test for a moderated mediation effect. IV = Independent variable, DV = Dependent variable.

Schmid et al. (2012) demonstrated such a moderated mediation model in the context of the STE. Using a large multinational sample drawn from eight European countries, they examined the relationship between contact with immigrants (the focal outgroup), and

attitudes towards two target outgroups—Jews and homosexuals—mediated by attitudes towards the focal outgroup. They further tested whether the relationship between contact with the focal outgroup (i.e., the independent variable) and attitudes towards the focal outgroup (i.e., the mediator) was moderated by social dominance orientation. Analysing data from all eight countries simultaneously, Schmid et al. (2012) found that contact with the focal outgroup was more strongly related with more positive focal outgroup attitudes for individuals low in social dominance orientation, while the relationship fell short of significance for individuals high in social dominance orientation ($p = .07$). Testing their moderated mediation hypothesis they found that, for individuals who scored low on social dominance orientation, attitudes towards the focal outgroup mediated the relationship between contact with the focal outgroup and attitudes towards the target outgroups. The link between contact with the focal outgroup and attitudes towards the target outgroups for individuals high in social dominance orientation was also mediated by attitudes towards the primary outgroup, but to a weaker degree.

Summary

While theories of intergroup contact have gotten more complex, the use of outdated analytical tools or the incorrect application of more modern techniques have raised the most pertinent criticisms facing intergroup contact theorists (Christ & Wagner, 2012). Therefore, in this chapter, I have outlined the analytic approach that will be used throughout this thesis in an effort to bolster confidence in the findings I report. Thus, in this chapter, I have attempted to review the latest methodological advancements that are now more widely available to social psychologists. Throughout this chapter, I have sifted through the growing body of methodological research relevant to the various analyses that I will be conducting,

and have endeavoured to synthesise these findings into a framework of analyses that seek to minimize both Type I and Type II errors.

I started this chapter by reviewing traditional regression techniques and relating them to their more modern cousins—path analysis and structural equation modelling. This allowed me to highlight the important advancements made by path analysis and structural equation modelling techniques, especially by way of handling data that is non-normal and in the estimation of robust standard errors. Furthermore, whereas traditional regression and path analytic techniques ignore sources of measurement error, the use of structural equation modelling with latent variables provides an attractive approach to estimating and controlling for such error. However, the incorrect use of structural equation modelling with latent variables can lead to serious issues. Fitting latent variable models to data with smaller sample sizes ($N < 200$) are left prone to concerns relating to improper solutions and nonconvergence. Therefore, I advocate the approach that, when sample sizes are small, it is more advantageous to use path analysis as a modelling strategy rather than run the risk of adopting a latent variable approach and face issues of nonconvergence and improper solutions. When sample sizes are larger ($N > 200$), however, structural equation modelling offers unique advantages in the estimation and testing of parameter estimates and should always be used.

By using either path analytic or structural equation modelling techniques, however, one needs to assess how well the implied model fits the data. Therefore, in this chapter, I have also covered the contentious topic of model fit. Taking note that the indiscriminate, incorrect use of model fit indices can lead to the acceptance of a poor fitting model *as well as* the rejection of a well-fitting model, I reviewed the main fit indices that will be used to assess model fit throughout this thesis. Furthermore, I have taken note of each of the fit indices' idiosyncrasies and thus outlined which fit indices will be afforded more weight on a per study

basis. Therefore, in this thesis, I will rely mainly on the SRMR as an indication of model fit supplementing this index with the RMSEA, CFI, chi-square, and chi-square/*df* ratio test for the studies testing models with smaller sample sizes (i.e., Studies 1, 2, and 3). For the studies with larger sample sizes (i.e., Studies 4 and 5), I will rely on the RMSEA and its associated confidence intervals to adjudge model fit, relying on the SRMR, CFI, chi-square, and chi-square/*df* ratio to supplement the RMSEA. Therefore, I will use the following fit indices and their suggested cut-off criteria to assess model fit: the χ^2 statistic (preferably non-significant in Studies 1, 2, and 3); a χ^2/df ratio ≤ 3 (especially in Studies 4 and 5); RMSEA $\leq .06$ (Studies 4 and 5); SRMR $\leq .08$ (Studies 1, 2, and 3); and CFI $\geq .95$ (Studies 1-6).

This chapter also covered the topics of mediation, moderation, and moderated mediation. It explored the pros and cons of the various means by which one can quantify and test for the significance of the mediated effect. Whereas mediators inform us as to the mechanism by which an independent variable has an effect on a dependent variable, moderators inform us about when one can expect a stronger or weaker relationship between the independent and dependent variables. Moderated mediations, then, combine these two forms of analysis allowing a more in-depth understanding of the interplay between multiple variables. In the context of research on intergroup contact, moderated mediations help us to understand simultaneously how intergroup contact works and under which conditions it works best. The testing for the significance of the mediated effect also remains a contentious issue. Following the example set by the leading authors in the field of mediation (Hayes, 2009; Kenny, 2008; Preacher & Hayes, 2008), throughout this thesis, owing to its superior ability to handle skew data, and its ability to achieve higher power with smaller sample sizes, I will rely on bias-corrected bootstrap analyses set to 5,000 re-samples as the main test for mediation. I will supplement the bias-corrected bootstrap analyses with the product-of-

coefficients test. I will use these two tests to also test for the tested moderated mediation hypotheses put forward in Chapter 1.

Concluding Remarks

While I have sung the praises of structural equation modelling and its associated methodological advancements, I feel a reminder of the dangers of testing causal hypotheses on correlational data is warranted as it becomes easy to be swept away in the flow of the causal stream. Because structural equation modelling techniques provide a method for testing causal theory with correlational data (Bentler & Bonett, 1980) the temptation to test and interpret the findings in terms of a set of causal relationships is present. If one recalls Equation 1 ($Y_i = \alpha_0 + \beta_1 X_i + \varepsilon_i$), a relationship *from* the X variable *to* the Y variable is stipulated; no relationship from the Y to X is hypothesised, though it may exist. The causal ordering of variables becomes even more important in mediation analysis. Such causal relationships inherently require some time, however long, to pass for one variable to exert influence on another variable (Baron & Kenny, 1986; Cliff, 1983; Gollob & Reichardt, 1987). For example, mediational analyses predict that an independent variable is causally antecedent to both the mediator and dependent variable; the mediator variable is hypothesised to be antecedent to the dependent variable. Because cross-sectional analyses measure variables at one point in time, they are unable to claim more than an association between variables. Fiedler, Schott, and Meiser (2011) warn that correlational analyses of mediation hypotheses are unable to distinguish between models testing mediators as causally interposed between the independent and dependent variables from those specifying the mediator as either causally antecedent, subsequent, or contemporaneous to both the independent and dependent variables. Tomarken and Waller (2003) refer to this as the *problem of equivalent models*. This refers to the problem that a stated hypothesised model is not the only way in

which the relationships between the variables can be specified (Crano & Brewer, 2008; Fiedler et al., 2011; Tomarken & Waller, 2003). This problem is closely linked with the concept that data can only support, but not confirm, a model (Cliff, 1983). Put more simply, statistical tests cannot prove that a model is correct but can only show that one model is more plausible than another (Crano & Brewer, 2008; Tomarken & Waller, 2003).

Three-wave longitudinal models help to limit concerns as to the causal ordering of the variables as they are able to model each of these causal relationships. Yet a substantial amount of research testing mediational hypotheses does so with cross-sectional data, a practice that leads to a substantial biasing of the parameter estimates (Maxwell & Cole, 2007; Maxwell, Cole, & Mitchell, 2011). Indeed, research on intergroup contact is just as guilty inasmuch as 70% of the studies included in Pettigrew and Tropp's (2006) meta-analysis used cross-sectional data; only two studies employed a longitudinal design. A number of advantages are associated with longitudinal designs. For instance, one is able to model the association between the independent variable (measured at time 1) and the dependent variable (measured at time 2) while partialling out the autoregressive effects of the dependent variable (see Chapter 5). In other words, each subject is able to serve as their own control (Hedeker & Gibbons, 2006). Also, one needs fewer subjects to obtain a certain level of power because the attainment of multiple measurements from the same subject provides more independent information than a single measurement (Hedeker & Gibbons, 2006).

Experimental designs, although faced with their own challenges, provide the most certain tests for mediation. A threat that faces cross-sectional, longitudinal, and experimental designs is that of a variable that spuriously mediates the path between the independent and dependent variables. Two such variables are confounding variables (see MacKinnon, Krull, & Lockwood, 2000) or an extraneous variable that is strongly correlated with the mediator

variable (see Fiedler et al., 2011). Confounding variables are variables that correlate with the independent and dependent variables, but have no causal influence in their relationship (MacKinnon et al., 2000). They are especially troublesome as they are statistically identical to mediator variables and can therefore only be distinguished from a mediator variable at the conceptual level (MacKinnon et al., 2000). In order to avoid these pitfalls that mediation tests present, careful attention must be paid to the study design and the theoretical rationale behind the mediator variables.

Four of the six studies presented in this thesis (Chapter 3: Studies 1 and 2; Chapter 4: Studies 3 and 4) fit path models (Studies 1, 2, and 3) or structural equation models with latent variables (Studies 4) to cross-sectional data. Given the points raised in this chapter, one should interpret these results with care as these studies fit causal models to cross-sectional data. These four studies will, however, try to safeguard against some of the pitfalls associated with testing causal models on cross-sectional data. For instance, I will test reverse secondary transfer models for two reasons, (1) to understand how pervasive the secondary transfer effect is, and (2) to offer some safeguard to the problem of equivalent models. However, in order to overcome the shortcomings of testing causal models on cross-sectional data, I will analyse and report an ambitious three-wave longitudinal study (Chapter 5, Study 5) and an experimental study (Chapter 5, Study 6) in order to test the secondary transfer effects, possible rival models, and the underlying causal sequence in more rigorous study designs.

CHAPTER THREE: THE SECONDARY TRANSFER EFFECT IN ENGLAND

Introduction

Britain is no stranger to diversity. Britain's colonial history has led to the development of a longstanding immigrant population primarily consisting of African-Caribbean and South Asian communities (Vertovec, 2007b). As a result, Britain's approach to multiculturalism has focused on these social groups who mainly immigrated to the country between the 1950s and 1970s (Vertovec, 2006). Fuelled by the expansion of the European Union, the early 1990s saw Britain experience a surge in immigration rates, so much so that in the 10 years between 1992 and 2002, Britain's net immigration rate reached 150, 000 (Vertovec, 2007a). Commenting on the sheer diversity that makes up the British population, Benedictus (2005) notes, "Never have so many different kinds of people tried living together in the same place before." Criticizing Britain's reliance on old modes of multiculturalism in dealing with its blooming diversity, Vertovec (2007b) remarks, "Diversity in Britain is not what it used to be." (p. 1024).

Given these immigration rates, Vertovec (2007b) argues convincingly that Britain can now be characterised as 'super-diverse'. This label seems to suit the country well, as in London alone, in excess of 300 different languages are spoken (Benedictus, 2005) with the city being home to people from over 170 countries worldwide (Vertovec, 2007b). Indeed, given such high diversity in a relatively small space, intergroup tensions are bound to flare. Indeed, between 2007 and 2011, 88 000 racist incidents transpired in British schools (Talwar, 2012). In a poll of 2000 adults, Reilly (2012) found that the majority of respondents felt that previous generations had passed their prejudices on to the current generation. Moreover, one in three of the participants admitted to making comments that could be construed as racist

(Reilly, 2012). Complicating matters further still is the fact that certain migrant groups are relatively new (e.g., Eastern Europeans) while others are relatively established (e.g., South Asians). These groups, therefore, are likely to experience different kinds of antipathy (Vertovec, 2007b). Given this state of affairs, improving intergroup relations on a wide scale becomes of prime importance. The two studies presented in this chapter offer a possible means by which this can be achieved; through intergroup contact.

In this chapter, I present two investigations into the secondary transfer effect (STE) in England. Study 1, a cross-sectional study, sought to replicate and provide further evidence that the process of attitude generalization is a key mechanism in understanding how contact with one outgroup can lead to improved attitudes towards other outgroups. Study 2 replicated and extended the findings of Study 1. More specifically, Study 2, also a cross-sectional study, sought to test a new conceptualization of the deprovincialization hypothesis—one particularly apt to the British context—that of diversity beliefs. Furthermore, Study 2 explored possible similarity gradients in order to help provide a more nuanced understanding when attitudes between outgroups generalize more strongly. In order to test these hypotheses, Study 1 and 2 asked about contact with and attitudes towards a range of social groups prevalent to the British context. These include contact with and attitudes towards South Asians (Studies 1 and 2), gay men (Studies 1 and 2), homosexual women (Study 2) and the homeless (Study 2). Before I move on to Study 1, I provide a brief overview of the history and current nature of intergroup relations for (a) South Asians, (b) homosexuals, and (c) the homeless in the United Kingdom.

South Asians in Britain

South Asians—which include those of Indian, Pakistani, and Bangladeshi heritage—have been part of Britain’s history since the 17th century, owing to the trade relationship set

Chapter Three: The Secondary Transfer Effect In England

up by the British East India Company between Britain and the sub-continent. British families returning from visits to India would often hire *ayahs* (Indian nannies) to look after their children during the boat trip home while *lascars* (Indian sailors) would work on the vessels (Asians in Britain, n.d.). The ayahs, while promised the fare for the return trip home were often left stranded in Britain when the British families reneged on their agreement to send the ayahs back home (Asians in Britain, n.d.). While many of the Indian men and women left stranded in the United Kingdom turned to hawking and begging, a number of South Asians started integrating themselves into English society by starting up cafés, curry houses, or offering lodgings.

The advent of the steamboat and the construction of the Suez Canal—which was completed in 1869—both served to strengthen the trade route between Britain and India, which enhanced Britain’s influence in India. British courts, churches, theatres, and other institutions were established in India (Visram, 1986, cited in Hickman, 2005). Throughout the 18th century the East India Company’s influence in India grew as the Mughal Empire—the dominant imperial power in India from the early 16th century—began to disintegrate (Hickman, 2005). In the middle of the 18th century, Britain’s influence in India became strong enough to instigate direct rule over India from Westminster and Queen Victoria was crowned Empress of India (Asians in Britain, n.d.; Hickman, 2005) until her death in 1901. Britain’s rule over India lasted for just under a century, and in 1947, India claimed its independence. In the same year, India was split into India and Pakistan. Four years later, East Pakistan became Bangladesh (Asians in Britain, n.d.).

Two developments during the middle of the 20th century bolstered the number of Indians in Britain. First, the development of the National Health System in 1948 brought with it an influx of Indian doctors (Dale, 2008). Second, post-World War II, Britain experienced

severe shortages in its labour force (Ballard, 2002; Brah, 2008). With Britain's ex-colonies suffering poverty, many South Asians immigrated to Britain in search of work. They were often prepared to do the types of jobs that white workers did not want to do and, as a consequence, tended to occupy the lower rungs of the social economic ladder (Brah, 2008). Despite showing good entrepreneurial aptitude (see Dhaliwal & Kangis, 2006), South Asians today suffer the second highest unemployment rates (12% versus 8% for white British citizens), Black African Caribbeans (18%; Rhodes, 2012). Furthermore, South Asians, especially Pakistanis and Bangladeshis, suffer discrimination when applying for jobs (Heath & Cheung, 2006).

Attitudes towards South Asians in Britain, even before the 1950 immigration influx, have been xenophobic (Robinson & Valeny, 2005). While attitudes towards immigrants and racial minorities remained negative during the mid-1990's (see Robinson & Valeny's, 2005, explication of the 1997 round of the Eurobarometer), little contemporary research exploring attitudes towards South Asians in the United Kingdom is available. The latest crime statistics, however, indicate that there is indeed antagonism towards immigrants, and especially South Asians. For example, of the 43, 748 hate crimes committed in England and Wales in 2011/2012, 82% (i.e., 35, 816) of those were racially motivated (Home Office, 2012). While it is difficult to ascertain how many of these racially motivated hate crimes were aimed specifically at South Asians, the British Crime Survey indicates that 23.6% of all crimes committed in England were against South Asians (Smith, Lader, Hoare, & Lau, 2012). Taking the crime statistics and discriminatory employment practices into consideration, it would seem that Robinson and Valeny's (2005) contention that "there is no doubt that immigrants still face negative attitudes and unequal treatment" (p. 416) rings true today.

Homosexuality in England

At first glance, it appears that attitudes towards homosexuals in Britain are relatively positive (see Cowan, 2007; Ellis, Kitzinger, & Wilkinson, 2002). Further analysis, however, reveals that there is still some way to go before homosexuals are readily welcomed and integrated into all aspects of British society. For example, the British Home Office reported that 43, 748 hate crimes had been committed in the 2011/2012 year in England and Wales. Ten per cent of these crimes, the second highest percentage of hate crimes after racial hate crimes, were motivated by homophobia (Home Office, 2012). These crime statistics, however, quite possibly misrepresent the actual number of hate crimes motivated by homophobia. For example, Dick (2008), who surveyed 1,721 lesbian, gay, and bisexual British people, found that 75% of the respondents did not report having been the victim of a hate crime to the police often claiming that the police would not do anything about it, or that hate crimes happened so frequently that it was not worth their while reporting them. It should be noted that a specific piece of legislature—Section 28 of the Local Government Act 1988—had a significant impact on the acceptability of homosexuality in British society. Section 28 of the act forbade any intentional promotion of homosexuality as acceptable. Specifically, the act prohibited the publishing of pro-homosexual material and the teaching about the acceptability of homosexuality in schools. This act formed part of the British legislature for 15 years until it was revoked in 2003. Given the significance of this piece of legislation, it may come as little surprise that, while current attitudes towards homosexuals are positive, certain homosexual human rights—such as civil marriage—have been received with substantially less enthusiasm.

Cowan (2007), in studying the attitudes towards homosexuals of a sample of 2009 British heterosexuals, found that the percentages of respondents supporting anti-

discrimination legislation against (a) discrimination at the workplace, (b) the denying of access to public services such as health care, and (c) the incitement of hatred against homosexuals was generally high (93%, 85%, and 89%, respectively). Substantially fewer participants (68%), however, showed support for the Civil Partnership Act 2004, an act that affords same-sex partnerships equal rights and responsibilities to civil marriage. Also evident from Cowan's study was a certain amount of social distance surrounding homosexuality as 27% of the respondents indicated that they would feel uncomfortable to very uncomfortable if they found out that their child's teacher or their child were gay, while 22% of the respondents indicated discomfort should they find out their doctor or sibling was homosexual. In addition, only 34% of the respondents reported having a high opinion of homosexual men and women. Similar findings emerged from Ellis and colleagues' (2002) investigation into the attitudes towards homosexuals of 226 British psychology undergraduates from various British tertiary education institutions. They found that, while the participants' attitudes towards gay men and women were very positive, the respondents reported lower levels of support for lesbian and gay human rights, especially those pertaining to parenting rights, same-sex marriage, and spousal benefits. What is notable about the findings from Ellis et al.'s study is that younger participants tended to show more prejudiced attitudes.

It should also be noted that while heterosexuals' attitudes towards homosexuals are generally positive, homosexuals' accounts of being bullied at school (Gausp, 2012; Hunt & Jensen, 2007) as well as in public and the work place (Dick, 2008) tells a different story. Results from the latest Stonewall investigation (Gausp, 2012) into the experiences of 1600 young homosexuals revealed that, while bullying in schools has dropped by 10% since 2007, 55% of the sample still reported being the victim of bullying. The respondents reported being

bullied by their peers, older and younger students, and non-teaching schools staff, as well as being verbally bullied by teachers. The consequences of being the target of homophobic bullying are serious. For example, 41% of the respondents who had been bullied said they had contemplated suicide as a result of the abuse and a third of the participants said they had decided to change their plans for future education because of the bullying they received (Gausp, 2012). One participant remarked, “I’m not going to University anymore because I’m too worried it’ll just be the same” (Gausp, 2012, p. 21).

It would thus appear that while attitudes towards homosexuals in Britain are, overall, favourable, many people believe that homophobia is a problem in British society (Cowan, 2007). Homophobia seems to permeate every aspect of society ranging from the workplace to the schools. A worrying statistic is that two studies (Cowan, 2007; Ellis et al., 2002) found that British youth tend to hold more prejudiced attitudes and are more likely to act upon these attitudes than older respondents. Indeed, Dick (2008) found that younger individuals are more likely to commit hate crimes against homosexuals. Therefore, interventions aimed at improving the plight of the homosexual community still need to be developed.

The Homeless in the United Kingdom

Homelessness has always been present in England (Ravenhill, 2008). For example, by the 7th century laws punishing vagrancy were enacted (St Mungo’s, 2012). Unsurprisingly, attitudes towards beggars and the homeless have been derogatory for a long time. For example, the Vagabonds and Beggars Act 1494 states, “Vagabonds, idle and suspected persons shall be set in the stocks for three days and three nights and have none other sustenance but bread and water and then shall be put out of Town” (cited in Higginbotham, 2012). Some of the most notable and influential pieces of legislation in shaping public opinion towards the homeless, however, were the Poor Laws introduced during the early

1550s, the most notable of which being the Poor Laws of 1601. While the goal of the Poor Laws—which were funded by taxes and executed by the church—was to provide aid for the poor and homeless in England, the aid was purposely nominal to the point of being demeaning. As a result, those who sought help suffered stigmatization and discrimination (Ravenhill, 2008). These Poor Laws lasted until the development of a welfare state and the inauguration of the National Health Service in 1948. Despite the change in societal ideology towards the homeless that accompanied the welfare state—such as the No One Left Out initiative (Department for Communities and Local Government, 2008) which aimed to eliminate homeless people sleeping on the street by 2012 and the Housing (Homeless Persons) Act 1977—homelessness in the United Kingdom continues to exist (Cebulla, Rice, Tomaszewski, & Hough, 2009; Ravenhill, 2008; Reeve & Batty, 2011). In interviewing 437 single homeless people, Reeve and Batty (2011), for instance, reported that not only may the prevalence of rough sleeping be higher than anticipated, it may also be more of an invisible phenomenon than previously thought. For example, Reeve and Batty found that for every month a respondent had stayed in supported accommodation (e.g., hostels), they spent three months either sleeping rough (i.e., on the streets) or staying with friends.

Given the long history of homelessness, and the continued prevalence of this social group, what are general attitudes towards the homeless? According to Fiske, Cuddy, Glick, and Xu's (2002) Stereotype Content Model—which describes various social groups in terms of a mixture of competence and warmth dimensions of stereotype content—the homeless, amongst other social groups such as welfare recipients, suffer pure derogation as they score low on both competence and warmth dimensions. Social groups that score low on both competence and warmth are said to be viewed by society as parasites that place economic, social, and capital strain on societies (Fiske et al., 2002). Toro et al. (2007) compared the

attitudes of 1,546 respondents from French-speaking Belgium ($N = 323$), Germany ($N = 250$), Italy ($N = 250$), the United Kingdom ($N = 288$), and the United States of America ($N = 435$) towards the homeless. They found that English and American respondents were less compassionate towards the homeless and were more likely to view the homeless as drug addicts and criminals than were respondents from the other countries. Furthermore, respondents from the United Kingdom tended to think of the homeless as a serious problem and were more willing to increase governmental spending on them.

The homeless face a plethora of challenges, which include chronic unemployment, ill health (both physical and mental), poor literacy, substance abuse, and interrupted education (Bilton, 2009; Cebulla et al., 2009; Reeve & Batty, 2011). Their plight is further compounded by the economic crisis and governmental budget cuts (Survey of Needs and Provisions, 2012). Taken together, these factors serve to increase the prevalence of the number of people considered homeless. They therefore form a unique group living on the fringes of society. While governments work hard to find a solution to help end homelessness, more needs to be done in the way of changing social attitudes towards the homeless. If contact with other outgroups can serve to help improve attitudes towards the homeless, the secondary transfer effect will indeed represent an attractive means by which attitudes towards them can be improved.

Study 1

Hypotheses

Four *a priori* predictions were formulated to investigate the STE of contact. First, based on primary transfer effects, both quantity and quality of contact with the focal outgroup would be associated with more favourable attitudes towards the focal outgroup. I also

hypothesised that, in line with previous research that states that it is the quality over quantity of contact that most strongly affects one's attitudes towards outgroups (Allport, 1954), quality of contact with the outgroups would be significantly more strongly associated with attitudes towards the outgroups than would quantity of contact. Secondly, attitudes towards the focal outgroup would positively covary with attitudes towards the target outgroup. The third hypothesis predicted that attitudes towards the focal outgroup would mediate the relationship between contact with the focal outgroup and attitudes towards the target outgroup. Lastly, the pattern of relationships hypothesised in the previous three predictions would remain significant after controlling for contact with the target outgroup, social dominance orientation, the participants' age, and gender.

Participants

A total of 130 first year undergraduate Oxford students completed a pen-and-paper based questionnaire for course credit. Because the analysis dealt with contact with and attitudes towards homosexual males, and in order to avoid possible confounds, respondents who identified themselves as homosexual or bisexual were excluded from the analysis. As a result, 14 participants were excluded from the analysis because they either identified themselves as homosexual ($N = 4$), bisexual ($N = 8$), or did not indicate their sexual orientation ($N = 2$). Therefore, the final sample consisted of 116, heterosexual participants (mean age = 18.58, $SD = 1.17$, age range from 17 to 26 years old, 33 male, 83 female).

Measures

The questionnaire asked respondents about their contact with (both quantity and quality) and attitudes towards Asians—who were described in this study as people living in the UK who are of Indian, Pakistani, or Bangladeshi origin—and gay men. The questionnaire

also included items tapping social dominance orientation as well as a number of demographic variables. All items were measured on seven-point scales. The inter-item correlation coefficients for the variables can be found in Table 3.1.

Contact measures. Participants were asked three items about the quantity of contact they had with Asians and homosexual men, and two items pertaining to the quality of the contact. The three items ascertaining contact quantity included, “Thinking of social contact, how much contact do you usually have with [Asians / gay men] at university (a) at meetings or events, (b) chatting to people, (c) overall social situations.” (0 = *None at all*, 6 = *A great deal*). Next, participants were asked if they found the contact “unpleasant / pleasant” (0 = *Unpleasant*, 6 = *Pleasant*) and “negative / positive” (0 = *Negative*, 6 = *Positive*). These five items formed a reliable scale for both the Asian outgroup ($\alpha = .85$) as well as for homosexual men ($\alpha = .89$).

Attitude measures. To gauge attitudes towards gay men and Asians, participants were asked to complete a six-item bi-polar adjective scale (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). Participants read, “Based on your experience, please rate the extent to which you have the following feelings about Asian people”, and were then presented with the following six adjectives “warm/cold” (reverse coded), “negative/positive”, “friendly/hostile” (reverse coded), “suspicious/trusting”, “respect/contempt” (reverse coded), and “admiration/disgust” (reverse coded).

The 12 attitude items were subjected to an exploratory factor analysis using the maximum likelihood estimator. Because I expected these two factors to be correlated with each other, the Direct Oblimin factor rotation method was chosen; the delta value was set to 0. The factor analysis extracted two factors (Factor 1 eigenvalue = 6.00; Factor 2 eigenvalue = 1.51) explaining 62.55% of the total variance. The factor pattern matrix showed that the

sixth attitude item (admiration/disgust) for Asians loaded only onto the attitudes towards gay men factor. Furthermore, the structure matrix indicated that the item in question correlated more strongly with attitudes towards homosexuals (structure matrix $|r| = .50$) than it did with the attitudes towards Asians factor (structure matrix $|r| = .47$). Given the sample size ($N = 116$), according to Stevens (2001), in this sample any factor loading that is $|r| \geq .50$ loads significantly onto the factor at the $p < .01$ level. Applying this criterion to the data, though the difference between the correlations is small, the Asian attitude item *admiration / disgust* loaded significantly onto the factor hypothesised to predict attitudes towards gay men and not onto the factor measuring attitudes towards Asians. Therefore, in order to obtain as clean an attitude factor structure as possible while allowing there to be some correlation between the two factors, this item was dropped from the analysis for both the Asian and gay men outgroups. Re-running the exploratory factor analysis with the 10 attitude items yielded a clearer two factor structure (Factor 1 eigenvalue = 5.25; Factor 2 eigenvalue = 1.46; Total variance explained = 67.07%) with no evidence of cross-loading in the structure matrix. The respective five attitude items were therefore averaged to create reliable measures for attitudes towards Asians ($\alpha = .89$) and attitudes towards gay men ($\alpha = .85$).

Control variables. Participants' age and gender were entered into the model as control variables. Age was mean centred and gender was recoded as a contrast code (Male = -0.5, Female = 0.5). Social dominance orientation was also entered into the model as a control variable. The full 16-item social dominance orientation scale was used for the analysis. Subjecting it to an exploratory factor analysis (maximum likelihood estimator) yielded a one factor solution (eigenvalue = 8.02, total variance explained = 50.10%). The scale showed excellent scale reliability ($\alpha = .93$). For the full social dominance orientation scale, please see the Appendix. Two examples of items from the social dominance orientation scale are, "It's

OK if some groups have more of a chance in life than others” and “All groups should be given an equal chance in life” (reverse coded). Higher scores on the scale represent higher levels of social dominance orientation.

Results

Preliminary Analysis

I ran two paired-samples t-tests to compare the mean contact and attitude scores between the two target outgroups. Attitudes towards Asians ($M = 5.57$, $SD = 0.90$) did not differ significantly from attitudes towards gay men ($M = 5.64$, $SD = 0.89$, $t(115) = 0.92$, $p > .05$). Respondents did, however, report more contact with Asians ($M = 4.43$, $SD = 1.07$) than they did for gay men ($M = 3.91$, $SD = 1.43$, $t(113) = 4.05$, $p < .001$).⁷ Because participants reported significantly more contact quantity scores with Asians, the STE model treating Asians as the focal outgroup was run first. Generally, participants reported social dominance orientation scores that were below the midpoint (4) of the scale, $t(115) = -25.86$, $p < .001$.

Next, I performed a multivariate analysis of variance (MANOVA) on the key variables to be used in the study to test for any possible gender differences. The only between-subjects effect to show any sign of gender differences was for the variable, attitudes towards gay men ($F(1, 112) = 5.43$, $p < .01$, partial $\eta^2 = .05$); females reported significantly more favourable attitudes towards gay men ($M = 5.75$, $SD = 0.86$) than males did ($M = 5.33$, $SD = 0.92$).

Table 3.1

⁷ Note: Some of these Mean scores and standard deviations differ from those reported in the correlation table below; this is because, when doing a pairwise comparison, cases were deleted that had missing values on one of the two variables in the pair. This is reflected in the t-test's degrees of freedom.

Inter-item Correlations, Means, and Standard Deviations of the Key Variables (Study 1).

Variable	Mean (SD)	1	2	3	4	5	6
1. Contact with Asians	4.41 (1.10)	-	.44***	.25**	.12	.09	-.07
2. Contact with Gay men	3.91 (1.43)		-	.17	.26**	-.07	.04
3. Attitudes Asians	5.57 (0.90)			-	.59***	-.28**	.16
4. Attitudes Gay men	5.64 (0.89)				-	-.27**	.22*
5. SDO	2.16 (0.77)					-	-.16
6. Gender	0.22 (0.45)						-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. $N = 116$. SDO = Social dominance orientation. SD = Standard deviation, which are shown in parentheses.

Path Analysis

Owing to the complexity of the hypothesised model and the small sample size ($N = 116$), rather than employing structural equation modelling with latent variables, path analysis using the maximum likelihood estimator with robust standard errors was chosen as the analytic strategy (see Boomsma & Hoogland, 2001). Therefore, composite scores were created out of the variables of interest and used to investigate the hypothesised structural relationships between the variables. To remind the reader, the following goodness-of-fit indices and their cut-off values (where applicable) indicating acceptable model fit will be used to evaluate model fit (See Chapter 2 for a more in-depth discussion on the various fit statistics used in this thesis): the chi-square statistic and its associated degrees of freedom ($\chi^2(df)$); the Comparative Fit Index (CFI) $\geq .95$; the Root Mean Square Error of Approximation (RMSEA) $\leq .06$ and its associated confidence intervals (they will appear in square brackets); and the Standardized Root Mean Square Residual (SRMR) $\leq .08$ (Hu &

Bentler, 1999). Since the χ^2 test offers a dichotomous decision making strategy, the chi-square over degrees of freedom ratio (χ^2/df) will be reported alongside all model fit statistics. For small to medium sample sizes, the ratio should be lower than 3.

Study 1a: Asians as the Focal Outgroup

Using these criteria, the hypothesised model showed excellent model fit, $\chi^2(1) = 0.578, p > .05, \chi^2/df = 0.58, CFI = 1.00, RMSEA = 0 [0, .22], SRMR = .019$. See Figure 3.1 for the path analytic model. The model explained 45% of the variance in attitudes towards gay men and 20% of the variance in attitudes towards Asians.

Social dominance orientation was negatively associated with attitudes towards Asians ($b = -0.32, SE = 0.13, p < .02$) but was not significantly associated with attitudes towards gay men ($b = -0.07, SE = 0.11, p > .05$). Gender approached significance in its association with attitudes towards Asians ($b = 0.30, SE = 0.18, p = .09$) and gay men ($b = 0.25, SE = 0.14, p = .06$). Contact with Asians was associated with more favourable attitudes towards Asians ($b = 0.33, SE = 0.07, p < .001$). Similarly, contact with gay men was associated with more favourable attitudes towards gay men ($b = 0.24, SE = 0.08, p = .001$). Contact with Asians was not associated with attitudes towards gay men ($b = -0.13, SE = 0.08, p > .05$).

Attitudes towards Asians was significantly associated with attitudes towards gay men ($b = 0.53, SE = 0.10, p < .001$). Testing the attitude generalization hypothesis, that contact with the focal outgroup (Asians) affects attitudes towards the target outgroup (gay men) through improved attitudes towards the focal outgroup, the analyses revealed that attitudes towards Asians mediated the relationship between contact with Asians and attitudes towards gay men ($b = 0.17, SE = 0.05, p = .001$; bootstrap point estimate = 0.17, 99% CI [0.05, 0.34]).

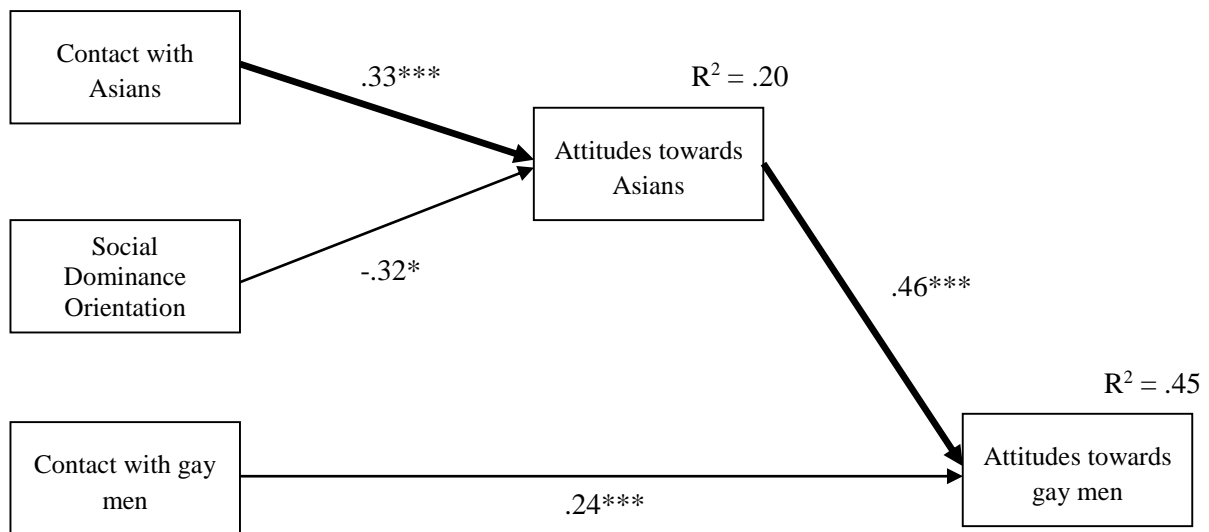


Figure 3.1. The path analysis testing the STE between Asians (focal outgroup) and gay men (target outgroup; $N = 116$; Study 1a). Model fit: $\chi^2(1) = 0.578, p > .05, \chi^2/df = 0.58, CFI = 1, RMSEA = 0 [0, .22], SRMR = .019$. Unstandardized regression coefficients. Only significant paths are shown. The **bold line** indicated the attitude generalization of the STE. * $p \leq .05, ** p \leq .01, *** p \leq .001$.

Study 1b: Gay Men as the Focal Outgroup

The model specifying gay men as the focal outgroup showed adequate model fit, $\chi^2(1) = 0.594, p > .05, \chi^2/df = 0.59, CFI = 1.00, RMSEA = 0 [0, .22], SRMR = .013$. See Figure 3.2 for the path analytic model. The model accounted for 20% and 43% of the variance in attitudes towards gay men and Asians respectively.

In this model, participant gender was significantly associated with attitudes towards gay men such that females showed more favourable attitudes towards gay men than did males ($b = 0.41, SE = 2.45, p < .02$). Social dominance orientation was negatively associated with attitudes towards Asians ($b = -0.20, SE = 0.09, p < .03$) and approached significance in its association with gay men ($b = -0.24, SE = 0.14, p = .09$). Contact with gay men was associated with more favourable attitudes towards gay men ($b = 0.23, SE = 0.07, p = .001$).

Contact with gay men was negatively associated with attitudes towards Asians ($b = -0.19$, $SE = 0.08$, $p < .02$). Contact with Asians was associated with more favourable attitudes towards Asians ($b = 0.33$, $SE = 0.09$, $p < .001$).

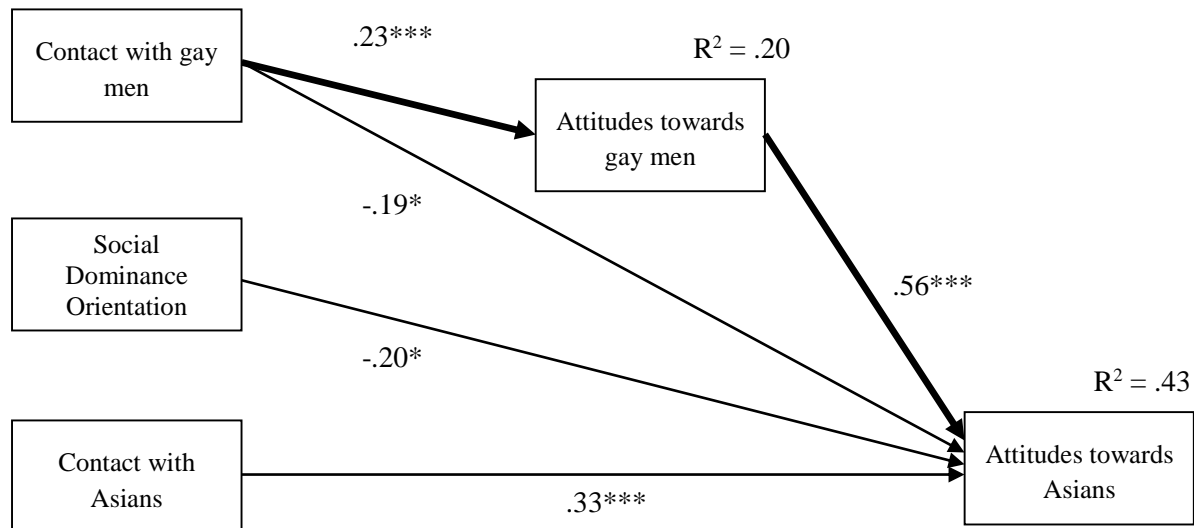


Figure 3.2. The path analysis testing the STE between gay men (focal outgroup) and Asians (target outgroup; $N = 116$; Study 1b). Model fit: $\chi^2(1) = 0.594$, $p > .05$, $\chi^2/df = 0.59$, CFI = 1, RMSEA = 0 [0, .22], SRMR = .013. Unstandardized regression coefficients. Only significant paths are shown. The **bold line** indicated the attitude generalization of the STE. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Attitudes towards gay men were significantly associated with attitudes towards Asians ($b = 0.56$, $SE = 0.09$, $p < .001$). Attitudes towards gay men mediated the path between contact with gay men and attitudes towards Asians ($b = 0.13$, $SE = 0.04$, $p < .01$) thus providing more evidence for the attitude generalization hypothesis.

Discussion

Study 1 provided a preliminary investigation into the STE and one of the hypothesised mediating processes, attitude generalization. The results revealed that for both models treating Asians (Study 1a) or gay men (Study 1b) as the focal outgroup, intergroup contact with the focal outgroup had a positive effect on attitudes towards the target outgroup—gay men (Study 1a) and Asians (Study 1b)—by first improving attitudes towards

the focal outgroup. For study 1a, the path between contact with Asians and attitudes towards gay men was fully mediated by attitudes towards Asians. In Study 1b, however, owing to the direct, negative effect, attitudes towards gay men partially mediated the relationship between friendships with gay men and attitudes towards Asians.

Study 1 replicated previous research findings (Schmid, Hewstone, Küpper et al., 2012) in that the process of attitude generalization still mediated the relationship between contact with a focal outgroup and attitudes toward a target outgroup after controlling for a known predictor of prejudice, social dominance orientation. Because social dominance orientation has been shown to be a powerful predictor of prejudice towards a range of outgroups (see Pratto et al., 1994; Whitley, 1999), controlling for its effect on attitudes towards both outgroups leads to a stricter test of the attitude generalization hypothesis as there is less variance in the attitude measure to be explained. Furthermore, this study is the first to use, and thus more accurately control for, more detailed measures of contact with the target outgroup. Recall that Davies et al. (2011) and Pettigrew and Tropp (2006) both uncovered stronger correlations between contact and prejudice in studies that used multi-item measures of contact and attitudes. These stronger effects account for more variance in the attitudes measures, thus providing a stricter test of both STEs and the attitude generalization hypothesis.

Study 1 contributes to our understanding in a unique way because of the outgroups it used to investigate the STE. Of the growing body of research into the secondary transfer effect, the majority of studies have, in terms of Goffman's stigma typology, investigated STEs between two outgroups that fall under the same class of stigma (see Eller & Abrams, 2004; Pettigrew, 1997; Swart, 2008; Tausch et al., 2010; Van Laar et al., 2005); the most common class being category stigma. While there are a handful of studies that have looked at

attitude generalization across stigma classes (Harwood et al., 2011; Pettigrew, 2009; Schmid et al., 2012), none of these studies controlled for contact with the target outgroups. Study 1, however, investigated the STE between Asians (category stigma) and gay men (character stigma) making it the first study to show the STE between two social groups that could be said to occupy different classes according to Goffman's (1963) typology of stigma.

In Study 1b, the negative direct relationship between contact with gay men and attitudes towards Asians is difficult to explain. Given that the simple bivariate correlation coefficient between contact with gay men and attitudes towards Asians was positive and non-significant ($r = .17, p > .05$), this negative direct STE in the presence of a mediator is consistent with a suppression effect (MacKinnon, Krull, & Lockwood, 2000). Tausch et al. (2010; Study 2) uncovered a similar suppression effect whereby the relationship between contact with the ethno-religious outgroup and attitudes towards racial minorities became negative and significant when attitudes towards the ethno-religious outgroup was entered into the equation.

One can only speculate about why there is a negative relationship between contact with gay men and attitudes towards Asians. For example, the negative direct effect could be a result of peer socialization (see Van Laar et al., 2005, for a similar explanation). It is possible that gay men are themselves more prejudiced towards South Asians than are their straight counterparts, attitudes which their heterosexual peers adopt. Given that South Asian societies remain homophobic (Kole, 2007), gay men's possible negative interactions with South Asians could be recounted to their heterosexual peers thus providing a kind of "negative extended contact" experience. Given that recent research indicates that negative direct contact experiences increase prejudice more than positive experiences reduce it (Barlow et al., 2012), it is not too far of a theoretical step to hypothesise that negative extended contact experiences

may have similar effects on our attitudes as negative direct contact experiences. An alternate explanation might account for the direct negative contact experience by hypothesising the existence of a second mediator of opposite sign. Given its central role as a mediator of primary transfer effects, intergroup anxiety may help explain this negative relationship between contact with gay men and attitudes towards Asians. These hypotheses, however, remain speculations and should be tested in future research that uncovers similar suppressed direct negative STEs.

A strong warning should be issued. While the suppression effect is of interest, especially given that the sign between contact with the focal outgroup and attitudes towards the target outgroup is negative, one should be reminded that these effects are obtained using cross-sectional data. Therefore, while taking note of this effect and providing possible explanations for it, any directional claims made with cross-sectional data needs to be done so with caution. While Van Laar and colleagues' (2005) study also showed similar negative direct secondary transfer relationship, they did not measure attitudes towards Asians as a possible mediator, thus making it difficult to ascertain if their negative direct relationship would remain significant if one were to control for attitudes towards Asians. The three wave longitudinal study in Chapter 5 of this thesis (Study 5) is better suited to investigate this possibility.

To summarize, Study 1 found evidence for the STE and its underlying process, the attitude generalization hypothesis, in both the tested models. It adds to the growing body of literature attesting to the central role that the process of attitude generalization plays in the STE, but it does so by (a) controlling for social dominance orientation, (b) using stricter controls for contact with the target outgroup, and (c) investigated the attitude generalization process between two groups that, according to Goffman's (1963) stigma typology, occupy

different stigma categories. Study 1, however, did not include any measures gauging the deprovincialization process. Study 2 aims to improve on Study 1 by simultaneously investigating the processes of deprovincialization and attitude generalization.

Study 2

Study 2 aims to replicate and extend on Study 1 in a several important ways. Given the theoretical extensions of the deprovincialization hypothesis outlined in Chapter 1, three questions arise: First, does intergroup contact with a focal outgroup promote the acceptance of diversity in society, and, if so, will these more inclusive attitudes generalize to other, target outgroups? Second, if diversity beliefs proves to be a successful mediator of the STE, will the attitude generalization hypothesis still remain a robust mechanism in the STE? Third, are the deprovincialization and attitude generalization hypotheses independent processes of the STE, or do they work in an interrelated way? In addition to these questions relating to the deprovincialization hypothesis, Study 2 also aimed to replicate and extend on theory relating to the attitude generalization hypothesis. Given that most studies into the secondary transfer, including Study 1, only measured contact with and attitudes towards two outgroups effect (see Harwood et al., 2010; Pettigrew, 2009; Schmid et al., 2012; Van Laar et al., 2005, for some exceptions), will one still witness the STE when contact with and attitudes towards multiple outgroups are included in the same model? Study 2 also sought to provide the first evidence for perceived intergroup similarity as a moderated of the attitude generalization path. While previous studies have found evidence for stronger STEs between outgroups that are considered similar to each other (e.g., Harwood et al., 2010), they relied on a measure of similarity that is not defined by the participants themselves. Therefore, Study 2 offers a new, untested approach to testing similarity effects, as perceived by the participants themselves. Furthermore, previous studies have looked for similarity gradients affecting the path between

focal outgroup contact and attitudes towards the target outgroup. Study 2, however, aims to integrate similarity gradients into the attitude generalization hypothesis by looking at how it helps inform when attitudes towards one outgroup relates more strongly to attitudes towards another outgroup. These questions constitute the focus of Study 2.

Study 2 aims to replicate the findings of Study 1 inasmuch as it included contact and attitude measures towards Asians and gay men. Where Study 2 expands on Study 1 by including of two additional outgroups, homosexual women and the homeless. Furthermore, whereas Study 1 asked about general contact quantity and quality, Study 2 provides a stricter test of the secondary transfer effect by including items pertaining to intergroup friendships with Asians, gay men, and homosexual women. This is because of the stronger association between cross-group friendships and prejudice (Pettigrew & Tropp, 2006). Homosexual women were included in the study as the literature on attitudes towards homosexual persons shows that attitudes towards gay men and homosexual women are quite different (Kite & Whitely, 1996). Kite and Whitely (1996) conducted an extensive meta-analysis on the research dealing with heterosexuals' attitudes towards homosexual persons. The meta-analysis covers 112 studies including 100 824 respondents (46.58% men and 53.42% women). Their results indicated that while men and women held equivalent attitudes towards homosexual women, men rated gay men with more malice than they rated homosexual women. Women, on the other hand, held less favourable attitudes towards homosexual women than they did for gay men. Results from the Gay British Crime Survey 2008 (Dick, 2008), however, indicate that lesbian women are one and a half times more likely than male homosexuals to experience a homophobic motivated hate incident when they appear in public with their same-sex partner.

Hypotheses

Eight *a priori* hypotheses drove the analysis for Study 2. These hypotheses can be divided into the following sections: (a) Bivariate hypotheses, (b) mediation and three-path mediation hypotheses, and (c) moderation hypotheses.

Bivariate hypotheses. First, it was hypothesised that contact with the focal outgroup would be positively associated with attitudes towards the focal outgroup. Similarly, contact with the target outgroups would be associated with attitudes towards the target outgroups. Second, attitudes towards the focal outgroup would be positively associated with attitudes towards the target outgroups. Third, I expect that contact with the focal outgroup would be positively associated with diversity beliefs while controlling for contact with the target outgroups. Fourth, I predict that diversity beliefs will be positively associated with more favourable attitudes towards both the focal and target outgroups.

Mediation and three-path mediation hypotheses. Fifth, I predicted that attitudes towards the focal outgroup will mediate the relationship between contact with the focal outgroup and attitudes towards the target outgroups. Sixth, I expect diversity beliefs to mediate the relationship between contact with the focal outgroup and attitudes towards the focal outgroup. Seventh, I expect to find evidence for a double mediated effect (see Figure 3.3) such that contact with the focal outgroup would affect attitudes towards the target outgroups by first leading to increased support for diversity (path a_1 in Figure 3.3), which itself would lead to improved attitudes towards the focal outgroup (path a_2 in Figure 3.3). These improved attitudes towards the focal outgroup would then generalize to attitudes towards the target outgroup (path b in Figure 3.3).

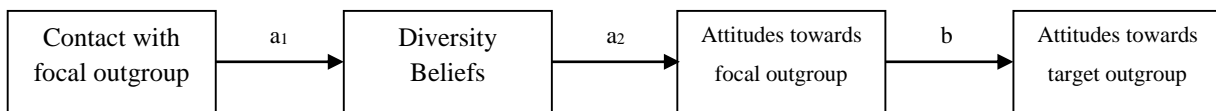


Figure 3.3. The path model illustrating the hypothesised three-path mediation effect.

Such a three-path mediation path can be tested in MPlus by specifying the **VIA** command in the **MODEL INDIRECT** section of the MPlus input code sheet.

Mathematically, the three-path mediation path extends the equation for a single mediation by multiplying the a_1 and a_2 paths with an additional b path.

Moderation hypotheses. Eighth, I predicted that perceived similarity between the focal and target outgroup as rated by the participant will moderate the relationship between attitudes towards the focal outgroup and attitudes towards the target outgroup. I expect the relationship between attitudes towards the focal and target outgroups to be significantly stronger for those individuals who perceive greater similarity between the two outgroups than for those individuals who perceive them to be less similar.

Participants and Procedure

A total of 174 students at Oxford University completed the questionnaire. Because the study measured contact with and attitudes towards gay men and women, 16 respondents were dropped from the analysis as they had either identified themselves as homosexual ($N = 6$), bisexual ($N = 8$), or transgender ($N = 1$). Furthermore, one participant ($N = 1$) was dropped from the analysis because they failed to indicate their sexual orientation. Therefore, the final sample consisted of 157 participants (Male $N = 55$, $M_{\text{age}} = 20.15$, $SD = 1.22$; Female $N = 102$, $M_{\text{age}} = 20.15$, $SD = 1.06$). Participants ranged between 18 and 25 years old.

Of the 157 participants, 24 completed the questionnaire as part of their course and received course credit for their participation. Each of the 24 participants were then instructed to recruit more respondents for the study; an additional 133 participants were recruited. The additional participants were brought to the department of Experiment Psychology, Oxford University, where they completed the questionnaire in a computer laboratory. I oversaw all data collection occasions and made sure all participants were aware of their ethical rights as participants; these included (a) their right to withdraw from the study without penalty, (b) their guaranteed anonymity, and (c) that all data would be treated confidentially. All surveys were complete online using the Qualtrics online survey tool (Qualtrics Labs Inc., Provo, UT; www.qualtrics.com).

Materials

Participants were asked about a number of demographic variables including their age, gender, and their year at university. Respondents were asked questions pertaining to contact with and attitudes towards Asians (who were defined as people of Indian, Pakistani, or Bangladeshi origin), gay men, homosexual women, and the homeless. In order to test the reformulated deprovincialization hypothesis, participants were asked about their support for social diversity. Lastly, respondents also answered questions aimed at exploring the similarity hypothesis. Except for the feeling thermometers, all other items were measured using seven-point Likert scales.

Contact variables. Cross-group friendships with Asians were ascertained by asking the respondents to answer the following three questions: “About how many of your friends are Asian?” (1 = *None*, 7 = *All*), “How often do you visit with them in their college room/housing?”, and “How often do you go out socially with them?” (the last two questions were both anchored as 1 = *Never*, 7 = *Daily*). These three items formed a reliable scale ($\alpha =$

.74). To determine respondent's friendships with gay men and women as friends, they were asked, "About how many of your friends are [gay men / homosexual women]?" (1 = *None*, 7 = *All*) and "How often do you go out socialising with them?" (1 = *Never*, 7 = *Daily*).⁸ These two items were significantly positively correlated ($r_{\text{gay men}} = .44, p < .001$; $r_{\text{homosexual women}} = .65, p < .001$). The two items measuring friendships with gay men correlated more strongly with each other than they did with the two items measuring friendships with homosexual women (and vice versa; cross-group item correlation range $.04 \leq r \leq .24$). Therefore, the four items were assumed to be measuring contact scores for gay men and homosexual women separately rather than a general "contact with homosexuals" construct. Contact quantity with the homeless was asked using one question: "Overall, how frequently do you have contact with homeless people?" (1 = *Never*, 7 = *Daily*). One question was used to measure contact quality with the homeless: "In general, did you find the contact with homeless people unpleasant or pleasant?" (1 = *Very unpleasant*, 7 = *Very pleasant*). These items did not correlate with each other ($r = .03, p > .05$) and were therefore entered as separate contact items into the analysis.

Diversity beliefs variables. Participants were asked how much they agreed or disagreed with the following statements, "The mix of different social groups in society enriches local life." and "The mix of different social groups in society creates social disorder" (reversed) (1 = *Strongly disagree*, 7 = *Strongly agree*). The two items correlated strongly with each other ($r = .44, p < .001$) and were therefore averaged to form a composite score.

Attitude variables. Attitudes towards Asians, gay men, homosexual women, and the homeless were all measured using feeling thermometers. Participants read, "We would like to

⁸ Only two friendship items were asked for gay men and homosexual women in order to save space in the questionnaire and minimize participant fatigue.

ask you how you feel towards [outgroup]. Please rate [outgroup] people on a thermometer that runs from zero (0) to a hundred (100) degrees. The higher the number, the warmer or more favourable you feel towards [outgroup]. The lower the number, the colder or less favourable you feel. If you feel neither warm nor cold, rate them at 50. Please use the rater scale to indicate best how you feel towards [outgroup].”

Moderator variables. In order to investigate the hypothesised similarity gradient hypothesis, participants were asked “Do you think, in general, that [gay men / homosexual women / the homeless] and Asians are treated similarly to each other?” (1 = *Strongly disagree*, 7 = *Strongly agree*). In order to keep the questionnaire to a manageable length, ratings of similarity were only obtained for the model that treats Asians as the focal outgroup. Therefore, perceived similarity ratings were obtained in the following pairs: Asian-gay men similarity, Asian-homosexual women similarity, Asian-homeless similarity.

Control variables. The analysis controlled for participant’s gender which was entered into the model as a contrast code (male participants = -0.5, female participants = 0.5). Participant’s age was also entered into the model as a control variable.

Results

Preliminary Data Analysis

The Pearson product-moment correlations as well as the means and standard deviations for the main variables included in the study are reported in Table X below. A within-subjects ANOVA was used to test for any differences in attitudes towards the

outgroups to be included in the path analysis below. Mauchly's test of sphericity indicated that the assumption had been violated, $\chi^2(5) = 52.44, p < .001, \hat{\epsilon} = .81$.⁹

Using the Huyn-Feldt method to correct the degrees of freedom, there was a significant main effect for attitudes ($F(2.464, 384.366) = 146.75, p < .001, \text{partial } \eta^2 = .49$).¹⁰ Pairwise comparisons showed that participants were most prejudiced towards the homeless ($M = 46.54, SD = 18.34$), significantly more so than their attitudes towards Asians ($M = 70.43, SD = 18.02$), gay men ($M = 73.97, SD = 18.60$), and homosexual women ($M = 70.84, SD = 17.50$; all $ps < .001$). Participants did not differ in their attitudes towards Asians and homosexual women ($p > .05$). Attitudes towards gay men, however, were significantly more favourable than attitudes towards homosexual women and Asians (both $ps < .01$).

Path Analysis

Study 2a: Asians as the Focal Outgroup

The path analyses exploring the secondary transfer effect between Asians, gay men, homosexual women, and the homeless were explored using MPlus (Version 5.2; Muthén & Muthén, 1998-2008). The maximum likelihood estimator with robust standard errors was used in the analyses. The hypothesised model fit the data well, $\chi^2(12) = 24.526, p < .02, \chi^2/df = 2.04, CFI = .96, RMSEA = 0.082 [.03, .13], SRMR = 0.049$.¹¹ The model explained 19% of the variance in attitudes towards Asians; 34% of the variance in attitudes towards the

⁹ When the sphericity assumption is violated and the $\hat{\epsilon}$ statistic—which gives an indication of the deviation from sphericity (with 1 indicating perfect sphericity)—is greater than .75, Girden (1992) recommends inspecting the Huyn-Feldt correction method. This is because under these circumstances, the Greenhouse-Geisser method tends to be too conservative.

¹⁰ O'Brien and Kaiser (1985) recommend looking at the multivariate statistics as they are independent of the sphericity assumption. Pillai's Trace also indicated that there was indeed an overall significant multivariate effect ($V = .63, F(3, 154) = 88.35, p < .001, \text{partial } \eta^2 = .63$).

¹¹ Age was entered into the model as a covariate but was not associated with any of the variables. Therefore, age was dropped from the analyses.

homeless; 39% of variance in attitudes towards homosexual women; and 47% of the variance in attitudes towards gay men. The model also explained 14% of the variance in attitudes towards diversity. See Figure 3.4 for the path analytic model.

Female participants held significantly more positive attitudes towards gay men ($b = 5.45$, $SE = 2.22$, $p < .02$) than did males. In addition, female respondents also held more favourable attitudes towards Asians ($b = 8.33$, $SE = 2.90$, $p < .01$), and held more favourable diversity beliefs ($b = 0.41$, $SE = 0.18$, $p < .03$) than did male participants. Male and female respondents held equivalent attitudes towards homosexual women ($b = -1.14$, $SE = 2.08$, $p > .05$) and the homeless ($b = -0.63$, $SE = 2.54$, $p > .05$).

Friendships with gay men ($b = 2.62$, $SE = 0.92$, $p < .01$) and homosexual women ($b = 1.40$, $SE = 0.64$, $p < .03$) were associated with more favourable attitudes towards gays and homosexual women, respectively. Quantity of contact with the homeless was not associated with more favourable attitudes towards the homeless ($b = 0.20$, $SE = 0.58$, $p > .05$). Quality of contact with the homeless, on the other hand, was associated with more favourable attitudes towards the homeless ($b = 7.95$, $SE = 1.35$, $p < .001$). Friendships with Asians were positively associated with attitudes towards Asians ($b = 2.65$, $SE = 1.08$, $p < .02$) and with diversity beliefs ($b = 0.13$, $SE = 0.06$, $p < .03$), but did not covary significantly with any of the attitudes towards the target outgroups. Friendships with homosexual women was associated with diversity beliefs ($b = 0.17$, $SE = 0.07$, $p < .02$). Quality of contact with the homeless approached significance in its association with diversity beliefs ($b = 0.21$, $SE = 0.11$, $p = .06$).

Chapter Three: The Secondary Transfer Effect In England

Table 3.2.
Inter-item Correlations, Means, and Standard Deviations of the Key Variables (Study 2).

Variable	1	2	3	4	5	6	7	8	9	10
1. Friendships Asians	-	.15	.11	.11	.07	.21**	.12	.11	.17*	.17*
2. Friendships gay men		-	.21**	.08	.06	.11	.29***	.15	.05	.02
3. Friendships homosexual women			-	.06	-.01	.03	-.06	.09	.05	.15
4. Contact quantity homeless				-	.03	.08	.04	-.04	.05	.08
5. Contact quality homeless					-	.27***	.22**	.24**	.53***	.21**
6. Attitudes Asians						-	.65***	.58***	.39***	.32***
7. Attitudes gay men							-	.68***	.24**	.25***
8. Attitudes homosexual women								-	.33***	.40***
9. Attitudes homeless									-	.29***
10. Diversity beliefs										-
Means	3.19	3.44	2.21	4.63	3.32	70.43 _b	73.97 _c	70.84 _b	46.54 _a	5.48
(Standard Deviations)	(1.45)	(1.24)	(1.23)	(1.92)	(1.03)	(18.02)	(18.60)	(17.50)	(18.34)	(1.13)

Note. Attitude scores with different subscripts differ at the $p < .01$ level. * $p < .05$, ** $p < .01$, *** $p < .001$.

Diversity beliefs were positively related to attitudes towards Asians ($b = 3.80$, $SE = 1.20$, $p < .01$) and homosexual women ($b = 3.54$, $SE = 1.20$, $p < .01$), but did not covary with attitudes towards gay men ($b = 0.84$, $SE = 1.27$, $p > .05$) or the homeless ($b = 2.04$, $SE = 1.17$, $p = .08$). Attitudes towards Asians were positively associated with attitudes towards gay men ($b = 0.60$, $SE = 0.07$, $p < .001$), homosexual women ($b = 0.50$, $SE = 0.12$, $p < .001$), and the homeless ($b = 0.22$, $SE = 0.08$, $p < .01$).

Consistent with the attitude generalization hypothesis, attitudes towards Asians mediated the relationship between cross-group friendships with Asians and attitudes towards gay men ($b = 1.56$, $SE = 0.62$, $p = .01$; bootstrap point estimate = 1.59, 95% CI [0.32, 2.90]), homosexual women ($b = 1.33$, $SE = 0.48$, $p < .01$; bootstrap point estimate = 1.33, 99% CI [0.03, 2.88]), and the homeless ($b = 0.59$, $SE = 0.32$, $p < .07$; bootstrap point estimate = 0.59, 99% CI [0.01, 1.78]). Partially supporting the prediction that deprovincialization would mediate the relationships between contact with the focal outgroup and attitudes towards the outgroups, diversity beliefs mediated two of the four hypothesised paths. First, diversity beliefs mediated the relationship between cross-group friendships with Asians and attitudes towards Asians ($b = 0.50$, $SE = 0.27$, $p < .06$; bootstrap point estimate = 0.50, 95% CI [0.06, 1.23]). Second, diversity beliefs also mediated the path between contact with Asians and attitudes towards homosexual women ($b = 0.47$, $SE = 0.27$, $p = .08$; bootstrap point estimate = 0.47, 95% CI [0.06, 1.26]). Diversity beliefs did not, however, mediate the relationship between cross-group friendships with Asians and attitudes towards gay men ($b = 0.11$, $SE = 0.17$, $p > .05$; bootstrap point estimate = 0.08, 95% CI [-0.22, 0.58]) or the homeless ($b = 0.27$, $SE = 0.18$, $p > .05$; bootstrap point estimate = 0.27, 95% CI [-0.01, 0.83]).

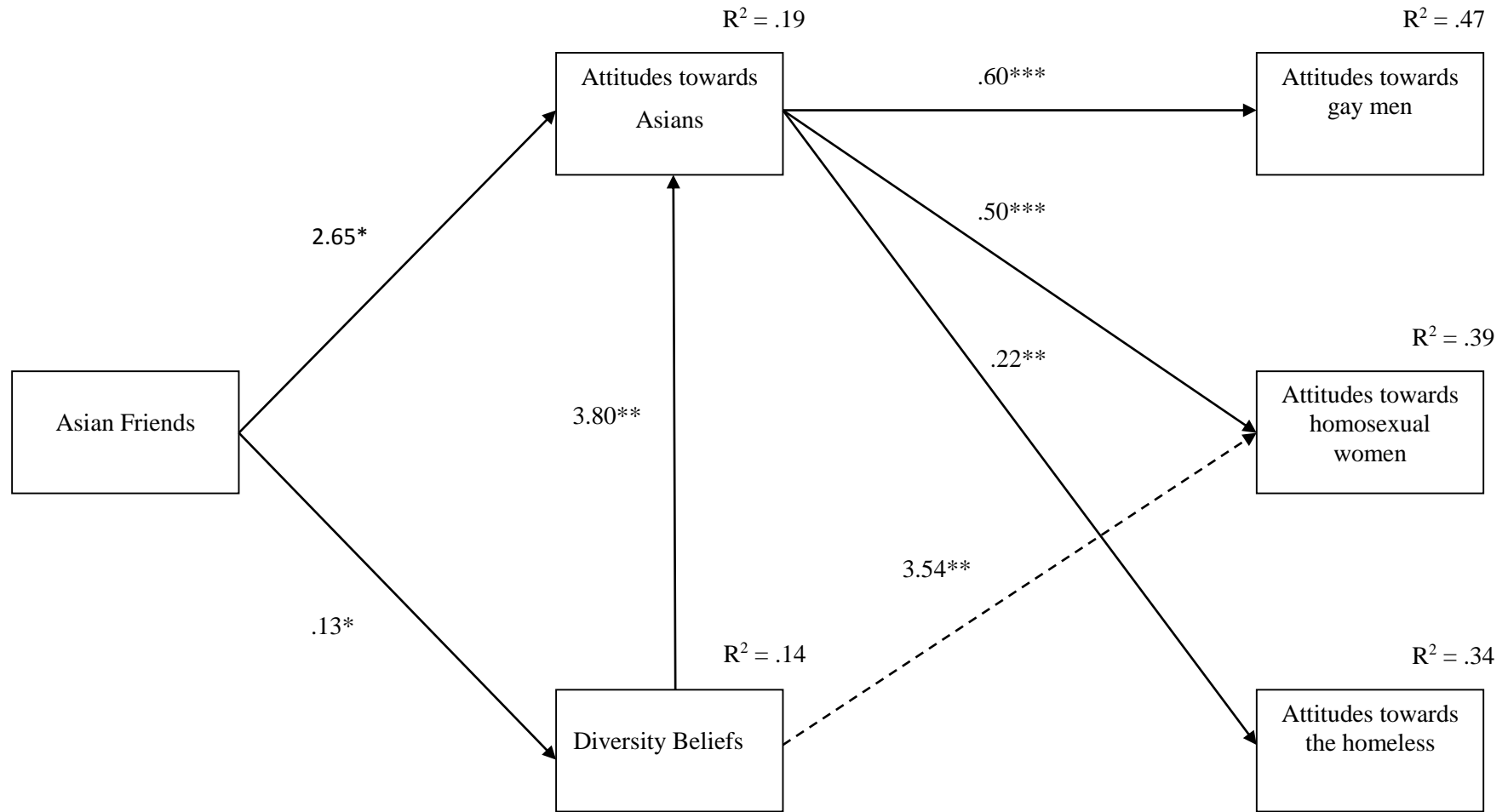


Figure 3.4. Path analytic model showing the hypothesised relationship between contact with the focal outgroup (Asians) and attitudes towards the target outgroup as mediated by attitudes towards the focal outgroup and diversity beliefs ($N = 157$; Study 2a). $\chi^2(12) = 24.526, p > .05, \chi^2/df = 2.04, CFI = .96, RMSEA = .082 [.03, .13], SRMR = .049$.
 * $p < .05$, ** $p < .01$, *** $p < .001$

When testing whether intergroup contact affected attitudes towards the target outgroups by sequentially influencing diversity beliefs and attitudes towards Asians (i.e., the three-path mediation path), the results mostly provided support for the hypothesis. While the regression weights for the double indirect effect showed that the three-path mediations fell just short of the conventional level of significance (gay men: $b = 0.30$, $SE = 0.17$, $p = .07$; homosexual women: $b = 0.25$, $SE = 0.16$, $p < .11$; the homeless: $b = 0.11$, $SE = 0.07$, $p < .07$), the bootstrap estimates indicated that the three-path mediation effect reached significance for each of the target outgroups (bootstrap point estimates: gay men = 0.30, homosexual women = 0.25, the homeless = 0.11; 95% confidence intervals: gay men [0.04, 0.80], homosexual women [0.03, 0.76], and the homeless [0.02, 0.34]). As discussed in Chapter 2, bias-corrected bootstrap estimates of mediated effects are superior to the product-of-coefficients approach, especially in smaller sample sizes (Fritz & MacKinnon, 2007). Therefore, more weight is attached to the mediation results as evidenced by the bias-corrected bootstrap point estimates.

Having explored the STE and its mediation hypotheses, the next set of analyses sought to investigate the hypothesised moderation effects. For all the moderation hypotheses to follow, both the moderator and predictor variables were mean centred and a product term was created from these mean centred variables. Next, the centred predictor and moderator variables, as well as their interaction term, were entered into the regression equation. A significant interaction term would indicate a moderated effect.

Decomposing the interaction effects was achieved by way of simple slopes analysis with the conditional values set to plus and minus 1 standard deviation of the moderator variable. I created two new variables in MPlus, the first denoting the relationship between the criterion and predictor variables at +1 standard deviation of the moderator variable and the

second the same relationship at -1 standard deviation of the moderator variable. If we call the relationship between the predictor and criterion variable β_1 ; the relationship between the predictor variable and the interaction term β_3 ; the variable for +1 standard deviation $+S$; and the variable for -1 standard deviation $-S$, the equation for the relationship between the predictor and criterion variable at a higher level of the moderator variable would look as follows:

$$b_{high} = \beta_1 + \beta_3(+S)$$

$$b_{low} = \beta_1 + \beta_3(-S)$$

Running this code in MPlus generates the beta values, the associated standard errors and significance levels for the relationship between the predictor and criterion variable at high and low levels of the moderator.

To investigate for possible similarity moderation effects, the variable tapping participants' similarity ratings between Asians and the three target groups as well as attitudes towards Asians were mean centred and entered into the regression equation, as was their product term. The only product term to evidence a moderation effect dealt with similarity between Asians and homosexual women for which the product term fell short of conventional levels of significance ($b = 0.11$, $SE = 0.06$, $p = .06$). Decomposing the moderation effect showed support for the similarity hypothesis; the link between attitudes towards Asians and attitudes towards homosexual women was stronger for people who perceived Asians and homosexual women to be treated in a similar manner ($b = 0.66$, $SE = 0.08$, $p < .001$) than those who believed they were treated less similarly ($b = 0.41$, $SE = 0.15$, $p < .01$). Attitudes towards Asians mediated the relationship between cross-group friendships with Asians and

attitudes towards homosexual women for both high ($b = 1.76, SE = 0.70, p = .01$) and low ($b = 1.09, SE = 0.44, p = .01$) perceived similarity subgroup.

Study 2b: The Homeless as the Focal Outgroup

The model showed excellent model fit, $\chi^2(9) = 11.087, p > .05, \chi^2/df = 1.23, CFI = .99, RMSEA = .038 [0, 0.10], SRMR = 0.03$. The model was able to account for 32% of the variance in attitudes towards the homeless, 22% of the variance in attitudes towards gay men, 23% of the variance in attitudes towards homosexual women, and 26% of the variance in attitudes towards Asians. Furthermore, the model explained 14% of the variance in the diversity beliefs variable. See Figure 3.5 for the path analytic model.

Cross-group friendships with gay men ($b = 2.58, SE = 0.92, p < .01$), friendships with homosexual women ($b = 1.54, SE = 0.63, p < .02$), and cross-group friendships with Asians ($b = 1.83, SE = 0.85, p = .03$) were associated with more favourable attitudes towards their respective groups. Quantity of contact with the homeless was not significantly associated with attitudes towards the homeless ($b = 0.26, SE = 0.64, p > .05$), but quality of contact was ($b = 8.80, SE = 1.30, p < .001$). Neither quantity nor quality of contact with the homeless were directly associated with attitudes towards any of the target outgroups. Furthermore, quality of contact with the homeless ($b = 0.21, SE = 0.11, p = .05$) was related to diversity beliefs while quantity of contact with the homeless was not ($b = 0.04, SE = 0.05, p > .05$). Friendships with Asians ($b = 0.13, SE = 0.06, p < .03$) and friendships with homosexual women ($b = 0.17, SE = 0.07, p < .02$) were each significantly associated with diversity beliefs.

Diversity beliefs was significantly associated with more favourable attitudes towards Asians ($b = 2.48, SE = 1.19, p < .04$), homosexual women ($b = 4.64, SE = 1.09, p < .001$),

and the homeless ($b = 2.96, SE = 1.21, p = .01$). Diversity beliefs fell short of a significant association with attitudes towards gay men ($b = 2.41, SE = 1.31, p < .07$). Attitudes towards the homeless also fell short of a significant association with attitudes towards gay men ($b = 0.09, SE = 0.09, p > .05$), but were significantly associated with attitudes towards Asians ($b = 0.25, SE = 0.08, p = .001$), and attitudes towards homosexual women ($b = 0.18, SE = 0.08, p < .03$). Because quantity of contact with the homeless was not associated with either attitudes towards the homeless or diversity beliefs, only mediation effects involving quality of contact with the homeless as the predictor variable will be investigated.

Attitudes towards the homeless significantly mediated the relationship between quality of contact with the homeless and attitudes towards Asians ($b = 2.21, SE = 0.74, p < .01$; bootstrap point estimate = 2.21, 99% CI [0.52, 4.65]) and homosexual women ($b = 1.62, SE = 0.75, p = .03$; bootstrap point estimate = 1.62, 95% CI [0.19, 3.29]), but did not mediate the relationship between quality of contact with the homeless and attitudes towards gay men ($b = 0.83, SE = 0.74, p > .05$; bootstrap point estimate = 0.83, 95% CI [-0.69, 2.37]). Diversity beliefs mediated the relationship between quality of contact with the homeless and attitudes towards the homeless ($b = 0.62, SE = 0.40, p > .05$; bootstrap point estimate = 0.62, 95% CI [0.04, 1.75]) and homosexual women ($b = 0.97, SE = 0.59, p < .10$; bootstrap point estimate = 0.97, 95% CI [0.04, 2.44]). Diversity beliefs, however, failed to mediate the relationship between contact quality with the homeless and attitudes towards Asians ($b = 0.52, SE = 0.35, p > .05$; bootstrap point estimate = 0.52, 95% CI [0.00, 1.60]) or gay men ($b = 0.51, SE = 0.61, p > .05$; bootstrap point estimate = 0.51, 95% CI [-0.02, 1.7]). As indicated by the bootstrap analysis, the three-path mediation for the paths from quality of contact with

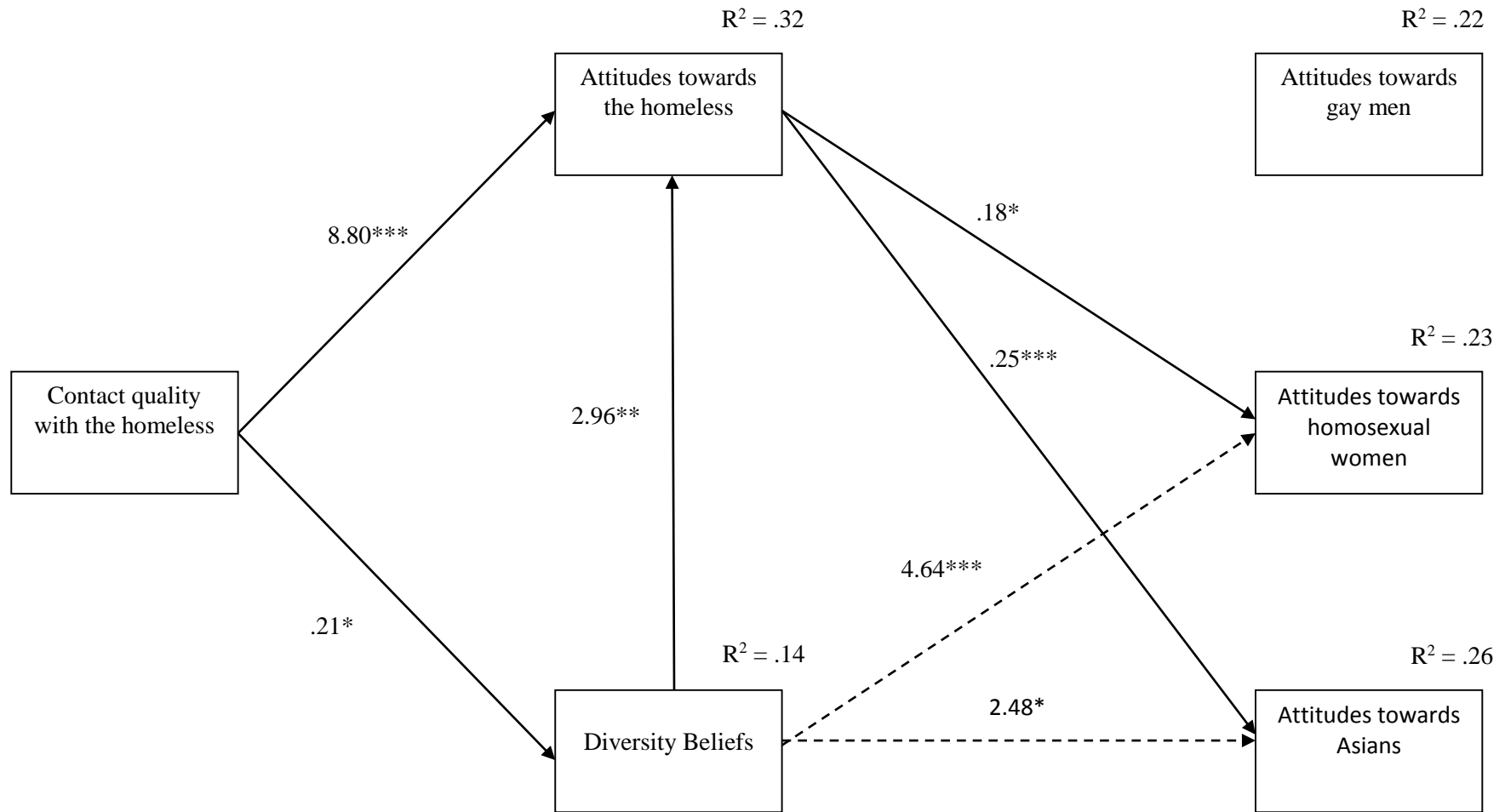


Figure 3.5. Path analytic model showing the hypothesised relationship between contact with the focal outgroup (the homeless) and attitudes towards the target outgroup as mediated by attitudes towards the focal outgroup and diversity beliefs ($N = 157$; Study 2b). Model fit: $\chi^2(9) = 11.087, p > .05, \chi^2/df = 1.23, CFI = .99, RMSEA = .038 [0, 0.102], SRMR = 0.03. *p < .05, **p < .01, ***p < .001$

the homeless to more favourable attitudes towards homosexual women ($b = 0.11$, $SE = 0.09$, $p > .05$; bootstrap point estimate = 0.11, 95% CI [0.01, 0.47]) and Asians ($b = 0.16$, $SE = 0.12$, $p > .05$; bootstrap point estimate = 0.16, 95% CI [0.02, 0.61]) were the only paths to be mediated sequentially by both diversity beliefs and attitudes towards the homeless.

Study 2c: Gay Men as the Focal Outgroup

The model testing the STE with gay men as the focal outgroup fit the data well, $\chi^2(12) = 23.648$, $p > .05$, $\chi^2/df = 1.97$, CFI = .96, RMSEA = 0.079 [0.03, 0.13], SRMR = 0.046. The model accounted for 22% of the variance in attitudes towards gay men; 30% of the variance in attitudes towards the homeless; 46% of the variance in attitudes towards Asians; 54% of the variance in attitudes towards homosexual women; and 14% of the variance in attitudes towards diversity. See Figure 3.6 for the path analytic model.

Friendships with homosexual women were significantly associated with attitudes towards homosexual women ($b = 1.24$, $SE = 0.62$, $p < .05$). Once again, quality of contact ($b = 7.96$, $SE = 1.36$, $p < .05$) and not quantity of contact ($b = 0.28$, $SE = 0.59$, $p > .05$) with the homeless was significantly associated with attitudes towards the homeless. Friendships with Asians were positively associated with attitudes towards Asians ($b = 1.90$, $SE = 0.89$, $p = .03$) and diversity beliefs ($b = 0.13$, $SE = 0.06$, $p < .03$). Friendships with homosexual women were also associated with diversity beliefs ($b = 0.17$, $SE = 0.07$, $p < .02$). Quantity of contact with the homeless, once again, did not reach statistical significance in its association with diversity beliefs ($b = 0.04$, $SE = 0.05$, $p > .05$) but quality of contact with the homeless did ($b = 0.21$, $SE = 0.11$, $p = .05$). Friendships with gay men was significantly associated with attitudes towards gay men ($b = 4.26$, $SE = 1.25$, $p = .001$) but were not associated with diversity beliefs ($b = -0.08$, $SE = 0.07$, $p > .05$). Friendships with gay men were also not associated with attitudes towards any of the target outgroups.

Diversity beliefs were positively and significantly associated with attitudes towards gay men ($b = 3.35$, $SE = 1.36$, $p < .02$), homosexual women ($b = 3.60$, $SE = 1.09$, $p = .001$), the homeless ($b = 2.84$, $SE = 1.22$, $p = .02$), and Asians ($b = 2.06$, $SE = 1.07$, $p = .05$).

Attitudes towards gay men were significantly associated with attitudes towards homosexual women ($b = 0.63$, $SE = 0.06$, $p < .001$) and Asians ($b = 0.58$, $SE = 0.07$, $p < .001$), but fell short of significance in their association with attitudes towards the homeless ($b = 0.09$, $SE = 0.07$, $p > .05$).

Because friendships with gay men were unrelated to diversity beliefs, it is no surprise to find that diversity beliefs did not mediate any of the paths between friendships with gay men and attitudes towards the focal outgroup. In a similar vein, because the three-path mediation path between friendships with gay men and attitudes towards the target outgroups was not sequentially mediated by diversity beliefs and attitudes towards gay men—in other words, there were no significant three-path mediations—because of the non-significant relationship between friendship with gay men and diversity beliefs.

Friendships with gay men, however, were associated with attitudes towards gay men, allowing one to test for mediation predicted in the attitude generalization hypotheses.

Attitudes towards gay men mediated the relationship between friendships with gay men and attitudes towards Asians ($b = 2.46$, $SE = 0.76$, $p = .001$; bootstrap point estimate = 2.46, 99% CI [0.54, 4.77]) and attitudes towards homosexual women ($b = 2.68$, $SE = 0.77$, $p < .001$; bootstrap point estimate = 2.68, 99% CI [0.61, 4.90]). Attitudes towards gay men did not, however, mediate the relationship between friendships with gay men and attitudes towards the homeless ($b = 0.36$, $SE = 0.34$, $p > .05$; bootstrap point estimate = 0.36, 95% CI [-0.19, 1.23]).

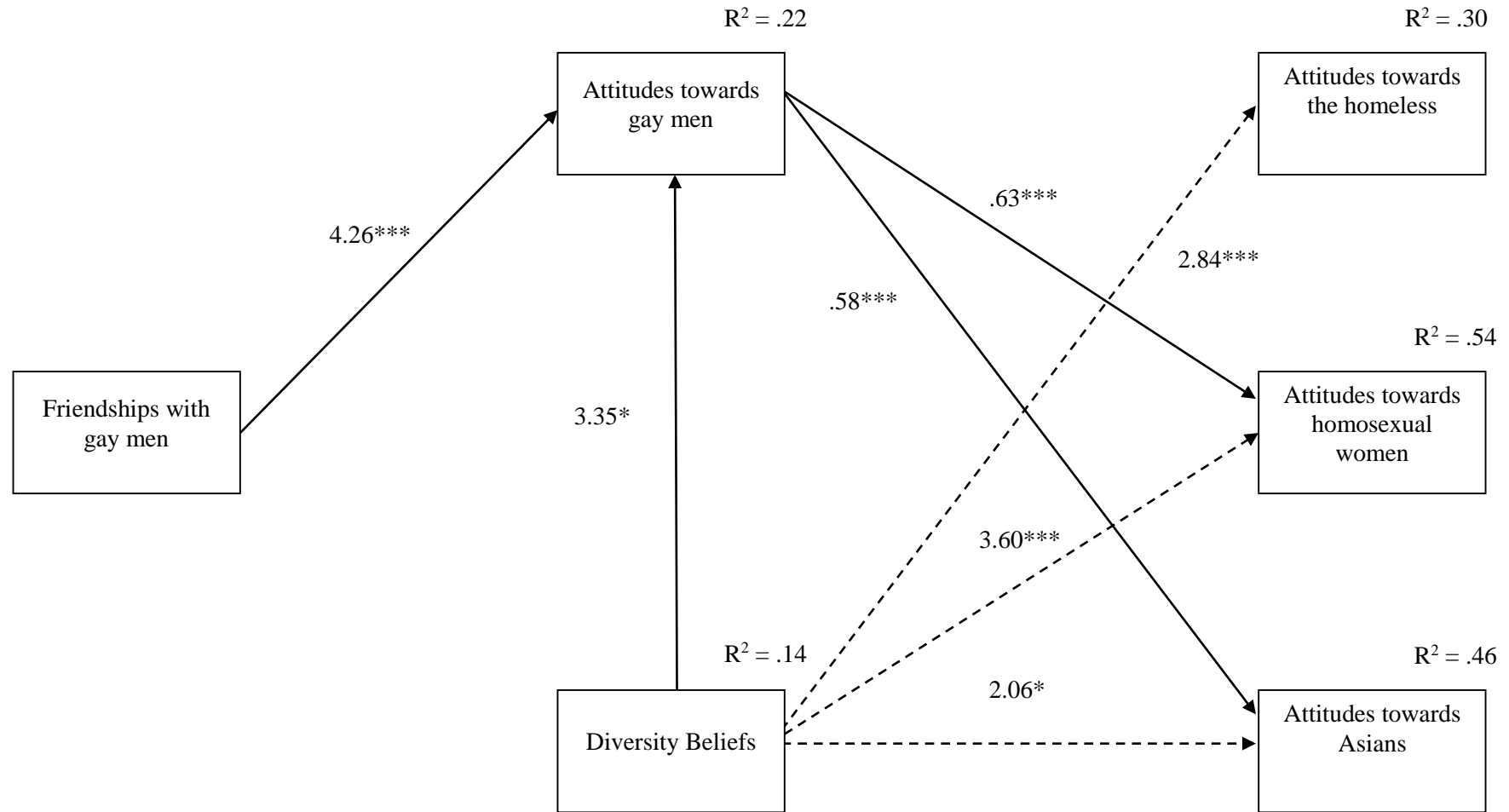


Figure 3.6. Path analytic model showing the hypothesised relationship between contact with the focal outgroup (gay men) and attitudes towards the target outgroup as mediated by attitudes towards the focal outgroup and diversity beliefs ($N = 157$; Study 2c). Model fit: $\chi^2(12) = 23.648, p > .05, \chi^2/df = 1.97, CFI = .96, RMSEA = 0.079 [0.03, 0.13], SRMR = 0.046$. * $p < .05$, ** $p < .01$, *** $p < .001$

Study 2d: Homosexual Women as the Focal Outgroup

The model stipulating homosexual women as the focal outgroup showed a close fit to the data, $\chi^2(12) = 19.431, p > .05, \chi^2/df = 1.62, CFI = .97, RMSEA = 0.063 [0, 0.11], SRMR = 0.048$. The model was able to explain the following amounts of variance (R^2) in the variables: attitudes towards homosexual women $R^2 = .17$; attitudes towards gay men $R^2 = .55$; attitudes towards Asians $R^2 = .39$; attitudes towards the homeless $R^2 = .32$; and attitudes towards diversity $R^2 = .15$. See Figure 3.7 for the path analytic model.

Friendships with gay men ($b = 2.93, SE = 0.93, p < .01$) and friendships with Asians ($b = 1.92, SE = 0.89, p = .03$) were associated with attitudes towards gay men and Asians respectively. Quantity of contact with the homeless ($b = 0.24, SE = 0.59, p > .05$) was unrelated to attitudes towards the homeless. Quality of contact with the homeless, on the other hand, was significantly related to attitudes towards the homeless ($b = 8.02, SE = 1.34, p < .001$). Friendships with homosexual women were unrelated to attitudes towards homosexual women ($b = 0.24, SE = 1.04, p > .05$). Friendships with homosexual women were positively associated with diversity beliefs ($b = 0.19, SE = 0.07, p < .01$), as were friendships with Asians ($b = 0.13, SE = 0.06, p < .03$) and quality of contact with the homeless ($b = 0.21, SE = 0.11, p = .05$). None of the other contact variables were associated with diversity beliefs. As far as direct STEs were concerned, friendships with homosexual women were only associated, but negatively, with attitudes towards gay men ($b = -2.41, SE = 0.81, p < .01$).

In this STE model, diversity beliefs were only associated with more favourable attitudes towards homosexual women ($b = 5.83, SE = 1.07, p < .001$). Lastly, attitudes towards homosexual women was significantly associated with attitudes towards gay men ($b =$

0.67, $SE = 0.07$, $p < .001$), Asians ($b = 0.52$, $SE = 0.09$, $p < .001$), and the homeless ($b = 0.18$, $SE = 0.08$, $p < .03$).

Because friendships with homosexual women were not associated with attitudes towards homosexual women, none of the paths between friendships with homosexual women and attitudes towards the target outgroups were mediated by attitudes towards homosexual women. Furthermore, diversity beliefs only mediated the relationship between friendships with homosexual women and attitudes towards homosexual women ($b = 1.10$, $SE = 0.50$, $p < .03$; bootstrap point estimate = 1.10, 99% CI [0.00, 2.77]).

As with Studies 2a through c, because diversity beliefs mediated the relationship between contact with the focal outgroup and attitudes towards the focal outgroup, and because attitudes towards the focal outgroup were related to attitudes towards the target outgroup, I was able to test for a three-path mediation path. The three-path mediation path results indeed showed that friendships with homosexual women had an effect on attitudes towards gay men ($b = 0.74$, $SE = 0.34$, $p < .03$; bootstrap point estimate = 0.74, 99% CI [0.00, 1.94]), the homeless ($b = 0.20$, $SE = 0.12$, $p < .10$; bootstrap point estimate = 0.20, 95% CI [0.03, 0.59]), and Asians ($b = 0.58$, $SE = 0.28$, $p < .04$; bootstrap point estimate = 0.58, 99% CI [0.00, 1.59]) by sequentially influencing participants' support for diversity in society and their attitudes towards homosexual women.

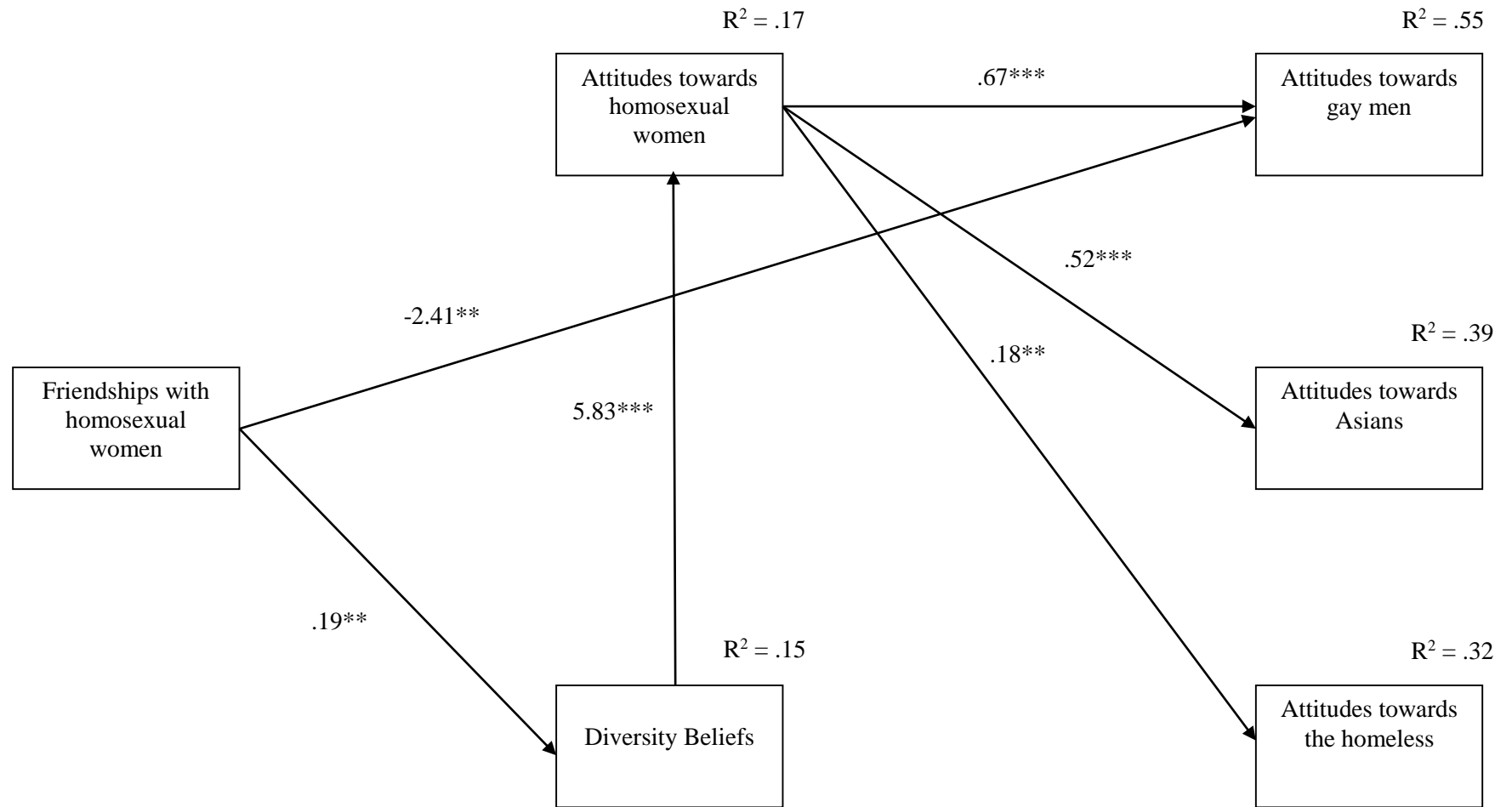


Figure 3.7. Path analytic model showing the hypothesised relationship between contact with the focal outgroup (homosexual women) and attitudes towards the target outgroup as mediated by attitudes towards the focal outgroup and diversity beliefs ($N = 157$; Study 2d). Model fit: $\chi^2(12) = 19.431, p > .05, \chi^2/df = 1.62, CFI = .97, RMSEA = 0.063 [0, 0.11], SRMR = 0.048^* p < .05, **p < .01, ***p < .001$

It was surprising to find that the item denoting friendships with homosexual women, which in Studies 2a, b, and c was associated with attitudes towards homosexual women, was not significantly associated with attitudes towards homosexual women when they were treated as the target outgroup (Study 2d). Looking at the correlations between contact with and attitudes towards homosexual women for male and female participants, male participants showed a significant positive correlation ($r = .29, p = .03$) between friendships with and attitudes towards homosexual women while, for female participants, contact with and attitudes towards homosexual women did not correlate with each other ($r = -.03, p > .05$). I then reran the path model specifying gender as a moderator of the relationship between friendships with and attitudes towards homosexual women. The interaction term was, however, non-significant ($b = -1.45, SE = 1.06, p > .05$). In other words, the path between contact with and attitudes towards homosexual women was equivalent for male and female participants despite the difference evidenced by the correlation coefficient. Therefore, based on these results, the positive relationship between friendships with and attitudes towards homosexual women appeared only to be significant when part of the attitudes towards homosexual women was partialled out by the other attitude variables; in other words, partialling out the effect that other attitudes have on attitudes towards homosexual women may “clean” up the variance in attitudes towards homosexual women, allowing friendships with homosexual women to more accurately account for some of the left over variance. When attitudes towards homosexual women are taken on their own (as in Study 2d), friendships with homosexual women seems to have this effect on attitudes towards homosexual women through increasing respondents’ diversity beliefs.

Another interesting finding was what seems like a suppression effect between friendships with homosexual women and attitudes towards homosexual men. The simple

bivariate correlation between friendships with homosexual women and attitudes towards homosexual men was negative, but non-significant ($r = -0.6, p > .05$). The fact that I found a negative association between friendships with homosexual women and attitudes towards homosexual men in the path analysis would point towards a suppression effect. However, when attitudes towards homosexual women were removed from the path analytic model, the negative relationship between friendship with homosexual women and attitudes towards homosexual men remained. While I acknowledge that any of the other variables could have acted as the variable causing the suppression effect, based on the differences in correlations for male and female respondents discussed in the previous paragraph, I decided to look at the simple bivariate correlations between friendships with homosexual women and attitudes towards homosexual men for male and female participants.

Indeed, splitting the sample by gender indicated that the correlation between friendships with homosexual women and attitudes towards homosexual men was non-significant for male participants ($r = .21, p > .05$), but was significant and negative for female participants ($r = -.26, p < .01$).¹² Re-running the path model including gender as a moderator of the relationship between friendship with homosexual women and attitudes towards homosexual men yielded a significant interaction term ($b = -2.34, SE = 0.84, p < .01$). Simple slopes confirmed the pattern of relationships expressed in the correlations; the association between friendships with homosexual women and attitudes towards homosexual men was significantly negative for female participants ($b = -2.76, SE = 0.78, p < .001$) but was non-significant for male respondents ($b = -0.42, SE = 1.09, p > .05$).

¹² While many of the other correlations reported in this thesis that are around the $|r| = .2$ mark are significant, the smaller sample of male participants ($N = 55$) in Study 2 might not provide enough power for this correlation to reach significance.

Discussion

Study 2 advances our understanding of the STE in a number of ways. First of all, the study provided evidence for the role of diversity beliefs in mediating both primary and secondary transfer effects. Furthermore, in addition to finding direct effects of diversity beliefs on attitudes towards the target outgroups, diversity beliefs also affected attitudes towards the target outgroups through its positive association with attitudes towards the focal outgroup. Thus, this study provides the first evidence that the deprovincialization and attitude generalization processes are, in fact, interrelated and not independent mechanism running parallel to each other.

Also notable in the findings is the strength of generalization effects between the different groups. For example, an eyeball analysis of the data would indicate that attitudes generalized more strongly between Asians, homosexual men, and homosexual women, than they did between these three outgroups and the homeless. Indeed, comparing the strength of the generalization effects using the formula provided in Chapter 2 shows that the regression weight specifying the relationship between attitudes towards Asians, homosexual men, and homosexual women as focal outgroups and attitudes towards the homeless as a target outgroup was significantly weaker (all $2.01 \leq z_s \leq 5.68$, all $ps < .05$) than the regression weights specifying the attitude generalization paths between Asians, homosexual men, and homosexual women (as focal and target outgroups). While no *a priori* prediction was specified predicting any differences in the regression weights, I would like to offer a possible post-hoc explanation by way of Fiske et al.'s (2002) Stereotype Content Model.

As discussed in the introduction, Fiske et al. found that the homeless were consistently rated as being low on both warmth and competence. Fiske and colleagues show that groups scoring low on both these dimensions often suffer pure derogation as they are

seen to leach from but not contribute to society. Contempt is often reserved for groups in this low-low category. Homosexual men (mid-warmth, mid-competence), homosexual women and Asians (both mid to low warmth, high competence), while occupying different quadrants, have more in common with each other in terms of their warmth and competence scores than either of these groups do with homosexuals. This could help explain why attitudes tended to generalize more easily between homosexual women, gay men, and Asians than they did towards the homeless. This study is not the first to use the Stereotype Content Model to help explain attitude generalizability gradients (Christ et al., 2010). Further research with explicit *a priori* predictions would be needed to confirm the role that the stereotype content model plays in helping explain attitude generalizability gradients.

This study also provided the first evidence for a similarity gradient as indicated by the individual. Participants who felt that homosexual women and Asians are treated similarly to each other showed stronger attitude generalization effects than those who felt they were treated less similarly. It is not surprising that no similarity gradient was found between attitudes towards Asians and the homeless, especially since 94% of the sample disagreed to strongly disagreed when asked if they thought Asians and the homeless were treated similarly to each other; only 1 participant (0.6% of the sample) indicated that they agreed somewhat to there being any similarity between Asians and the homeless. The lack of a similarity gradient for homosexual men could be a result of the already favourable attitudes held towards them. In fact, respondents reported attitudes towards gay men that were significantly more favourable than attitudes towards homosexual women, Asians, and the homeless. What is encouraging, however, is that even though participants held the most favourable attitudes towards gay men, attitudes towards the other target outgroups still generalized towards more favourable attitudes towards them.

Summary

Taken together, the findings from both studies provide impressive support for the STE and its associated mediators. Study 1 found evidence for a mediated STE by attitude generalization. Schmid, Hewstone, Küpper et al. (2012) uncovered evidence for the attitude generalization process of the STE while controlling for social dominance orientation. However, Schmid and colleagues used a two item measure of social dominance orientation and did not control for contact with the secondary outgroup. Therefore, Study 1 builds on Schmid et al.'s study in that it uncovered evidence for the attitude generalization hypothesis while controlling for social dominance orientation, which used the full 16-item scale, and intergroup contact with the target outgroup. Furthermore, the five-item variable assessing participants' prior contact with the target outgroup is the most detailed control for contact with the target outgroup to date.

Study 2 extended on Study 1 by including stricter controls for contact with the target outgroup (i.e., cross-group friendships). Furthermore, Study 2 is the first study to test the reformulated deprovincialization hypothesis, and did so in the same model testing the attitude generalization hypothesis. The study, by and large, uncovered positive support for diversity beliefs as a mediator of the STE. Furthermore, Study 2 uncovered encouraging results for considering the deprovincialization and attitude generalization hypothesis as interrelated mechanism, both exerting their own influence on attitudes towards the target outgroups, but also working in combination in spreading the positive effects of intergroup contact. Furthermore, Study 2 is the first study to investigate contact with and attitudes towards multiple, diverse outgroups. To this end, there was evidence for a differential attitude generalization effect. These effects were explained in terms of Fiske et al.'s (2002) stereotype content model.

CHAPTER FOUR: THE SECONDARY TRANSFER EFFECT IN NORTHERN IRELAND

Introduction

Northern Ireland has a long history of intergroup conflict—a history that can be traced back to the first 10 years of the 17th century (Perceval-Maxwell, 1973). In its simplest form, the conflict in Northern Ireland revolves around the constitutional claim to Northern Ireland. Those who are in favour of keeping Northern Ireland under British rule are predominantly Protestant and are synonymously referred to as *Unionists* or *Loyalists*. Catholics, on the other hand, are more closely associated with the constitutional desire to reunite Northern Ireland with the rest of Ireland and are also referred to as *Nationalists* and *Republicans*. In the 1960s, fuelled by political, religious, economic, and historical factors, the struggle over Northern Ireland's governance began a period of 25 years of intense violence—colloquially known as *The Troubles*—which ended in 1998 with the Good Friday Agreement (Cairns & Darby, 1998; Knox & Hughes, 1996). While a permanent ceasefire agreement was reached more than a decade ago, Protestant-Catholic segregation still characterises many Northern Irish communities (Cairns & Hewstone, 2002; Hewstone et al., 2005). While Northern Ireland tries to come to terms with its politically and socially turbulent past, it must do so with the added strain of a diversifying community. After the Good Friday Agreement, Northern Ireland experienced an influx of immigrants (Russell, 2012) which, including other established groups such as Irish Travellers (see Redmond, 2008) and a growing homosexual and bisexual community (see Jarman, 2010), has transformed Northern Ireland in a relatively short period of time from a relatively homogenous society to a culturally diverse one (Russell, 2012).

Before reviewing Northern Ireland's history, it is important to note that while the religious categories, Protestant and Catholic, are often used to refer to the two competing social groups, Northern Ireland's conflict revolves around the constitutional claim to the island. Therefore, the conflict more closely represents a political rather than a religious battle. Given the predominance of Catholics in Ireland of old and the mass immigration of Protestants in the 17th century (Perceval-Maxwell, 1973), the fight between keeping Northern Ireland under British rule versus the move towards reuniting Northern Ireland with the Republic of Ireland has fallen along religious lines, thus conflating national and religious identities (see Muldoon, Trew, Todd, Rougier, & McLaughlin, 2007). The pervasiveness of these two social categories in Northern Irish society is aptly summed up by Cairns (1982) who stated, "[w]hat is remarkable, therefore, in Northern Ireland is that failure to acknowledge membership of one of the two major groups is actually very rare." (p. 283). Indeed, Cairns and Mercer (1978) found that of 991 fifth and sixth grade respondents (*Mean age* = 16.6 years), when asked to choose possible identities to describe themselves from a list of bipolar adjectives, only 3% of respondents did not identify themselves as Catholic or Protestant.

While fully recognising and acknowledging that part of the unrest in Northern Ireland relates to concerns over its governance, given the degree to which national and religious identity are entwined (Muldoon et al., 2007), the respondents reported in both analyses below will be referred to by their religious affiliation. In recognition of the role that nationality plays in the Northern Irish context, Catholics and Protestants will also be referred to as *ethno-religious* groups—a term that has been used in research dealing with intergroup relations in Northern Ireland (see Christ et al., 2010; Tausch et al., 2010). Having said this, I recognise that identities are fluid and can vary in different settings and over time (see Cairns, 1982).

This chapter presents two cross-sectional investigations into the secondary transfer effect in Northern Ireland. Study 3 investigated the secondary transfer effect amongst 132 university students attending the University of Ulster, Coleraine campus. The study explored contact with, and attitudes towards the ethno-religious outgroup, racial minorities, homosexual men, and Irish Travellers (which will be, from here on, referred to simply as *Travellers*). Study 4 investigated the effect using a large survey conducted amongst 4,472 Year 8 students attending various secondary schools across Northern Ireland. This study measured contact with, and attitudes towards, the ethno-religious outgroups, racial minorities, Travellers, and the disabled. Accordingly, the chapter to follow can be broken up into 6 sections: (1) The history of the Northern Irish conflict; (2) The history and current status of the Irish Traveller, homosexuals, and racial minorities in Northern Ireland; (3) Study 3; (4) The schooling system in Northern Ireland; (5) Study 4; (6) Discussion and conclusion.

The History of the Northern Irish Conflict

Northern Ireland: From the Ulster Plantations to the 1960s

Northern Ireland's tumultuous history finds its roots in the 17th century Ulster Plantations. The Ulster Plantations refer to a time in Ireland's history when a sizeable number of foreigners, mainly made up of Presbyterian Scots, were introduced into Ulster—the Northern province of Ireland consisting of 9 counties (Cairns & Darby, 1998). The plantations in Ireland were aided by the Protestant William of Orange's seizure of the throne in 1690 from the Catholic King James II (BBC History, 2007a). Following the ascension of William of Orange, various 'Penal Laws' were introduced which, amongst other restrictions, limited Catholic land ownership and access to education (BBC History, 2007a). By the 18th century, after confiscating 95% of the land, a Protestant majority group had settled in the

Chapter Four: The Secondary Transfer Effect In Northern Ireland

North of Ireland (Cairns & Darby, 1998). Hence, the Ulster Plantations sowed the seeds for Northern Ireland's history of Protestant oppression and Catholic rebellion.

In 1800, the Union with Ireland Act brought the Kingdom of Ireland into the United Kingdom of Great Britain; the act took effect on January 1st, 1801 (Hennessey, 2001). Already from this point, Northern Ireland was a multi-national state with Nationalists identifying themselves only as being Irish, while Unionists held dual identity with Ireland and Britain (Hennessey, 2001). Between early 1800 and 1918, three attempts at developing a functional Home Run Bills—which sought to set up a devolved parliament in Ireland that would allow the Irish some self-government but who would ultimately answer to the British state (Hennessey, 2001)—were made, all of which failed (Hennessey, 2001). While Nationalists were prepared to accept the Home Run Bill, Unionists felt that it posed a threat to their “Britishness” and that it would eventually result in an Irish Republic (Hennessey, 2001). This threat manifested itself in the formation of Unionist paramilitary forces which, in 1911, sought to stop the Home Run Bill extending into the whole of Ireland (Hennessey, 2001). These radical developments in the Unionist camp were met by equally radical developments in the National camp. For example, in 1905, the abstentionist Nationalist party, Sinn Féin (Gaelic for “We Ourselves”), was founded. Sinn Féin shepherded in a new era of Catholic Nationalism, one that did not accept a devolved Irish government, but rather sought complete independence from the United Kingdom (BBC History, 2007a; Hennessey, 2001).

In 1918, a fourth Home Run Bill was introduced. While the Catholics were against a devolved Irish parliament in favour of complete governance, Protestants would accept the Bill on condition that 6 of the 9 Ulster counties remained under British rule (Hennessey, 2001). In 1920, the Government of Ireland Act partitioned Ireland into Northern and Southern Ireland, each with its own local government. In accordance with the Unionists’

Chapter Four: The Secondary Transfer Effect In Northern Ireland

wishes, the 6 Ulster counties of Antrim, Armagh, Down, Fermanagh, Londonderry, and Tyrone were kept as part of Northern Ireland. The 3 Ulster counties of Cavan, Donegal, and Monaghan, along with other 23 Irish counties, formed the Irish Free State. In 1949, in accordance with the Ireland Act, the Irish Free State was renamed The Republic of Ireland (Hennessey, 2001) and subsequently left the Commonwealth (Cottrell, 2005; Hennessey, 2001).

The Government of Ireland Act (1920) included an option whereby, upon consent from both devolved Irish governments as well as the council of Ireland—which was made up of representatives from both Irish parliaments—Northern Ireland could leave British rule and reunite with the Republic of Ireland (Hennessey, 2001). However, owing to the early penal laws and the various forms of longstanding oppression against the Catholics, there was a strong Protestant majority in Northern Ireland making the reunification of Northern Ireland with the Republic of Ireland unlikely.¹³ In light of rising attacks on the Protestant community (political and otherwise) by the IRA, new legislation was introduced in 1922—the Civil Authorities (Special Powers) Act—which allowed internment without trial. This act was to be enforced by an overwhelmingly Protestant police force, the Royal Ulster Constabulary (Cottrell, 2005; Hennessey, 2001).

Northern Ireland prospered well during World War II as its heavy industries were well suited to the War's demands, but by the 1960s, Northern Ireland's relative economic privilege was starting to wane (BBC History, 2007b). In 1963, newly elected Ulster Unionist party leader, Terence O'Neill, realising that something needed to be done about the country's social and political issues (BBC History, 2007b), met with the Republic of Ireland's Prime

¹³ Around the 1920s, approximately one third of Northern Ireland's population were Catholic (Cairns & Darby, 1998; Hennessey, 2001).

Minister, Sean Lemass, in a bid to improve the economy. The Protestant Unionists, however, saw these talks as threatening the Unionist agenda; the exchanges fuelled hope in the Catholic Nationalist ranks (BBC History, 2007b). The proverbial wheels that would lead to the era of protracted violence, known as The Troubles, had been set in motion. Between May and June 1966, the paramilitary group, the Ulster Volunteer Force, killed two Catholics and a Protestant prompting O'Neill to ban the paramilitary group (BBC History, 2007b). It was, however, too little, too late; the first victims of The Troubles had been claimed.

The Troubles (c.a. 1969– 1998)

In 1967, Nationalists started a civil rights movement in Northern Ireland, not, however, to challenge the partitioning of Northern and Southern Ireland, but rather to protest the inequalities that existed, especially in political systems and the allocation of council housing. The civil rights movement started out as peaceful marches, but did not remain peaceful for long as Unionists felt threatened by the movement. Consequently, the Royal Ulster Constabulary often used heavy-handed tactics when dealing with the protestors (BBC History, 2007b). The civil rights marches continued into 1969 and were increasingly met with confrontation. The continued violence that followed the marches resulted in British peacekeeping troops being called in (BBC History, 2007b). Owing to the escalating violence, the British government became involved and drew up a number of documents aimed at increasing the pace of social reform. However, as far as the Nationalists were concerned, it was too late for reform. While the IRA had stopped its campaign of violence 7 years earlier, many Nationalists felt that the recent violence they had suffered necessitated an armed response, and in 1969, the more militant Provisional Irish Republican Army (PIRA) was formed. With the aim of protecting Catholic Nationalists and advancing the goal of a united Ireland, PIRA embarked on a bombing campaign during the 1970s (see Patterson, 2010). The

formation of PIRA was met by a joining of forces of the Loyalist paramilitary groups, the Ulster Volunteer Force and the Ulster Defence Association (BBC History, 2007b). Given the paramilitary groups' violent means of achieving an ends, the Northern Irish government reintroduced internment without trial (BBC History, 2007b; Darby, 2001). In March of 1972, realising that the devolved government was not able to handle the situation, the British government abolished the Northern Irish government and took direct control over the country (Darby, 2001), so-called 'direct rule'. What was to follow next was the bloodiest year in the history of the Troubles.

To put the bloodshed into perspective, during the 25 years of violence, 3000 lives were claimed and 30 000 people injured (Cairns & Darby, 1998; Darby, 2001). Politically uninvolved civilians, especially young working class males, made up most of those injured or killed (Reilly, Muldoon, & Byrne, 2004). It is estimated that a quarter of the killings during the 25 years of violence happened between 1969 and 1972 (Cairns & Darby, 1998), with 1972 alone claiming 496 lives (BBC History, 2007b; Cottrell, 2005). The two events in 1972 that particularly stand out are Bloody Sunday and Bloody Friday. Bloody Sunday took place on January 30th, 1972. A peaceful civil rights march organised to protest against internment (Conway, 2003) turned violent when British troops opened fire on unarmed civilians. After just 30 minutes, 30 men and woman were injured, 14 fatally so (Cottrell, 2005). Nationalists claimed that the British troops, unprovoked by the marchers, opened fire; the official reports from Britain claim that the troops were fired at first (for an interesting article on the various ways in which the events of Bloody Sunday are remembered, see Conway, 2003). Roughly 5 months later, on 21 July, 1972, a series of 22 IRA bombs were detonated in Belfast. The bombings claimed 9 lives; the day is remembered as Bloody Friday (BBC History, 2007b).

Chapter Four: The Secondary Transfer Effect In Northern Ireland

The period between 1974 and 1994 saw several attempts at developing a power-sharing government (Darby, 2001), the most notable of which was the Sunningdale Agreement in 1974 (BBC History, 2007b). While Nationalists were against power sharing governments because they felt that Britain held no claim over Northern Ireland, and the Unionists felt that this was, once again, the start of reunification of the Northern and Southern Irish states, the more peaceful Nationalist political group—the Social Democratic and Labour Party headed by John Hume—garnered support (BBC History, 2007b). In 1985, the British government sought to incorporate both Nationalist and Unionist sentiment into Northern Irish government and drew up the Anglo-Irish agreement (Darby, 2001). This agreement stated that Northern Ireland would remain independent of the Republic of Ireland as long as this is what was voted for by the people of Northern Ireland (BBC History, 2007b). During the 1980s, new legislation was introduced and focus shifted to the development of civil society in order to redress the inequalities of the past, with the main emphasis being placed on employment and education (Darby, 2001). Talks between Sinn Féin leader (Gerry Adams: president from 1983 to 1992) and John Hume led to the development of a pan-Nationalist front which favoured a peaceful political model that would help move Nationalists towards a unified Ireland (Darby, 2001).

In the early 1990s, talks began between the IRA and the Northern Irish government to ascertain the conditions under which the IRA would consider a ceasefire (Darby, 2001). These talks resulted in the publication of the Downing Street Declaration which, amongst other things, publically stated that if the IRA agreed to a ceasefire, Sinn Féin could participate in talks regarding the future of Northern Ireland (Northern Ireland History, 1999). A ceasefire was declared by the IRA in August of 1994, and in October, by loyalist paramilitary organizations (Cairns & Darby, 1998). Subsequent to both ceasefires,

negotiations were set to commence (Cairns & Darby, 1998). However, in 1995, the IRA was requested to disarm before Sinn Féin could enter the talks (Darby, 2001). This request was met with suspicion by the IRA and in February 1996 the IRA detonated a bomb in London (Cairns & Darby, 1998; Darby, 2001). A second ceasefire was reached in 1997 (Cairns & Darby, 1998) and, because the IRA was not required to decommission arms, Sinn Féin was included in the political process (Darby, 2001).

The Good Friday Agreement to Present Day Northern Ireland

In 1998 a peace agreement was reached. The Belfast Agreement in 1998 was to establish a power-sharing Government represented by all the main Northern Irish political parties (MacGinty, Muldoon, & Ferguson, 2007). As with the previous incarnations of power-sharing governments in Northern Ireland—and indeed in line with the Government of Ireland Act of 1920—the Agreement recognised that the constitutional status of Northern Ireland rested on a majority vote (Belfast Agreement, 1998). The Agreement had a positive effect on Northern Irish morale: It saw a rise in both public optimism and the economy, and a fall in security restrictions (MacGinty et al., 2007). However, because the ceasefire was still in effect in the late 1990s but no disarmament had taken place, suspicion still plagued both Unionists and Nationalists.

While, on the whole, intergroup attitudes in Northern Ireland seem to be rather positive (see Equality Commission for Northern Ireland, 2012), there is still evidence of prejudice and intergroup violence (The PSNI's Statistical Report, 2012; BBC News, 2009a; BBC News, 2009b). Indeed, Devine and Robinson (2012) contend that there is still considerable prejudice between Catholics and Protestants, and that “often this prejudice is blind bigotry.” (p. 1). They also state that this contempt is not only reserved for members of the other ethno-religious group, but is also felt towards ethnic and immigrant minorities.

Therefore, while intergroup contact has played a pivotal role in fostering forgiveness (Hewstone, Cairns, Voci, Hamberger, & Niens, 2006; Hewstone, Cairns, Voci, McLernon, Niens, & Noor, 2004; Tam, Hewstone, Cairns, Tausch, Maio, & Kenworthy, 2007; Tam et al., 2008), trust (Hewstone et al., 2008; Tam, Hewstone, Kenworthy, & Cairns, 2009), and positive intergroup attitudes (Schmid, Tausch, Hewstone, Hughes, & Cairns, 2008; Tausch, Hewstone, Kenworthy, Cairns, & Christ, 2007; Tausch, Tam, Hewstone, Kenworthy, & Cairns, 2007) between the ethno-religious groups, there is still room for contact theory to assume a central role in efforts to maintain peace in such a culturally vibrant country (see, for example, Cairns & Hewstone, 2002; as well as Hewstone et al., 2005). Furthermore, with increasing evidence mounting for the secondary transfer effect (STE), intergroup contact may play an even more important role than originally envisaged in fostering sanguine intergroup attitudes in culturally diverse nations such as Northern Ireland.

While much research has focused on intergroup relations between the members of the two ethno-religious outgroups, little research has focused on the relationship between contact with and attitudes towards other social groups. Recognising Northern Ireland's burgeoning diversity, many of the large national social attitude surveys—including the Northern Ireland Life and Times survey and the Equality Awareness Survey, to name two—have, in the past 6 to 7 years, started asking about contact with and attitudes towards a wide range of social groups (Equality Commission for Northern Ireland, 2012; Jarman, 2009, 2010). Given the diversification of Northern Irish society, Study 3 and 4 investigated the STE between contact with the ethno-religious outgroup and attitudes towards some of the more prevalent social groups residing in the country. These include Travellers (Studies 3 and 4), homosexual men (Study 3), and racial minorities (Studies 3 and 4). Before continuing onto the analyses then, it is important to place these various groups in their historical context in Northern Ireland. The

next section provides a brief overview of the history and current state of social relations of Travellers, gay men, and racial minorities in Northern Ireland.

The History and Current Status of Travellers, Gay Men, and Racial Minorities in Northern Ireland

Travellers in Northern Ireland

Travellers — an indigenous group from the island of Ireland who lead a nomadic lifestyle, also often referred to as *gypsies* or *tinkers* — have suffered mistreatment and prejudice for centuries (see Donahue, McVeigh, & Ward, 2003). As of 2009, an estimated 40,129 Travellers are situated in the island of Ireland with about 3,905 of those residing in Northern Ireland (Abdalla, Quirke, Fitzpatrick, & Daly, 2010). While intergroup relations between the two ethno-religious groups have received the most attention, the Travellers are heralded as the most derogated group in the country (Connolly & Keenan, 2001; Redmond, 2008). McVeigh (1997) argues that the tension created by the differences between the various cultural practices of the nomadic and sedentary lifestyles serves as a major source of friction between the Travellers and the Northern Irish. Indeed, one interviewee in Connolly and Keenan's (2001) qualitative study (involving, amongst others, 46 White Northern Irish participants) noted, "To be quite honest I wouldn't want that on my doorstep and I'm bein' (*sic*) dead honest because they wouldn't conform to my way of life" (p.70).

This 'tension' that McVeigh (1997) identified is evident in early laws passed by the Irish government. For example, two acts passed during the 19th century, the Vagrancy Act (1824) and the Vagrancy (Ireland) Act (1847), were amongst the first pieces of legislation aimed at chastising people who did not adhere to a sedentary lifestyle (Redmond, 2008). About a decade later, in 1948, a Stormont committee—Stormont is another name for

Northern Ireland's parliament—met to discuss what was identified as the Irish Traveller problem (Drummond, 2007; Redmond, 2008). In the report that followed, Travellers were accused of 'spreading vermin and disease' (Ministry of Home Affairs, 1948, cited in Noonan, 1998 and Redmond, 2008). The meetings culminated in the writing up of the Gypsy Bill (Northern Ireland) of 1950 which sought to impose restrictions on the movement of the Travellers by allowing the Royal Ulster Constabulary to impose strict fines or even to imprison unauthorised campers. In essence, the Bill sought to criminalise the nomadic lifestyle (Noonan, 1998). The Bill, however, was withdrawn as Travellers could challenge prosecution if they could prove lack of provision (Redmond, 2008). In 1954, however, the Ministry of Home Affairs (Northern Ireland) announced that because of the relatively small numbers of Travellers in Northern Ireland, the need for major legislative action against, or the spending of public monies on them could not be justified (Drummond, 2007). Instead, civil law was used to evict Travellers from illegal camps; a practice that still abounds today (Drummond, 2007).

Between 1950 and 1980, the general notion predominated that the Travellers' nomadism was a life choice rather than a way of life (Redmond, 2008), thus leading to the further devaluation of Travellers as a people. In the early 1980s, the plight of the Irish Traveller eventually received attention with the formation of the Traveller Review Body (Drummond, 2007; Helleiner, 2003). The Traveller Review Body published a report in 1983 which preferred referring to native nomads as *Travellers* rather than itinerants, and, for the first time, their status as a nomadic group was recognised (Helleiner, 2003). Even with increased recognition by government that Travellers are a legitimate cultural group, attitudes towards them remain cold and even suspicious. Picking up on this inconsistency from their interviews, Connolly and Keenan (2001) note that, "...it can be seen that while these

[interviewees] tend to support Travellers' rights to a nomadic lifestyle, in reality their attitudes are much more negative.” (p. 70). They go on to recommend that, “specific attention needs to be given to addressing the general public's attitudes towards Travellers given the much more antagonistic and negative attitude towards them as a community in comparison with other minority ethnic groups” (p. 82).

In the latest Equality Awareness Survey (Equality Commission for Northern Ireland, 2012), gauging attitudes from 1,101 Northern Irish adults (Catholics = 41.9%, Protestants = 55.8%, Other/Refused = 2.3%), from a list of 12 social groups, Travellers were identified as the group for which the respondents held the most prejudice, a repetition of the results from the 2008 Equality Awareness survey (Equality Commission for Northern Ireland, 2009). Respondents also reported the highest levels of social distance towards Travellers, with 55% of the respondents saying they would mind having an Irish Traveller as an in-law, while 54% stated reservations for having an Irish Traveller as a neighbour, and 35% stating opposition about having a Traveller as a co-worker (Equality Commission for Northern Ireland, 2012). These attitudes are not only reflected in earlier versions of the Equality Awareness Survey (e.g., the results for 2005 and 2008), but are also found in other large, national social attitudes surveys. For example, in the latest round of the Northern Ireland Life and Times Survey (in 2010), in comparison to people from other ethnic minorities, East Europeans, and Muslims, respondents were least likely to accept an Irish Traveller as a colleague (74%), neighbour (47%), friend (52%) or an in-law (53%; ARK, 2011). These findings remain largely unchanged from the 2008 round of the Northern Ireland Life and Times survey (ARK, 2009). Indeed, the Economic and Social Research Institute decisively sum up the plight of the Irish Traveller as, “a uniquely disadvantaged group: impoverished, under-educated, often despised and ostracised, they live on the margins of Irish society” (ESRI, July 1986, Paper no. 131,

cited in Leavy, 2005). Given the history of unsavoury attitudes towards the Travelling community, interventions focused at improving public attitudes towards them are of paramount importance. The STE represents one manner by which this can be achieved.

Racial and Ethnic Minority Immigrants in Northern Ireland

During the Troubles, little attention was given to ethnic minority race relations. In fact, it was only in 1997 that Northern Ireland's first legal document—The Race Relations (Northern Ireland) Order 1997—was introduced banning discrimination along racial lines (Gergely, 2009). Furthermore, the development of this piece of legislation was not an organic process, but was brought about by the actions of ethnic minority lobbyists (Hainsworth, 1998). It should be noted, however, that Northern Ireland was a rather homogeneous society up until the 1990s. In fact, Northern Ireland experienced a net population loss between 1970 and 1980—a time that coincides with the heart of The Troubles. While from about 1990 till 2004 the rate of immigration roughly matched that of emigration, it was the period between 2004 and 2007 that saw a stark increase in immigration rates in Northern Ireland (Russell, 2012). Since 2008, coinciding with the global economic recession, immigration and emigration rates in Northern Ireland have been approaching equilibrium (Russell, 2012).

While it was thought that the migrants would have a negative effect on the economy, the Northern Irish economy benefited. For example, between 2000 and 2010, an estimated 122, 000 long-term migrant workers entered Northern Ireland (Russell, 2012), which, by 2008, was accompanied with 60 000 new jobs generating £1.7 billion gross value added (Department of Employment and Learning, 2009). Indeed, the health system also benefitted from the arrival of many skilled nurses and doctors, usually from South Asia or the Philippines (Russell, 2012). If one looks at public attitudes towards Black people (including Africans and Caribbeans) and Asians (Chinese and South Asians)—as indicated by large

national surveys—one finds that attitudes are generally favourable. For example, amongst individuals completing the latest round of the Equality Awareness Survey (Equality Commission for Northern Ireland, 2012), around two-thirds of the respondents indicated positive attitudes towards Black and minority ethnic groups, while 13% indicated negative attitudes and the rest (22%) indicated neutral attitudes.

Results from the 2010 Northern Ireland Life and Times survey (ARK, 2011) at first seem to lend support to the findings from the Equality Awareness Survey, as only 6% of the respondents identified Black Africans and Caribbeans as experiencing the most amount of prejudice, and less than 5% of the respondents thought Asians (including Chinese and South Asians) were the targets of most prejudice (ARK, 2011). However, 92% of the respondents believed that there was a little to a lot of prejudice against minority ethnic communities and 47% of the participants believed that the level of prejudice against minority ethnic communities was worse than it had been in the previous 5 years (ARK, 2011). Thirty-four per cent of participants thought that the level of prejudice had not changed in the past 5 years, while only a small minority (17.4%) thought that race relations had improved (ARK, 2011). It should be noted that most respondents felt that the Polish were the social group that experienced the most amount of prejudice (30%), followed by Romanians (17%), and Irish Travellers (17%; ARK, 2011).

While these statistics gauging public attitudes towards ethnic minorities are encouraging, the relatively positive attitudes towards migrants and the economic benefits that migrants have brought with them do not seem to extend into Northern Ireland's social sphere. A brief look at Northern Irish news reports shows that people from all minority ethnic groups are the target of racial hate crimes. Quite often, Northern Ireland's xenophobia has been attributed to immigrants taking jobs away from the ethno-religious groups (see, for example,

Gergely, 2009). Such is the problem in Northern Ireland, that it has been labelled the ‘race-hate capital of Europe’ (Chrisafis, 2004; Haughey, 2012; McVeigh & Dúchán, 2006), and some argue that xenophobia has overtaken sectarian hatred (Wallis Simons, 2012). Indeed, police statistics seem to substantiate these claims. While hate crimes motivated by sectarianism have been on the decline, the number of racist crimes and incidents has been on the rise (Police Service Northern Ireland, 2012).

Homosexuals in Northern Ireland

While the Sex Discrimination Order (Northern Ireland)—which makes it unlawful to discriminate against an individual based on their sex—entered into law in 1976, it was another 6 years before homosexuality per se was decriminalized. This was achieved with the introduction of the Homosexual Offences (Northern Ireland) Order 1982. It has only been during the past 10 years, however, that the lesbian, gay, and bisexual community has, with the aid of public events like the Belfast Pride festival, become a more visible group in Northern Ireland (Jarman, 2010). In 2004, with the introduction of the Civil Partnership Act, gay couples were afforded the right to enter into a civil partnership. While this represented a step towards equal rights between homo- and heterosexuals, there is still some way to go before this is achieved. For instance, while homosexual couples can enter into a civil partnership, they are not allowed to marry; the most recent attempt to give homosexuals the right to enter into a marriage was rejected in Northern Ireland’s parliament on October 1st, 2012 (BBC News, 2012). Being denied the right to enter into a marriage means that homosexual couples cannot take advantage of the full legal rights, responsibilities, and protection that are associated with a conventional marriage. Such is the state of affairs in Northern Ireland that homosexuals are not allowed a religious civil service.

Public attitudes towards homosexual rights run parallel to political sentiment. For example, amongst the 1,215 participants ($N = 432$ Catholics; $N = 594$ Protestant; $N = 161$ No religion; $N = 28$ Other) who completed the Northern Ireland Life and Times survey in 2008, 40% felt that homosexuals should not have the right to marry; 39% of respondents indicated disapproval for laws treating same-sex partnerships similarly to marriage; and only a small minority (17%) felt that gay people should be allowed to adopt (Jarman, 2010). Yet homosexuals are consistently considered one of the most unfairly treated groups in terms of equality laws when compared to other social groups in Northern Ireland, including Travellers and ethnic minorities (ARK, 2011; Jarman, 2010). Surprisingly, in light of the ambivalence surrounding homosexual rights, attitudes towards homosexuals are rather favourable in Northern Ireland. Between the 2000 and 2004 rounds of the Northern Ireland Life and Times survey, the percentage of people agreeing that homosexuals should *not* be discriminated against rose from 53% to 68% (Jarman, 2010). Similarly, in the latest round of the Equality Awareness Survey (Equality Commission for Northern Ireland, 2012), the number of people holding negative attitudes towards homosexuals dropped from 21% in 2008 to 15% in 2011. The number of respondents reporting neutral attitudes increased from 22% in 2008 to 28% in 2011 while 57% of the respondents reported having favourable attitudes towards homosexuals in 2008 and 2011. While these figures are somewhat encouraging, social distance scores from the Equality Awareness survey indicate that the Northern Irish are increasingly distancing themselves from homosexuals. For example, in 2005, 29% of respondents said that they would mind having a homosexual person in a close relationship with a relative. In 2011, this number had increased to 42% (Equality Commission for Northern Ireland, 2012). Similarly, an increasing wish for segregation is indicated by the 13% increase in respondents expressing discomfort in having a gay person as a neighbour from 14% in 2005 to 27% in 2011. Lastly, there was an 8% increase from 14% in 2005 to 22% in

2011 in the number of respondents indicating discomfort at having a gay colleague (Equality Commission for Northern Ireland, 2012).

Similarly, police statistics on attacks directed at homosexuals are also cause for concern. Between April of 2011 and the end of March the following year, a total of 2285 hate crimes and incidents were recorded in Northern Ireland (Police Service Northern Ireland, 2012). Of these crimes and incidents, 200 were reported as being motivated by homophobia of which only 16.9% were resolved (Police Service Northern Ireland, 2012). While only constituting 9% of the total hate crimes committed in Northern Ireland, if one sums the number of hate crimes and incidents motivated by homophobia between the years 2000 and 2002, one arrives at 120 (Jarman & Tennant, 2003); in other words, eighty fewer than the total for the year 2011/2012. It should be taken into consideration that these statistics may under represent the true number of crimes committed against homosexuals. For example, Jarman and Tennant (2003) interviewed 186 homosexuals (67% males and 33% females) from Northern Ireland. They found that of the 82% of the respondents who admitted to having been harassed and of the 55% who had been assaulted because of their orientation, less than half (42%) of the respondents had reported the incident to the police. More men reported having been harassed (85%) or assaulted (61%) than did women (76% and 42% respectively). Indeed, research shows that amongst male heterosexuals, gay men are generally liked less than gay women (Herek, 1988, 2000, 2002; Kite & Whitley, 1996; LaMar & Kite, 1998; Louderback & Whitley, 1997). Many of the respondents in Jarman and Tennant's (2003) sample reported adopting strategies aimed at concealing their sexual orientation in order to avoid contempt. Some of these strategies include not holding hands with their partner in public and avoiding appearing overtly homosexual.

What is interesting to note is that in Pettigrew and Tropp's (2006) meta-analysis, intergroup contact had the largest effect on attitudes when the outgroup involved were homosexuals. Yet there have been no studies to my knowledge that investigate the effect of contact with and attitudes towards homosexuals in Northern Ireland. While, understandably, this may be a result of the focus on creating positive intergroup relations between the ethno-religious groups, the increasing social distance scores and the worrying crime statistics would indicate that social relations involving homosexuals in Northern Ireland warrant attention. Study 3 below, therefore, aims to investigate the effect of contact with the ethno-religious outgroup on attitudes towards homosexuals in Northern Ireland while controlling for previous contact with homosexuals. Lastly, because statistics from Northern Irish and international studies indicate that homosexual men are held in contempt more so than lesbians, Study 3 below specifically asked about contact with, and attitudes towards homosexual men.

Intergroup Contact with Travellers, Racial Minorities, and Homosexuals in Northern Ireland

Owing to the historical, political and social significance of the ethno-religious conflict and the need to find peaceful means by which both Catholics and Protestants can coexist, most cross-group research conducted in Northern Ireland has focused on intergroup relations between the two ethno-religious groups. With increasing numbers of individuals from diverse social groups appearing in Northern Ireland's communities, and given the state of social relations between the various groups as expounded in the previous section, the need for a broader focus on intergroup relations in Northern Ireland is evident. However, with the exception of the two studies performed by Tausch and colleagues (2010; Study 2 and 4) that focused on contact with the ethno-religious outgroup and attitudes towards racial minorities, no other study conducted in Northern Ireland has, to my knowledge, looked at contact with

and attitudes towards other social groups. The Northern Ireland Life and Times surveys do, however, provide some idea as to how much contact the Northern Irish are having with members of the various social groups. Before continuing, it is important to note that while contact with racial minorities and Travellers was measured in the latest round of the Northern Ireland Life and Times Survey (2010), participants' contact with lesbians, gays, and bisexuals was ascertained only during the 2005 version of the Northern Ireland Life and Times survey (Jarman, 2010).

The results from the NILT surveys would indicate that the participants' attitudes towards the various social groups are based on relatively little intergroup contact. For instance, in the work place, only 18% of the respondents completing the 2010 round of the NILT survey reported having African and Asian colleagues while only 6% reported having a Traveller as a co-worker (ARK, 2011). Furthermore, only 7% of the respondents completing the 2005 round of the NILT survey reported having gay work colleagues. An even more segregated pattern of results is present in the neighbourhoods. Less than 5% of respondents reported having contact with a Black or Asian person in the neighbourhood and only 1% reported having an Irish Traveller as a neighbour (ARK, 2011). There was no data available from the NILT surveys for contact with homosexuals in the neighbourhood.

The low levels of intergroup contact with Travellers and ethnic minorities in the neighbourhood could lead one to believe that the segregation that characterises most of Northern Ireland's sectarian neighbourhoods (Hewstone, Cairns, Voci, Paolini, McLernon, Crisp, Niens, & Craig, 2005; Lloyd, Shuttleworth, & McNair, 2004; Niens, Cairns, & Hewstone, 2003) is somewhat representative of the state of affairs with other social groups as well. The benefits of living in a mixed versus segregated neighbourhood have been demonstrated in a study conducted by Schmid, Tausch, Hewstone, Hughes, and Cairns

(2008). Using two neighbourhoods in Belfast—one ethno-religiously segregated ($N = 396$) and the other, mixed ($N = 562$)—Schmid and colleagues showed that while people in the mixed neighbourhood reported higher levels of exposure to sectarian violence than did those in the segregated neighbourhood, they also reported having had more favourable intergroup contact than those in the homogenous neighbourhood. Furthermore, living in a mixed neighbourhood was associated with less ingroup bias and fewer offensive action tendencies towards the ethno-religious outgroup, a relationship that was partially mediated by more intergroup contact. Another benefit of living in desegregated communities includes the development of a more inclusive Northern Irish identity rather than choosing to identify oneself along one of the more restrictive “Catholic” or “Protestant” identities (Schmid, Hewstone, Tausch, Jenkins, Hughes, & Cairns, 2010). Adopting a more inclusive (dual) identity represents one process by which developing a less provincialized outlook on social relations can be achieved (see Lolliot et al., 2012).

Given that Northern Ireland is still a largely segregated society (Niens et al., 2003) with little sign of increasing (de)segregation (Shuttleworth, Barr, & Gould, 2013), one could argue that little opportunity exists for more intimate forms of contact to occur between the various social groups. While no research has, to my knowledge, been conducted on segregation involving racial minorities, Travellers, or homosexuals in Northern Ireland, the pattern of results from the Northern Ireland Life and Times survey (ARK, 2011) would suggest that there is little chance for the development of more intimate forms of contact—such as friendships—between the ethno-religious groups and other social groups. For example, only 20% of the participants completing the 2005 NILT survey reported having a gay friend (Jarman, 2009) while 15% and 12% of the participants who partook in the 2010 NILT survey reported having Black and Asian friends, respectively (ARK, 2011). Fewer still,

only 4% of the participants in the 2010 NILT survey reported having an Irish Traveller as a friend (ARK, 2011). Given the low levels of intergroup contact and the segregated nature of Northern Irish society, showing that the benefits of intergroup contact generalize beyond contact with the ethno-religious outgroup to other social groups in Northern Ireland would have important consequences for improving relations between all social groups in Northern Ireland's diversifying society.

Study 3

Hypotheses

Consistent with primary transfer effects, I expected that contact with the focal outgroup would be positively associated with more favourable attitudes towards the focal outgroup. Similarly, contact with the target outgroups would be positively associated with more favourable attitudes towards the target outgroups. With regards to the attitude generalization hypothesis, I expected attitudes towards the focal outgroup to be positively associated with attitudes towards the target outgroups. Furthermore, I predicted attitudes towards the focal outgroup would mediate the relationship between contact with the focal outgroup and attitudes towards the target outgroup.

Because Study 3 included measures of contact with and attitudes towards the ethno-religious outgroup, racial minorities, Travellers, and gay men, I was able to test for the existence of similarity gradients between the attitude generalization paths. Given that the ethno-religious outgroup, racial minorities, and Travellers, according to Goffman's (1963) typology, fall under the class of category stigma, attitudes should generalize most strongly between these outgroups. Because gay men, on the other hand, fall under a different class of stigmatized group (i.e., character stigma), attitudes should generalize more weakly between

attitudes towards the ethno-religious outgroup and attitudes towards gay men than the other attitude generalization paths.

Study 3, including measures of social dominance orientation and ingroup identification, provided opportunity to test whether social dominance orientation moderated the relationship between ingroup identification and outgroup attitudes. Therefore, I expect social dominance orientation to moderate the relationship between ingroup identification and outgroup attitudes such that the association will be significant and negative for individuals high in social dominance orientation. I do not expect any association between ingroup identification and attitudes towards the outgroups for individuals low in social dominance orientation. Further refining this hypothesis, I expect, according to Duckitt (2006) that social dominance orientation will only moderate the path between ingroup identification and outgroup attitudes for outgroups that pose a threat to the ingroups' relative dominance and superiority. Given that the conflict between Protestants and Catholics in Northern Ireland has revolved around the power struggle for governance over Northern Ireland, I expect social dominance orientation to moderate the path between ingroup identification and outgroup attitudes for the ethno-religious outgroup only.

Given this pattern of relationships, I would like to propose one moderated mediation hypothesis and three moderated three-path mediation hypotheses. With regards to the moderated mediation hypothesis, ingroup identification should mediate the relationship between contact with and attitudes towards the ethno-religious outgroup for individuals who score high on the social dominance orientation measure. For individuals scoring low in social dominance orientation, however, I do not expect ingroup identification to mediate the relationship between contact with and attitudes towards the ethno-religious outgroup.

Lastly, with regards to the moderated three-path mediation hypothesis, I expect the relationship between contact with the ethno-religious outgroup and attitudes towards the target outgroups to be sequentially mediated by ingroup identification and attitudes towards the ethno-religious outgroup only for respondents high in social dominance orientation.

I expect these patterns of relationships that make up the hypotheses for Study 3 to hold while controlling for social dominance orientation, participant age, gender, and religious community affiliation.

Participants

One hundred and sixty students studying at the University of Ulster completed the questionnaire. Twenty-eight participants were dropped from the analyses as they did not meet the full requirements for inclusion. Therefore, the final sample consisted of 132 participants (mean age = 21.83, $SD = 4.42$, age range 18 to 42). The sample consisted of 56 Catholic respondents (23 males and 33 females) and 76 Protestant respondents (23 males and 53 females).

Measures

Among other questions respondents were asked about their contact with and attitudes towards the ethno-religious outgroup, racial minorities (who were defined as Asian, Chinese, or Black people), homosexual men, and Travellers. Questions pertaining to ingroup identification, and social dominance orientation were also included.

Control variables. Participants were asked to answer a series of demographic questions including their age and gender, and their religious community background (Catholic, Protestant, Other).

Contact variables. Cross-group friendships with the ethno-religious outgroup were ascertained with the following three questions: “About how many of your friends in your hometown are from the other religious community” (1 = *None*, 5 = *All*); “How often do you visit them in your home?”; and “How often do they visit you in your home?” (1 = *Never*, 5 = *Very often*). These three items formed a reliable scale ($\alpha = .91$). Contact with racial minorities, homosexual men, and Travellers was measured using the same three items: “Overall, how frequently do you have contact with [outgroup]?” (1 = *Never*, 5 = *Very often*); “In general, do you find the contact pleasant or unpleasant?” (1 = *Unpleasant*, 5 = *Pleasant*); and “In general, do you find the contact positive or negative?” (1 = *Negative*, 5 = *Positive*). These three items showed acceptable to excellent scale reliability (Racial minorities: $\alpha = .81$; Homosexual men: $\alpha = .90$; Travellers: $\alpha = .73$).

Moderator variables. Social dominance orientation was measured on a seven-point Likert scale (0 = *Strongly disagree*, 6 = *Strongly agree*) using the full 16-item scale (Pratto, Sidanius, Stallworth, & Malle, 1994). The scale showed good reliability ($\alpha = .87$).

Attitude variables. Attitudes towards all outgroups were measured on feeling thermometers (Converse & Presser, 1986). Participants read, “Now, please indicate how you feel towards various groups in Northern Ireland. Please rate the members of the groups that appear below on a thermometer that runs from zero (0) to a hundred (100) degrees. The higher the number, the warmer or more favourable you feel towards that group. The lower the number, the colder or less favourable you feel. If you feel neither warm nor cold, rate them at 50. Please write down your rating in the space provided or simply tick the box that best represents your opinion.” Participants were then asked to rate how they felt towards [people of the other religious community / homosexual men / racial minorities / members of the travelling community].

Preliminary Analysis

A 2 (Ethno-religious group: Catholic versus Protestant) X 2 (Gender: Male versus Female) multivariate analysis of variance (MANOVA) was conducted to ascertain if there were any group differences between Protestants, Catholics, males and females. The results indicate that there was a main effect for group with regard to attitudes towards Travellers ($F(1, 128) = 5.08, p < .03, \text{partial } \eta^2 = .04$) and a slight main effect for ingroup identification ($F(1,128) = 3.74, p < .06, \text{partial } \eta^2 = .03$). Pairwise comparisons indicated that Catholics held significantly more favourable attitudes towards Travellers ($M = 49.29, SD = 22.14$) than did Protestant participants ($M = 43.55, SD = 22.61, p < .03$). Catholic participants also tended to report slightly higher ingroup identification ($M = 3.42, SD = 1.11$) than did Protestant participants ($M = 3.11, SD = 1.06, p < .06$).

Four main effects for gender were uncovered. Differences between males and females emerged for attitudes towards the ethno-religious outgroup ($F(1, 128) = 5.59, p = .02, \text{partial } \eta^2 = .04$), gay men ($F(1, 128) = 9.26, p < .01, \text{partial } \eta^2 = .07$), and Travellers ($F(1, 128) = 4.58, p < .05, \text{partial } \eta^2 = .04$), as well as ingroup identification ($F(1, 128) = 3.97, p < .05, \text{partial } \eta^2 = .03$). Females consistently held more favourable attitudes than males towards the ethno-religious outgroup ($M = 73.84, SD = 20.87$ vs. $M = 64.78, SD = 22.68, p = .02$), gay men ($M = 67.79, SD = 23.88$ vs. $M = 53.91, SD = 25.34, p < .01$), and Travellers ($M = 48.95, SD = 22.44, p < .04$ vs. $M = 40.44, SD = 20.80, p < .05$). Females also tended to identify with the ingroup ($M = 3.37, SD = 1.03$) more than did males ($M = 3.01, SD = 1.17, p < .05$).

The interaction between ethno-religious group and gender was significant for attitudes towards Travellers ($F(1, 128) = 4.31, p < .05, \text{partial } \eta^2 = .03$). Breaking down the interaction effect revealed no significant differences in attitudes towards Travellers between Protestant and Catholic female and Catholic male participants (Protestant female: $M = 48.68, SD =$

21.22; Catholic female: $M = 49.39$, $SD = 24.62$; Catholic male: $M = 49.13$, $SD = 18.57$; $p > .05$). Male Protestants, on the other hand, showed significantly more prejudiced attitudes towards Travellers ($M = 31.74$, $SD = 21.67$) than did the other three groups of respondents (all $ps < .01$).

I next explored possible within-subject mean differences in attitudes towards the various outgroups by way of a repeated measures ANOVA (see Figure 4.1 for the means and standard deviations). Mauchly's test of sphericity indicated that the assumption had been violated, $\chi^2(5) = 53.47$, $p < .001$, $\hat{\epsilon} = .81$.¹⁴ The Huynh-Feldt correction yielded a significant main effect ($F(2.467, 323.131) = 63.77$, $p < .001$, partial $\eta^2 = .33$).¹⁵ Based on results from the large national surveys reported earlier in this chapter, the only directional hypothesis that could be confidently generated was that attitudes towards Travellers would be the lowest while attitudes towards the ethno-religious groups would likely be the most favourable; attitudes towards racial minorities and gay men would be more favourable than attitudes towards Travellers but less favourable than attitudes towards the ethno-religious outgroup. However, because there would be no way to hypothesize if attitudes would be more (or less) favourable to racial minorities or gay men, the pair-wise comparisons were inspected for mean differences in attitudes towards the various outgroups.

The pair-wise comparisons indeed showed that attitudes towards the ethno-religious outgroup ($M = 70.68$, $SD = 21.87$) were more favourable than attitudes towards racial minorities ($M = 67.05$, $SD = 21.85$, $p = .01$), gay men ($M = 62.96$, $SD = 25.19$, $p < .001$) and

¹⁴ When the sphericity assumption is violated and the $\hat{\epsilon}$ statistic—which gives an indication of the deviation from sphericity with 1 indicating perfect sphericity—is greater than .75, Girden (1992) recommends inspecting the Huynh-Feldt over the Greenhouse-Geisser correction method. This is because, under these circumstances, the Greenhouse-Geisser method tends to be too conservative.

¹⁵ O'Brien and Kaiser (1985) recommend looking at the multivariate statistics as they are independent of the sphericity assumption. Pillai's Trace also indicated that there was indeed an overall significant multivariate effect ($V = .48$, $F(3, 129) = 40.16$, $p < .001$, partial $\eta^2 = .48$).

Travellers ($M = 45.99$, $SD = 22.51$, $p < .001$). As predicted, attitudes towards Travellers were the lowest of the four attitude scores (all $ps < .001$). Lastly, attitudes towards racial minorities were significantly more favourable than attitudes towards gay men ($p < .01$).

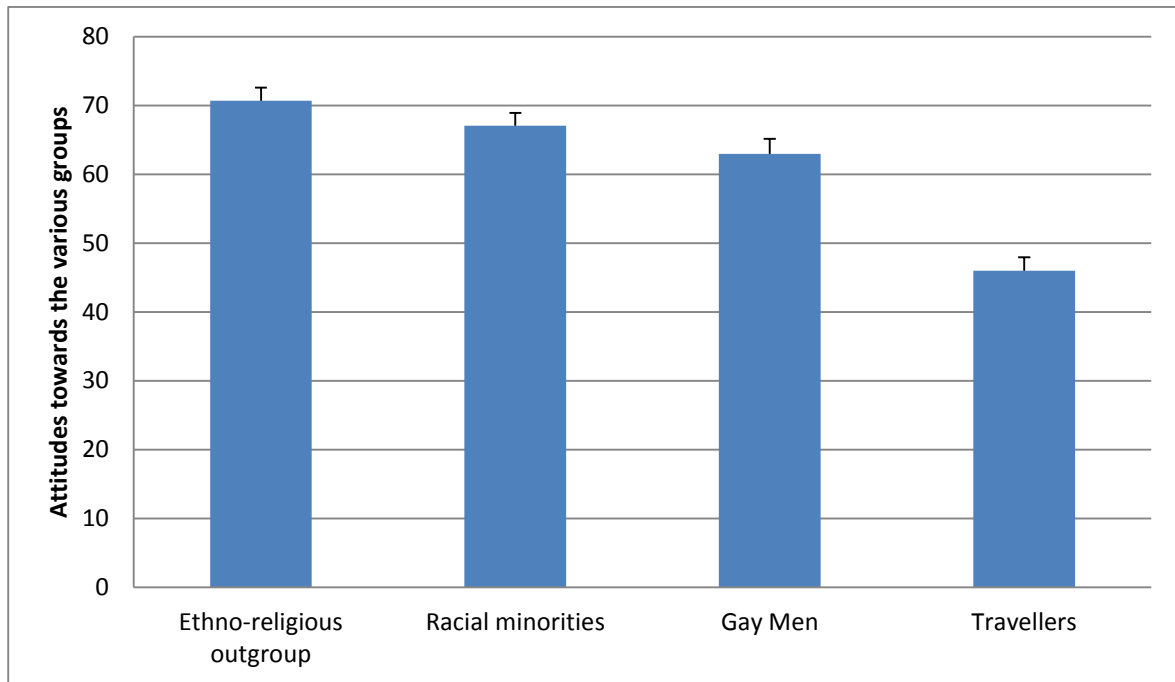


Figure 4.1. Mean attitude scores towards the difference outgroups (Study 3).

Study 3a: Ethno-religious Outgroup as the Focal Outgroup

The means, standard deviations, and inter-item correlations are presented in Table 4.1. Owing to the complexity of the hypothesised model and the small sample size ($N = 132$), rather than employing structural equation modelling with latent variables, path analysis using the maximum likelihood with robust standard errors estimator was chosen as the analytic strategy (see Boomsma & Hoogland, 2001). Therefore, composite scores were created out of the variables of interest and used to investigate the hypothesised structural relationships between the variables. The hypothesised model fit the data well, $\chi^2(9) = 14.657$, $p > .05$, $\chi^2/df = 1.63$, CFI = .98, RMSEA = .069 [.0, .13], SRMR = .030 (see Figure 4.1 for the path

analytic model). The model explained a substantial amount of variance in attitudes towards the other religious outgroup ($R^2= 22\%$), attitudes towards racial minorities ($R^2= 59\%$), attitudes towards homosexual men ($R^2= 56\%$), attitudes towards Travellers ($R^2= 33\%$), and ingroup identification ($R^2= 18\%$).

Table 4.1.
Means, Standard Deviations, and Correlations Among Key Variables (Study 3).

Variable	1	2	3	4	5	6	7	8	9	10
1. Cross-group friendships	-	.18*	.14	.17*	.25**	.18*	.15	.06	-.26**	-.12
2. Contact Racial Minorities		-	.50***	.15	.29***	.46***	.30***	.32***	-.16	-.42***
3. Contact Gay Men			-	.04	.19*	.32***	.54***	.29***	-.18*	-.35***
4. Contact Travellers				-	-.07	-.04	-.02	.30***	.13	.00
5. Attitudes Ethno-religious					-	.73***	.59***	.28***	-.20*	-.31***
6. Attitudes Racial minorities						-	.74***	.43***	-.15	-.38***
7. Attitudes Gay men							-	.42***	-.17*	-.35***
8. Attitudes Travellers								-	.13	-.38***
9. Ingroup Identification									-	.08
10. SDO										-
Means	2.33	3.38	3.33	1.86	70.68	67.05	62.96	45.99	3.24	2.49
(SD)	(1.10)	(0.98)	(1.11)	(0.83)	(21.87)	(21.85)	(25.19)	(22.51)	(1.09)	(0.83)

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. SD = standard deviation.

The following analyses controlled for participant's age ($M = 21.83$, $SD = 4.42$), gender, and the religious community they belonged to. Age was mean centred. Gender and religious community affiliation were recoded into contrast codes (Male / Catholic = -0.5; Female / Protestant = 0.5). Age was unrelated to any of the variables in the analyses. Similarly, while MANOVA reported above indicated that there were differences between ethno-religious groups with regards to attitudes towards Travellers and ingroup identification, when entered into the path analyses with the other covariates, there were no differences

between Protestants and Catholics for any of the dependent variables. Female respondents reported more favourable attitudes towards gay men ($b = 7.23, SE = 3.21, p = .02$), Travellers ($b = 7.65, SE = 3.40, p < .03$), the ethno-religious outgroup ($b = 11.07, SE = 3.68, p < .01$), and tended to identify more strongly with their religious ingroup ($b = 0.43, SE = 0.19, p < .03$) than did male respondents.

Social dominance orientation was negatively associated with attitudes towards the Traveller community ($b = -9.31, SE = 2.28, p < .001$) and attitudes towards the ethno-religious outgroup ($b = -8.01, SE = 2.01, p < .001$). Friendships with the ethno-religious outgroup were positively associated with attitudes towards the religious outgroup ($b = 3.47, SE = 1.62, p = .03$) and negatively associated with ingroup identification ($b = -0.25, SE = 0.08, p = .001$). Contact with gay men was associated with more favourable attitudes towards gay men ($b = 5.71, SE = 0.91, p < .001$) as were contact with racial minorities ($b = 4.17, SE = 0.99, p < .001$) and Travellers ($b = 5.71, SE = 1.50, p < .001$) associated with attitudes towards the respective outgroup. Contact with Travellers was associated with higher ingroup identification scores ($b = 0.17, SE = 0.07, p < .02$). Attitudes towards the ethno-religious outgroup were positively associated with attitudes towards homosexual men ($b = 0.54, SE = 0.09, p < .001$), racial minorities ($b = 0.61, SE = 0.07, p < .001$), and the Travelling community ($b = 0.20, SE = 0.09, p < .03$). Ingroup identification was only associated with attitudes towards the ethno-religious outgroup ($b = -3.53, SE = 1.68, p < .04$). Cross-group friendships with members of the other religious community was not directly associated with attitudes towards any of the other outgroups.

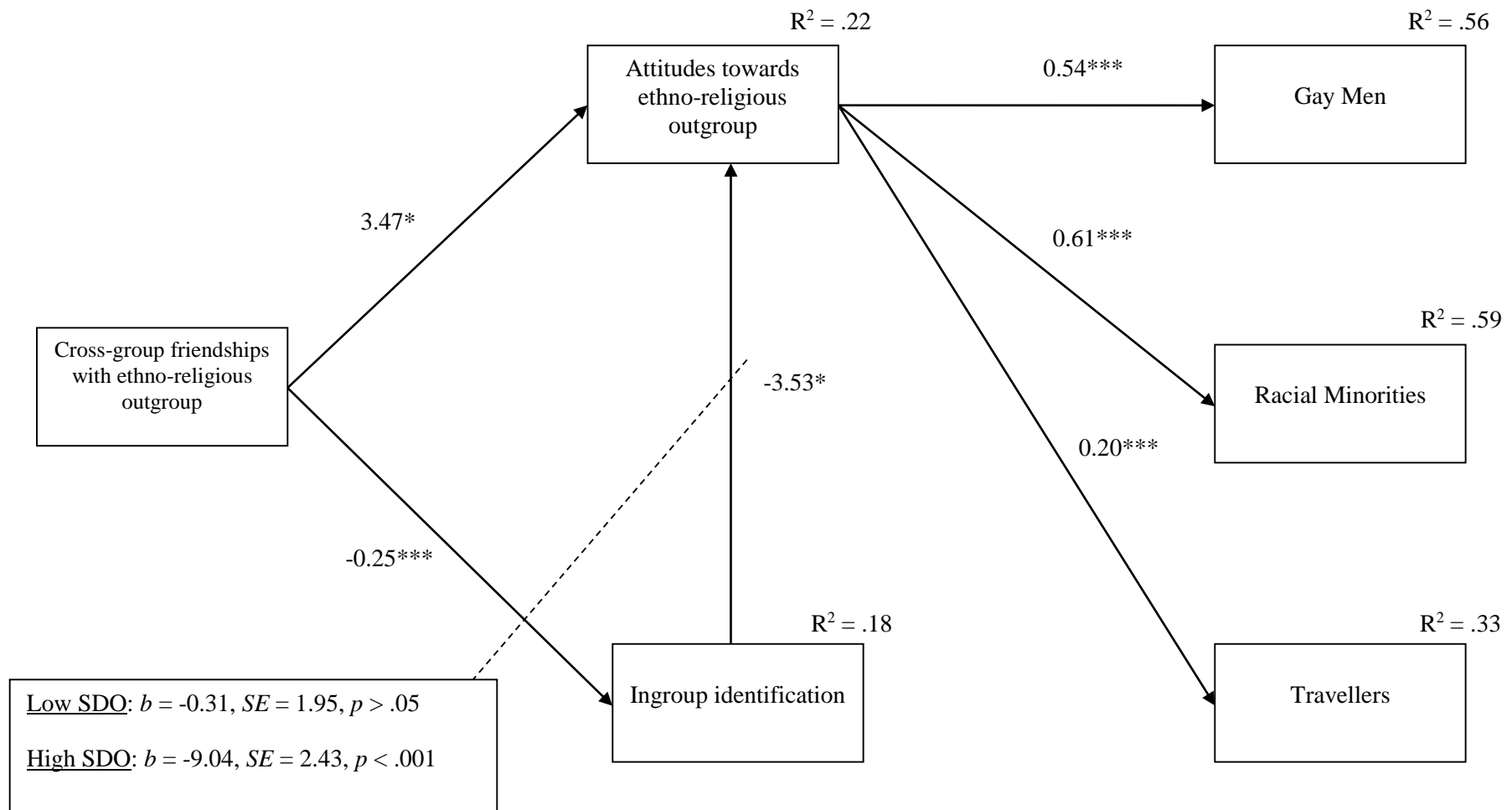


Figure 4.2. The path analysis denoting the hypothesised structural relationships between the variables (Study 3a). Unstandardized, significant regression coefficients reported. Model fit is $\chi^2(9) = 14.657, p > .05, \chi^2/df = 1.63, CFI = .98, RMSEA = .069 [0, .13], SRMR = .030$. Some significant relationships have been left out in order to improve legibility. * $p < .05$, ** $p < .01$, *** $p < .001$.

To test for the hypothesised similarity gradients according to Goffman's (1963) stigma typology, the same equation was used as illustrated in Chapter 3.¹⁶ While in line with the hypothesised similarity effects, the association between attitudes towards ethno-religious outgroup and attitudes towards racial minorities was larger than the relationship between attitudes towards the ethno-religious outgroup and attitudes towards gay men, when they were compared to each other the results showed that the two paths were of equivalent strength ($z = 0.66, p > .05$). Contrary to predictions, the path from attitudes towards the ethno-religious outgroup to attitudes towards Travellers was significantly weaker than the path between attitudes towards the ethno-religious outgroup and attitudes towards homosexual men ($z = 2.75, p < .01$) as well as the path between attitudes towards the ethno-religious outgroup and attitudes towards racial minorities ($z = 3.67, p < .001$). This finding will be discussed in more detail later on in the chapter.

Turning to the mediation effects, attitudes towards the ethno-religious outgroup mediated the relationship between cross-group friendships with the ethno-religious outgroup and attitudes towards homosexual men ($b = 1.88, SE = 0.90, p < .04$; bootstrap point estimate = 1.88, 95% CI [0.13, 3.82]) and racial minorities ($b = 2.13, SE = 0.97, p < .03$; bootstrap point estimate = 2.12, 95% CI [0.10, 4.06]). While the regression weight for the indirect effect between contact with the ethno-religious outgroup and attitudes towards Travellers as mediated by attitudes towards the ethno-religious outgroup did not reach statistical significance ($b = 0.70, SE = 0.45, p = .12$), the results from the bias corrected bootstrap analysis using 5,000 re-samples indicated that the mediation did reach statistical significance at the $p < .05$ level (point estimate = 0.70, 95% CI [0.03, 2.06]). There were no differences in the strength of the mediated effect depending on target outgroup (all $|z_s| < 1.60$, all $p_s > .05$).

¹⁶ $z = (b_1 - b_2) / (SEb_1^2 + SEb_2^2)^{1/2}$

Because ingroup identification was not related to attitudes towards racial minorities, gay men, or Travellers, it is unsurprising that ingroup identification did not mediate any of the paths between cross-group friendships with the ethno-religious outgroup and attitudes towards racial minorities ($b = -0.11$, $SE = 0.29$, $p > .05$; bootstrap point estimate = -0.11 , 95% CI [0.85, 0.48]), gay men ($b = 0.17$, $SD = 0.34$, $p > .05$; bootstrap point estimate = 0.17 , 95% CI [-0.49, 1.04]), or Travellers ($b = -0.53$, $SD = 0.47$, $p > .05$; bootstrap point estimate = -0.53 , 95% CI = [-1.89, 0.27]). Once again, while the indirect effects indicated that the mediation from cross-group friendships to attitudes towards the ethno-religious outgroup was not mediated by ingroup identification ($b = 0.88$, $SE = 0.51$, $p < .09$), the results from the bootstrap analysis indicated that ingroup identification did indeed mediate the relationship (bootstrap point estimate = 0.88 , 95% CI [0.09, 2.33]). As discussed in Chapter 2, bias corrected bootstrap point estimates are preferred of the product-of-coefficients approach, and so more weight is attached to this statistic.

Having explored the STE and mediation hypotheses, the next set of analyses sought to investigate the hypothesised moderation effects. For all the moderation hypotheses to follow, both the moderator and predictor variables were mean centred and a product term was created from these mean centred variables. Next, the centred predictor and moderator variables, as well as their interaction term, were entered into the regression equation. A significant interaction term would indicate a moderated effect. Decomposing the interaction effects was achieved by way of simple slopes analysis with the conditional values set to plus and minus 1 standard deviation of the moderator variable. I created two new variables in MPlus, the first denoting the relationship between the criterion and predictor variables at +1 standard deviation of the moderator variable and the second the same relationship at -1 standard deviation of the moderator variable. If we call the relationship between the predictor and

criterion variable β_1 ; the relationship between the predictor variable and the interaction term β_3 ; the variable for +1 standard deviation + S ; and the variable for -1 standard deviation $-S$, the equation for the relationship between the predictor and criterion variable at a higher level of the moderator variable would look as follows:

$$b_{high} = \beta_1 + \beta_3(+S)$$

$$b_{low} = \beta_1 + \beta_3(-S)$$

Running this code in MPlus generates the beta values, the associated standard errors and significance levels for the relationship between the predictor and criterion variable at high and low levels of the moderator. Once the moderation results have been dealt with, potential group differences between Catholic and Protestant respondents will be examined.

Moderations of the path between ingroup identification and attitudes towards the outgroups by social dominance orientation. To test the ingroup deprovincialization moderation hypothesis, attitudes towards the four outgroups were regressed onto the mean centred ingroup identification and social dominance orientation variables, as well as their product term. As hypothesised, the interaction term was only significantly related to attitudes towards the ethno-religious outgroup ($b = -5.39$, $SE = 1.81$, $p < .01$) indicating a moderated effect. Decomposing the moderation showed that, as was predicted, ingroup identification was significantly related to attitudes towards the ethno-religious outgroup at high ($b = -9.04$, $SE = 2.43$, $p < .001$) but not low ($b = -0.31$, $SE = 1.95$, $p > .05$) levels of social dominance orientation. As a result, ingroup identification mediated the path between cross-group friendships with and attitudes towards the ethno-religious outgroup and attitudes for individuals high ($b = 2.25$, $SE = 0.90$, $p < .02$; bootstrap point estimate = 2.05, 99% CI [0.18,

5.59]) but not low ($b = 0.08$, $SE = 0.49$, $p > .05$; bootstrap point estimate = 0.07, 95% CI [-0.82, 1.27]) in social dominance orientation.

I was able to explore the integrated deprovincialization and attitude generalization hypothesis further by testing a moderated three-path mediation model whereby, for individuals high in social dominance orientation, cross-group friendships with the ethno-religious would influence attitudes towards the target outgroups by a model sequentially mediated by ingroup identification and attitudes towards the ethno-religious outgroup (see Figure 4.3 below).

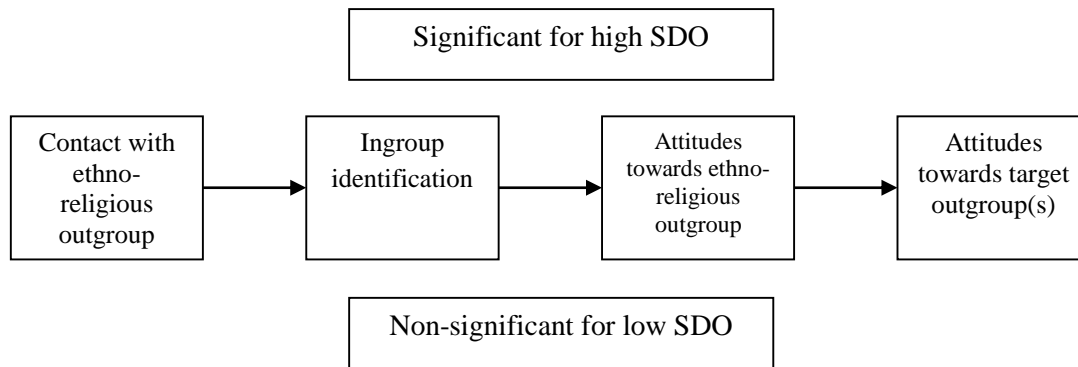


Figure 4.3. Illustration of the moderated three-path mediation deprovincialization hypothesis.

The analyses confirmed the hypothesis (see Figures 4.4 to 4.6). For individuals high in social dominance orientation, cross-group friendships influenced attitudes towards racial minorities ($b = 1.38$, $SE = 0.55$, $p < .02$; bootstrap point estimate = 1.38, 99% CI [0.23, 3.61]), homosexual men ($b = 1.22$, $SE = 0.51$, $p < .02$; bootstrap point estimate = 1.22, 99% CI [0.20, 3.44]) as well as Travellers ($b = 0.45$, $SE = 0.28$, $p = .10$; bootstrap point estimate = 0.45, 95% CI [0.07, 1.42]) via ingroup identification and attitudes towards the ethno-religious outgroup. For individuals low in social dominance orientation, however, none of the moderated three-path mediation models reached statistical significance (all $bs < 0.05$, all $ps > .05$; all bootstrap point estimates < 0.05 , all 95% CI include 0).

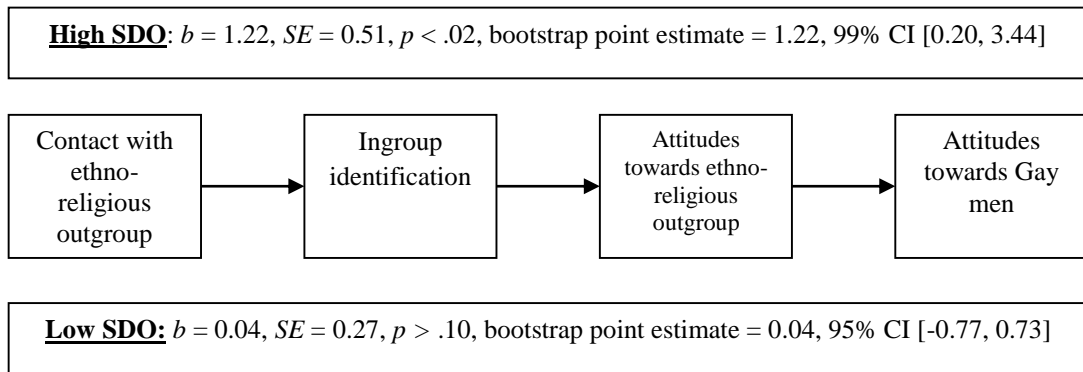


Figure 4.4. The moderated three-path mediation model for the integrated deprovincialization and attitude generalization hypothesis showing the effect of cross-group friendships with the ethno-religious outgroup on attitudes towards gay men (target outgroup) as sequentially mediated by ingroup identification and attitudes towards the ethno-religious outgroup, and moderated by social dominance orientation (SDO).

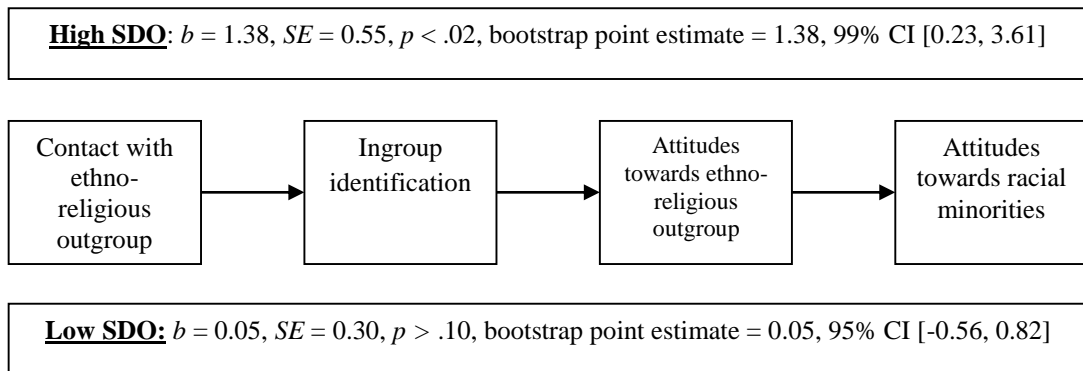


Figure 4.5 The moderated three-path mediation model for the integrated deprovincialization and attitude generalization hypothesis showing the effect of cross-group friendships with the ethno-religious outgroup on attitudes towards racial minorities (target outgroup) as sequentially mediated by ingroup identification and attitudes towards the ethno-religious outgroup, and moderated by social dominance orientation (SDO).

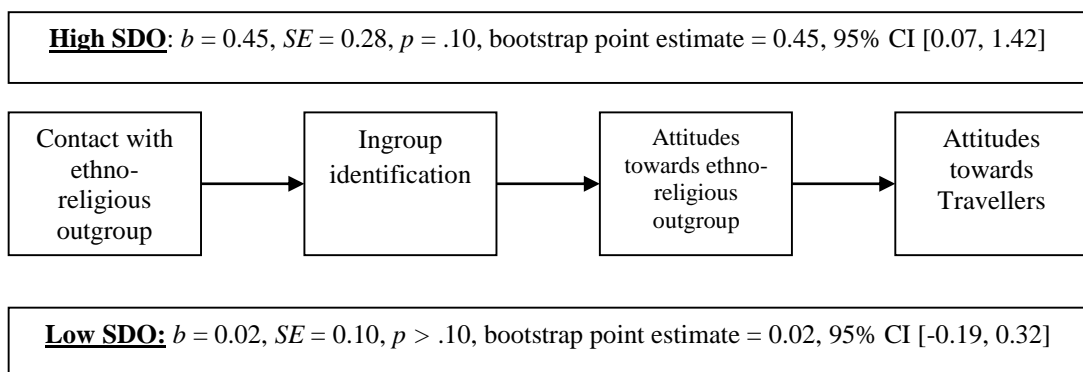


Figure 4.6. The moderated double mediation model for the integrated deprovincialization and attitude generalization hypothesis showing the effect of cross-group friendships with the ethno-religious outgroup on attitudes towards Travellers (target outgroup) as sequentially mediated by ingroup identification and attitudes towards the ethno-religious outgroup, and moderated by social dominance orientation (SDO).

Group comparisons. In testing for potential differences between Catholics and Protestants in the structural relationships, two interactions between participant group and model paths reached significance. First, participant group moderated the path between ingroup identification and attitude towards the ethno-religious outgroup ($b = -7.79, SE = 2.97, p < .01$) such that the relationship between ingroup identification and attitudes towards the ethno-religious outgroup was negative for Protestant respondents ($b = -7.03, SE = 1.90, p < .001$) but non-significant for Catholic respondents ($b = 0.77, SE = 2.42, p > .05$). As a result, ingroup identification mediated the path between contact with the ethno-religious outgroup and attitudes towards the ethno-religious outgroup for Protestant participants ($b = 1.75, SE = 0.67, p < .01$; bootstrap point estimate = 1.75, 99% CI = [0.31, 4.11]) but not for Catholic respondents ($b = -0.19, SE = 0.60, p > .05$; bootstrap point estimate = -0.19, 95% CI = [-1.56, 1.21]).

The second path to show evidence for group differences was between attitudes towards the ethno-religious outgroup and attitudes towards racial minorities ($b = 0.28, SE = 0.12, p = .02$). Decomposing the moderation effect revealed that the association between attitudes towards the ethno-religious outgroup and attitudes towards racial minorities was stronger for Protestant participants ($b = 0.75, SE = 0.08, p < .001$) than it was for Catholic respondents ($b = 0.47, SE = 0.10, p < .001$). Attitudes towards the ethno-religious outgroup mediated the path between cross-group friendships with the ethno-religious outgroup and attitudes towards racial minorities for both Protestants ($b = 2.63, SE = 1.17, p < .03$; bootstrap point estimate = 2.63, 95% CI = [0.07, 4.98]) and Catholic ($b = 1.65, SE = 0.79, p < .04$; bootstrap point estimate = 1.65, 95% CI = [0.21, 3.67]) respondents. The mediations, however, were comparative in strength ($z = 0.70, p > .05$).

Reverse Secondary Transfer Effect Models

Because I had measured contact with and attitudes towards more than two outgroups, I was able to test a series of reverse STE models. In other words, I was able to test a model that treated one of the target outgroups in Study 3a as the focal outgroup. Since most participants (60.9%) reported never having had contact with Travellers (compared to 12.9% and 13.6% for racial minorities and homosexual men respectively), it may not be apt to test a secondary transfer effect model using Travellers as a focal outgroup since the secondary transfer effect requires some form of contact to have taken place. Indeed, running a within-subjects ANOVA comparing mean levels of contact (see Table 4.2), showed that there were differences between the amount of reported contact with the three outgroups in question (Huyn-Feldt $F(1.87, 244.41) = 51.74, p < .001, \text{partial } \eta^2 = .28$).¹⁷

Table 4.2.

Table Illustrating Differences in Mean, Median, and Mode Differences in Contact Quantity between Racial Minorities, Homosexual Men, and Travellers (Study 3).

Contact quantity with	Mean (SD)	Median	Mode
Racial Minorities	2.61 _a (1.16)	2	2
Homosexual Men	2.77 _a (1.20)	3	2
Travellers	1.62 _b (0.95)	1	1

Note. Median and mode based on the 5-point Likert scale with 1 representing no friends and 5 indicating a lot of friends from the chosen outgroup. Cell means with different subscripts are significantly different at the $p < .001$ level.

Post-hoc comparisons showed that there were no differences between the amount of contact reported with racial minorities ($M = 2.61, SD = 1.16$) and homosexual men ($M = 2.77, SD = 1.20, p > .05$). Respondents, however, reported significantly less contact with Travellers ($M = 1.62, SD = 0.95$) than they did with either racial minorities or homosexual men (both ps

¹⁷ As before, because Mauchly's test of sphericity was violated ($\chi^2(2) = 9.71, p < .01$) and the epsilon value was over .75 ($\hat{\epsilon} = .93$), the Huyn-Feldt F -statistic was inspected. Once again, the multivariate test results, which are independent of the sphericity assumption, also indicated a significant multivariate effect ($V = .39, F(2, 130) = 40.73, p < .001, \text{partial } \eta^2 = .39$).

< .001). Given that respondents reported significantly less contact with Travellers and that very few respondents reported having had any contact with Travellers, I decided not to test a reverse STE model treating Travellers as the focal outgroup. Therefore, the reverse secondary transfer effect models will be run first treating homosexual men as the focal outgroup (Study 3b) and then run with racial minorities as the focal outgroup (Study 3c).

Study 3b: Gay Men as the Focal Outgroup

The model specifying homosexual men as the focal outgroup fit the data well ($\chi^2(9) = 14.276, p > .05, \chi^2/df = 1.59, CFI = .99, RMSEA = .067 [0, 0.13], SRMR = .024$), though not as well as model treating the ethno-religious outgroup as the focal outgroup. The model was still able to explain a considerable amount of variance in attitudes towards homosexual men ($R^2 = 39\%$), the ethno-religious outgroup ($R^2 = 44\%$), racial minorities ($R^2 = 66\%$) and Travellers ($R^2 = 37\%$) as well as ingroup identification ($R^2 = 18\%$).

Social dominance orientation was negatively associated with attitudes towards gay men ($b = -6.74, SE = 2.45, p < .01$), Travellers ($b = -7.44, SE = 2.35, p = .001$) and the ethno-religious outgroup ($b = -4.55, SE = 2.05, p < .03$). Contact with racial minorities was significantly related to attitudes towards racial minorities ($b = 6.34, SE = 1.58, p < .001$) as was contact with and attitudes towards Travellers ($b = 7.96, SE = 2.41, p = .001$). Friendships with the ethno-religious outgroup was associated with more favourable attitudes towards the ethno-religious outgroup ($b = 2.17, SE = 1.11, p = .05$). Contact with homosexual men was positively associated with attitudes towards homosexual men ($b = 9.48, SE = 1.85, p < .001$),

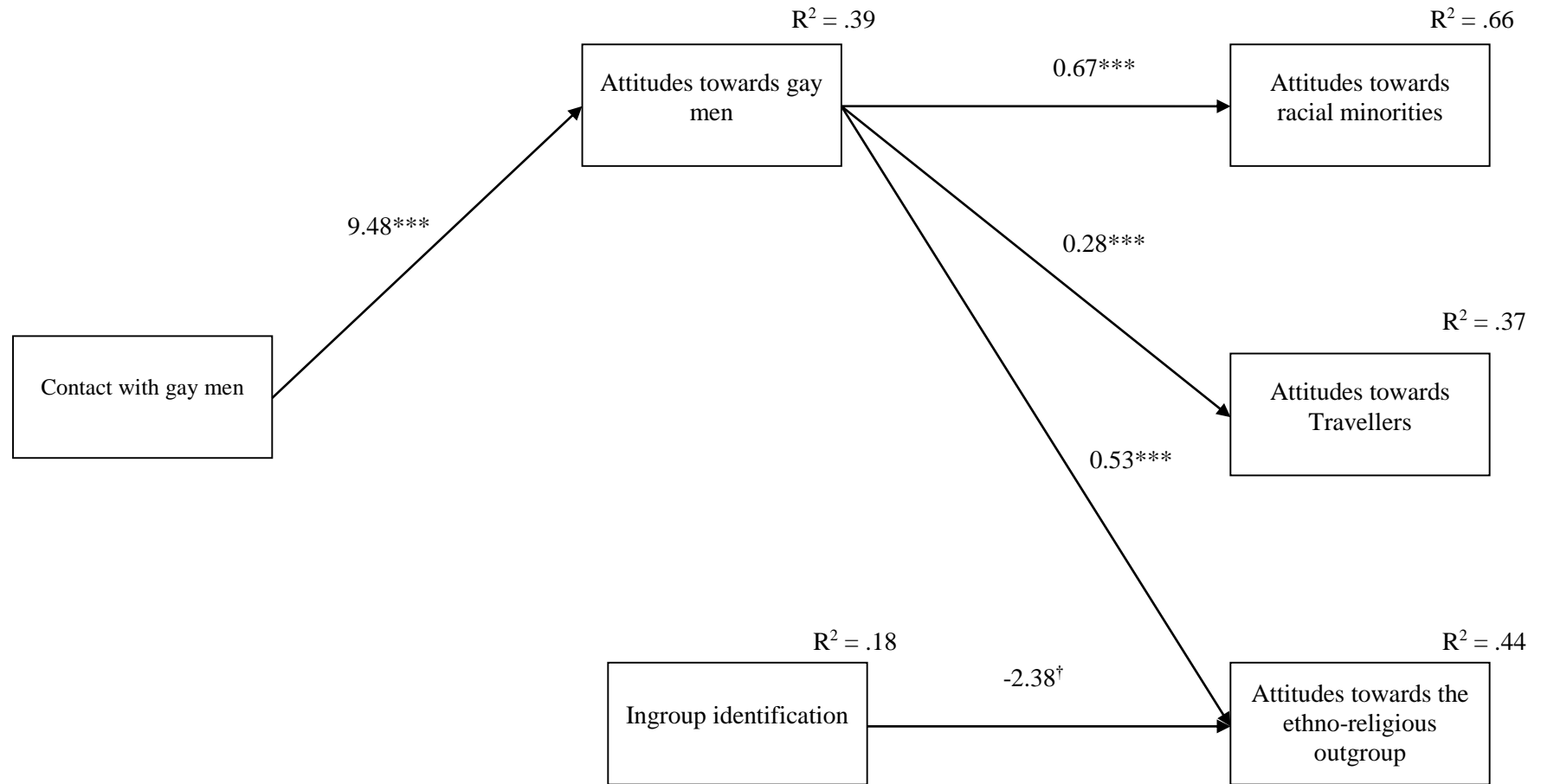


Figure 4.7. The path analysis denoting the hypothesised structural relationships between the variables treating gay men as the focal outgroup (Study 3b). Unstandardized, significant regression coefficients reported. Model fit is $\chi^2(9) = 14.276, p > .05, \chi^2/df = 1.59, CFI = .99, RMSEA = .067 [0, .129], SRMR = .024$. Some significant relationships have been left out in order to improve legibility. [†] $p < .06, * p < .05, **p < .01, ***p < .001$.

but negatively associated with attitudes towards the ethno-religious outgroup ($b = -4.70$, $SE = 1.45$, $p = .001$) and racial minorities ($b = -5.34$, $SE = 1.56$, $p = .001$). Contact with homosexual men was not associated with attitudes towards the ingroup ($b = -0.14$, $SE = 0.08$, $p < .09$). Cross-group friendships with the ethno-religious outgroup ($b = -0.25$, $SE = 0.08$, $p = .001$) and contact with Travellers ($b = 0.26$, $SE = 0.11$, $p < .02$) were each associated with ingroup identification. Ingroup identification approached significance in its association with attitudes towards the ethno-religious outgroup ($b = -2.38$, $SE = 1.24$, $p < .06$) as well as its relationship with attitudes towards Travellers ($b = 2.89$, $SE = 1.55$, $p = .06$).¹⁸

Attitudes towards homosexual men were associated with more positive attitudes towards racial minorities ($b = 0.67$, $SE = 0.06$, $p < .001$), Travellers ($b = 0.28$, $SE = 0.08$, $p < .001$), and the ethno-religious outgroup ($b = 0.53$, $SE = 0.07$, $p < .001$). The relationship between attitudes towards homosexual men and attitudes towards Travellers was significantly weaker than the relationship between attitudes towards homosexual men and attitudes towards the ethno-religious outgroup ($z = 2.34$, $p < .05$) and racial minorities ($z = 3.96$, $p < .001$). The relationship between attitudes towards homosexual men and attitudes towards racial minorities was not significantly different from the association between attitudes towards homosexual men and attitudes towards the ethno-religious outgroup ($z = 1.52$, $p > .05$).

Attitudes towards homosexual men mediated the paths from contact with homosexual men to attitudes towards racial minorities ($b = 6.33$, $SE = 1.32$, $p < .001$; bootstrap point estimate = 6.33, 99% CI = [3.06, 10.21]), the ethno-religious outgroup ($b = 4.99$, $SE = 1.18$, p

¹⁸ I repeated the moderation analysis testing if social dominance orientation moderated the relationship between ingroup identification and attitudes towards the various outgroups. As in Study 3a, and as hypothesised, social dominance orientation only moderated the path between ingroup identification and attitudes towards the ethno-religious outgroup such that there was a strong negative relationship for individuals high in social dominance orientation and no relationship for low socially dominant individuals. Study 3c revealed exactly the same pattern of results. Therefore, in order to save space, I have refrained from repeating the analysis in Study 3b and 3c.

< .001; bootstrap point estimate = 4.99, 99% CI = [2.20, 8.81]), and Travellers ($b = 2.64$, $SE = 0.87$, $p = .001$; bootstrap point estimate = 2.64, 99% CI = [0.70, 5.86]). The mediation involving the target outgroup racial minorities was significantly stronger than the mediation involving the target outgroup Travellers ($z = 2.34$, $p < .05$). All other mediation effects were comparable in size ($zs \leq 1.60$, $ps > .05$).

Because contact with gay men was not significantly associated with ingroup identification, ingroup identification failed to mediate any of the paths between contact with gay men and attitudes towards gay men ($b = 0.39$, $SE = 0.31$, $p > .05$, bootstrap point estimate = 0.39, 95% CI [-0.07, 1.58]), the ethno-religious outgroup ($b = 0.34$, $SE = 0.28$, $p > .05$, bootstrap point estimate = 0.34, 95% CI [-0.03, 1.35]), racial minorities ($b = 0.03$, $SE = 0.13$, $p > .05$, bootstrap point estimate = 0.03, 95% CI [-0.24, 0.50]), or Travellers ($b = -0.42$, $SE = 0.32$, $p > .05$, bootstrap point estimate = -0.42, 95% CI [-1.49, 0.05]).

Study 3c: Racial Minorities as the Focal Outgroup

The model treating racial minorities as the focal outgroup fit the data well, $\chi^2(9) = 6.067$, $p > .05$, $\chi^2/df = 0.67$, CFI = 1.00, RMSEA = 0 [0, .07], SRMR = .017. The model explained a considerable amount of variance in attitudes towards racial minorities ($R^2 = 32\%$), homosexual men ($R^2 = 71\%$), the ethno-religious outgroup ($R^2 = 56\%$), and Travellers ($R^2 = 39\%$) as well as ingroup identification ($R^2 = .18\%$). Social dominance orientation was negatively associated with attitudes towards racial minorities ($b = -6.46$, $SE = 2.34$, $p < .01$) and Travellers ($b = -6.53$, $SE = 2.12$, $p < .01$).

Contact with homosexual men ($b = 9.36$, $SE = 1.41$, $p < .001$) and contact with Travellers ($b = 7.47$, $SE = 2.43$, $p < .01$) were associated with attitudes towards the respective outgroups. Furthermore, contact with Travellers ($b = 0.26$, $SE = 0.11$, $p < .02$) and cross-

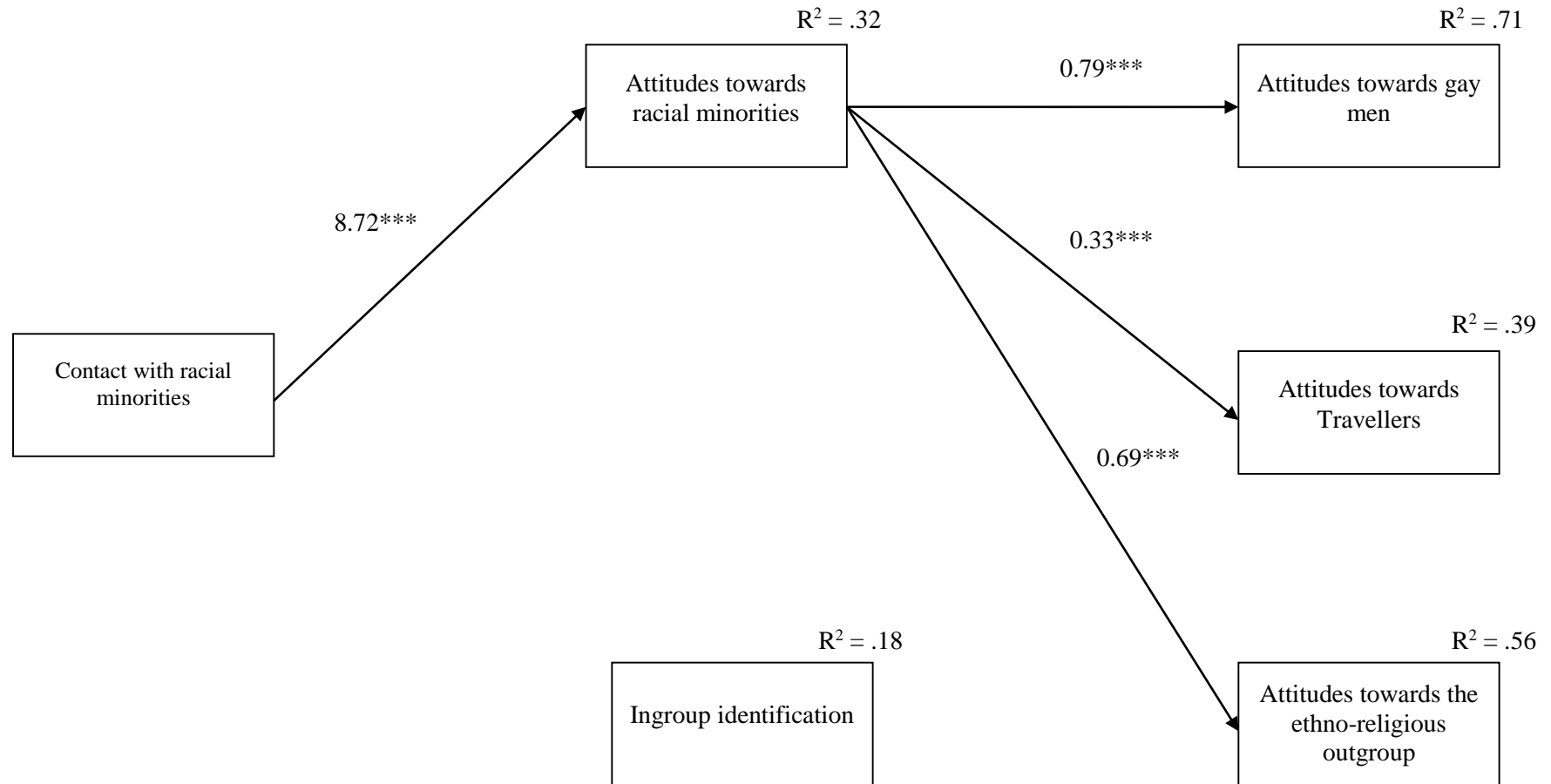


Figure 4.8. The path analysis denoting the hypothesised structural relationships between the variables treating gay men as the focal outgroup (Study 3c). Unstandardized, significant regression coefficients reported. Model fit is $\chi^2(9) = 6.067, p > .05, \chi^2/df = 0.67, CFI = 1.00, RMSEA = 0 [0, .072], SRMR = .017$. Some significant relationships have been left out in order to improve legibility. * $p < .05, **p < .01, ***p < .001$.

group friendships with the ethno-religious outgroup ($b = -0.25$, $SE = 0.08$, $p = .001$) were associated with ingroup identification. Contact with racial minorities was significantly related to attitudes towards racial minorities ($b = 8.72$, $SE = 2.30$, $p < .001$) but not with ingroup identification ($b = 0.34$, $SE = 0.11$, $p > .05$). Contact with racial minorities was also negatively associated with attitudes towards homosexual men ($b = -6.63$, $SE = 1.63$, $p < .001$). In this reverse STE model, cross-group friendships with people from the other ethno-religious community was not associated with more favourable attitudes towards the ethno-religious outgroup ($b = 1.85$, $SE = 1.09$, $p > .05$). Ingroup identification was not associated with attitudes towards the ethno-religious outgroup ($b = -2.20$, $SE = 1.22$, $p = .07$), Travellers ($b = 2.68$, $SE = 1.50$, $p > .05$), gay men ($b = -1.14$, $SE = 1.07$, $p > .05$), or racial minorities ($b = -1.20$, $SE = 1.47$, $p > .05$). Attitudes towards racial minorities were positively associated with attitudes towards the ethno-religious outgroup ($b = 0.69$, $SE = 0.07$, $p < .001$), homosexual men ($b = 0.79$, $SE = 0.06$, $p < .001$), and Travellers ($b = 0.33$, $SE = 0.09$, $p < .001$). As with the other models, the attitude generalization path involving attitudes towards Travellers was significantly weaker than the paths between attitudes towards racial minorities and attitudes towards the ethno-religious outgroup ($z = 3.06$, $p < .01$) and homosexual men ($z = 4.17$, $p < .001$). The latter two paths did not differ significantly from each other ($z = 1.08$, $p > .05$).

Attitudes towards racial minorities mediated the relationship between contact with racial minorities and attitudes towards the ethno-religious outgroup ($b = 5.99$, $SE = 1.84$, $p = .001$; bootstrap point estimate = 5.99, 99% CI = [2.02, 11.43]), homosexual men ($b = 6.91$, $SE = 1.81$, $p < .001$; bootstrap point estimate = 6.91, 99% CI = [2.52, 12.30]), and Travellers ($b = 2.89$, $SE = 1.10$, $p < .01$; bootstrap point estimate = 2.89, 99% CI = [0.73, 6.98]). All mediation effects were of equal strength (all z s ≤ 1.90 , all p s $\geq .05$). Because contact with racial minorities was not associated with ingroup identification which itself was unrelated to

all attitude measures, ingroup identification failed to mediate any of the paths between contact with racial minorities and attitudes towards racial minorities ($b = 0.07$, $SE = 0.22$, $p > .05$, bootstrap point estimate = 0.07, 95% CI [-0.33, 0.95]), the ethno-religious outgroup ($b = 0.08$, $SE = 0.25$, $p > .05$, bootstrap point estimate = 0.08, 95% CI [-0.39, 0.90]), gay men ($b = 0.04$, $SE = 0.14$, $p > .05$, bootstrap point estimate = 0.04, 95% CI [-0.22, 0.67]), and Travellers ($b = -0.09$, $SE = 0.29$, $p > .05$, bootstrap point estimate = -0.09, 95% CI [-1.03, 0.51]).

Discussion

The results from Study 3a-c provide evidence for the STE using a student sample of Northern Irish respondents. The study explored if contact with the ethno-religious outgroup was associated with more favourable attitudes towards racial minorities, gay men, and Travellers. Furthermore, Study 3a tested if attitudes generalize along a stigma similarity gradient, a hypothesis that drew inspiration from Goffman's (1963) typology of stigma. Study 3 also provided the first formalized test for the reformulated deprovincialization by ingroup identity hypothesis.

Evidence for the Reformulated Deprovincialization Hypothesis

Challenging the assumed ethnocentrism hypothesis, I predicted, and found full support for a more nuanced approach to testing the deprovincialization hypothesis. Combining ethnocentrism (Catton, 1960-1961) and social dominance (Pratto et al., 1994) theory, I found full support for the contention that ingroup identification will relate negatively to outgroup attitudes for individuals who show preference for group-based hierarchy, in other words, highly socially dominant individuals. Furthermore, as predicted, social dominance orientation moderated the path from ingroup identification to attitudes towards the ethno-

religious outgroup only. This relationship was predicted because previous studies (i.e., Duckitt, 2006) have shown that social dominance orientation is primarily associated with prejudice towards groups who threaten the ingroup's (relative) position of dominance in society. While this differential hypothesis only predicted, and found evidence, for a deprovincializing effect between contact with and attitudes towards the ethno-religious outgroup, this deprovincializing effect was still able to influence attitudes towards the target outgroups through the process of attitude generalization. Thus, Study 3 not only finds strong support for a more nuanced understanding of how ingroup identity relates to outgroup attitudes, but it also builds on Study 2 in showing that the process of deprovincialization and attitude generalization are not exclusive processes, but are intricately related in spreading the beneficial effects of contact with a focal outgroup.

Building on these findings, future studies should replicate and explore these results. One way in which this can be done is to explore if social dominance orientation moderates the relationship between ingroup identification and outgroup attitudes for other social groups that threaten the ingroup's status and position in society. In the Northern Irish context this could include measuring attitudes towards other migrant groups. For example, racial minorities as defined in this study—Black, Asian, and Chinese people—do not present *as* great a perceived threat as other race groups in Northern Ireland (such as the Polish, Jarman, 2009). In fact, Black, Asian, and Chinese migrant groups have generally been associated with economic growth in the country. Therefore, future research should ascertain attitude scores towards Black, Asian, and Chinese as well as Eastern European migrant groups in order to test whether the pattern of moderation by social dominance orientation discussed here holds up.

Lastly, I would like to expand on the socio-historical explanation I offered for the revised deprovincialization hypothesis in the Northern Irish context. Catholic and Protestant identities in Northern Ireland are socially embedded with a history of centuries of conflict between the two ethno-religious groups. Therefore, with the relatively recent establishment of a migrant population in Northern Ireland, it is unlikely that these outgroups are as inextricably linked to ethno-religious identification as is the case between the ethno-religious groups. Therefore, it is quite possible that the lack of association—moderated or not—between ingroup identification and attitudes towards social groups other than the ethno-religious outgroup is a function of the socio-historic nature of identity in Northern Ireland. Supporting this point of view is the fact that only contact with the ethno-religious outgroup related to ingroup identification; neither contact with racial minorities nor contact with homosexual men related to ingroup identification. I, however, expand upon the link between contact and ingroup identification in Chapter 6. Regardless, the new reformulated and integrated deprovincialization hypothesis provides an exciting avenue for future research.

Evidence for the Attitude Generalization Hypothesis and Similarity Gradients

Study 3 provides additional support for the attitude generalization hypothesis. Studies 3a, b, and c all showed that contact with a focal outgroup positively affects attitudes towards target outgroups by improved attitudes towards the focal outgroup, in other words, through the mechanism of attitude generalization. Furthermore, corroborating previous findings in this thesis, support for the attitude generalization hypothesis was obtained after controlling for previous contact with the target outgroups (Studies 1 and 2) and social dominance orientation (Study 1). However, Study 3 also evidenced the possibility that the process of attitude generalization may be of equal measure for all target outgroups. Thus, in Study 3, I

explored the possibility of the existence of similarity gradients in order to gain a more detailed understanding of the underlying process of attitude generalization.

Because attitudes towards four diverse outgroups were obtained, I was able to hypothesise and test for similarity gradients based on Goffman's (1963) typology of stigma. The hypothesis relating to similarity effects derived from Goffman's (1963) stigma typology, at first, seems to have received mixed results. The hypothesis predicted that attitudes would be significantly more strongly related between outgroups that occupied the same class of stigma than between those that did not. Based on this reasoning, I expected that the relationship between attitudes towards the ethno-religious outgroup and attitudes towards racial minorities and Travellers (all three of these outgroups falling under the class, category stigma) to be more strongly associated than the relationship between attitudes towards the same three groups and attitudes towards homosexual men, which falls under the class character stigma. While the relationship between attitudes towards the ethno-religious and attitudes towards racial minorities was, at first glance, stronger than the relationship between attitudes towards the ethno-religious outgroup and attitudes towards gay men, comparing the regression coefficients indicated that they were, statistically, of equal strength. This could either be a result of low power to detect the difference owing to the relatively small sample sized used ($N = 132$), or it could be that the attitude generalization path is of equal strength between these two groups, thus leading us to rethink the reliability of applying Goffman's stigma typology to STEs. In order to illuminate which is the more likely explanation, these results need to be replicated with larger sample sizes.

Contrary to the hypothesised stigma similarity gradient, however, was the finding that the relationships between attitudes towards the ethno-religious outgroup, racial minorities, and gay men were significantly stronger than the relationships between attitudes towards

these three outgroups and attitudes towards Travellers. How does one explain the difference in strength of the attitude generalization effect? One possible explanation lies in the histories of conflict with the respective outgroups. Travellers have long been discriminated against (Connolly & Keenan, 2001; Redmond, 2008). Jarman (2009), in consolidating the results from multiple rounds of the Northern Ireland Life and Times survey, notes that:

[R]espondents are less willing to consider integrating with members of the Traveller community...than with Chinese, Asians or with East Europeans...The [Northern Ireland Life and Times] survey also reveals the deeply ingrained prejudice towards members of the Traveller community who continue to be subjected to higher levels of prejudice and discrimination than other minority communities. (p. 4)

Indeed, the sentiment that Travellers are subjected to more prejudice and discrimination than other minority groups had been noted earlier in Connolly and Keenan's (2001) recommendations for strategy development aimed at attenuating racial harassment in Northern Ireland. They suggest that, "...specific attention needs to be given to addressing the general public's attitudes towards Travellers given the much more antagonistic and negative attitudes towards them as a community in comparison with other ethnic minority groups" (p. 82). This trend is reflected in the data set reported here, as both contact with and attitudes towards Travellers were significantly lower than the contact and attitude scores for the other outgroups (see Table 4.1). Therefore, it is quite possible that the long history of prejudice and discrimination towards people from the Travelling community—from both Catholics and Protestants—means that Travellers are seen as a distinct outgroup from the other social groups. As mentioned before, a major source of tension between Travellers and the rest of Northern Irish society has stemmed from the differences in nomadic versus sedentary lifestyles. So, while Travellers may indeed be similar to the ethno-religious outgroup and

racial minorities in terms of the class of stigma they fall under, they differ on another rather important aspect, lifestyle.

Summary of Findings

Study 3 adds to the body of literature on the STE in a number of important ways. First of all, it replicated previous evidence for the attitude generalization effect in Northern Ireland (Tausch et al., 2010, Studies 2 and 4). It extended on the research performed by Tausch et al. by including multi-item measures of intergroup contact with the target outgroup and partialled out the influence of social dominance orientation on attitude scores, also corroborating findings from Study 1. Study 3 found full support for the reformulated ingroup identification part of the deprovincialization hypothesis. Furthermore, building on Study 2, this study showed how the deprovincialization and attitude generalization hypothesis can be integrated into a more complete understanding of STE's underlying processes.

Given the possible socio-historical explanations for both the similarity findings and the differential ingroup identification outgroup attitude moderation results, the results of Study 3 suggest that socio-historical factors may play a substantial role in the attitude generalization effect. Previous researchers have placed emphasis on the importance of taking socio-cultural and socio-historic factors into account when considering primary transfer effects (Batson & Ahmad, 2009; Pettigrew, 1958, 2008). The above analysis simply extends this reasoning into the realm of the STE inasmuch as while the processes of deprovincialization, attitude generalization as well as individual personality variables and similarity gradients are all useful in helping to explain secondary transfer effects, an analysis that does not take into account macro-levels factors will always be left wanting.

Study 4

Introduction

While the majority of the research dealing with intergroup relations in Northern Ireland has relied on adult samples, a critical role in the promotion of peace in Northern Ireland has been afforded to the schooling system (Fraser, 1974; McClenahan, Cairns, Dunn, & Morgan, 1996; Smith, 1999). However, the ethno-religious segregation evident in Northern Irish societies has permeated the schooling system as well, so much so that Poole (1982) contends that the segregation in schools is more pervasive than the segregation witnessed in the neighbourhoods. The segregation in Northern Irish schools can be traced back to the establishment of the national school system in Ireland in 1831 (Akenson, 1970). The initial intention infused in the creation of the national schooling system was to have a multi-denominational schooling system, but the pervasive nature of the sectarian conflict meant that Irish schools, from their earliest days, were divided along ethno-religious lines (Akenson, 1970; Gallagher, 2005).

With further attempts made to develop an integrated schooling system (see, for example, the Education (Northern Ireland) Act 1923; Gallagher, 2005), it was not until the early 1980s that the first multi-denominational school was established (Smith, 2001). Surprisingly, while previous attempts at developing an integrated schooling system came from the state or church, it was the parents who provided the major impetus for the integrated schooling system in Northern Ireland (Stringer, Irwing, Giles, McClenahan, Wilson, & Hunter, 2009). In 1974, a group of Northern Irish parents in favour of multi-denominational schools started a movement under the name *All Children Together* (Smith, 2001). The group successfully lobbied for legislation to allow for the existence of integrated schools in Northern Ireland and were involved in the passing of various pieces of legislation, such as the

Education (Northern Ireland) Act 1977 (Smith, 2001). In 1981, Northern Ireland's first integrated school was established, and by 1985, three more fully integrated schools followed suit (Dunn & Morgan, 1999; Smith, 2001). At the time of writing, there were 80 integrated schools in Northern Ireland—20 colleges, 41 primary schools, and 19 nursery schools (Northern Ireland Council for Integrated Education, 2012).

While the number of integrated schools has steadily grown, it is surprising to learn that 92% of Catholic and Protestant pupils still attend religiously segregated schools (Department of Education Northern Ireland, 2007). While some authors argue in favour for separate schools (see, for example, Short, 2003), a sparse but increasing body of research indicates that schools with mixed student bodies, including integrated schools, schools that are naturally more mixed, and schools that are involved in shared education programmes, show a range of advantages over their segregated counterparts. These advantages include higher numbers of reported intergroup friendships (Hayes & McAllister, 2009; Hughes, Campbell, Lolliot, & Hewstone, 2012; Hughes, Lolliot, Hewstone, Schmid, & Carlisle, 2012), more intergroup empathy, higher levels of intergroup trust, less anxiety and social distance (Hughes, Campell et al., 2012), more positive action tendencies (Hughes, Lolliot et al., 2012), less ingroup bias (Hewstone et al., 2005), a more optimistic view of the future (Hayes & McAllister, 2009), less extreme political attitudes (Stringer et al., 2009), and generally more favourable intergroup attitudes (Hughes, Campell et al., 2012; Hughes, Lolliot et al., 2012).

While continued focus on promoting favourable relations between Catholics and Protestants remains a priority in education in Northern Ireland, the schooling landscape—much like Northern Irish society—is itself becoming more multicultural (Every Child an Equal Child, 2008; Leavy, 2005). Responding to the increasingly multicultural nature of

Northern Irish schools, recent emphasis has extended the schools' responsibility from encouraging sanguine relations between the two ethno-religious groups to greater inclusion of other social groups in Northern Ireland. This sentiment is reflected in the Office of the First Minister and Deputy First Minister in Northern Ireland's *A Shared Future* policy document which states that, "[a]ll schools should ensure through their policies, structures and curriculae, that pupils are consciously prepared for life in a diverse and inter-cultural society and world" (A Shared Future, 2005, p. 24). Having said this, only a small percentage of the total school population in Northern Ireland—an estimated 2.5%—constitutes students whose first language is not English (Russell, 2012). It is not surprising then that the latest round of the Young Life and Times survey—which surveyed 1,434 sixteen-year-old Northern Irish respondents (Catholic $N = 590$; Protestant $N = 514$; No Religion $N = 315$; Other $N = 15$)—reported that 36% of the respondents reported frequently socialising or playing sport with a person from the other ethno-religious group whereas only 19% reported doing so with an ethnic minority person (Devine & Robinson, 2012). As is the case with adult samples in Northern Ireland (see discussion above), only 20% of the participants reported having had any contact with ethnic minorities while fewer still (i.e., 5%) reported having Traveller friends (Devine & Robinson, 2012). Indeed, Traveller absenteeism is a frequent problem in Northern Irish schools, which some authors attribute to the racism and discrimination that Traveller families experience (Lesovitch, 2005).

For some time now, the schooling system in Northern Ireland has been heralded as a major channel through which harmonious intergroup relations can be achieved (Fraser, 1974; McClenahan, Cairns, Dunn, & Morgan, 1996; Smith, 1999). However, Leavy (2005) notes that for this to be achieved in modern-day Northern Ireland:

...[the students' various] linguistic, ethnic, class, and religious differences must be valued. Discrimination against groups as a result of religion, disability, or ethnicity must be eliminated, and school practices that contribute to the exclusion of minority from participation in society should be identified and tackled" (p. 162).

Therefore, (a) given the role that schools have been charged with in preparing students for life in a multicultural Northern Ireland, (b) the continued emphasis on integrated schooling, and (c) the low, yet increasing, numbers of foreign students contributing to the Northern Irish student body, any contact effects that extend beyond a contacted outgroup leading to improved attitudes towards other outgroups would represent an important tool in preparing Northern Ireland's next generation of multicultural citizens.

Hypotheses

Consistent with primary transfer effects, I expect that contact with the focal outgroup will be positively associated with more favourable attitudes towards the focal outgroup. Similarly, contact with the target outgroups will be positively associated with more favourable attitudes towards the target outgroups. With regards to the attitude generalization hypothesis, I expect attitudes towards the focal outgroup to be positively associated with attitudes towards the target outgroups. Furthermore, attitudes towards the focal outgroup will mediate the relationship between contact with the focal outgroup and attitudes towards the target outgroup.

Because Study 4 included measures of contact with and attitudes towards the ethno-religious outgroup, racial minorities, Travellers, and the disabled, I was able to test for the existence of similarity gradients between the attitude generalization paths. Given that the ethno-religious outgroup, racial minorities, and Travellers, according to Goffman's (1963)

typology, fall under the class of category stigma, attitudes should generalize most strongly between these outgroups. Because the disabled, on the other hand, fall under a different class of stigmatized group (i.e., physical stigma), attitudes should generalize weaker between attitudes towards the ethno-religious outgroup and attitudes towards gay men than the other attitude generalization paths.

Study 4, in addition to Study 2, allowed me to provide a second test of the similarity hypothesis where the participants themselves rated the perceived similarity between the focal and target outgroups. Thus, I predict that for individuals who perceive the focal and target outgroup to be similar to one other, the attitude generalization link between the two relevant attitudes will be stronger than for those individuals who perceive less similarity between the two outgroups.

With regards to the deprovincialization hypothesis, I predict that contact with the focal outgroup will be associated with more endorsement of multicultural ideals while controlling for the effect contact with the target outgroups has on the multiculturalism variable. Furthermore, I predicted that multiculturalism would be positively associated with attitudes towards the focal and target outgroups. I also predicted that multiculturalism would mediate the relationship between contact with the focal outgroup and attitudes towards the target outgroups.

Wanting to provide further evidence for the hypothesised interplay between the deprovincialization and attitude generalization hypotheses, I predict that, since multiculturalism is hypothesised to relate to attitudes towards the focal outgroup, which in turn is hypothesised to be positively associated with attitudes towards the target outgroup, the relationship between contact with the focal outgroup and more positive target outgroup

attitudes will be sequentially mediated by multiculturalism and attitudes towards the focal outgroup.

Participants

A total of 3,923 Year 8 students from secondary schools across Northern Ireland took part in the survey. Participants who did not identify themselves as either Catholic or Protestant were removed from the study; a total of $N = 358$ participants were removed. The final sample thus consisted of $N = 3565$ respondents ($N = 1143$ Protestants, 452 males, 623 females¹⁹, mean age = 13.35, $SD = 0.50$, age range = 12 to 14 years old; $N = 2422$ Catholics, 860 males, 1393 females²⁰, mean age = 13.36, $SD = 0.49$, age range = 11 to 15 years old).

Procedure

All secondary schools in Northern Ireland were sent letters inviting them to participate in the study. Once consent was gained from the head teachers, Year 8 pupils and their parents were provided details of the web-based survey and asked to participate on a voluntary basis. The data was collected during the spring of 2011. A small number of schools ($N = 21$) experienced time constraints and subsequently completed the survey in the autumn of 2011. Additionally, a small number of schools requested paper versions of the survey for ease of administration. All data was collected from pupils in their classrooms.

Materials

Amongst a number of other variables (for some of the other variables included in the questionnaire, see Hughes, Lolliot et al., 2012), the following were used for this study: items pertaining to cross-group friendships with the ethno-religious outgroup; contact with racial

¹⁹ Sixty-eight (68) Protestant participants did not indicate their gender.

²⁰ One hundred and sixty nine (169) Catholic respondents did not report their gender.

minorities, Travellers, and the disabled; attitudes towards the four outgroups; multiculturalism; and intergroup similarity were included in the questionnaire.

Contact variables. Cross-group friendships with the ethno-religious outgroup was assessed on 5-point Likert scales using two items: “About how many of your close friends are [Catholic / Protestant]?” (1 = *None*, 5 = *Almost all friends*), and “And in numbers, how many CLOSE [Catholic / Protestant] friends do you have?” (1 = *None* to 5 = *Ten or more friends*). The two friendship items correlated significantly with each other, $r = .78, p < .001$. Contact with the disabled, racial minorities, and Travellers was assessed using one item each, “How often do you spend your free time with [children from other racial groups / Irish Traveller children / children who are disabled]?” A 5-point Likert scale with the anchors, 1 = *Never* and 5 = *Very often*, was used.

Multiculturalism variables. Three items using 5-point Likert response scales were used to tap into the respondents’ attitudes towards multiculturalism. Respondents were asked to indicate if they *strongly disagreed* (1) or *strongly agreed* (5) with the following statements: “All groups should be allowed to maintain their own traditions and culture”; “We, members of my own religious group, should have more respect for the culture of all other groups”; “We, members of my own religious group, should do more to learn about the traditions and culture of different groups.” The three items formed a reliable scale (Cronbach’s $\alpha = .76$).

Perceived intergroup similarity variables. Respondents were also asked—on a 5-point Likert scale ranging from 1 = *Not at all similar* to 5 = *Very similar*: “How similar do you think the following groups are to each other: [Protestants / Catholics] and (a) other racial groups, (b) Irish-Travellers, and (c) Disabled.”

Attitude variables. Attitudes towards the ethno-religious outgroup was measured using the following two items: “How positive or negative do you feel about [Protestant / Catholic] children?” (1 = *Very negative* to 5 = *Very positive*), and “How much do you like [Protestant / Catholic] children?” (1 = *Don’t like at all* to 5 = *Like very much*). The two items correlated significantly with each other, $r = .75, p < .001$). Attitudes towards Travellers, racial minorities, and the disabled were ascertained using one item each, “How much do you like [Irish Traveller children / children from other racial groups / children who are disabled]?” (1 = *Don’t like at all* to 5 = *Like very much*).

Results

Preliminary Analyses

All the items fell well within the skewness (± 2) and kurtosis (± 7) values recommended by West, Finch, and Curran (1995) as displaying sufficient normality for the use of maximum likelihood techniques in a confirmatory factor analysis.

Conducting a 2 (Group: Protestant vs. Catholic) X 2 (Gender: male vs. female) MANOVA on the variables to be used in the analyses revealed a number of group and gender differences, but no group-by-gender interactions. Group differences emerged for cross-group friendships ($F(1, 2553) = 75.31, p < .001, \text{partial } \eta^2 = .03$), contact with Travellers ($F(1, 2553) = 7.63, p < .01, \text{partial } \eta^2 = .003$), similarity between the ethno-religious outgroup and Travellers ($F(1, 2553) = 57.32, p < .001, \text{partial } \eta^2 = .02$), attitudes towards the ethno-religious outgroup ($F(1, 2553) = 9.42, p = .001, \text{partial } \eta^2 = .004$), attitudes towards Travellers ($F(1, 2553) = 6.76, p < .01, \text{partial } \eta^2 = .003$), and attitudes towards the disabled ($F(1, 2553) = 10.04, p = .001, \text{partial } \eta^2 = .004$), as well as attitudes towards multiculturalism ($F(1, 2553) = 30.52, p < .001, \text{partial } \eta^2 = .01$).

Inspecting the partial η^2 values, none of them are of any substantial effect size. While larger sample sizes are generally associated with more power when detecting group differences, in MANOVAs with very large group sizes, as is the case here, trivial mean differences can reach statistical significance. For example, the significant difference between attitudes towards the ethno-religious outgroup for Catholics ($M = 3.27$, $SD = 1.14$) and Protestants ($M = 3.39$, $SD = 1.09$) equates to only a 0.12 mean difference but reached a high level of significance ($p < .001$). Therefore, while caution is recommended in interpreting these results, only significant main effects with a partial η^2 value that is larger than 0.01 will be investigated. Hence, only the main effects pertaining to cross-group friendships (partial $\eta^2 = .03$) and ethno-religious-Traveller similarity (partial $\eta^2 = .02$) will be explored. Inspecting these two effects shows that Protestant respondents reported more cross-group friendships ($M = 2.31$, $SD = 1.16$) than did Catholic respondents ($M = 1.90$, $SD = 1.14$, $p < .001$), and Catholic respondents reported higher perceived similarity between ethno-religious outgroup and Travellers ($M = 1.60$, $SD = 1.00$) than did Protestants ($M = 1.48$, $SD = 0.88$, $p < .001$).

Using the new partial η^2 criterion discussed above—that a partial $\eta^2 \geq .01$ will be taken to indicate a significant effect large enough to be of interest—there were significant main effects for gender involving attitudes towards the ethno-religious outgroup ($F(1, 2553) = 90.28$, $p < .001$, partial $\eta^2 = .03$), racial minorities ($F(1, 2553) = 46.88$, $p < .001$, partial $\eta^2 = .02$), Travellers ($F(1, 2553) = 62.74$, $p < .001$, partial $\eta^2 = .02$), and the disabled ($F(1, 2553) = 93.23$, $p < .001$, partial $\eta^2 = .04$) as well as attitudes towards multiculturalism ($F(1, 2553) = 42.84$, $p < .001$, partial $\eta^2 = .02$). Males, when compared to females, showed consistently more prejudiced attitudes towards the ethno-religious outgroup ($M_{Males} = 3.06$, $SD = 1.13$, vs. $M_{Females} = 3.51$, $SD = 1.06$), racial minorities ($M_{Males} = 3.28$, $SD = 1.17$, vs. $M_{Females} = 3.62$, $SD = 1.11$), Travellers ($M_{Males} = 2.42$, $SD = 1.22$, vs. $M_{Females} = 2.84$, $SD = 1.21$), the

disabled ($M_{Males} = 3.55, SD = 1.13$, vs. $M_{Females} = 3.99, SD = 1.05$), and less support for others' cultures ($M_{Males} = 3.53, SD = 1.11$, vs. $M_{Females} = 3.82, SD = 0.97$). Once again, given the large sample sizes, and the small, yet significant group differences, these results should be interpreted with caution.

Structural Equation Modelling with Latent Constructs

Up until now, I have dealt with path analytic techniques in exploring the hypothesised relationships between contact and attitudes. While path analysis using the maximum likelihood estimator provides accurate parameter estimates especially when faced with non-normal data and smaller sample sizes, a problem often faced by research psychologists (Hau & Marsh, 2004), the main drawback is that path analysis uses composite scores—where the mean value for a set of individual items measuring a common construct, such as attitudes, is taken to represent the construct—which are assumed to be error free (Byrne, 2012).

Structural equation modelling, like path analysis and other regression-based techniques, is an analytic strategy that aims to estimate linear relationships amongst a set of variables (MacCullum & Austin, 2000). Where structural equation modelling departs from these other regression methods, however, is in its use of latent variables. While there are many ways in which one can define a latent variable, which is unfortunately beyond the scope of this text, for the purposes of this thesis, latent variables refer to hypothetical constructs that cannot be directly measured but can be approximated from the covariation between a set of manifest (also known as *measured* or *observed*) variables.²¹ Manifest variables are the questionnaire items that respondents (hopefully) answer when completing questionnaires. Theoretically, a latent construct can be measured by an infinite number of manifest variables. However,

²¹ The interested reader is advised to consult Bollen (2002) for an extensive review on the various definitions that exist for latent variables.

participant fatigue, time and financial constraints, and other forms of method biases restrict the number of variables that one can ask participants to complete. Therefore, a smaller set of carefully chosen items believed to measure the latent construct are chosen and included in the questionnaire.

Structural equation modelling typically adopts a two-step approach to structural data analysis (Anderson & Gerbing, 1988). First, the measurement model is established by way of confirmatory factor analysis. In this step, the hypothesised relationships between the manifest and latent variables are specified, and the model fit statistics investigated. Note, no relationship(s) between the latent variables is included. If the model fit is deemed acceptable, the second step involves specifying and estimating the structural relationships amongst the variables. Including structural and measurement models in the same analysis means that SEM has a number of benefits over other regression-based techniques. For instance, employing a confirmatory approach means that SEMs are well suited to inferential statistical practices. Furthermore, by estimating the latent variables with the manifest indicators, one is able to assess and correct for measurement error that is “ignored” in other regression-based techniques (Byrne, 2012). In addition, structural equation models can include both latent and observed variables in the same model. Therefore, in order to avoid possible confusion regarding terminology, in this thesis, manifest variables will refer to the variables that are used to estimate a latent variable, and observed variables will refer to single item constructs used in the structural analysis. In the figures to follow, ellipses represent latent variables whereas rectangles will denote observed variables.

A confirmatory factor analysis was performed in order to confirm the underlying factor structure of the variables to be included in the model as latent variables. The measurement model fit the data well, $\chi^2(11) = 79.329, p < .001, \chi^2/df = 7.21, CFI = .99,$

RMSEA = .043 [.02, .05], SRMR = .02 (see Figure 4.9 for the measurement and structural model). There was, however, evidence for model misspecification between the first and the third multicultural item as indicated by a significant correlation between the two items' error terms. Inspecting the wording of the two items under question revealed item content overlap as both items referred to "culture" and "traditions". Another possible source for the high correlation between the error variances could stem from the fact that both items appeared in close proximity to each other in the questionnaire (with only item separating them).

Therefore, given that both items (a) measure the same latent variable (multiculturalism), (b) were similarly worded, and (c) appeared very close to each other in the questionnaire, while keeping Bentler and Chou's (1987) advice against forcing error terms to be uncorrelated in real data in mind (see also Byrne, 2012), it was decided to allow their error variances to correlate with each other. Allowing the two errors to correlate resulted in a well-fitting measurement model, $\chi^2(10) = 57.862, p < .001, \chi^2/df = 5.79, CFI = .99, RMSEA = .038 [.03, .05], SRMR = .016$. This measurement model was subsequently used for the rest of the analyses.

The next step in the analyses was to specify the hypothesised structural relationships amongst the variables. The hypothesised structural relationships to be tested have been explicated in the hypotheses section above. The hypothesised model fitted the data well, $\chi^2(55) = 234.811, p < .001, \chi^2/df = 4.27, CFI = .99, RMSEA = .030 [.03, .03], SRMR = .018$. The model explained 17% of the variance in multicultural attitudes and 54% of the variance in attitudes towards the ethno-religious outgroup. The model also explained a further 49%, 38%, and 29% of variance in attitudes towards racial minorities, Travellers, and the disabled, respectively.

Inspecting the structural relationships for the control variables, female respondents reported more favourable attitudes towards the ethno-religious outgroup ($b = 0.29$, $SE = 0.04$, $p < .001$), Travellers ($b = 0.19$, $SE = 0.04$, $p < .001$), and the disabled ($b = 0.22$, $SE = 0.04$, $p < .001$) as well as more multicultural attitudes ($b = 0.30$, $SE = 0.05$, $p < .001$). Age was negatively associated with attitudes towards the ethno-religious outgroup ($b = -0.07$, $SE = 0.04$, $p < .04$) and approached significance in its association with multicultural attitudes ($b = 0.07$, $SE = 0.04$, $p = .08$). Lastly, Catholic respondents showed marginally more favourable attitudes towards the disabled ($b = -0.08$, $SE = 0.04$, $p < .06$) and more support for multiculturalism ($b = -0.33$, $SE = 0.05$, $p < .001$).

Contact with racial minorities ($b = 0.34$, $SE = 0.01$, $p < .001$), Travellers ($b = 0.49$, $SE = 0.02$, $p < .001$), and the disabled ($b = 0.28$, $SE = 0.01$, $p < .001$) was, in each case, associated with more positive attitudes towards the respective groups (for the sake of clarity, these relationships are not presented in Figure 4.9). Cross-group friendships with the ethno-religious outgroup were associated with more favourable attitudes towards the ethno-religious outgroup ($b = 0.42$, $SE = 0.02$, $p < .001$) and multicultural scores ($b = 0.13$, $SE = 0.02$, $p < .001$). Contact with both the disabled ($b = 0.10$, $SE = 0.02$, $p < .001$) and racial minorities ($b = 0.22$, $SE = 0.02$, $p < .001$) was also associated with higher scores on the multicultural scale. Cross-group friendships with the ethno-religious outgroup, however, were also directly associated with less favourable attitudes towards racial minorities ($b = -0.14$, $SE = 0.02$, $p < .001$), Travellers ($b = -0.12$, $SE = 0.02$, $p < .001$), and the disabled ($b = -0.15$, $SE = 0.02$, $p < .001$). Attitudes towards the ethno-religious outgroup were associated with more favourable attitudes towards racial minorities ($b = 0.42$, $SE = 0.03$, $p < .001$), Travellers ($b = 0.41$, $SE = 0.03$), and the disabled ($b = 0.28$, $SE = 0.03$, $p < .001$).

Mediation Results

Mediation by attitude generalization. Turning to the mediation results (see Table 4.4 for the mediation results for Study 4a), attitudes towards the ethno-religious outgroup mediated the relationship between cross-group friendships with the ethno-religious outgroup and attitudes towards racial minorities ($b = 0.18$, $SE = 0.02$, $p < .001$; bootstrap point estimate = 0.18; 99% CI [0.14, 0.22]), Travellers outgroup ($b = 0.17$, $SE = 0.02$, $p < .001$; bootstrap point estimate = 0.17; 99% CI [0.13, 0.22]), and the disabled outgroup ($b = 0.12$, $SE = 0.01$, $p < .001$; bootstrap point estimate = 0.12; 99% CI [0.08, 0.16]).

Mediation by deprovincialization. The multiculturalism variable was associated with more favourable attitudes towards all the outgroups: the ethno-religious outgroup ($b = 0.43$, $SE = 0.02$, $p < .001$), racial minorities ($b = 0.21$, $SE = 0.03$, $p < .001$), Travellers ($b = 0.18$, $SE = 0.03$, $p < .001$), and the disabled ($b = 0.16$, $SE = 0.03$, $p < .001$). There were no differences in the strength of the generalization effect between multiculturalism and attitudes towards the target outgroups (all z s ≤ 1.36 , all p s $> .05$). Furthermore, multiculturalism mediated the relationship between cross-group friendships with the ethno-religious outgroup and attitudes towards racial minorities ($b = 0.03$, $SE = 0.01$, $p < .001$; bootstrap point estimate = 0.03; 99% CI [0.02, 0.04]), Travellers ($b = 0.02$, $SE = 0.01$, $p < .001$; bootstrap point estimate = 0.02; 99% CI [0.01, 0.04]), and the disabled ($b = 0.02$, $SE = 0.01$, $p < .001$; bootstrap point estimate = 0.02; 99% CI [0.01, 0.04]).

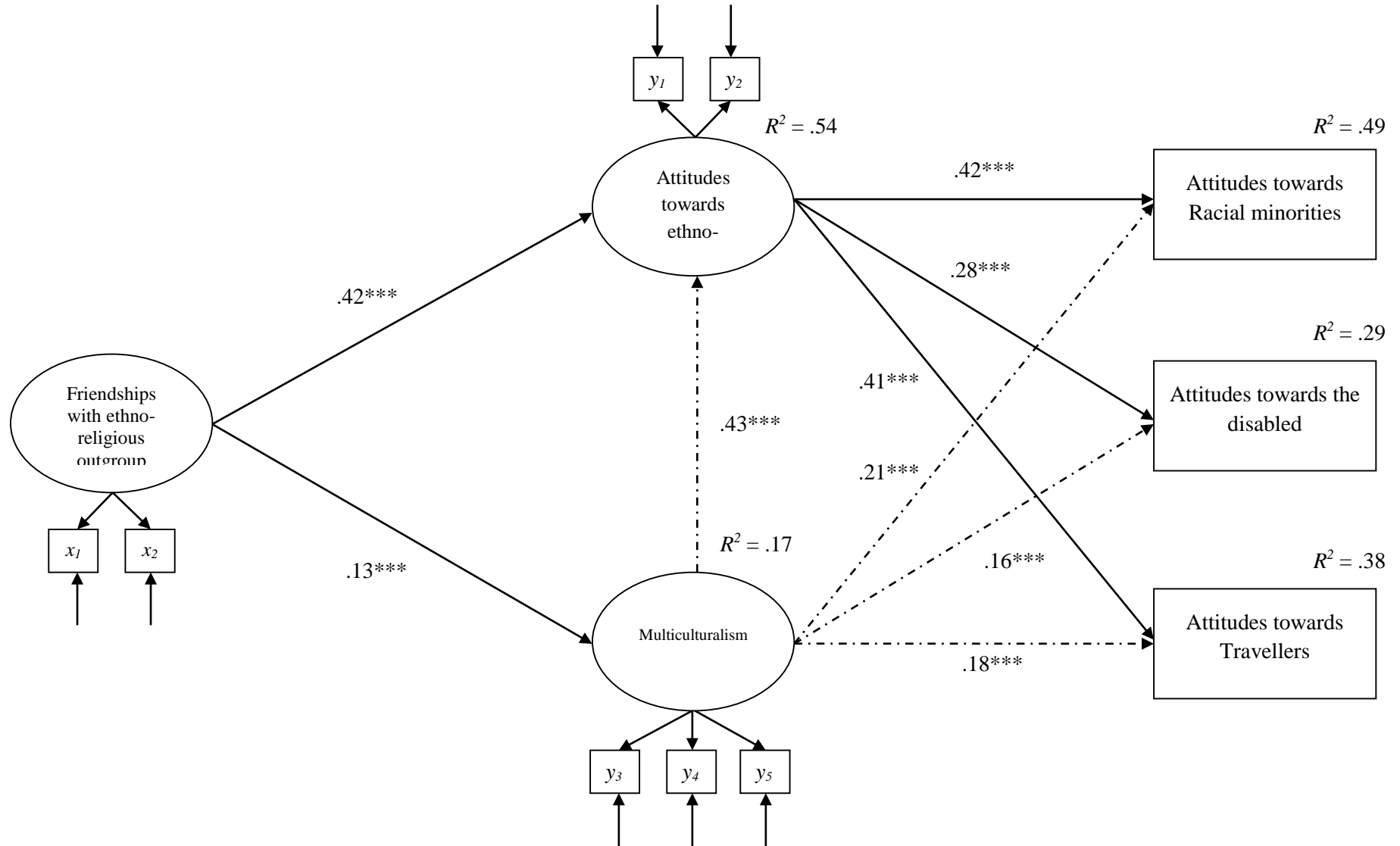


Figure 4.9. The structural equation modelling showing the relationship between friendships with the ethno-religious outgroup and attitudes towards multiculturalism and the various outgroups (N = 3560; Study 4a). Model fit: $\chi^2(55) = 234.812$, $p < .001$, $\chi^2/df = 4.27$, CFI = .99, RMSEA = .030 [.03, .03], SRMR = .018. For the sake of clarity, some significant paths have been excluded from the figure (i.e., contact with and attitudes towards the target outgroups). Only unstandardized regression weights reported. * $p < .05$, ** $p < .01$, *** $p < .001$

Chapter Four: The Secondary Transfer Effect In Northern Ireland

Table 4.3.
Means, Standard Deviations, and Correlations amongst the Key Variables (Study 4).

Variable	Mean (SD)	1	2	3	4	5	6	7	8	9
1. Cross-group friendships	2.05 (1.17)	-	.27***	.15***	.10***	.48***	.22***	.08***	.15***	.17***
2. Contact Racial Minorities	2.57 (1.28)		-	.31***	.27***	.32***	.54***	.22***	.26***	.29***
3. Contact the disabled	2.43 (1.26)			-	.27***	.20***	.21***	.39***	.17***	.19***
4. Contact Travellers	1.56 (0.96)				-	.09***	.12***	.05**	.41***	.08***
5. Attitudes - Ethno-religious	3.31 (1.13)					-	.52***	.34***	.41***	.47***
6. Attitudes - Racial minorities	3.47 (1.17)						-	.48***	.50***	.47***
7. Attitudes - The disabled	3.83 (1.11)							-	.32***	.34***
8. Attitudes - Travellers	2.71 (1.24)								-	.35***
9. Multiculturalism	3.74 (1.04)									-

SD = Standard deviation. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4.4.
Mediation and Three-path Mediation Results for Study 4a.

Target outgroup	Mediation by Attitude generalization		Mediation by multiculturalism		Attitude generalization vs. multiculturalism	Three-path mediation path	
	<i>b</i> (SE)	Bootstrap point estimate [CI]	<i>b</i> (SE)	Bootstrap point estimate [CI]	<i>z</i>	<i>b</i> (SE)	Bootstrap point estimate [CI]
Racial minorities	0.18*** (0.02) ₁	0.18 [0.14, 0.22] _b	0.03*** (0.01) ₃	0.03 [0.02, 0.04] _d	9.49***	0.02*** (0.004)	0.02 [0.01, 0.04] _b
The disabled	0.12*** (0.01) ₂	0.12 [0.08, 0.16] _b	0.02*** (0.01) ₃	0.02 [0.01, 0.04] _d	6.73***	0.02*** (0.003)	0.02 [0.01, 0.03] _b
Irish Travellers	0.17*** (0.02) ₁	0.17 [0.13, 0.22] _b	0.02*** (0.01) ₃	0.02 [0.01, 0.04] _d	8.83***	0.02*** (0.004)	0.02 [0.01, 0.04] _b

Regression weights with different numerical subscripts differ at $p \leq .05$. The subscript _a denotes bootstrap confidence intervals at $p < .05$ level. The subscripts _b represents bootstrap confidence intervals at the $p < .01$ level.

In all three cases, attitudes towards the ethno-religious outgroup emerged as a stronger mediator than multiculturalism (all z s ≥ 6.73 , all p s $< .001$). It should be noted, that, because cross-group friendships were directly associated with attitudes towards the target outgroups, these mediation results point towards partial mediations.

Three-path mediation by multiculturalism and attitude generalization. Because there was a significant association between multiculturalism and attitudes towards the ethno-religious outgroup, I was able to test a double mediated path whereby multiculturalism and attitudes towards the ethno-religious outgroup sequentially mediate the path between cross-group friendships and attitudes towards the target outgroups. This three-path mediation path reached statistical significance for all three target outgroups: racial minorities ($b = 0.02$, $SE = 0.004$, $p < .001$; bootstrap point estimate = 0.02; 99% CI [0.01, 0.04]), Travellers ($b = 0.02$, $SE = 0.004$, $p < .001$; bootstrap point estimate = 0.02; 99% CI [0.01, 0.04]), and the disabled ($b = 0.02$, $SE = 0.003$, $p < .001$; bootstrap point estimate = 0.02; 99% CI [0.01, 0.03]).

Tests for Similarity Gradients

Similarity according to Goffman (1963). In order to test for the predicted similarity gradient according to Goffman's (1963) typology, I compared the regression coefficients for the link between attitudes towards the ethno-religious outgroup and attitudes towards the target outgroups. As predicted, there were no differences between the ethno-religious-racial minority and ethno-religious-Traveller attitude link ($z = 0.26$, $p > .05$). Also confirming the similarity hypothesis, attitudes towards the ethno-religious outgroup was significantly more weak in its associate with attitudes towards the disabled that it was with its association with racial minorities ($z = 3.03$, $p < .01$) and Travellers ($z = 2.63$, $p < .01$).

Individual measures of perceived similarity. Next, I explored the similarity hypothesis according to the participants' ratings of perceived similarity between the focal and target outgroups. I did so by creating latent interaction terms. That is to say, a random slope was entered into the model that defined an interaction between the latent intergroup attitudes variable and the observed similarity variables, thus, the interaction term was estimated as a latent variable as well. Prior to the creation of the latent interaction term, the similarity items were mean-centred. Owing to the method used to estimate the latent variable—the marker variable approach (see Little, Slegers, & Card, 2006)—the latent variables in the model are estimated with a mean of zero.²² They therefore did not need to be mean centred. The simple slopes were estimated using the method described in Study 3. Lastly, when latent interactions are estimated in MPlus, bootstrapping techniques are no longer available. Therefore, the moderated indirect effects reported below will rely solely on the estimations reported by the product of coefficients method (see Chapter 2).

Entering the latent interaction terms between attitudes towards the ethno-religious outgroup and the three perceived similarity variables yielded evidence of two moderation effects. The interaction term for perceived similarity between the ethno-religious outgroup and the Travelling community was significantly associated with attitudes towards the Travelling community ($b = 0.06$, $SE = 0.01$, $p < .001$). Simple slopes analysis revealed that individuals who perceive higher levels of similarity between the ethno-religious outgroup and Travellers showed stronger generalization effects ($b = 0.47$, $SE = 0.04$, $p < .001$) than those who perceived lower levels of similarity ($b = 0.31$, $SE = 0.04$, $p < .001$). Attitudes towards

²² The marker variable approach to estimating latent variables works by constraining one of the manifest variable's—the marker variable—factor loading to 1 and its intercept to 0. The other items' factor loadings are then estimated in relation to this marker variable. In all the analyses presented in this thesis that estimate latent variables, the marker variable was chosen as the variable that loaded the strongest onto the latent variable under consideration.

the ethno-religious outgroup mediated the relationship between contact with the ethno-religious outgroup and attitudes towards Travellers for both individuals who perceived high levels of similarity between the two outgroups ($b = 0.20$, $SE = 0.02$, $p < .001$) and those who perceived low levels of similarity ($b = 0.13$, $SE = 0.02$, $p < .001$).

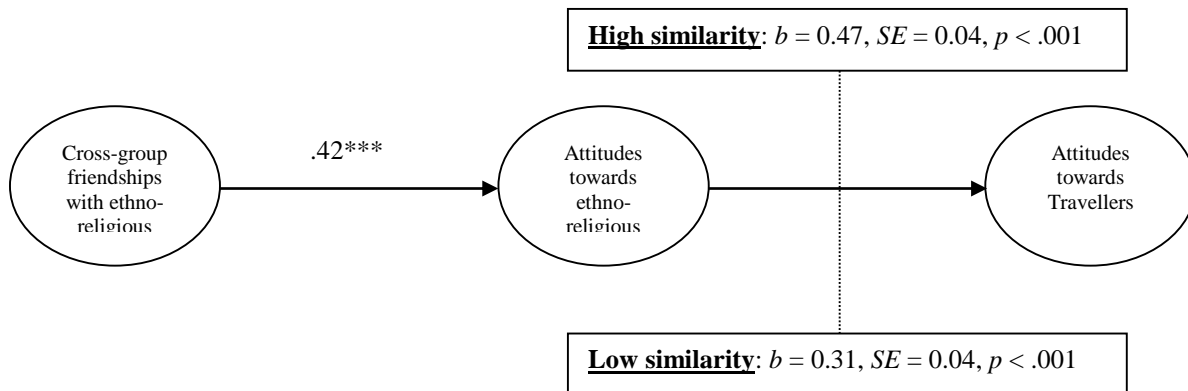


Figure 4.10. Illustration of the influence of perceived similarity between the ethno-religious outgroup and Travellers on the attitude generalization path.

The interaction term for perceived similarity between the ethno-religious outgroup and racial minorities and attitudes towards the ethno-religious outgroup was significantly associated with attitudes towards racial minorities ($b = 0.04$, $SE = 0.01$, $p < .01$).

Decomposing the interaction effect, individuals who perceived greater similarity between the two outgroups showed stronger attitude generalization effects ($b = 0.42$, $SE = 0.04$, $p < .001$) than those who perceived the two outgroups to be less similar ($b = 0.34$, $SE = 0.04$, $p < .001$).

Attitudes towards the ethno-religious outgroup mediated the path between cross-group friendships with the ethno-religious outgroup and attitudes towards racial minorities for individuals high ($b = 0.18$, $SE = 0.02$, $p < .001$) and low ($b = 0.15$, $SE = 0.02$, $p < .001$) in perceived similarity.

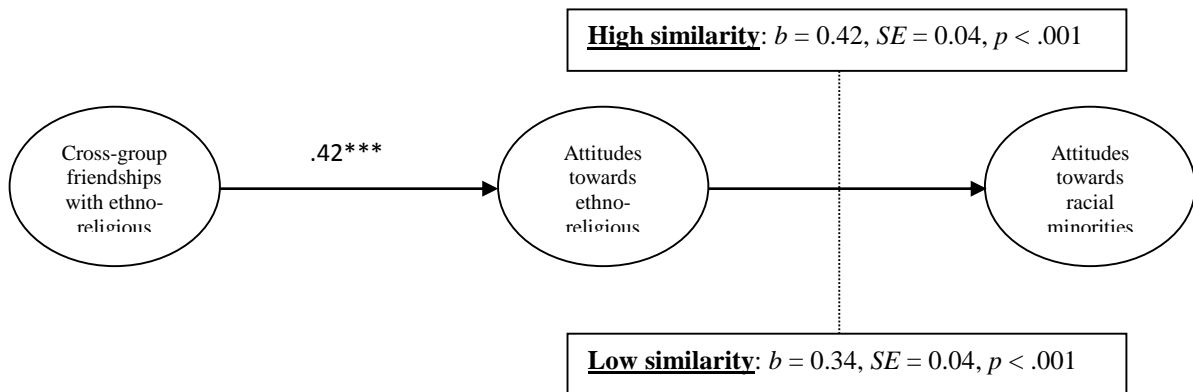


Figure 4.11. Illustration of the influence of perceived similarity between the ethno-religious outgroup and racial minorities on the attitude generalization path.

Group comparisons. To test for differences in the structural paths between Catholic and Protestant respondents, a series of moderations were conducted. Group moderated the path between cross-group friendships and the multiculturalism variable ($b = 0.13$, $SE = 0.04$, $p < .01$). Simple slopes analysis revealed that the association between friendships with the ethno-religious outgroup and multicultural attitudes was weaker for Catholic respondents ($b = 0.08$, $SE = 0.02$, $p = .001$) than it was for Protestant respondents ($b = 0.20$, $SE = 0.04$, $p < .001$). Group also moderated the path between multiculturalism and attitudes towards Travellers ($b = 0.08$, $SE = 0.04$, $p < .04$) and racial minorities ($b = -0.06$, $SE = 0.03$, $p = .07$). While the association between multiculturalism and attitudes towards Travellers was stronger for Protestants ($b = 0.24$, $SE = 0.04$, $p < .001$) than for Catholics ($b = 0.16$, $SE = 0.03$, $p < .001$), the reverse was true for the association between multiculturalism and attitudes towards racial minorities (Protestants: $b = 0.19$, $SE = 0.03$, $p < .001$; Catholics: $b = 0.25$, $SE = 0.03$, $p < .001$). Group also interacted with contact with racial minorities and multiculturalism ($b = 0.11$, $SE = 0.04$, $p < .01$). For Protestant respondents, the association between contact with racial minorities and multiculturalism was significantly stronger ($b = 0.30$, $SE = 0.03$, $p < .001$).

.001) than the same relationship for Catholic respondents ($b = 0.19$, $SE = 0.02$, $p < .001$).

Laslty, group also interacted with contact with and attitudes towards the disabled ($b = 0.08$, $SE = 0.03$, $p < .01$), such that the relationship was stronger for Protestant respondents ($b = 0.33$, $SE = 0.02$, $p < .001$) than it was for Catholic respondents ($b = 0.25$, $SE = 0.02$, $p < .001$).

Reverse Secondary Transfer Effect Models

As with Study 3, respondents in Study 4 reported the least amount of contact with Travellers ($M = 1.56$, $SD = 0.96$) with 67.4% reporting having had no contact at all with Travellers. Running a one-way repeated measures ANOVA comparing the amount of contact with racial minorities, the disabled and Travellers revealed a significant main effect for contact ($F(2, 5996) = 892.93$, $p < .001$, partial $\eta^2 = .23$). Pairwise comparisons indicated that, when compared to reported contact with racial minorities ($M = 2.57$, $SD = 1.28$, percentage reporting no contact = 25.2%) and the disabled ($M = 2.42$, $SD = 1.26$, percentage reporting no contact = 28.8%), respondents reported significantly less contact with Travellers (both $ps < .001$). However, the difference between reported contact with racial minorities and the disabled also reached statistical significance ($p < .001$). Given that the majority of respondents reported no contact with Travellers and the STE relies on some form of intergroup contact having occurred, only reverse models treating the disabled and racial minorities as focal outgroups were run; these reverse models will now be discussed in turn.

Study 4b: The Disabled as the Focal Outgroup

The model treating the disabled as the focal outgroup showed excellent model fit ($\chi^2(55) = 242.247$, $p < .001$, $\chi^2/df = 4.41$, CFI = .99, RMSEA = .031 [.027, .035], SRMR = .019). The model explained 25% of the variance in attitudes towards the disabled, and 17% of

the variance in the multicultural variable. The model explained a further 56% of the variance in attitudes towards the ethno-religious outgroup; 35% of the variance in attitudes towards Travellers; and 49% of variance in attitudes towards racial minorities.

Contact with the disabled was associated with more favourable attitudes towards the disabled ($b = 0.28$, $SE = 0.01$, $p < .001$). Attitudes towards the disabled were associated with attitudes towards the ethno-religious outgroup ($b = 0.17$, $SE = 0.02$, $p < .001$) after controlling for friendships with the ethno-religious outgroup ($b = 0.41$, $SE = 0.02$, $p < .001$). Attitudes towards the disabled were also associated with attitudes towards racial minorities ($b = 0.33$, $SE = 0.02$, $p < .001$) and attitudes towards Travellers ($b = 0.24$, $SE = 0.02$, $p < .001$), even after controlling for contact with racial minorities ($b = 0.35$, $SE = 0.01$, $p < .001$) and contact with Travellers ($b = 0.51$, $SE = 0.02$, $p < .001$), respectively. Furthermore, contact with the disabled was negatively associated with attitudes towards racial minorities ($b = -0.08$, $SE = 0.02$, $p < .001$) and attitudes towards Travellers ($b = -0.08$, $SE = 0.02$, $p < .001$), but was not associated with attitudes towards the ethno-religious outgroup ($b = -0.01$, $SE = 0.02$, $p > .05$). Contact with the disabled was positively associated with more a multicultural attitude ($b = 0.09$, $SE = 0.02$, $p < .001$) as was the case for contact with racial minorities ($b = 0.22$, $SE = 0.02$, $p < .001$) and friendships with the ethno-religious outgroup ($b = 0.14$, $SE = 0.02$, $p < .001$). Contact with Travellers, on the other hand, was not associated with multiculturalism ($b = -0.02$, $SE = .0.02$, $p > .05$). Multiculturalism, itself, was associated with more favourable attitudes towards the disabled ($b = 0.27$, $SE = 0.02$, $p < .001$), racial minorities ($b = 0.30$, $SE = 0.02$, $p < .001$), Travellers ($b = 0.31$, $SE = 0.02$, $p < .001$), and the ethno-religious outgroup ($b = 0.38$, $SE = 0.02$, $p < .001$).

Comparing for reverse similarity gradients, attitudes generalized significantly more strongly from attitudes towards the disabled to attitudes towards racial minorities than they

did towards Travellers ($z = 3.09, p < .01$) and the ethno-religious outgroup ($z = 5.91, p < .001$). Secondly, the association between attitudes towards the disabled and attitudes towards the Travelling community was significantly stronger than the association between attitudes towards the disabled and attitudes towards the ethno-religious outgroup ($z = 2.44, p < .05$). The relationship between multiculturalism and attitudes towards the ethno-religious outgroup was significantly stronger than the path between multiculturalism and attitudes towards racial minorities ($z = 2.43, p < .05$) and attitudes towards Travellers ($z = 2.17, p < .05$). The relationships between multiculturalism and attitudes towards Travellers and racial minorities were, however, of equal strength ($z = 0.22, p > .05$).

Both attitudes towards the disabled ($b = 0.09, SE = 0.01, p < .001$; bootstrap point estimate = 0.09; 99% CI [0.07, 0.11]) and multiculturalism ($b = 0.03, SE = 0.01, p < .001$; bootstrap point estimate = 0.03; 99% CI [0.01, 0.05]) mediated the path between contact with the disabled and attitudes towards racial minorities. Attitudes towards the disabled ($b = 0.07, SE = 0.01, p < .001$; bootstrap point estimate = 0.07; 99% CI [0.05, 0.09]) and multiculturalism ($b = 0.03, SE = 0.01, p < .001$; bootstrap point estimate = 0.03; 99% CI [0.01, 0.05]) also mediated the relationship between contact with the disabled and attitudes towards Travellers. Lastly, the relationship between contact with the disabled and attitudes towards the ethno-religious outgroup was also mediated by both attitudes towards the disabled ($b = 0.05, SE = 0.01, p < .001$; bootstrap point estimate = 0.05; 99% CI [0.03, 0.06]) and increased support for multicultural society ($b = 0.04, SE = 0.01, p < .001$; bootstrap point estimate = 0.04; 99% CI [0.02, 0.06]).

Whereas the mediation through attitudes towards the focal outgroup (the disabled) was significantly stronger than the mediation through multiculturalism for the models involving the target outgroups racial minorities ($z = 6.94, p < .001$) and Travellers ($z = 4.01, p$

< .001), attitudes towards the disabled and attitudes towards multiculturalism mediated the path between contact with the disabled and attitudes towards the ethno-religious outgroup with similar strength ($z = 1.19, p > .05$).

Because multiculturalism was associated with attitudes towards the focal outgroup (the disabled), I was able to test the three-path mediation path whereby contact with the focal outgroup influences attitudes towards the target outgroups by first leading to a more multicultural outlook, which itself is associated with more favourable attitudes towards the focal outgroup, which in turn is associated with more favourable attitudes towards the target outgroups. The three-path mediation path reached statistical significance for all three target outgroups: racial minorities ($b = 0.01, SE = 0.002, p < .001$; bootstrap point estimate = 0.01; 99% CI [0.00, 0.01]), Travellers ($b = 0.01, SE = 0.001, p < .001$; bootstrap point estimate = 0.01, 99% CI [0.00, 0.01]), and the ethno-religious outgroup ($b = 0.004, SE = 0.001, p < .001$; bootstrap point estimate = 0.004; 99% CI [0.00, 0.01]). The three-path mediation path was significantly stronger when the Travellers were the target outgroup when compared to the ethno-religious outgroup ($z = 2.4, p < .05$). There were no other significant differences between the outgroups with regards to the strength of the three-path mediation path ($z_s \leq 1.4, ps > .05$).

Having explored the structural relationships between the variables while treating the disabled as the focal outgroup, I will now explore the STE in the context of treating racial minorities as the focal outgroup.

Study 4c: Racial Minorities as the Focal Outgroup

The model specifying racial minorities as the focal outgroup showed good to excellent model fit, $\chi^2(55) = 227.885, p < .001, \chi^2/df = 4.14, CFI = .99, RMSEA = .030 [.026, .034]$,

SRMR = .018. As with the other models in this study, the current set of relationships explained a substantial amount of variance in attitudes towards racial minorities ($R^2 = 42\%$), the disabled ($R^2 = 35\%$), Travellers ($R^2 = 42\%$) and the ethno-religious outgroup ($R^2 = 59\%$). The model accounted for 17% of the variance in multiculturalism.

Turning towards the structural relationships, contact with the focal outgroup—racial minorities—was associated with more favourable attitudes towards racial minorities ($b = 0.38$, $SE = 0.02$, $p < .001$). Contact with racial minorities was also associated with less positive attitudes towards the ethno-religious outgroup ($b = -0.05$, $SE = 0.02$, $p < .01$), the disabled ($b = -0.11$, $SE = 0.02$, $p < .001$), and Travellers ($b = -0.13$, $SE = 0.02$, $p < .001$). After controlling for contact with the disabled ($b = 0.27$, $SE = 0.01$, $p < .001$), attitudes towards racial minorities were positively associated with attitudes towards the disabled ($b = 0.39$, $SE = 0.02$, $p < .001$). Attitudes towards racial minorities covaried with more positive attitudes towards the ethno-religious outgroup ($b = 0.30$, $SE = 0.02$, $p < .001$) even after partialling out the effects of cross-group friendships with the ethno-religious outgroups ($b = 0.40$, $SE = 0.02$, $p < .001$). Lastly, after controlling for contact with Travellers ($b = 0.49$, $SE = 0.02$, $p < .001$), there was a positive association between attitudes towards racial minorities and attitudes towards Travellers ($b = 0.45$, $SE = 0.02$, $p < .001$).

In this model, attitudes generalized from racial minorities to the ethno-religious outgroup significantly more weakly when compared to the same attitude generalization path ending in attitudes towards Travellers ($z = 3.84$, $p < .001$) and the disabled ($z = 2.67$, $p < .01$). The strength of the attitude generalization path did not, however, differ between the focal outgroup and the target outgroups, Travellers and the disabled ($z = 1.27$, $p > .05$).

As with the other two models, contact with racial minorities ($b = 0.22$, $SE = 0.02$, $p < .001$), the ethno-religious outgroup ($b = 0.14$, $SE = 0.02$, $p < .001$), and the disabled ($b = 0.10$,

$SE = 0.02, p < .001$), but not contact with Travellers ($b = -0.02, SE = 0.02, p > .05$), was associated with a more multicultural disposition. Multiculturalism, itself, was associated with more favourable attitudes towards racial minorities ($b = 0.37, SE = 0.02, p < .001$), the ethno-religious outgroup ($b = 0.29, SE = 0.03, p < .001$), Travellers ($b = 0.18, SE = 0.02, p < .001$), and the disabled ($b = 0.11, SE = 0.02, p < .001$).

Attitudes towards racial minorities mediated all three of the paths between contact with racial minorities and attitudes towards the ethno-religious outgroup ($b = 0.11, SE = 0.01, p < .001$; bootstrap point estimate = 0.11, 99% CI [0.09, 0.14]), Travellers ($b = 0.17, SE = 0.01, p < .001$; bootstrap point estimate = 0.17, 99% CI [0.14, 0.20]), and the disabled ($b = 0.15, SE = 0.01, p < .001$; bootstrap point estimate = 0.15, 99% CI [0.12, 0.18]).

Multiculturalism also mediated all three paths from contact with racial minorities to attitudes towards the ethno-religious outgroup ($b = 0.06, SE = 0.01, p < .001$; bootstrap point estimate = 0.06, 99% CI [0.04, 0.08]), Travellers ($b = 0.04, SE = 0.01, p < .001$; bootstrap point estimate = 0.04, 99% CI [0.03, 0.06]), and the disabled ($b = 0.02, SE = 0.01, p < .001$; bootstrap point estimate = 0.02, 99% CI [0.01, 0.04]). Comparing the strength of the two mediation effects for the three target outgroups once again reveals that attitude generalization emerged as the stronger mediator of the STE than did multiculturalism (all z s ≥ 4.12 , all p s $< .001$). The total indirect effects for the mediation results involving the various outgroups are as follows: the ethno-religious ($b = 0.18, SE = 0.01, p < .001$; bootstrap point estimate = , 99% CI [0.15, 0.21]), Travellers ($b = 0.21, SE = 0.01, p < .001$; bootstrap point estimate = , 99% CI [0.18, 0.24]), and the disabled ($b = 0.17, SE = 0.01, p < .001$; bootstrap point estimate = , 99% CI [0.14, 0.19]).

The last of the mediation results also indicates that the three-path mediation from contact with the focal outgroup to attitudes towards the target outgroup as sequentially

mediated by multiculturalism and then attitudes towards the focal outgroup, reached statistical significance for all three target outgroups; Travellers ($b = 0.04$, $SE = 0.004$, $p < .001$; bootstrap point estimate = 0.04, 99% CI [0.03, 0.05]), the disabled ($b = 0.03$, $SE = 0.004$, $p < .001$; bootstrap point estimate = 0.03, 99% CI [0.02, 0.04]), and the ethno-religious outgroup ($b = 0.02$, $SE = 0.003$, $p < .001$; bootstrap point estimate = 0.02, 99% CI [0.02, 0.03]).

Discussion

The results of Study 4 provide substantial support for the secondary transfer effect which worked (primarily) through the process of attitude generalization but also by the development of a more multicultural outlook on intergroup relations. Study 4 also found evidence for two types of similarity gradients, one whereby the participants rated the similarity between two groups and another whereby similarity on the basis of Goffman's (1963) stigma typology predicted differential attitude generalization effects. I will discuss each of the points in turn before providing a brief conclusion to the two studies discussed in this chapter.

Evidence for Multiculturalism as a Mediator of the Secondary Transfer Effect

Study 4 replicates and extends on the findings from Study 2's analysis of multiculturalism as a mediator of the STE. By replicating the findings of Study 2 in a new context (Northern Ireland), our confidence in multiculturalism as a mediator of the STE is increased. Bolstering confidence further still, Study 4 was able to test for multiculturalism as a mediator using a stricter statistical approach, namely structural equation modelling with latent variables. Because the study's sample size was sufficiently large to use structural equation modelling with latent variables, a stricter analysis of the hypothesised structural

relationships between the variables controlling for associated error, was possible. In Study 4, cross-group friendships with the ethno-religious outgroup, contact with racial minorities as well as contact with the disabled were associated with more endorsement of others' cultures and traditions. Contact with Travellers, however, was not associated with more multicultural attitudes. This is not that unexpected as just over 67% of the respondents reported having had no contact with Travellers at all.

The multiculturalism variable itself was associated with attitudes towards all the outgroups in equal measure. In other words, there were no statistically significant differences in the relationship between the multiculturalism variable and attitudes towards the disabled, Travellers, or racial minorities. This finding represents an important benefit of studying multiculturalism as a proxy for the deprovincialization hypothesis and a mediator of the STE. Similar to the extended contact hypothesis, an increase in endorsement for multicultural values, in part, changes one's understanding of ingroup norms. Since ingroup norms are not outgroup specific, there should be no differences in the way multiculturalism improves attitudes towards outgroup. This is exactly what was found in Study 4. Providing convincing support for multiculturalism as a mediator of the STE, the variable mediated the relationship between contact with the focal outgroup and attitudes towards the target outgroup in all nine of the mediation tests.²³

Study 4 uncovered further initial evidence for a double-mediated mechanism. In other words, the effects of intergroup contact on attitudes towards the target outgroups not only influenced multiculturalism and attitudes towards the target outgroups independently, but in combination as well. In other words, throughout the study (Studies 4a through 4c), intergroup

²³ Three mediation tests were conducted in Study 4a, 4b, and 4c, making a total of 9 tests for mediation by multiculturalism. The same number of mediation tests was conducted when testing attitude generalization as a mediator.

contact not only influenced attitudes towards the focal outgroup directly, but was also partially mediated by an increased acceptance of others' cultural practices. Similarly, the multiculturalism variable itself was not only directly associated with more positive attitudes towards the target outgroups, but the effect of multiculturalism was partially mediated by attitudes towards the focal outgroup. The statistical tests indicated that the relationship between intergroup contact with the focal outgroup and attitudes towards the target outgroups was indeed influenced by a sequential increase in multiculturalism which improved attitudes towards the target outgroup.

Attitude Generalization and Similarity Gradients

Study 4 provides further evidence for the attitude generalization hypothesis. Both cross-group friendships (Study 4a) and general contact (Studies 4b and 4c) with the focal outgroup were each associated with more favourable attitudes towards the focal outgroup. Attitudes towards the focal outgroup were, in turn, associated with more favourable attitudes towards the target outgroups, with the mediation results reaching significance in all 9 instances. When compared to the mediation effect of multiculturalism, mediation by attitude generalization emerged as the statistically stronger mediated effect in 8 of the 9 comparisons. While other research has hinted at a strength differential between the deprovincialization and attitude generalization mechanisms such that the mediation of the STE by attitude generalization is stronger than the mediation by deprovincialization (Pettigrew, 2009; Tausch et al., 2010), this study is the first to provide statistical evidence for the comparison between the two mechanisms. Taken together, these results add critical evidence of attitude generalization as the key process underlying STEs (Tausch et al., 2010).

What is particularly novel and exciting about this study, however, is the evidence uncovered for the similarity gradients (Pettigrew, 2009). To date, the similarity effects that

have been uncovered have been post-hoc applications of a global similarity measure (Lolliot et al., 2012). In other words, the levels of similarity between the two outgroups were not rated by the participants themselves but were based either on independent raters' perception of similarity between the outgroups (Harwood et al., 2011) or previous ratings attained from participants in a separate study which were then applied to a similar data set (Christ et al., 2012). Indeed, Study 3 and 4 also relied on such a global measure in gauging similarity gradients—Goffman's (1963) stigma typology. Study 4, therefore, provides the first evidence for a similarity gradient influencing the strength of the attitude generalization effect as moderated by the participants' own rating of intergroup similarity. Furthermore, it also provided evidence for a similarity gradient that is independent of the participants' similarity rating, i.e., based on Goffman's (1963) stigma typology.

The results from Study 4 confirm that attitudes do generalize along similarity gradients. Participants in Study 4 who thought that the ethno-religious outgroup was similar to racial minorities and Travellers showed stronger links between attitudes towards the ethno-religious outgroup and attitudes towards the respective target outgroups than did those who thought they were less similar. Providing a broad manner in which the question items used in the moderation hypothesis, the questions provide a good starting point for testing effects along similarity gradients. In hypothesising about the possible existence of similarity gradients, Pettigrew (2009) himself admits that operationalizing "similarity" is difficult as it could refer to a number of processes. Therefore, establishing that a similarity gradient (as defined by the participant) exists, in the broadest sense, is a positive first step.

Having said this, only two of the three hypothesised moderations bore evidence for the similarity effect. The 'perceived similarity between the disabled and the ethno-religious outgroup' variable did not moderate the relationship between attitudes towards the ethno-

religious outgroup and attitudes towards the disabled. This could be for a number of reasons. On the one hand, general attitudes towards the disabled as reported by the large national surveys show that attitudes towards the disabled are largely very positive—for only 6% of people in the latest Equality Awareness Survey (Equality Commission for Northern Ireland, 2012) reported having negative attitudes towards the disabled. Indeed, in the present study, when compared to attitudes towards Travellers and racial minorities, participants held the most favourable attitudes towards the disabled. It is quite possible that the disabled people the respondents have contact with share a common ethno-religious identity. If one is to think in terms of Fiske and colleagues' (2002) stereotype content model, the disabled score high on warmth but low on competence thus eliciting feelings of pity and sympathy rather than antipathy. Indeed, if one is to look at the results from the Equality Awareness Survey from Northern Ireland (Equality Commission for Northern Ireland, 2012), participants consistently held the most favourable attitudes and the lowest social distance scores towards the disabled, and felt that the disabled were the most unfairly treated. Like Fiske and colleagues' (2002) stereotype content model would predict, these results indicate that the disabled are pitied rather than prejudiced against. Furthermore, the category 'disabled' is a broad category incorporating a wide range of disabilities (e.g., mental and physical disabilities). Results from Pettigrew and Tropp's (2006) meta-analysis show that the relationship between contact and prejudice towards the disabled is different depending on whether the person suffers from mental health issues ($r = -.18$) or is physically disabled ($r = -.24$). Thus, these results could also be a function of Study 4 not specifying the type of disability that was being referred to.

While there was no moderated similarity effect for the disabled, there was evidence for a within-subjects similarity effect—an effect I predicted using Goffman's (1963) typology of stigma. The results supported the hypothesis in that attitudes generalized significantly

more strongly from the focal to target outgroups when the outgroups were of the same stigma class (i.e., category stigma) than when the outgroups belonged to different classes (i.e., category to physical stigma). Furthermore, this hypothesis worked bidirectionally. In other words, by and large, the association between attitudes towards the disabled and attitudes towards the other outgroups were weaker when the disabled outgroup were treated as either the focal or target outgroup. There was, however, one exception. The relationship between the disabled and racial minorities (in both directions) was stronger than anticipated, though the relationship was significantly weaker when the disabled were the focal outgroup and racial minorities were the target outgroup.

It was interesting to note how the similarity gradient according to social category has manifested itself in other parts of the STE. For instance, in the model treating the disabled as the focal outgroup, the relationship between multiculturalism and attitudes towards the target outgroups, was stronger than the association between attitudes towards the focal outgroup and attitudes towards the target outgroups whereas in the other models, the attitude generalization link was stronger than the multiculturalism-attitude link. This is consistent with the hypothesised similarity effects that can be drawn from Goffman's (1963) stigma typology. By hypothesising that the link between attitudes towards less similar outgroup would be weaker than the link between attitudes towards similar outgroup, one would expect less variance to be accounted for in the dependent variable (i.e., attitudes towards the target outgroups) when the attitude generalization link is between two dissimilar outgroups than between two similar outgroups. Therefore, from a statistical perspective, less variance accounted for by one variable (i.e., attitude towards the focal outgroup) in another variable (i.e., attitudes towards the target outgroups) leaves more variance to be accounted for by other variables (i.e., multiculturalism). Thus, the relative strength of the association between

multiculturalism and attitudes towards the target outgroup link is dependent on other parts of the underlying mechanisms of the secondary transfer effect.

While the association between multiculturalism and attitudes towards the target outgroups was stronger than the attitude generalization link when the focal outgroup was the disabled, the mediation by attitude generalization was still significantly stronger than the mediation by multiculturalism. This is because contact with a focal outgroup is a stronger predictor of attitudes towards the focal outgroup than contact with the focal outgroup is when predicting multiculturalism. Given that the equation for testing mediation multiplies the *a* and *b* paths (see Chapter 2), the stronger *a* path in the attitude generalization hypothesis means that, overall, the mediation by attitudes towards the focal outgroup remains the stronger mediator. As a result, interventions designed to increase acceptance, understanding, and support for multiculturalism may bolster the effects that contact may have on attitudes towards various outgroup through the accelerated development of more favourable multicultural attitudes.

Study 4 is the first study to my knowledge to demonstrate the secondary transfer effect with younger participants. The age range of this sample bears special significance in the Northern Irish context as research indicates that it is between late childhood and early adolescence when Northern Irish youth become aware of the religious identities and their social and ethno-political significance (Bartonn & McCully, 2005). Thus, it seems an ideal age to investigate the effects of intergroup contact on attitudes given the significance social role that the ethno-religious identity plays in Northern Irish society (Cairns, 1982; Smith, 2003).

Summary and Conclusion

In this Chapter, I presented two studies investigating the STE in Northern Ireland (Studies 3 and 4). Both studies provided critical evidence for the reliability of the STE and its related processes. Further solidifying the central role that the attitude generalization hypothesis plays in the generalization of intergroup contact effects, both Studies 3 and 4 extend past research on the attitude generalization hypothesis by exploring similarity gradients. Similarity gradients help us to understand when we can expect stronger attitude generalization effects. Looking beyond the theoretical appeal of similarity gradients, there is the potential for them to translate into policy. In diversifying societies that still face the problem of segregation, both in schools and the neighbourhood—as is the case in Northern Ireland—understanding when attitudes generalize more strongly between social groups raises the possibility that interventions aimed at improving community relations can be tailor-made to help increase the reach of the ameliorative effects of intergroup contact. Therefore, understanding the effects of similarity, which types of similarity (similarity according to shared stereotypes or highlighting similar levels of prejudice experienced by the two outgroups) are of great importance both theoretically and practically.

In this Chapter, I also endeavoured to empirically test two reformulations of the deprovincialization hypothesis. Social dominance orientation continues to be a relevant variable in research on intergroup contact with an increasing body of research demonstrating differential effects of contact on prejudice for individuals high or low in the construct (Dhont & Van Hiel, 2009; Hodson, 2008, 2011; Hodson, Harry, & Mitchell, 2009; Schmid, Hewstone, Küpper et al., 2012). Study 3 showed that social dominance orientation also has a role to play in the deprovincialization hypothesis such that it helps more accurately predict when ingroup identification relates ethnocentrically to outgroup attitudes. Study 3 showed

that ingroup identification relates negatively to outgroup attitudes for highly socially dominant individuals. There was no relationship between ingroup identification between ingroup identification and outgroup attitudes for individuals low in social dominance orientation. Furthermore, this moderated relationship only evidenced for the relationship between ingroup identification and outgroup attitude when the outgroup threatened the ingroup's superiority (Duckitt, 2006).

Second, Study 4 tested a new conceptualization of the deprovincialization effect—multiculturalism. The finding that intergroup contact leads to more open attitudes towards others' cultural mores and norms, and that this endorsement of multicultural values is associated with more favourable attitudes towards a range of outgroups, has important implications for how we understand the deprovincialization hypothesis. Furthermore, I believe that one witnesses the STE via multiculturalism because multiculturalism changes the way the individual understands the role and exclusivity of their ingroup norms. Therefore, the realisation that other cultural practices are a welcome and important part of a diverse society should lead to more favourable and welcoming attitudes towards other outgroups as well. Put differently, because ingroup norms are not outgroup-specific, there is greater chance for wider attitude generalization to occur.

Lastly, Studies 3 and 4, in replicating the findings of Study 2, demonstrate that the deprovincialization and attitude generalization hypothesis should rather be understood and tested as interrelated processes. Study 2 provided evidence for this contention by showing that intergroup contact had an effect on attitudes towards target outgroups through ingroup identification and attitude generalization for individuals high in social dominance orientation. Thus, this finding adds to the growing body of work showing that intergroup contact may be especially effective for more bigoted individuals. Study 4 showed that, in addition to having

direct effects on attitudes towards the target outgroups, the effect of multiculturalism on attitudes towards target outgroups was mediated by attitudes towards the focal outgroup with this chain of events being started by intergroup contact with the focal outgroup.

There is, however, a caveat: testing any mediation hypothesis with non-experimental data inherently requires three waves of longitudinal data; testing a three-path mediation hypothesis requires four waves. The studies presented in this thesis so far had to settle for testing causal hypotheses using cross-sectional data. Using cross-sectional data to test mediation effects, unless under very specific circumstances, will always result in some kind of bias (Maxwell & Cole, 2007, see Chapter 5; see also Cliff, 1983). Therefore, in Chapter 5, I use longitudinal (Study 5) and experimental data (Study 6) to test the STE and its underlying processes. By using longitudinal and experimental data, issues of causality, and issues surrounding external and internal validity, are more comprehensively dealt with.

CHAPTER 5: LONGITUDINAL AND EXPERIMENTAL INVESTIGATIONS INTO THE SECONDARY TRANSFER EFFECT IN SOUTH AFRICA

Introduction

Longitudinal data are matched data that are collected from the same participants over more than one time points (also known as a *wave*). As illustrated in Figure 5.1, contact theory by its very nature, describes a longitudinal process (Pettigrew, 2008); contact at time 1 (T1) is said to be associated with less prejudice at time 2 (T2). As is evident from this example, at least two waves of data are required to test the hypothesis in its simplest form.

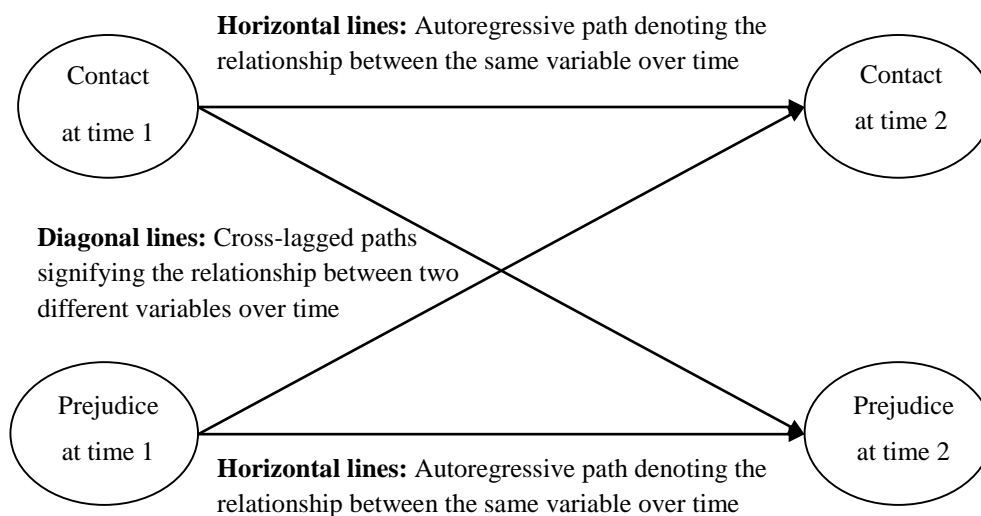


Figure 5.1. A basic two-wave longitudinal model illustrating the concepts of autoregressive and cross-lagged paths.

While research has unequivocally demonstrated that intergroup contact does reduce prejudice (Brown & Hewstone, 2005; Dovidio et al., 2003; Pettigrew & Tropp, 2006), the majority of tests have relied on cross-sectional designs (Pettigrew, 2008). For example, in Pettigrew and Tropp's (2006) extensive meta-analysis of over 500 studies testing intergroup

contact theory, 71% of the included studies relied on cross-sectional data to test the hypothesised relationship between contact and attitudes. In other words, they relied on data collected at one time point to explain a process that occurs over time. Because cross-sectional designs do not allow for any period of time to pass between measuring the variables, the most one can conclude from such a study is an association between the variables. Therefore, one could equally assert, and test, the reverse causal process such that less prejudiced people seek more contact. This is known as the *causal sequence* problem: does contact lead to less (more) prejudice, or do less prejudiced people seek more (avoid) contact. Longitudinal designs allow researchers to test both causal models simultaneously.

With the recent interest in understanding the processes by which intergroup contact is said to improve intergroup attitudes (see Brown & Hewstone, 2005; Pettigrew & Tropp, 2008), a third variable is added into the equation. In the causal chain of events, this third variable, the mediator, is hypothesised to occur between the time when intergroup contact happens and the resulting attitude change. Therefore, in order to provide a complete test for mediational hypotheses, longitudinal studies need to include a third set of matched data. The prior studies in this thesis, however, have tested the mediation hypotheses with cross-sectional data; a tradition that characterises most social psychological investigations into mediational hypotheses (Maxwell & Cole, 2007).

This practice of testing causal models with cross-sectional data has been encouraged by the advent and increasing popularity of covariance structure analysis (such as SEM). While these data analytic techniques have led to profound developments in data modelling by way of robustness in the face of nonnormal data and the ability to model the error associated with latent variables (see Bollen, 2002), this may lead to the false conclusion that using such

techniques to test causal hypotheses on cross-sectional data constitutes safe practice (Bullock, Harlow, & Mulaik, 1994). Gollob and Reichardt (1987) issue a sharp reminder of the principles underlying causal effects:

First, values of a variable are caused only by values of prior variables. Second, values of a variable can be caused by prior values of the same variable. Third, effect sizes can vary as a function of the length of the time lag between a cause and the time for which its effect is assessed. (p. 81)

Cross-sectional data do not meet any of these conditions. First of all, all variables in a cross-sectional analysis are measured concurrently, thus violating the first principle of causal modelling (cross-lagged effects). Indeed, this principle was identified as early as the mid-18th century by Hume: “It is that of PRIORITY [original emphasis] of time in the cause before the effect.” (1739-1740/2010; p. 50). Secondly, because the variables under investigation are only measured once in a cross-sectional design, there is no way for controlling the effect that previous levels of the variable have on subsequent measures of the same variable (known as autoregressive effects), thus violating the second assumption (Gollob & Reichardt, 1987; Maxwell & Cole, 2007). Lastly, in setting up a longitudinal design, careful attention must be paid to the length of time allowed to pass between waves as this can have a significant effect on the size of the effect of a cross-lagged path (Gollob & Reichardt, 1987). Violations of these three principles can cause substantial bias in the cross-sectional parameter estimate and, at worst, can lead to faulty conclusions about the underlying relationships.

In this next section, I will, first, briefly review where bias is generated in the cross-sectional estimation of the mediated effect after which I will, second, review the longitudinal studies demonstrating the secondary transfer effect (STE). Third, I will cover the

methodological extensions of the cross-sectional mediation model into its full three-wave longitudinal design. Fourth, I will briefly comment on the priority of choosing an appropriate time lag in longitudinal studies. In the fifth section I will introduce the studies that comprise this chapter and, as a sixth section, provide a brief history into the South African context as to provide a backdrop to current race relations in the country where my longitudinal and experimental data were collected. The analysis of the longitudinal and experimental studies will follow before finally summarising the research presented in this chapter.

Bias in Cross-Sectional Studies Testing Mediational Hypotheses

“Because causes take time to exert their effects, the best way to estimate causal effects is to fit longitudinal models to longitudinal data.”

(Gollob & Reichardt, 1987, p. 86)

The cross-sectional mediation model presented in Chapter 2 can be found in Figure 5.2 below. In order to distinguish between cross-sectional and longitudinal paths, any letter that is followed by an inverted comma (e.g.,') will denote a path as tested by a cross-sectional mediation model. Letters denoting paths involved in longitudinal mediation, on the other hand, will not be superseded by anything.

The main two sources of bias introduced when analysing mediation with cross-sectional data stem from (a) the exclusion of autoregressive paths and (b) not including a time lag between waves of data collection. Speaking to the first point, Maxwell and Cole (2007) point out that bias is introduced when the autoregressive effects of the independent and mediator variables are specifically not taken into account. Failure to model autoregressive effects makes the assumption that a variable has an autoregressive effect of zero (Gollob &

Reichardt, 1987). Similarly, because one is testing a casual hypothesis in mediation, measuring the independent and mediator variables simultaneously does not allow space for modelling the causal process, thus introducing further bias into the model. Maxwell and Cole do not mince their words in stating, “The important practical point here is that the substantial bias that typically exists in cross-sectional analyses of mediation can render p values or confidence intervals obtained from cross-sectional data essentially meaningless.” (p. 40).

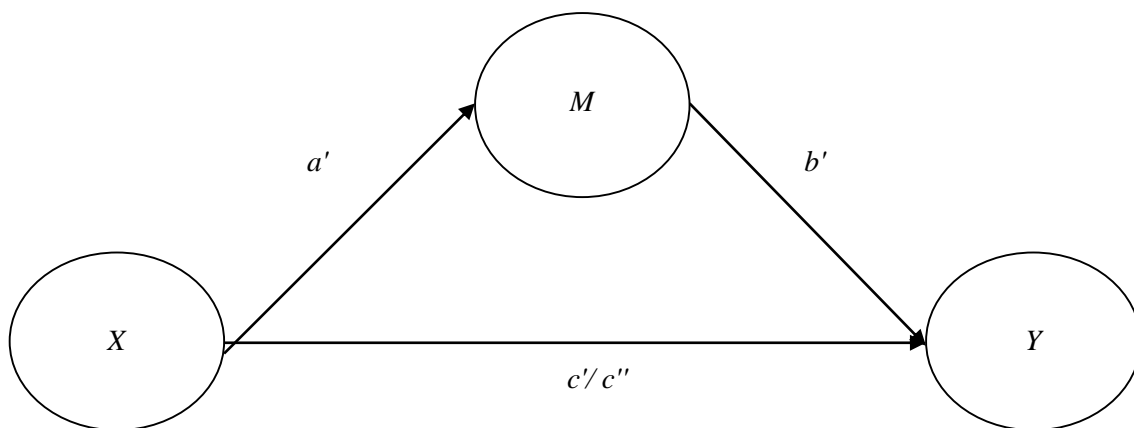


Figure 5.2. Path model showing a simple cross-sectional mediation. X = independent variable, M = mediator variable, Y = dependent variable. a' is the cross-sectional path stipulating a relationship between the X and M variables. b' is the cross-sectional path denoting the relationship between the M and Y variables. c' is the path between the X and Y variables before the mediator is entered into the model. c'' is the cross-sectional direct effect between the X and Y variables once the mediator M has been entered into the model. The arrow heads indicate the direction of the hypothesised effect.

Maxwell and Cole (2007; see also Maxwell, Cole, & Mitchell, 2011) demonstrate that the cross-sectional direct (c'') and indirect effect ($a'b'$) will differ from the longitudinal counterparts. The biases in both estimates seem to be a function of the autoregressive paths involving the X and M variables and the extent to which they are *stable*. Stability, in longitudinal terms, refers to the strength of the autocorrelation between a variable across two points. The stronger the autocorrelation, the more stable the autoregressive path is. The cross-sectional direct effect between X and Y (the c'' path) will be positively biased in comparison to the true longitudinal direct effect (denoted as the \hat{c} path) if X is more stable than M .

Contrariwise, the c path will be positively biased when M is more stable than X . The only condition under which a cross-sectional c'' path will reflect the true longitudinal value is when X and M are equally stable.

Assuming that X and M are equally stable, Maxwell and Cole (2007) demonstrate that the cross-sectional indirect effect ($a'b'$) is still influenced by the degree of stability of the X and M variables. If X and M display low, but equal stability, then the $a'b'$ effect will be less than the longitudinal indirect effect (ab). Conversely, if X and M are both equally highly stable, then the cross-sectional model will overestimate the true longitudinal indirect effect.

In a brief literature review on studies testing mediational hypotheses across five prominent social psychological journals, Maxwell and Cole (2007) uncover some concerning findings. For example, in 2005 alone, they uncovered 72 studies (in 68 articles) that tested mediational hypotheses, attesting to the recent interest in mediational processes. Of these 72 studies, 53% tested mediational hypotheses using cross-sectional methods. Only one study in Maxwell and Cole's (2007) literature review used a fully longitudinal design (i.e., controlling for previous levels of the independent, mediator, and dependent variable across three waves). Given the importance of longitudinal research in uncovering accurate parameter estimates, I will now turn my attention to the longitudinal evidence that has amassed for the STE.

Longitudinal Evidence for the Secondary Transfer Effect

Pettigrew (2008), commenting on the relative dearth of longitudinal studies in intergroup contact research, expresses concern as contact theory inherently describes a longitudinal process. Swart (2008) identified 13 longitudinal studies (in 9 articles) spanning from 1978 to 2009. Since then, researchers seem to have responded to Pettigrew's (2008)

call. A quick search for longitudinal studies in intergroup contact research shows that, since 2009, there have been 18 articles using longitudinal designs (Al Ramiah & Hewstone, 2012; Asbrock et al., 2011; Binder et al., 2009; Christ et al., 2010; Dhont, Van Hiel, De Bolle, & Roets, 2012; Eller, Abrams, & Gómez, 2012; Eller, Abrams, & Zimmermann, 2011; Feddes, Noack, & Rutland, 2009; Gómez, Eller, & Vázquez, 2012; Koschate, Hofmann, & Schmitt, 2012; Liang, 2012; Pettigrew, 2009; Swart et al., 2011; Tausch et al., 2010; Turner & Feddes, 2011; Tropp, Hawi, Van Laar, & Levin, 2012; Vezzali, Giovannini, & Capozza, 2010; White & Abu-Rayya, 2012). While a recent edition of the *British Journal of Social Psychology* (Issue 51, Volume 2, 2012) has devoted specific attention to longitudinal studies of intergroup contact, Christ, Hewstone, Tropp, and Wagner (2012) contend that longitudinal studies of intergroup contact are still few and far between. More scarce still are three-wave longitudinal designs (see Koschate et al., 2012, and Swart et al., 2011 for two exceptions; see Van Laar et al., 2005 for a five-wave longitudinal study). To date, four studies have longitudinally explored the STE (Eller & Abrams, 2004; Pettigrew, 2009; Tausch et al., 2010, Study 4; Van Laar et al., 2005). These will now be discussed in turn.

Eller and Abrams (2004) provide two longitudinal analyses of potential STEs. Using a small sample size of 34 British undergraduates, they were able to show that having more French friends directly predicted less prejudiced attitudes towards Algerians 6 months later. Furthermore, they found that friendships with French people at T1 were marginally associated with closer affective ties with the French ($p < .08$), which in turn, were associated with more favourable attitudes towards Algerians at T2. The mediator—close affective ties, operationalized as a difference score—was measured using the inclusion of other in self scale (Aaron, Aaron, & Smollan, 1992). Eller and Abrams (2004) tested for mediation using the

Effect In South Africa

Sobel technique. The mediation, however, failed to reach significance ($z < 1.5, p > .05$). This is not surprising given the small sample size. To obtain a reliable Sobel statistic given the sizes of the regression weights reported in Eller and Abrams's (2004) study, they would need a sample of over 600 (Fritz & MacKinnon, 2007). Their results, however, are not completely meaningless as they indicate that attitude generalization seems to play a role in the STE. Furthermore, demonstrating a direct STE, cross-group friendships with French people had a direct effect on attitudes towards the target outgroup six months later.

In a second sample using Mexican respondents (T1: $N = 207$, T2: $N = 87$; Matched: $N = 67$), Eller and Abrams (2004, Study 2) conducted a second longitudinal analysis of the STE. While they were able to show that, cross-sectionally, more contact with Americans as friends related to learning more about Americans, which in turn, was associated with more favourable attitudes towards Canadians, the paths failed to hold up longitudinally. Taking the matched sample size into account, as well as the 2-year time lag between waves, these null results become less surprising. The question of appropriate time lags will be dealt with in more detail shortly.

In one of the most impressive analyses involving the STE, Van Laar and colleagues (2005) collected longitudinal data spanning a period of 5 years based on over 2100 students at University of California (UCLA), Los Angeles. Among other hypotheses, the researchers investigated the effects of living with White, Latino, African American, and Asian American outgroup roommates on attitudes towards the other outgroups. The authors found that those White participants who shared a college room with a Latino person during their second and third year at UCLA not only held less prejudiced attitudes towards Latinos during their fourth year, but their attitudes towards African Americans also showed improvement. A similar reciprocal relationship held for those who were randomly assigned an African American

Effect In South Africa

roommate in that respondents' attitudes towards Latinos improved as well. These effects remained significant while controlling for prior attitudes towards the various outgroups.

In the article that coined the term *secondary transfer effect*, Pettigrew (2009) presented two-wave longitudinal correlation analyses looking at the correlation between contact with foreigners (focal outgroup) at T1 and attitudes towards homosexual men and the homeless (target outgroups) at T2. More specifically, he looked at these two STEs using two longitudinal data sets collected between 2002 to 2003, and 2003 to 2004. While partialling out the effects of prior attitudes towards the target outgroups, Pettigrew found significant correlations between contact with foreigners (the focal outgroup) and attitudes towards the target outgroups in 3 of the 4 models. The correlation between contact with foreigners in 2003 and attitudes towards homosexual men in 2004 did not reach significance ($r = -.02, p > .05$) after controlling for attitudes towards gay men in 2003. It should be kept in mind that these four effects (including the null result) could have been mediated by attitudes towards the focal outgroup, a hypothesis which Pettigrew did not test. The correlation between contact with foreigners in 2002 and attitudes towards homosexual men in 2003, after controlling for antigay prejudice in 2002, was also small ($r = -.07, p < .03$) while the correlations between contact with foreigners and prejudice towards the homeless were almost double in size (2002-03 $r = -.11$; 2003-04 $r = .12$, both $ps < .001$).

Lastly, Tausch et al. (2010, Study 4) longitudinally tested the STE and both the attitude generalization and ingroup reappraisal hypotheses in a Northern Irish sample ($N = 411$). The authors used a two wave longitudinal design with one year separating the two measurement occasions. The authors investigated both the attitude generalization hypothesis as well as two forms of the ingroup reappraisal hypothesis. The first analysis used attitudes towards the ingroup—measured on a feeling thermometer—to represent the first

conceptualization of ingroup reappraisal. The second analysis used ingroup self-esteem as the measure of ingroup reappraisal. The mediators were treated as residualized scores.

While controlling for contact with and attitudes towards the target outgroup at T1, both analyses showed STEs whereby contact with the ethno-religious outgroup at T1 was associated with more favourable attitudes towards the target outgroup at T2. Once the mediators (ingroup reappraisal and attitudes towards the focal outgroup) were entered into the model, the direct STE became non-significant in the model using ingroup attitudes as a proxy for ingroup reappraisal but remained significant when ingroup self-esteem was entered as the mediator. Contact at T1 failed to influence either conceptualization of ingroup reappraisal. Furthermore, ingroup reappraisal in both conceptualizations failed to predict attitudes towards the target outgroup at T2. Thus, the authors found that in the first analysis, attitudes towards the focal outgroup fully mediated the relationships between contact with the focal outgroup and attitudes towards the target outgroup at T2, while the second analyses resulted in a partial mediation.

The longitudinal studies of Eller and Abrams (2004), Pettigrew (2009) and Van Laar et al. (2005) were not able to control for previous contact with the target outgroup. These studies, therefore, are not able to rule out two possibilities. The first is that people who have contact with one outgroup might be more likely to have contact with people from other outgroups, the *secondary contact problem* (Tausch et al., 2010). Relatedly, contact with the focal outgroup might be explaining some of the variance that would otherwise have been explained by contact with the target outgroup. Tausch et al. (2010) were able to longitudinally take contact with the target outgroup into consideration and were still able to demonstrate direct and mediated STEs. Furthermore, Tausch and colleagues found evidence

for the STE while controlling for contact with the target outgroup both cross-sectionally (Studies 2 and 3) and longitudinally (Study 4).

The major flaws that limit the conclusions that can be drawn from these longitudinal studies are that the studies (a) did not test for longitudinal mediation (Pettigrew, 2009), (b) used half-longitudinal designs—using two waves of data to test a hypothesis requiring three-waves—in testing mediation hypotheses (Eller & Abrams, 2004; Tausch et al., 2010, Study 4), (c) used small sample sizes (Eller & Abrams, 2004, Studies 1 and 2), and/ or (d) did not use structural equation modelling with latent variables (Eller & Abrams, 2004; Pettigrew, 2009; Tausch et al., 2010; Van Laar et al., 2005). Half longitudinal designs are prone to bias as they assume stationarity which potentially biases the estimation of the mediated parameter estimate (Cole & Maxwell, 2003).

Longitudinal Mediation: Cross-Sectional Extensions

To properly test mediation models, at least three waves of data are required. Three-wave longitudinal designs allow space for the independent variable at time 1 (T1) to influence the mediator at time 2 (T2) and for the mediator at T2 to exert its effects on the dependent variable at time 3 (T3). Figure 5.3 illustrates this longitudinal extension of the cross-sectional mediation model covered in Chapter 2. In this figure, the variables in the ellipses denote the independent (X), mediator (M), and dependent (Y) variables. The subscripts that accompany the variables in the circles denote the time points at which they were measured, for example, X_2 corresponds to the mean score for the independent variable at wave 2. The X_t , M_t , and Y_t variables respectively represent the independent, mediator and dependent variables for the t^{th} time point.

Effect In South Africa

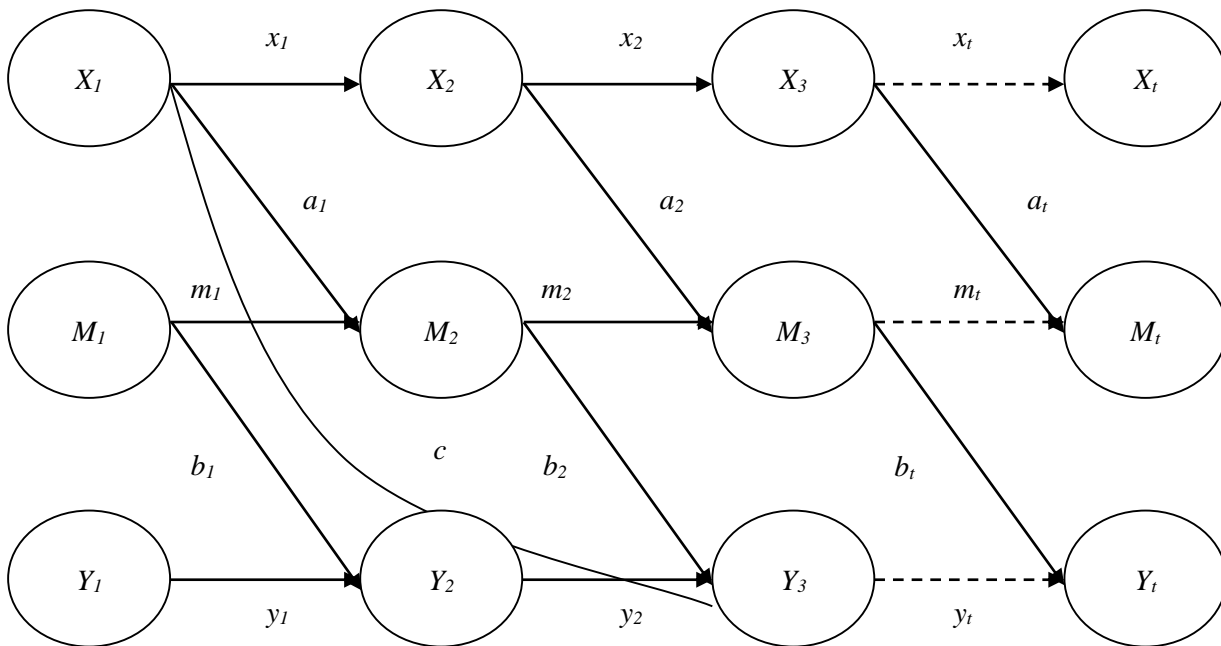


Figure 5.3. Path model showing a longitudinal mediation model. X = independent variable, M = mediator variable, Y = dependent variable. The associated subscripts indicate the time of measurement from time 1 to time t . x = the autoregressive path of X_t to X_{t+1} ; m = the autoregressive path of M_t to M_{t+1} ; y = the autoregressive path of Y_t to Y_{t+1} . a_t = cross-lagged path stipulating a relationship between the X_t and M_{t+1} variables. b = cross-lagged path denoting the relationship between the M_t and Y_{t+1} variables. c = the cross-lagged path between the X_t and Y_{t+2} variables which, in this figure, is between X_1 and Y_3 . The associated subscripts for the a , b , and c paths are meant for referral in the text. The arrow heads indicate the direction of the hypothesised effect.

The non-capitalized variables x , m , and y represent autoregressive paths. For example, the y_1 path represents the effect that the Y variable at T1 (i.e., Y_1) has on its corresponding variable at T2 (i.e., Y_2). The a and b paths represent the cross-lagged paths testing the mediated effect from X to Y via the mediator, M . The c path is the direct effect of X on Y . Autoregressive and cross-lagged stationarity can be tested when three or more waves of data have been collected. Autoregressive stationarity tests the assumption that the autoregressive effect is constant over time, for example, that $x_1 = x_2 = x_t$. Cross-lagged stationarity tests the assumption that causal structure between two cross-lagged variables is constant over time, for example, $a_1 = a_2 = a_t$. If the assumption of stationarity—both autoregressive and cross-lagged—is not tenable, then this points towards a causal structure that is in flux (Kenny,

1979) thus confounding the interpretation of the mediation analysis.²⁴ In addition to demonstrating a stable causal structure, imposing stationarity constraints reduces the number of free parameters in the model, aiding in model identification and resulting in a more parsimonious model (Gollob & Reichardt, 1987).

One tests the assumption of stationarity by comparing the fit statistics for a model where the x , m , and y paths are freely estimated to a model that stipulates $x_1 = x_2 = x_t$, $m_1 = m_2 = m_t$, and $y_1 = y_2 = y_t$. If there is no significant drop in model fit, which will be determined by using the corrected chi-square difference test (Satorra & Bentler, 2001), then one can assume autoregressive stationarity. Similarly, cross-lagged stationarity is tested by comparing a model whereby the a and b paths are freely estimated to a model whereby the respective paths are constrained to equality, i.e., $a_1 = a_2 = a_t$, and $b_1 = b_2 = b_t$. If there is no significant decrement in model fit between the freely estimated and constrained models, then one can conclude cross-lagged stationarity. Therefore, testing for autoregressive and cross-lagged stationarity represents an iterative model comparison approach whereby one first tests for autoregressive stationarity before attempting to show cross-lagged stationarity.

Time Lags in Longitudinal Designs

Stationarity, which can be empirically tested, is not the only consideration that researchers should keep when testing longitudinal models. A more contentious consideration that one needs to take into consideration is the hypothesised timeline over which the mediation is thought to take place. For one variable to have an effect on another, there has to be some temporal spacing between the variables; time lags that are too short may catch the

²⁴ See Frees (2004) for how to deal with models that violate the stationarity assumption.

causal relationship midway through the process, thus providing an inaccurate reflection of the true underlying causal sequence. Likewise, a time-lag that allows too much time to pass may miss capturing the relationship altogether, thus leading to a false conclusion that there is no causal relationship between the two variables.

The appropriate lag between data collection for longitudinal models has received a fair amount of attention in articles concerned with longitudinal methodology (Cole & Maxwell, 2003; Gollob & Reichardt, 1987; Ployhart & Vandenberg, 2010; Maxwell & Cole, 2007; Mitchell & James, 2001), yet few researchers conducting longitudinal models justify why they chose the time lagged the used (Ployhard & Vandenberg, 2010). While reliability and statistical power tend to increase with repeated observations (Hedeker & Gibbons, 2006; Willett, 1989), the number and timing of the subsequent data collection periods is of paramount importance for the meaningful interpretation of the relationships amongst the variables at the various time points (Ployhart & Vandenberg, 2010). The choice of lag between waves becomes even more important when a researcher wishes to investigate longitudinal mediation (Maxwell & Cole, 2007). While longitudinal models are much less prone to introducing bias into a mediation model (Maxwell & Cole, 2007), failing to choose appropriate time lags can also have similar biasing effects (Gollob & Reichardt, 1987; Ployhart & Vandenberg, 2010).

In choosing the appropriate length between data collection points, a researcher also needs to consider how many times data will need to be collected in order to best capture the nature of the change between two variables (see Ployhart & Vandenberg, 2010, for an in-depth discussion about trend lines and number of measurement occasions). However, authors do agree that various constraints can limit the number and timing of data collection opportunities. These constraints include financial constraints (such as costs of procuring the

questionnaire materials, incentives for participants to participate, transport costs and the like); availability of the participants; and method biases involved with repeated measures designs (such as participant practice and fatigue; see Podsakoff et al., 2003). Therefore, in designing a longitudinal study, a careful balance needs to be struck between (a) allowing for the appropriate time to pass between measurement occasions; (b) the minimum number of waves needed to capture the underlying relationships accurately; and (c) potential constraints that could limit the accurate dissemination and collection of questionnaire materials.

For example, Pettigrew (2009) found negative correlations between contact with immigrants and prejudice towards male homosexuals and the homeless (while controlling for prejudice towards the two outgroups one year prior). Only 3 of the 4 tested partial correlations attained statistical significance, with no correlation exceeding $r = -.12$. It is possible that these weak direct effects could be attributed to the long gap between waves. Pettigrew did not, however, test for mediation by attitudes towards the focal outgroup (immigrants), nor did he test a regression-based longitudinal model. Therefore, it remains questionable if these direct correlations would hold up if subjected to more stringent analytical approaches, such as longitudinal structural equation modelling with latent variables. Tausch et al. (2010), on the other hand, tested a longitudinal mediation path model using two-waves of data spaced one year apart. While the authors found a mediated path between contact with the ethno-religious outgroup and attitudes towards racial minorities (mediated by attitudes towards the ethno-religious outgroup), they failed to find such a mediated relationship testing the reverse model, i.e., from contact with racial minorities to attitudes towards the ethno-religious outgroup, mediated by attitudes towards racial minorities. This was because their measure of contact with racial minorities failed to predict

Effect In South Africa

more favourable attitudes towards racial minorities one year later. They suggest that using a single item of contact may not have been powerful enough to predict a change in attitudes one year later.

Similarly, Eller and Abrams (2004) tested a two-wave longitudinal model testing for STE between cross-group friendships with Americans (measured using a single item) and attitudes towards Canadians over a two-year time period. While the authors found cross-sectional support for the STE, the paths failed to reach significance in the longitudinal analysis. These null results may very well be because of the period of time that elapsed between the two data collection points. A number of extraneous events may have occurred during the two years between data collection that could have influenced how contact relates to prejudice. Furthermore, the small sample size and the single friendship item may not have allowed the statistical power to test for the effects of contact over the long gap between waves.

Although research showing positive correlations between contact with one outgroup and attitudes towards a second outgroup goes back close to 40 years, investigations into the secondary transfer effect represent a relatively recent occurrence. Therefore, while positive steps in the exploration of the STE and its underlying processes have been taken (using both cross-sectional and longitudinal data), a number of limitations plague the reliability of these findings. As discussed, the majority of research performed on the STE used cross-sectional data, leaving the investigations prone to certain biases. Even the studies conducting longitudinal analyses, while bolstering our confidence in the existence of the STE, are plagued by limitations. First, none of the longitudinal studies used a latent variable approach. As discussed, latent variables are able to provide more accurate parameter estimates because

they are able to control for error associated with the latent constructs, error that traditional regression techniques ignore. Controlling for error provides researchers with a way to control for any “noise” in the data that was not explicitly measured. Christ and Wagner (2012) warn that if measurement error at T1 exists, but is not accounted for, the autoregressive and cross-lagged paths will be underestimated. Thus, accounting for and partialling out this additional noise means that a truer reflection of the parameter estimated can be obtained. Using a latent variable approach, in addition to estimating measurement error associated with the manifest variables, also allows one to test for *measurement invariance*. I will cover measurement invariance in more detail later in the chapter, but for now, measurement invariance tests the hypothesis that the pattern(s) of manifest variables to latent construct are consistent across the various waves. If measurement invariance cannot be shown, then the meaning of the latent construct has changed. If the meaning of the latent variable differs at subsequent time points, interpreting both the bivariate and mediated results is confounded.

To date, the longitudinal studies testing the mediation hypotheses associated with the STE (Eller & Abrams, 2004; Tausch et al., 2010, Study 4), in addition to having used observed rather than latent variables to investigate the STE, have also used only two waves of longitudinal data rather than the required three (Cole & Maxwell, 2003; Little et al., 2007). As discussed, using two-wave longitudinal studies to test a mediation hypothesis requires strong assumptions to be made, i.e., autoregressive and cross-lagged stationarity. Lastly, the time lags between waves that previous studies into the STE have used usually spanned a long period of time. For instance, the time lag for Pettigrew’s (2009), Tausch et al.’s (2010, Study 4) and Van Laar et al.’s (2005) studies allowed a year to pass between data collection points. While researchers are interested in the long term effects of intergroup contact on attitudes

Effect In South Africa

(Christ & Wagner, 2012), substantially long time lags may provide a diluted version of the effect that intergroup contact with a focal outgroup can have on attitudes towards a target outgroup.

Study 5, in an effort to address these shortcomings, used a three wave (with six months separating data collection points), latent variable approach into the investigation of the secondary transfer effect and the attitude generalization hypothesis. Study 5 thus investigates the temporal effects of white South Africans' contact experiences with and attitudes towards Coloured and Black South Africans, as well as African immigrants and South African Indians. By including multiple outgroups in the analysis, I am also able to test forward and reverse STE models simultaneously. Including multiple outgroups in the same model will allow me to test a multiple mediation model while partialling out the effect of prior autoregressive and extraneous variables, thereby achieving more pure parameter estimates of the direct and indirect effects (Christ & Wagner, 2012). Lastly, Study 5 will investigate a largely ignored alternative explanation to the STE, that of reverse causal order. By extending the causal sequence problem into the realm of the STE, one may ask, "Do less prejudiced people seek more contact from a wider range of social groups?" I will call this the *secondary transfer effect of attitudes*. To date, only one study has tested for this possibility (Tausch et al., 2010, Study 4). This study, therefore, aims to add to this single investigation.

While the transition from the apartheid government to Nelson Mandela's vision of the country has been described as miraculous (see Swart, 2008), South Africa's segregated history still haunts the present-day rainbow nation, making the country a particularly apt setting in which to study the STE. Since both Studies 5 and 6 were conducted in South

Effect In South Africa

Africa, I will first outline the historical and present-day landscape of race relations that has shaped the country's social climate over the past 400 years.

The Present Research

Study 5 below represents a year long, three-wave longitudinal study using White, male South African learners attending a secondary educational institution in the Western Cape, South Africa. The study explored intergroup contact with, and attitudes towards, Black, Coloured, and Indian South Africans, as well as African immigrants.²⁵ It was decided to ask about contact with and attitudes towards Black and Coloured South Africans because of their prominent role in South Africa's tumultuous past. Furthermore, Black and Coloured South Africans make up approximately 30.1% and 50.2% of the population in the Western Cape, respectively (Statistics South Africa, 2007). It was also decided to ask about more distal outgroups as well to test the extent of the STE. Owing to the presence of South African Indians in South African society (which can be traced back to the slave trade from the 1670s onwards), and their relatively scant numbers in the Western Cape (1.3%; Statistics South Africa, 2007; 5% of the total South African Indian population; The High Commission of India in South Africa, 2012), contact with and attitudes towards South African Indians were also measured.

Study 6 is an experimental investigation into the STE amongst white female South African first-year psychology students attending Stellenbosch University. Using an experimental design that has been successfully applied to the study of intergroup relations (Ioannou, 2008), the experiment compared the attitudes of the respondents towards Black and

²⁵ The Western Cape is one of South African's nine provinces. The province is home to one of South Africa's three capital cities, Cape Town, which is the legislative capital of the country.

Effect In South Africa

Coloured South Africans after having engaged in a closeness-inducing task with a Black South African confederate (the experimental group) compared with those who did not come into contact with the confederate (the control group). Before proceeding onto the analyses for Study 5 and 6, I will first outline the South African context in order to provide a backdrop to race relations in South Africa that extends beyond the stereotypical apartheid struggle that caused the black-white divide.

The South African Context

Much has been achieved but still more work needs to be done to make South Africa truly belong to all who live in it. (National Planning Commission, 2011, p. 26)

South Africa's peaceful transition from a segregated society—under the rule of the National Party, which institutionalized segregation formally known as *apartheid* (literally meaning 'apartness')—to an integrated society, represents a remarkable feat. However, the country is still plagued by its past. Therefore, South Africa represents an interesting case study into intergroup relations as the country is a melting pot of ethnicities, religions, languages, and social classes. To fully appreciate the task facing South Africa in creating a multi-racial nation, and to move forward to a fully integrated, peaceful society, it is necessary to understand the history of segregation; a history that still permeates most aspects of living in the country today.

The discriminatory foundations of apartheid were laid into place long before the start of the apartheid era (1948 to 1994) with the chief foundations being laid during the industrialization of South Africa. Indeed, the beginnings of interracial discrimination can be traced back to the Dutch settlement in the Cape (1652) and the start of the slave trade in the

Effect In South Africa

Cape in the years that followed (Armstrong, 1980).²⁶ However, it was the discovery of diamonds (1869) and gold (1886) that acted as a catalyst for the development of a social hierarchy that commanded supremacy and privilege favouring the White population (Giliomee & Schlemmer, 1991). In pre-industrial South Africa (the late 18th century), two main factors led to development and flourishing of discriminatory practices. First, Blacks were placed under White control by means of slavery and frontier conquests. Second, owing to the number of Whites in colonial South Africa, all political, economic, and administrative positions were filled by Whites. In other words, there was no need for a Black middle class (Giliomee & Schlemmer, 1991). These two factors contributed to the growing racial discrimination that characterised late 18th century South Africa. The chief areas of society in which this discrimination manifested itself were marriage, the church, and public office (Giliomee & Schlemmer, 1991).

With the election of the National Party in 1948, racism was codified into law (Gibson, 2004). New legislation was introduced including the Prohibition of Mixed Marriages Act in 1949 (which outlawed inter-race marriage), and the Group Areas Act in 1950 (which segregated geographical areas along racial lines), to name two, that aided the ruling minority White Afrikaans population in attaining political and economic power. Probably the most infamous law to be passed during apartheid was the Population Registration Act in 1950 which categorized all South African citizens along racial lines—as reflected in their Identity Number. While the National Party argued that the Population Registration Act was to provide all South African citizens with an identity document (a seemingly harmless goal), the main thrust behind the act was to create a clear hierarchical structure of privilege. Under this act,

²⁶ Most early slaves came from South Asia (then, the East Indies), Madagascar, Mozambique, and East Africa (Armstrong, 1980).

Effect In South Africa

South Africans were classified as either being White, Black (commonly referred to as *Bantus* during apartheid), or Coloured (of mixed heritage). The Coloured category was further subdivided to include Indian, Malay, and Chinese people (Giliomee & Schlemmer, 1991) as substantial numbers of these groups were brought in during the slave trade (Armstrong, 1980). Indians, however, were generally treated as a distinct category from the start, and indeed, later formed the fourth legislative group (Die Burger, 21 February, 1950; cited in Giliomee & Schlemmer, 1991). These racial categories are still evident in present day South Africa as the four racial categories stipulated in the Population Registration act are still used in the South Africa vernacular (Posel, 2001). This is reflected in the findings of the 2011 South African Reconciliation Barometer Survey where South Africans primarily identify with their ethnic group, more so than identifying with the super-ordinate identity, South African, or their language group (Lefko-Everett, Nyoka, & Tiscornia, 2011).

Another important piece of legislature of the apartheid system that shaped the economic landscape of the day was the Bantu Education Act of 1953. This act brought the schools that were set up for Blacks, and chiefly run by missionaries, under the control of the apartheid government. Different curriculums were established for White and Black schools with the main aim of training Black South Africans for the labour market (Byrnes, 1996). The National Party's sentiment towards Black education was summed up by the statement of a National Party politician, JN Le Roux in 1945, "We should not give the Natives any education. If we do, who is going to do the manual labour in the community?" In 1959, the Extension of University Education Act expanded the Bantu Education Act into tertiary education by prohibiting all universities from accepting Black students. The present day effects of the apartheid education acts are arguably reflected in the discrepancy between the

Effect In South Africa

current unemployment rates for the different racial groups. This view is neatly summarised by Pont, Roberts, and van Sittert (2007) who assert that “[a]partheid fundamentally curtailed effective participation in the country’s economy and society through systematic discrimination in education, ownership, access to resources and opportunities.” (p. 948). In the first quarter of 2012, The Quarterly Labour Force Survey showed that 29.1% of Black South Africans were unemployed, with Coloured South Africans close behind (23.9%; Statistics South Africa, 2012). South African Indians have fared well in comparison with a 9.3% unemployment rate, while only a small minority of White South Africans were unemployed (6.1%; Statistics South Africa, 2012).

The Constitution of South Africa (1996), in opposition to the apartheid ideology, stipulates that every South African citizen has the right to education. Included in the right to education is the clause that educational institutions are not allowed to discriminate along racial lines and that the level of education must be equivalent to that of other, comparable public educational institutions. This right to education took the form of the South African Schools Act (No. 84, 1996) and the National Education Policy Act (No. 697, 1996). With schools now open to all South African citizens, Black South African students have tended to move out of the Black schools and into White (predominantly) English-speaking schools; few students have migrated to Black schools (Soudien, 2004; see also Hofmeyr, 2000). With the migration of students between schools, schools are becoming more heterogeneous. With this increased heterogeneity in the schools and the reconciliation efforts in South African society at large (see Gibson, 2004), the tasks of schools is not only confined to educating its student body, but also to prepare students for life in a multicultural society where they can meet, work, and live with people from diverse backgrounds (Erasmus & Ferreira, 2002). Fostering positive interracial ties in schools then becomes an important facet of school life in preparing

Effect In South Africa

students for a multicultural society. Intergroup contact, and especially the STEs of contact, represents a possible means by which this goal can be accomplished.

Lastly, South Africa has a history of xenophobic attitudes towards foreigners and immigration policy (see McDonald, 2000) and, according to surveys from 1997 and 2006 by the South African Migration Project (SAMP), is one of the most xenophobic countries in the world (Crush, 2008). These sentiments are reflected in South African's attitudes towards immigration policy, as indicated by the 2006 SAMP survey. The 2006 SAMP survey sampled 3,600 ($N_{\text{Male}} = 1,802$; $N_{\text{Female}} = 1,798$) South Africans. Seventy percent of the respondents described themselves as Black, 13% as White, 12% as Coloured, and 4% as Asian/Indian (Crush, 2008). The vast majority of South Africans showed preference for placing stringent restrictions on the numbers of immigrants who can enter the country (38%) or barring any form of immigration altogether (37%; Crush, 2008). The only country to mirror these results (completely banning migrants) was India (38%). Comparatively, respondents from other countries—including Zimbabwe, Nigeria, Peru, Britain, China, USA, Argentina, the Philippines, Tanzania, Canada, and Egypt—did not exceed 13% agreement when asked if they would ban immigrants from entering their respective countries (Crush, 2008).

There are approximately 1.6 to 2 million immigrants in South Africa (Polzer, 2010). The SAMP survey showed that South Africans reported having very little contact with immigrants, with 32% reporting none at all; 29% reported having had little contact; 22% reported some contact; and only 17% reported having had lots of contact with immigrants (Crush, 2008). Unsurprisingly, then, the survey results shows that South Africans are quite prejudiced towards African immigrants. Only 19% of respondents reported having favourable attitudes towards African immigrants (Crush, 2008). Broken down by race, 18% of White,

Effect In South Africa

20% of Black, 13% of Coloured, and 23.5% of Indian South Africans reported having favourable attitudes towards African immigrants (Crush, 2008).

In May 2008, the xenophobic attacks made international news headlines (see, for example, Allen, 2009). In a matter of weeks, 62 African immigrants were killed and about 35,000 displaced (Steenkamp, 2009). Owing to the racialised nature of xenophobia within South Africa (Warner & Finchilescu, 2003), Steenkamp (2009) comments that, “[w]ithin a single month, notions of the ‘rainbow nation’, pan-African solidarity and equality in South Africa were ringing hollow” (p. 439). One of the main reasons cited for the attacks was that immigrants were taking up jobs and businesses that would have otherwise gone to South Africans. Indeed, the three most popular perceived reasons for immigrants wanting access to South Africa, as given by the respondents in the 2006 SAMP survey, are to look for work (33%), to commit crimes (20.9%) or to come do business (13.4%; Crush, 2008). The impact of migrants on the job market is evident with 15% of respondents (collapsed across race) having directly lost a job to a foreigner; 31% reported knowing someone who lost a job to a foreigner; and 33% of respondents knew someone in their community who had their job taken by a migrant (Crush, 2008). Therefore, given the position that African immigrants take in South African society, it was decided to include them in the longitudinal study below.

Study 5

The three waves of data that make up this longitudinal study were collected over a period of one year, with 6 months separating measurement occasions. This time lag was chosen based on a previous study that used a similar time lag in the South African context (Swart, 2008; Swart et al., 2011). Allowing 6 months to pass between waves represents a theoretically meaningful time period for contact to affect attitudes while minimizing method

biases associated with multiple measurement occasions (Podsakoff et al., 2003). White South African respondents were asked about their contact with, and attitude towards, two salient outgroups (Black and Coloured South Africans) and two lesser contacted outgroups, African immigrants and South African Indians.

Hypotheses

The hypotheses that drove the analysis behind Study 5 can be divided up into four groups. First, I will specify the hypotheses relating to *tests of the assumptions necessary for longitudinal mediation*. The next set of hypotheses, the *primary hypotheses*, constitutes the set of hypothesised relationships that are specified by the STE and the attitude generalization hypothesis. *Secondary hypotheses* are the hypotheses that look at reverse causal models while *tertiary hypotheses* are those that constitute new tests that are available given the three-wave longitudinal design.

Tests for Longitudinal Mediation Assumptions. Before testing any of the hypotheses associated with the STE, I will first seek to fulfil the criteria deemed necessary for interpretable longitudinal mediation results, those of autoregressive and cross-lagged stationarity. Because previous research conducted in a similar context using similarly aged participants (Swart et al., 2011) has demonstrated that contact and attitudes are stationary, I predict that contact with and attitudes towards the various outgroups at T1 and T2 will not only be associated with their respective contact and attitude scores at T2 and T3, but that they will also exhibit stationarity. I also expect the hypothesised cross-lagged paths stipulated below to be stationary.

Primary hypotheses. I predict that contact with the focal outgroups at T1 and T2 will be associated with more positive attitudes towards the focal outgroups at T2 and T3, respectively. This relationship is expected to hold even after controlling for prior attitude levels towards the focal outgroup. Attitudes towards the focal outgroup at T1 and T2 will be associated with attitudes towards the target outgroup at T2 and T3 respectively. This association is expected to hold even after controlling for prior levels of contact with, and attitudes towards the target outgroup. As would be predicted by the attitude generalization hypothesis, attitudes towards the focal outgroup at T2 are expected to mediate the relationship between contact with the focal outgroup at T1 and attitudes towards the target outgroup at T3. Given the availability of contact and attitude measures towards 4 outgroups, this study can test for similarity gradients in the attitude generalization effect. By applying Goffman's (1963) typology to the data set, all four outgroups fall under the class of *category stigma*. Therefore, I predict that there will be no differential effects in the strength of the attitude generalization paths between the focal and target outgroups.

Secondary hypotheses. In line with previous research (Pettigrew, 1997; Pettigrew & Tropp, 2006; Swart, 2008; Swart et al., 2011) attitudes towards the focal outgroups at T1 and T2 will be associated with higher levels of reported contact with the focal outgroups at T2 and T3. This relationship is expected to be significant even after controlling for previous levels of contact with the focal outgroups. Whereas the term 'the secondary transfer effect' is more accurately described as 'the secondary transfer effect of intergroup contact', the reverse causal order could be at play. In other words, less prejudiced people might not only seek out more contact from one outgroup, but might do so for a range of outgroups. This refers to a 'secondary transfer effect of attitudes'. Owing to the longitudinal design and the set of

variables available, this reverse causal hypothesis in terms of the secondary transfer effect of attitudes can also be tested. Therefore, I expect, by simple extension of the reverse causal primary transfer effects, that attitudes towards the focal outgroups at T1 and T2 will be associated with more contact with the target outgroups at T2 and T3. I also expect that attitudes towards the target outgroup at T2 will mediate the relationship between attitudes towards the focal outgroup at T1 and contact with the target outgroup at T3.

Tertiary hypotheses. I am also able to test a rather novel interpretation of Tausch et al.'s (2010) secondary contact problem. They state that the secondary contact problem stems from the possibility that “respondents who have more contact with one outgroup would also have more contact with other outgroups” (p. 283). To test this possibility, I will regress contact with the target outgroups at T2 and T3 onto contact with the target outgroups at T1 and T2. If this effect holds, then contact with the target outgroup at T2 could act as a mediator of the STE in carrying over the effect of contact with the focal outgroup at T1 to attitudes towards the target outgroup at T3.

Participants

The data were collected from students attending a predominantly White, all male secondary school in the Western Cape Province, South Africa. Students in grades 8, 9, and 10 were invited to participate in the study. At T1, a total of 622 questionnaires were collected. At T2, 667 questionnaires were received and at T3, a total of 609 participants completed the questionnaire.

Time 1 sample. As I was only interested in participants who identified themselves as White South Africans, 100 participants were excluded from the final T1 sample because they

Effect In South Africa

identified themselves as being a Black South African ($N = 6$), Coloured South African ($N = 90$), South African Indian ($N = 1$) or did not indicate their ethnicity ($N = 3$). A further 42 respondents were removed from the sample at T1 because they either indicated that their nationality was “other” ($N = 31$) or did not fill in their nationality ($N = 11$). Therefore, the final T1 sample consisted of 480 White male South African students.

Time 2 sample. Of the 667 completed questionnaires at T2, 114 questionnaires were excluded from the final T2 sample because the respondents had identified themselves as being a Coloured South African ($N = 102$), Black South African ($N = 9$), South African Indian ($N = 2$) or failed to indicate their ethnicity ($N = 1$). A further 36 questionnaires were excluded from the final sample as respondents either indicated their nationality as “Other” ($N = 25$) or failed to indicate their nationality ($N = 11$). Therefore, the final T2 sample consisted of 516 White male South African respondents.

Time 3 sample. Of the 609 completed questionnaires at T3, 115 questionnaires were excluded because the respondents had either identified themselves as Coloured South African ($N = 102$), Black South African ($N = 10$), South African Indian ($N = 2$) or failed to indicate their ethnicity ($N = 1$). A further 45 questionnaires were excluded from the final T3 sample as 23 respondents had marked their nationality as “Other” and a further 22 participants failed to indicate their nationality. Therefore, the final T3 sample consisted of 494 White male South African respondents.

Data matching. In order to match up the questionnaires across the time periods, participants were asked to provide their *day* and *year* of birth as well as the third letter of their first name and the second letter of their surname. Because only partial information was attained, anonymity was achieved. Of the 480 respondents at T1, 370 could be matched at T2

Effect In South Africa

($M_{\text{age}} = 15.27$, $SD = 0.97$; T1 – T2 dropout, $N = 110$) and 296 at T3 ($M_{\text{age}} = 15.87$, $SD = 0.98$; T2 – T3 dropout, $N = 74$). Therefore, 296 respondents could be matched up across the three waves. The possible implications of participant dropout will be explored below.

Materials

A pen-and-paper questionnaire was handed out to each participant. In the questionnaire, respondents were asked to provide basic biographical details including their age (only at T2 and T3), home language, current grade (T1: 8, 9, or 10; T2 and T3: 9, 10, or 11), previous grade (T2 and T3 only), place of residence (at home or in the residence halls), nationality, and the population group they identified themselves with (Black South African, Coloured South African, White South African, Indian South African, or Other). The questionnaire was divided into two sections. A number of additional variables were included in the questionnaire. The following variables were used to test the hypotheses:

Contact variables. Cross-group friendships with Black and Coloured South Africans were measured using three variables: “About how many of your friends are [Black / Coloured] South Africans?” (0 = *None*, 4 = *All*); “How often do you spend time with your [Black / Coloured] South African friends during break time?”; “How often do you spend time with your [Black / Coloured] South African friends playing sport / doing something social with them?” (0 = *Never*, 4 = *Very often*). Contact with African immigrants and South African Indians was assessed using the following three measures: “Overall, how frequently do you have contact with [South African Indians / African Immigrants]?” (0 = *Never*, 4 = *Very often*); “In general, do you find the contact pleasant (positive) or unpleasant (negative)?” (1 = *Unpleasant / Negative*, 5 = *Pleasant / Positive*).

Effect In South Africa

Attitude variables. Attitudes towards all outgroups were measured on feeling thermometers (Converse & Presser, 1986). Participants read, “We would like to ask you how you feel towards various groups in South Africa. In the questionnaire you will find thermometers like the one below. Please rate the members of the groups that appear below on a thermometer that runs from zero (0) to a hundred (100) degrees. The higher the number, the warmer or more favourable you feel towards that group. The lower the number, the colder or less favourable you feel. If you feel neither warm nor cold, rate them at 50. Please circle the number that best represents your feelings.” They were then asked, “How do you feel towards [outgroup].” In order to try to avoid inflating shared method biases (see Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), the feeling thermometers were spread throughout the questionnaire.

Procedure

Consent to participate in the research was achieved through three steps. First, the principal, acting *in loco parentis*, gave me consent to approach the students in the school. Secondly, a letter was sent out to the prospective participants’ parents asking for consent to approach their child to ask their participation (via opt-out technique). Lastly, the learners, even though under the age of 18, were asked for their consent to participate in the study. The school principal, the parents, and the learners were informed that they could withdraw their participation from the study at any time, without penalty. My phone number and e-mail address were provided on all documents and questionnaires during each data collection period in the event that a participant chose to withdraw their participation. The surveys were completed during a time agreed upon with the school that made sure it did not interfere with the school’s academic responsibilities. As the teachers handed out the questionnaires to the

respondents, the teachers were given training in the dissemination of the questionnaires and how to handle possible questions from the students. No problems were reported during any of the data collection periods.

Results

Preliminary Analyses

One of the most prevalent threats to longitudinal analyses is that of subject attrition (Goodman & Blum, 1996; Ployhart & Vandenberg, 2010) and can lead to the violation of the assumption of random sampling. Subject attrition is an (almost) inescapable part of longitudinal research, yet it has received little attention in longitudinal studies (Goodman & Blum, 1996). Undetected (or spuriously undetected) attrition that is indicative of non-random sampling can have devastating effects on various aspects of the tested model.

Not only is it important to show that the participants who dropped out of the study are not different from the participants who completed the various waves, but showing that there is no systematic pattern to participant dropout would allow for the use of full information maximum likelihood estimation (FIML; Finkbeiner, 1979). FIML is a technique for dealing with missing data. It works by using information from cases that have complete data on both X and Y variables to estimate the paths between variables that have partial missing data. Doing so allows for the retention of the full sample at T1 across all waves of the longitudinal design, thus maximizing statistical power. While maximum likelihood techniques, such as FIML, have been around for some time (Anderson, 1957; Edgett, 1956; Lord, 1955), it is only since their recent incorporation into statistical packages for more widespread use is found. There is a growing number of research papers attesting to the robustness of FIML

techniques and their superiority over conventional ways of dealing with missingness (such as pair- and list-wise deletion and other regression techniques; Newman, 2003; Schafer & Graham, 2002). More specifically, FIML yields unbiased standard errors—and therefore, unbiased parameter estimates—under completely missing at random and missing at random missingness patterns (Enders & Bandalos, 2001; Muthén, Kaplan, & Hollis, 1987; Newman, 2003; Schafer & Graham, 2002). Since FIML is more robust when dealing with missingness than conventional ad hoc techniques, the use of FIML is strongly endorsed when missing data is present (Enders & Bandalos, 2001; Muthén, Kaplan, & Hollis, 1987; Newman, 2003; Schafer & Graham, 2002).

While most researchers tend to test for non-random sampling by way of comparing the mean scores between those who completed the questionnaires at T1 and T2 and those who dropped out after T1 (Swart, 2008; Swart et al., 2011; see meta-analysis by Goodman & Blum, 1996), this may prove insufficient. Goodman and Blum (1996) warn that mean differences (or the lack thereof) does not necessarily imply that attrition has (not) affected the variances and covariances of the variables included in the analyses. This is because, “the effects of non-random sampling on the observed relationships are independent of the effects of the means and variances of the variables” (Goodman & Blum, 1996, p. 633; see Alexander, 1988). Therefore, a more thorough check for the existence of non-random sampling and its possible effects is necessary. In the current study, the existence of non-random sampling and possible effects thereof were explored by following the four steps set out by Goodman and Blum (1996). These four steps include: (1) investigating for the presence of non-random sampling using logistic regression; (2) checking for mean differences along all variables between those who completed the questionnaire at both time points (T1 and T2 as well as T2 and T3; henceforth referred to as the *stayers*) against those

who dropped out after T1 and T2; (3) investigating possible restrictions or enhancement of variances; and (4) looking for changes in the structural relationships between variables. These additional tests go beyond the normal multivariate analysis of variance (MANOVA) commonly used to assess for patterns of dropout, and provide a more thorough analysis for exploring the existence of non-random sampling. These four steps will now be investigated in turn.

Investigating the presence of non-random sampling using logistic regression. For this analysis, two dichotomous variables were created. The first indicated if a participant had either dropped out after T1 (coded 1) or were matched up across T1 and T2 (i.e., the stayers; coded 2). The second dichotomous variable specified if a participant had dropped out after T2 (coded 1) or completed the question at both T2 and T3 (coded 2). These variables were entered separately into two logistic regression analyses as the dependent variables. The contact and attitudes items of interest as well as the participant's age (T2 only), place of residence, and grade served as the independent variables.

For T1-T2 dropout, entering the predictors of dropout did not result in a significant change in model prediction from the baseline model ($\chi^2(11) = 14.84, p > .05$). Running the same analyses but with T2-T3 dropout as the dependent variable and T2 contact, attitudes and demographics (including age) as the independent variables resulted in a non-significant chi-square statistic ($\chi^2(11) = 19.05, p > .05$). Therefore, there was no indication of systematic dropout.

Checks for mean differences. Two MANOVA analyses were performed to test if the matched respondents were significantly different from the respondents who dropped out. The first MANOVA tested if those participants who dropped out of the study after T1 were

significantly different to the participants who completed the questionnaire at T1 and T2 along the variables included in the analysis. Similarly, the second MANOVA tested if those participants who dropped out of the study after T2 were significantly different to the participants who completed the questionnaire at T2 and T3 along the variables included in the analysis. The results from the first MANOVA (comparing T1 dropouts to T1 stayers) revealed no overall effect of dropout as indicated by the non-significant Wilks's lambda = 0.97, $F(1.33, 460) = 1.33, p > .05$. Results from the second MANOVA—comparing the T2 and T3 stayers against those who only completed the questionnaire at T2—did not show a significant overall difference between those who dropped out after T2 and those who completed T2 and T3 data collection (Wilks's Lambda = 0.94, $F(11, 301) = 1.67, p > .05$, partial $\eta^2 = .06$).

Checks for differences in variances. When testing for differences in variances between the stayers and those who dropped out, one compares variances between the whole sample versus the variances of just the stayers. This is to see if excluding those who did not complete both data points reduces or enhances the variances of the variables. Given that structural equation models essentially model the sample variance-covariance matrix (see Chapter 2), significantly different variances between the stayers and those who dropped out would give a strong indication that the two groups of participants come from different populations, substantially altering the interpretation of the results. Once again, two tests were run comparing those who completed both T1 and T2 measures to those who dropped out after T1, and those who dropped out after T2 to those who could be matched across T2 and T3. Variances were compared using the following formula (from Hays, 1988):

$$z = \frac{x^2v - v}{\sqrt{2v}}, x^2v = \frac{(N - 1)s^2}{\sigma_0^2}$$

Effect In South Africa

N refers to the sample size of those who completed both time points, s^2 is the variance for the stayers, σ^2 is the variance for the whole sample, and $v = N - 1$.

Because multiple tests were performed, the alpha level was set to take the family-wise error into consideration. Eight variables were compared, therefore, the new alpha level was set to $p = \frac{.05}{8} = .006$. The results from both analyses can be found in Tables 5.2 and 5.3 below. As is evident from the results found in the two tables below, there were no differences in the variances between the stayers and respondents who dropped out at either of the time points, even at the original alpha = .05 level.

Table 5.1.
Comparison of Variances for Time 1 and Time 2 Stayers vs. the Whole Sample.

Variances (T1 and T2)			
Variables	Whole sample	Stayers (N)	z
Coloured friendships	0.73	0.73 (368)	0.04
Black friendships	0.72	0.71 (369)	0.21
African immigrant contact	1.24	1.22 (370)	-0.24
South African Indian contact	0.70	0.75 (369)	0.91
Coloured attitudes	493.38	497.41 (369)	0.11
Black attitudes	557.57	543.44 (369)	-0.34
African immigrant attitudes	697.46	669.61 (369)	-0.54
South African Indian attitudes	517.55	516.98 (369)	-0.15

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

Effect In South Africa

Table 5.2.

Comparison of Variances for Time 2 and Time 3 Stayers vs. the Whole Sample.

Variances (T2 and T3)			
Variables	Whole sample	Stayers (N)	z
Coloured friendships	0.57	0.61 (253)	0.61
Black friendships	0.60	0.57 (253)	-0.51
African immigrant contact	1.12	1.12 (252)	0.04
South African Indian contact	0.84	0.80 (252)	-0.46
Coloured attitudes	454.58	459.35 (250)	0.12
Black attitudes	608.03	610.57 (252)	0.05
African immigrant attitudes	695.70	657.39 (252)	-0.62
South African Indian attitudes	512.54	512.45 (250)	-0.00

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

Test for differences in structural paths. Lastly, I tested for any differences in the structural paths using the T1 (and T2) data for the full sample against the stayers (as suggested by Goodman & Blum, 1996). This allowed me to assess if there were any changes in the structural paths that could be the result of non-random subject attrition. I used the following formula to test for the difference between the regression weights (see Paternoster, Brame, Mazerolle, & Piquero, 1998 and Clogg, Petkova, & Haritou, 1995):

$$z = \frac{b_1 - b_2}{\sqrt{SEb_1^2 + SEb_2^2}}$$

There were no significant differences between the regression weights for the whole sample when compared to the restricted sample, even at the conventional $p \leq .05$ level.

Effect In South Africa

With an overall attrition rate of 38.33% (T1 dropout = 22.92%, T2 dropout = 20%), the results from the Goodman and Bloom (1996) analyses suggest that the attrition (and its associated missing data) is missing at random. Therefore, the full information maximum likelihood estimator was used to analyse the data set. As with other maximum likelihood techniques, FIML requires that the variables fall within the range of ± 2 in terms of skewness and ± 7 in terms of kurtosis to be deemed sufficiently normal to be included in the confirmatory factor analysis (West, Finch, & Curran, 1995). All the items to be used in the following analyses fell within the respective ranges across the three time points. Lastly, all items showed acceptable to good scale reliability across the three time points. See Table 5.3 for their reliabilities, means, and standard deviations. Furthermore, see Tables 5.3 through 5.5 for the cross-sectional and longitudinal correlations.

Looking at the correlation tables, one finds that contact with the various outgroups is positively associated with attitudes towards the target outgroups. These correlations are not only replicated cross-sectionally (see below the bold diagonal in each correlation matrix), but the pattern of positive significant correlations holds up in each longitudinal correlation matrix as well (above the diagonal in each correlation matrix). Especially notable are the correlations found in Table 5.5 that show that contact with the various outgroups at T1 is associated with more positive attitudes towards all the outgroups one year later at T3. I conducted a 4 (Attitudes: Coloured South African vs. Black South African vs. South African Indian vs. African immigrant) by 3 (Time: T1 vs. T2 vs. T3) within-subjects MANOVA to investigate any possible differences between the attitude scores towards the four outgroups across the three time points.

Table 5.3.

Means, Standard Deviations, and Reliabilities for all Variables the Three Time Points. Correlations amongst Key Variables for Time 1 and Time 2.

Variable	1	2	3	4	5	6	7	8
1. Coloured friendships (3)	.54***	.36***	.09	.18**	.35***	.18***	.11*	.08
2. Black friendships (3)	.55***	.62***	.07	.23***	.18**	.36***	.16**	.22***
3. African immigrant contact (3)	.16***	.20***	.50***	.31***	.13*	.31***	.36***	.19***
4. South African Indian contact (3)	.18***	.28***	.29***	.58***	.21***	.37***	.23***	.46***
5. Coloured attitudes (1)	.39***	.17***	.18***	.18***	.49***	.26***	.20***	.22***
6. Black attitudes (1)	.18***	.31***	.28***	.35***	.51***	.62***	.36***	.37***
7. African immigrant attitudes (1)	.10*	.18***	.50***	.27***	.27***	.52***	.49***	.34***
8. South African Indian attitudes (1)	.11*	.21***	.17***	.53***	.40***	.58***	.46***	.57***
Time 1: Means	2.65	2.21	2.43	2.32	51.42	39.86	38.48	43.53
(SD)	(0.85)	(0.85)	(1.11)	(0.83)	(22.21)	(23.61)	(26.41)	(22.75)
Time 2: Means	2.56	2.02	2.37	2.32	51.96	35.44	38.59	42.16
(SD)	(0.76)	(0.77)	(1.06)	(0.91)	(21.32)	(24.66)	(26.38)	(22.64)
Time 3: Means	2.54	2.01	2.44	2.35	52.02	37.13	37.67	42.34
(SD)	(0.83)	(0.77)	(1.09)	(0.95)	(21.15)	(23.96)	(25.48)	(22.25)
Time 1: Reliabilities	.73	.74	.83	.73				
Time 2: Reliabilities	.72	.74	.83	.80	.80	.85	.80	.75
Time 3: Reliabilities	.78	.74	.83	.80				

Note. Below the diagonal are T1 scores correlating with T1 scores. Above the diagonal are T1 scores correlating with T2 scores. The **bold correlations** (on the diagonal) are autocorrelations between T1 and T2. *SD* = Standard Deviation. The reliability coefficient associated with the attitude items represents the reliability score of the three attitude items at the three respective time points. † $p < .06$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5.4.

Correlations amongst Key Variables for Time 2 and Time 3 (Study 5).

Variable	1	2	3	4	5	6	7	8
1. Coloured friendships	.61***	.39***	.15*	.16*	.43***	.24***	.17**	.14*
2. Black friendships	.48***	.64***	.18**	.26***	.27***	.37***	.21***	.26***
3. African immigrant contact	.18***	.29***	.58***	.21***	.21***	.41***	.55***	.25***
4. South African Indian contact	.22**	.32***	.38***	.58***	.15*	.40***	.41***	.48***
5. Coloured attitudes	.46***	.22***	.18***	.16**	.66***	.41***	.20**	.15*
6. Black attitudes	.26***	.44***	.38***	.36***	.42***	.76***	.43***	.41***
7. African immigrant attitudes	.22***	.27***	.54***	.27***	.34***	.49***	.57***	.29***
8. South African Indian attitudes	.23***	.31***	.30***	.53***	.38***	.54***	.47***	.62***

Note. Below the diagonal are T2 scores correlating with T2 scores. Above the diagonal are T2 scores correlating with T3 scores. The **bold correlations** (on the diagonal) are autocorrelations between T2 and T3.

† $p < .06$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5.5.

Correlations amongst Key Variables for Time 1 and Time 3 (Study 5).

Variable	1	2	3	4	5	6	7	8
1. Coloured friendships	.54***	.39***	.12*	.10	.28***	.21***	.11 [†]	.12*
2. Black friendships	.57***	.53***	.19***	.19***	.17**	.27***	.13*	.18**
3. African immigrant contact	.18**	.25***	.53***	.28***	.15**	.25***	.38***	.22***
4. South African Indian contact	.14*	.22***	.28***	.48***	.08	.24***	.23***	.41***
5. Coloured attitudes	.43***	.21***	.25***	.11 [†]	.52***	.40***	.20***	.22***
6. Black attitudes	.26***	.41***	.38***	.33***	.51***	.56***	.35***	.35***
7. African immigrant attitudes	.22***	.23***	.65***	.33***	.33***	.55***	.44***	.34***
8. South African Indian attitudes	.11 [†]	.26***	.35***	.56***	.32***	.52***	.54***	.52***

Note. Below the diagonal are T3 scores correlating with T3 scores. Above the diagonal are T3 scores correlating with T1 scores. The **bold correlations** (on the diagonal) are autocorrelations between T2 and T3.

[†] $p < .06$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Effect In South Africa

There was a main effect for Attitudes (Wilks' Lambda = 0.66, $F(3, 232) = 40.21$, $p < .001$, partial $\eta^2 = .32$), and Time (Wilks' Lambda = 0.96, $F(2, 233) = 5.26$, $p < .01$, partial $\eta^2 = .04$), and an Attitude by Time interaction (Wilks' Lambda = 0.92, $F(6, 229) = 3.21$, $p < .01$, partial $\eta^2 = .08$). Investigating the main effect for Attitudes revealed that, across the three waves, participants held the most favourable attitudes towards Coloured South Africans ($M = 51.26$, $SD = 19.10$) which were significantly more favourable than attitudes towards South African Indians ($M = 43.58$, $SD = 19.12$, $p < .001$), African immigrants ($M = 39.12$, $SD = 21.23$), and Black South Africans ($M = 38.23$, $SD = 21.26$, $p < .001$). Attitudes towards South African Indians were significantly more positive than attitudes towards Black South Africans ($p < .001$) and African immigrants ($p < .01$). Lastly, attitudes towards African immigrants were, on average across the three waves, equivalent to attitudes towards Black South Africans ($p > .05$).

The main effect for Time showed that, collapsing attitude scores across the four outgroups, participants, in general, held more favourable attitudes towards the four outgroups at T1 ($M = 44.96$, $SD = 18.14$) when compared to general attitudes at T2 ($M = 41.65$, $SD = 18.30$, $p < .01$). General attitudes at T3 ($M = 42.54$, $SD = 18.10$), however, were equivalent to both general attitudes at T1 and T2 (both $ps > .05$).

Turning to the Attitude by Time interaction, attitudes towards Coloured South Africans remained stable across the three time points (Wave 1: $M = 51.36$, $SD = 22.74$; Wave 2: $M = 50.81$, $SD = 21.55$; Wave 3: $M = 51.62$, $SD = 21.16$, all $ps > .05$). Similarly, attitudes towards South African Indians (Wave 1: $M = 45.57$, $SD = 22.36$; Wave 2: $M = 42.38$, $SD = 23.10$; Wave 3: $M = 42.79$, $SD = 22.25$; all $ps > .05$) and attitudes towards African immigrants (Wave 1: $M = 40.85$, $SD = 25.77$; Wave 2: $M = 38.19$, $SD = 25.67$; Wave 3: $M =$

38.32, $SD = 25.83$; all $ps > .05$) were also stable across the three waves. Attitudes towards Black South Africans, on the other hand, were significantly more favourable during the first wave of data collection (Wave 1: $M = 42.06$, $SD = 23.56$) than they were at wave 2 and 3 (Wave 2: $M = 35.21$, $SD = 25.02$; Wave 3: $M = 37.43$, $SD = 37.43$, $SD = 24.14$, both $ps < .01$). Mean attitude scores towards Black South Africans between wave 2 and 3 were, however, statistically equivalent ($p > .05$).

Longitudinal Structural Equation Modelling with Latent Constructs

To investigate the temporal effects between intergroup contact and attitudes towards the 4 outgroups and the hypothesised mediational hypotheses, I included tests for factorial invariance, autoregressive stationarity, and cross-lagged stationarity. The analyses were performed in MPlus (Version 5.2, Muthén & Muthén, 1998-2008). The individual items used to measure the contact and friendship constructs served as manifest indicators of their respective latent variables. First, a wave by wave CFA was performed to establish the factor structure of the latent variables at each time point. Next, the factor structure across the three time points was assessed and measurement invariance was tested. As a third step, autoregressive stationarity was explored. Lastly, cross-lagged stationarity was tested.

Testing the individual factor models. A per-wave confirmatory factor model was estimated whereby four latent variables—a latent variable representing contact for each outgroup—with three manifest variables per latent variable was specified and tested. Table 5.6 displays the model fit for each of the three factor models tested at each time point. It is important to mention that two error terms were highly correlated in all three of the factor models. The items involved in the model misspecification were, “About how many of your friends are [Black / Coloured] South Africans?” and “How often do you spend time with your

Effect In South Africa

[Black / Coloured] South African friends playing sport / doing something social with them?”

Allowing errors to correlate is permitted if there is a strong theoretical rationale behind it (Jöreskog, 1993). This seems to be the case here as (a) there is substantial item content overlap; (b) the items appeared in close proximity to each other in the questionnaire at each data collection point; (c) they measured similar constructs (cross-group friendships); and (d) the errors of the same two items correlate with each other at each of the time points (a crude form of replicability). Furthermore, Bentler and Chou (1987) warn that, when dealing with real data, it is rarely appropriate to force large error terms to be uncorrelated (see Byrne, 2012). Based on these five rationales, the error terms of the items in question were allowed to correlate with each other.

Table 5.6.

Model Fit for the Factor Models at Each Time Point (Study 5).

Wave	Model Fit
1	$\chi^2(46) = 82.384^{***}$; $\chi^2/df = 1.79$; CFI = .98; RMSEA = .041 [.03, .06]; SRMR = .037
2	$\chi^2(46) = 92.341^{***}$; $\chi^2/df = 2.01$; CFI = .97; RMSEA = .056 [.04, .07]; SRMR = .055
3	$\chi^2(46) = 97.713^{***}$; $\chi^2/df = 2.12$; CFI = .96; RMSEA = .062 [.05, .08]; SRMR = .046

Note. At each wave, the two error terms of the friendship items between Black and Coloured friends were allowed to covary. CFI = Comparative fit index; RMSEA = root mean square error of approximation with the numbers in square brackets indicating the 90% confidence interval; SRMR = standardized root mean square residual; *df* = degrees of freedom.

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

From Table 5.6, then, the measurement model at all three time points provided satisfactory to good model fit. Therefore, the tests for measurement invariance were performed next. Given the increasing levels of model complexity, for the rest of the analyses it was decided to analyse the longitudinal model in groups of two outgroups per model. In other words, consecutive longitudinal STE models involving two outgroups at a time were

analysed. Therefore, six separate models were estimated. The six models were as follows: (1) Coloured South African – Black South African outgroups (Models 2a through 2g), (2) Coloured South African – African immigrant outgroups (Models 3a through 3g), (3) Coloured South African – South African Indian outgroups (Models 4a through 4g), (4) Black South African – African immigrant outgroups (Models 5a through 5f), (5) Black South African – South African Indian outgroups (Models 6a through 6f), and (6) African immigrant – South African Indian outgroups (Models 7a through 7f).

Tests for measurement invariance. Measurement invariance occurs when the same manifest variables load equally onto their respective latent construct across time. Put differently, the pattern of relationships between the manifest and latent variables are the same at each time point. This is an important step to demonstrate as, if shown, it indicates that the manifest items relate to the underlying latent variable in a similar way across time (Little et al., 2007; Meredith & Teresi, 2006). If measurement invariance cannot be demonstrated, then it indicates that the meaning of the latent variable has changed over time (Cole & Maxwell, 2003), confounding the interpretation of the longitudinal results.

Measurement invariance was tested by comparing the chi-square statistic (by means of the Satorra-Bentler (Satorra & Bentler, 2001) chi-square difference test) for a factor model that allowed the factor loadings to vary freely across time points against the chi-square of a more restrictive model whereby the factor loadings were constrained to equal their counterparts at successive waves. If no significant differences are found, then factorial invariance can be assumed. For this set of tests, the errors associated with each individual item were allowed to correlate with their corresponding errors at other time points. This is allowed, as explained by Little et al. (2007), because in longitudinal panel designs, “residual

information in each of the corresponding indicators has two sources of variability: a variance component that is reliable but specific to a given indicator, and a random, un-reliable source. When an indicator is present in a model at more than one time of measurement, the item-specific component would be expected to covary with itself across times of measurement” (p. 358).

Models 2, 3, 4, 5, 6, and 7a tested the freely estimated longitudinal measurement model where no factor loading constraints were applied (see Table 5.7 through 5.12 for the fit statistics for the various models). In each case, the freely estimated models displayed good to excellent fit (Models 2 through 7a: $\chi^2/df \leq 2.90$, $CFI \geq .94$, $RMSEA \leq .063$, $SRMR \leq .059$). The next series of models tested (Models 2 through 7b) represented a measurement model whereby the loadings of the corresponding indicators were constrained to equality across time.²⁷ These models also showed good to excellent model fit (Models 2 through 7b: $\chi^2/df \leq 2.74$, $CFI \geq .94$, $RMSEA \leq .060$, $SRMR \leq .064$). In comparing the chi-square statistic of the freely estimated factor model against the factor invariant model (Model 2 – 7a vs. Model 2 – 7b), no significant drop in model fit emerged (all $\Delta\chi^2(8-10) \leq 15.03$, all $ps < .05$). Therefore, the assumption of factor invariance was met and the items were constrained to equivalence across the three time points in each of the structural models to follow. Having established the measurement model required for longitudinal mediation models, the structural relationships between the variables were studied.

²⁷ For the model testing friendships towards Black and Coloured South Africans, the items were not only constrained to equivalence across time-points, but also between the two constructs. In other words, because the items used the same wordings, the similar items were constrained to equivalence across the two outgroups. This provides a stricter test of measurement invariance as it asks whether respondents ascribed similar meanings to the questionnaire items for the friendship (or contact) items across the different outgroups (Cheung & Lau, 2011).

Tests for stationarity. The next step in setting up a multi-wave longitudinal model aimed at testing longitudinal mediation is to test for autoregressive and cross-lagged stationarity. Autoregressive and cross-lagged stationarity tests whether a variable (latent or observed) predicts its corresponding counterpart (autoregressive) or another variable (cross-lagged) with the same predictive power at successive waves.

First of all, a full model was specified where all T2 variables were regressed on all T1 variables, and all T3 variables were regressed onto all T2 variables. Furthermore, in setting up the full model, all exogenous variables (the observed and latent variables at T1) were allowed to correlate with each other. The residuals of all endogenous variables (the observed and latent variables at T2 and T3) were allowed to correlate with one another at the respective time points (Cole & Maxwell, 2003). This fully unconstrained model (see all Models 2-7c in Tables 5.7 to 5.12) formed the base model against which the models specifying autoregressive equivalence were tested. All fully unconstrained models showed good model fit.

Testing for autoregressive stationarity, the models involving the target outgroup Coloured South Africans showed a significant change in chi-square statistic when imposing the autoregressive equality constraints (all $\Delta \chi^2(4) > 9.64$, all $ps < .05$). To uncover which path was causing the model misfit, four single degree of freedom (*df*) chi-square comparisons were performed (one per contact and attitude autoregressive path for both outgroups included in the model). These tests constrained one autoregressive path at a time to equivalence while allowing all other autoregressive paths to be freely estimated. The resulting chi-square statistic was then compared to the chi-square statistic for the fully freely estimated model. Any significant change in chi-square would then indicate model misfit. Because four single *df*

tests were computed, this might inflate the possibility of making a Type I error. Therefore, a Bonferroni correction was applied by dividing the alpha level ($p = .05$) by the number of tests performed (4) to yield a new significance level of $p = \frac{.05}{4} = .0125$. While the use of the Bonferroni correction method has been criticized for reducing power, given the large sample size used in this analysis as well as the notion that strong differences in model fit are of more interest than weak differences (Stevens, 2009), a new alpha level of $p \leq .01$ was adopted as indicating statistical significance.

The results of the single *df* tests showed that Coloured attitudes appeared not to be stationary. However, the change in chi-square for these single *df* tests did not reach significance at the new alpha level. How does one explain the significant differences evidenced in the overall model comparison test (Models 2, 3, and 4c vs. Model 2, 3, and 4d) to the non-significant single *df* comparisons? As discussed in Chapter 2, Hu and Bentler (1995) state that, in only offering a dichotomous decision strategy, the chi-square test does not quantify the degree of fit along a continuum (see also Hu & Bentler, 1998; Schermelleh-Engel & Moosbrugger, 2003). Hu and Bentler (1998) further warn that, “the standard chi-square test may not be a good enough guide to model adequacy” (p. 425). In light of this consideration, a range of other fit statistics were developed to aid in the process of evaluating model fit (Bentler & Bonett, 1980). These include the root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR), and the comparative fit index (CFI). The latest research on SEM fit indices recommends that, when assessing model fit, multiple criteria should be taken into account (Schermelleh-Engel & Moosbrugger, 2003; see Chapter 2). Therefore, a closer inspection of the RMSEA (and its associated confidence intervals), SRMR, and CFI showed negligible changes in fit (if any at

Effect In South Africa

all) when attitudes towards Coloured South Africans were freely estimated compared to when they were constrained to autoregressive stationarity. Finally, because the chi-square test is known to be influenced by large sample sizes (MacKinnon, 2008; Schermelleh-Engel & Moosbrugger, 2003; Wheaton, Muthén, Alwin, & Summers, 1977; Widaman & Thompson, 2003), and this tends to affect the chi-square comparison tests as well, the chi-square over *df* ratio has been suggested as an alternative index (Wheaton et al., 1977). By forming a ratio with the chi-square statistic and its associated *df*, this test resembles a descriptive goodness of fit test rather than a dichotomous decision making strategy (Schermelleh-Engel & Moosbrugger, 2003). A ratio between 2 and 3 is generally considered to indicate good or acceptable fit. Therefore, based on the non-significant single *df* chi-square comparisons, as well as the stable CFI (all $\Delta\text{CFI} = 0$), RMSEA (all $\Delta\text{RMSEA} \leq .001$), and SRMR (all $\Delta\text{SRMR} \leq .002$) statistics as well as the stable χ^2/df ratio (all $\Delta\chi^2/df \leq .03$) between the Model 2, 3, and 4c and d, Coloured attitudes were assumed to be stationary, and were therefore constrained to equivalence in all the models involving the Coloured attitude scale.

Having established autoregressive stationarity, the next step in setting up a longitudinal mediation model is to establish cross-lagged stationarity (Cole & Maxwell, 2003). Because models investigating two outgroups per analysis were run, it is possible to investigate two forms of cross-lagged stationarity. The first form of cross-lagged stationarity is where the cross-lagged paths between contact and attitudes (and vice-versa) were constrained to equivalence, but only within the specific outgroup category. For example, in the model investigating the STE between Black and Coloured South Africans, the path between friendships with Black South Africans at T1 and attitudes towards Black South Africans at T2 was constrained to be equal to the same path between T2 and T3. Similarly,

Effect In South Africa

the path between friendships with Coloured South Africans at T1 and attitudes towards Coloured South Africans at T2 was constrained to be equal to the same path between T2 and T3. The two paths were not, however, constrained to equality between the outgroups. This type of cross-lagged stationarity will be referred to as *within-outgroup stationarity*.

The second form of cross-lagged stationarity sought to uncover possible differences between the cross-lagged paths for the respective outgroups. Here, the cross-lagged paths were not only constrained to within-outgroup stationarity, but the respective paths were constrained to equivalence between the outgroup categories. Using the example above, the relationship between friendships with Black South Africans and attitudes towards Black South Africans (from T1 to T2, then from T2 to T3) was constrained to equal the corresponding relationship for Coloured South Africans over the same time intervals (from T1 to T2, and from T2 to T3). This form of cross-lagged stationarity is termed *between-outgroup stationarity*. Testing between-outgroup stationarity allowed me to test the hypothesis, amongst others, that there would be no differences in the strength of the STE as all outgroups could be classified under the class, category stigma (Goffman, 1986; Lolliot et al., 2012). While previous studies have found differences in model fit for so called reverse secondary transfer effect models (e.g., Tausch et al., 2010), this is the first time that the STE can be explored while simultaneously estimating the effects of contact with, and attitudes towards different outgroups.

The models specifying within-outgroup stationarity can be found in Tables 5.7 to 5.12 under Models 2-7e. As can be seen from the model comparisons, when compared to the models specifying freely estimated cross-lagged parameters (Models 2-7d vs. 2-7e), none of the models specifying within-outgroup stationarity showed significant decrement in model fit

Effect In South Africa

as indicated by the non-significant $\Delta\chi^2$ statistics (all $\Delta\chi^2(12) < 19.09$, all $ps > .05$). Therefore, the minimum criteria for testing longitudinal mediation models, as specified by Cole and Maxwell (2003), were met. Having met these criteria, the longitudinal mediation model and the possibility for between-outgroup stationarity will be discussed on a per-model basis. The longitudinal model pairs will be discussed in the following order, (1) Coloured and Black South Africans, (2) Coloured South Africans and African immigrants, (3) Coloured South Africans and South African Indians, (4) Black South Africans and African immigrants, (5) Black South Africans and South African Indians, (6) African immigrants and South African Indians. Only significant unstandardized regression weights and their associated standard errors will be reported.

Coloured and Black South African Target Outgroups

First, between-outgroup stationarity was tested. Comparing the between-outgroup stationarity model (Model 2f) to the within-outgroup stationarity model (Model 2e) resulted in a significant drop in the chi-square statistic ($\Delta\chi^2(6) = 14.11$, $p < .05$). In order to identify which between-outgroup path was causing the model decrement, a series of six single *df* tests were run. In each of these tests, one path was constrained to between-outgroup equality while the other five paths were estimated while constrained to within-group equality; the resulting chi-square statistic was compared to the chi-square for Model 2e. A significant drop in model fit was understood to indicate that the path under investigation could not be constrained to between-group equality. This path would then be allowed to be estimated by applying within-outgroup cross-lagged stationarity constraints only. Because six individual models were run in order to identify the path causing the misfit, a Bonferroni correction was applied in order to guard against the increased chance of making a Type I error that is associated with

Effect In South Africa

multiple comparisons. The new level of significance was therefore changed to $p = \frac{.05}{6} = .008$.

This new alpha level was used throughout the rest of the analyses involving single *df* tests.

The series of single *df* tests found two significant differences. Firstly, the path between attitudes towards Coloured South Africans at T1 (and T2) and friendships with Coloured South Africans at T2 (and T3 respectively) was significantly different from the same path for the Black South African outgroup ($\Delta\chi^2(1) = 9.41, p < .001$). Inspecting the regression weights, it was evident that while attitudes towards Black South Africans were related to friendships with Black South Africans at subsequent time points ($b = 0.006, SE = 0.001, p < .001$), attitudes towards Coloured South Africans were not associated with future friendships with Coloured South Africans ($b = -0.001, SE = 0.002, p > .05$).

Secondly, the association between attitudes towards Black South Africans and future friendships with Coloured South Africans differed significantly from attitudes towards Coloured South Africans and future friendships with Black South Africans ($\Delta\chi^2(1) = 7.94, p < .001$). While there was no association between attitudes towards Coloured South Africans at T1 (and T2) and friendship formation with Black South Africans at subsequent waves ($b = -.001, SE = .002, p > .05$), prior attitudes towards Black South Africans were positively associated with subsequent friendships with Coloured South Africans ($b = .004, SE = .002, p < .01$).

Apart from these two significantly different paths, all other cross-lagged paths were constrained to equivalence both at the within- and between-outgroup cross-lagged level. Constraining all other paths—with the exception of the two above-mentioned paths—resulted in a final model (Model 2g) that displayed acceptable model fit, $\chi^2(214) = 467.466, p < .001$,

Effect In South Africa

$\chi^2/df = 2.18$; CFI = .94, RMSEA = .050 [.044, .056], SRMR = .063. Moreover, this final model did not differ significantly from Model 2e ($\Delta\chi^2(4) = 4.53, p > .05$).

The longitudinal mediation model for Coloured and Black South African outgroups can be found in Figure 5.4 below. The model explained a substantial amount of variance (R^2) in friendships with Coloured- (T2: $R^2 = 48\%$, T3: $R^2 = 42\%$) and Black South Africans (T2: $R^2 = 54\%$, T3: $R^2 = 51\%$), as well as attitudes towards Coloured- (T2: $R^2 = 35\%$, T3: $R^2 = 44\%$) and Black South Africans (T2: $R^2 = 44\%$, T3: $R^2 = 57\%$).

For both outgroups, cross-group friendships with Black and Coloured South Africans at T1 (and T2) were associated with more positive attitudes towards the respective outgroups at T2 (and T3 respectively; $b = 4.64, SE = 0.82, p < .001$). Attitudes towards Black and Coloured South Africans were associated with more positive attitudes towards the other outgroup at subsequent waves ($b = .08, SE = .031, p = .01$). Another interesting finding worth noting is that attitudes towards Black South Africans at T1 and T2 were directly associated with Coloured friendships at T2 and T3 ($b = 0.004, SE = .002, p < .01$) thus providing support for one of the secondary hypotheses. This finding represents the antithesis of the direct secondary transfer effect of contact.

The path between friendships with Coloured South Africans at T1 and attitudes towards Black South Africans at T3 was mediated by attitudes towards Coloured South Africans at T2 ($b = 0.37, SE = 0.17, p < .03$; bootstrap point estimate = 0.37, 95% CI [0.08, 0.76]). Similarly, attitude towards Black South Africans at T2 mediated the relationship between cross-group friendships with Black South Africans at T1 and attitudes towards Coloured South Africans at T3 ($b = 0.37, SE = 0.17, p < .03$; bootstrap point estimate = 0.37, 95% CI [0.08, 0.76]).

Table 5.7.

Autoregressive and Cross-lagged Stationarity Model Fit for the Coloured and Black South African Model (Study 5).

Model	Model Fit	Model Comparison	$\Delta \chi^2$ (df)
2a	$\chi^2(96) = 278.611^{***}$, $\chi^2/df = 2.90$, SCF = 1.058, CFI = .94, RMSEA = .063 [.054, .072], SRMR = .059		
2b	$\chi^2(106) = 289.999^{***}$, $\chi^2/df = 2.74$, SCF = 1.055, CFI = .94, RMSEA = .060 [.052, .068], SRMR = .064	2b vs. 2a	10.89 (10)
2c	$\chi^2(194) = 435.512^{***}$, $\chi^2/df = 2.24$, SCF = 1.039, CFI = .94, RMSEA = .051 [.045, .057], SRMR = .059		
2d	$\chi^2(198) = 445.184^{***}$, $\chi^2/df = 2.25$, SCF = 1.04, CFI = .94, RMSEA = .051 [.045, .057], SRMR = .060	2d vs. 2c	9.64* (4)
2e	$\chi^2(210) = 462.717^{***}$, $\chi^2/df = 2.20$, SCF = 1.04, CFI = .94, RMSEA = .050 [.044, .056], SRMR = .063	2e vs. 2d	17.53 (12)
2f	$\chi^2(216) = 476.704^{***}$, $\chi^2/df = 2.21$, SCF = 1.036, CFI = .93, RMSEA = .050 [.044, .056], SRMR = .065	2f vs. 2e	14.11* (6)
2g	$\chi^2(214) = 467.466^{***}$, $\chi^2/df = 2.18$, SCF = 1.039, CFI = .94, RMSEA = .050 [.044, .056], SRMR = .063	2g vs. 2e	4.53 (4)

Note. *df* = degrees of freedom; SCF = scaling correction factor (used in computing the Satorra-Bentler scaled chi-square difference tests); CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual. Numbers that appear in square brackets are the 90% confidence intervals for the RMSEA. 2a = freely estimated factor model; 2b = measurement invariance factor model; 2c = freely estimated autoregressive model; 2d = autoregressive stationarity model; 2e = within-outgroup cross-lagged stationarity model; 2f = within- and between-outgroup cross-lagged stationarity model; 2g = within- and between-outgroup cross-lagged stationarity model with the paths between attitudes towards the focal outgroup (T1 and T2) and contact with the target outgroup (T2 and T3) and attitudes towards the focal outgroup (T1 and T3) and contact with the focal outgroup (T2 and T3) only constrained to within-outgroup stationarity. N = 480.

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

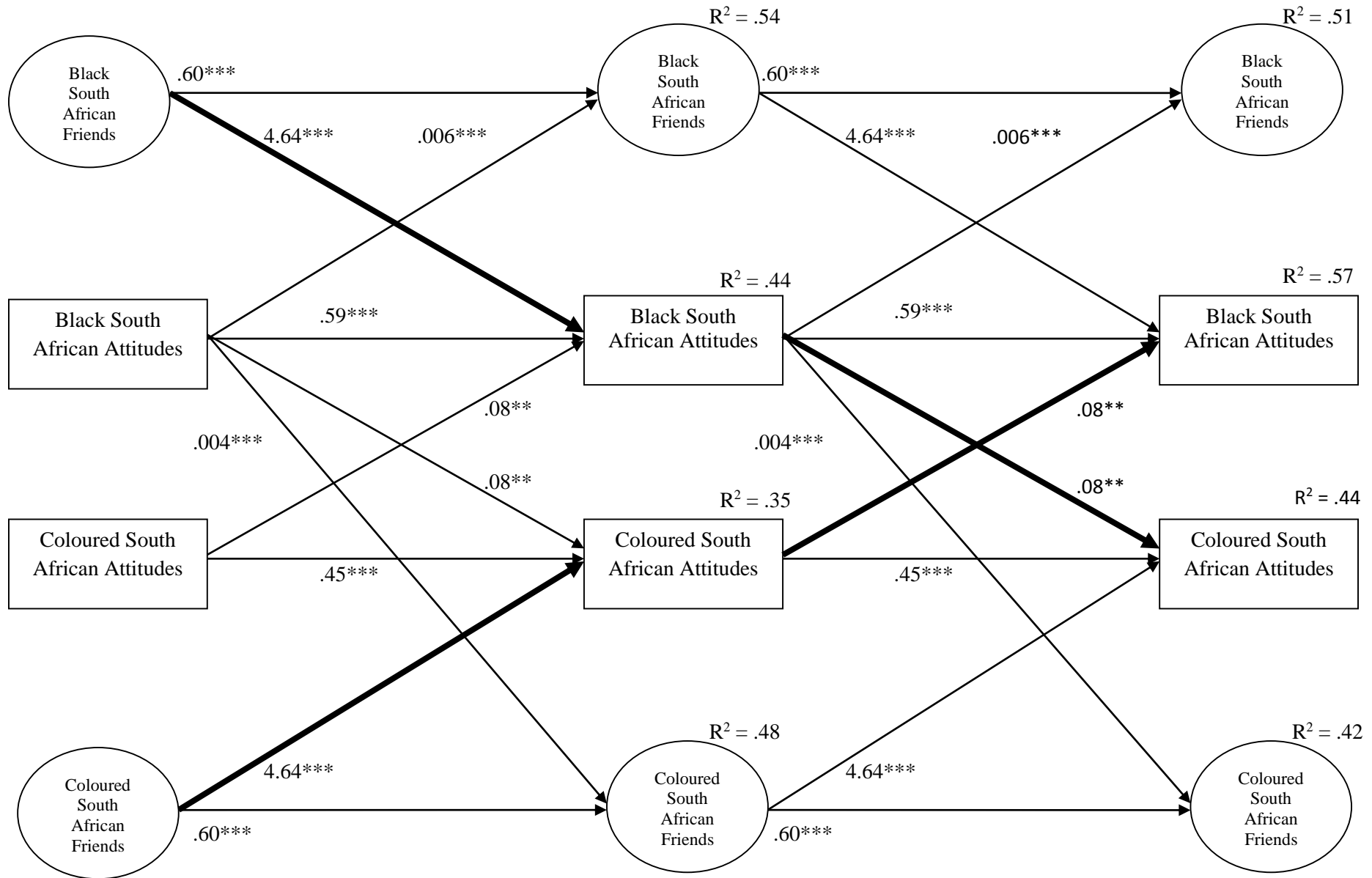


Figure 5.4. A longitudinal SEM showing the relationship between contact with, and attitudes towards Coloured and Black South Africans over twelve months amongst White high school students (N = 480). The **bold lines** highlight the attitude generalization process of the STE. Only significant, unstandardized coefficients are reported. Model fit: $\chi^2(214) = 467.466, p < .001, \chi^2/df = 2.18; CFI = .94, RMSEA = .050 [0.044, 0.056], SRMR = .063. \dagger\dagger < .08, \dagger p < .06, * p < .05, ** p < .01, *** p < .001$

Effect In South Africa

Turning to the mediations predicted in the secondary hypotheses, the analyses here suggest that there may indeed be a secondary transfer effect of attitudes such that the relationship between attitudes towards Coloured South Africans at T1 and cross-group friendships with Black South Africans at T3 was mediated by attitudes towards Black South Africans at T2 ($b = 0.001$, $SE = 0.001$, $p < .03$). Given the very small effect size and associated standard error, the non-significant bootstrap results (bootstrap point estimate = 0.00, 95% CI [0.00, 0.00]) come as no surprise.

Coloured South African and African Immigrant Outgroups:

The model whereby all cross-lagged paths were constrained to between-outgroup equivalence (Model 3f) showed a significant drop in chi-square when compared to the model imposing within-outgroup stationarity only (Model 3e; $\Delta\chi^2(6) = 30.51$, $p < .001$). Conducting the six single *df* tests to elucidate where the model misspecification was occurring showed that two paths could not be constrained to between-outgroup equivalence. The paths that were significantly different between the two target outgroups were the path between attitudes towards African immigrants / Coloured South Africans at T1 and T2 and contact with African immigrants / friendships with Coloured South Africans at T2 and T3 ($\Delta\chi^2(1) = 25.65$, $p < .001$). As was the case with the STE model involving Coloured and Black South Africans, attitudes towards Coloured South Africans at T1 and T2 failed to predict friendships with Coloured South Africans at T2 and T3, respectively ($b = -0.001$, $SE = .002$, $p > .05$). Attitudes towards African immigrants at T1 and T2, on the other hand, were significantly related to contact with African immigrants at T2 and T3 ($b = 0.01$, $SE = 0.002$, $p < .001$).

Effect In South Africa

The other path causing the model misfit was that between attitudes towards the focal outgroup at T1 and T2 predicting later contact with the target outgroup ($\Delta\chi^2(1) = 6.09, p = .01$). Similar to the pattern of results reported above, attitudes towards Coloured South Africans did not predict downstream contact with African immigrants ($b = -0.001, SE = 0.002, p > .05$) while attitudes towards African immigrants were associated with later friendships with Coloured South Africans ($b = 0.005, SE = 0.002, p < .01$). Constraining these two paths to within-outgroup stationarity and the rest of the paths to within- and between-outgroup stationarity (Model 3g: $\chi^2(218) = 365.818, p < .001, \chi^2/df = 1.69, CFI = .96, RMSEA = .038 [.031, .044], SRMR = .059$) was comparable to the model that stipulated only within-outgroup stationarity (Model 3e: $\Delta\chi^2(4) = 4.92, p > .05$).

The longitudinal mediation model for Coloured and Black South Africans can be found in Figure 5.5 below. The model explained a substantial amount of variance (R^2) in friendships with Coloured South Africans (T2: $R^2 = 49\%$, T3: $R^2 = 43\%$), contact with African immigrants (T2: $R^2 = 31\%$, $R^2 = 40\%$), attitudes towards Coloured South Africans (T2: $R^2 = 36\%$, T3: $R^2 = 45\%$), and attitudes towards African immigrants (T2: $R^2 = 31\%$, T3: $R^2 = 40\%$).

Inspecting the longitudinal relationships between the variables in Model 3e, contact with African immigrants was positively associated with attitudes towards African immigrants to the same degree that friendships with Coloured South Africans was positively associated with later attitudes towards Coloured South Africans ($b = 5.54, SE = 0.78, p < .001$). Like the previous model, and in line with the attitude generalization hypothesis, the relationship between the two attitude measures was significant across the time points ($b = 0.07, SE = 0.03, p < .03$).

Table 5.8.

Autoregressive and Cross-lagged Stationarity Model Fit for the Coloured South African and African Immigrant Model.

Model	Model Fit	Model Comparison	$\Delta\chi^2$ (df)
3a	$\chi^2(102) = 130.417^{***}$, $\chi^2/df = 1.28$, SCF = 1.057, CFI = .99, RMSEA = .024 [.008, .036], SRMR = .044		
3b	$\chi^2(110) = 144.907^{***}$, $\chi^2/df = 1.32$, SCF = 1.052, CFI = .99, RMSEA = .026 [.012, .036], SRMR = .046	3b vs. 3a	14.77 (8)
3c	$\chi^2(198) = 328.621^{***}$, $\chi^2/df = 1.66$, SCF = 1.039, CFI = .97, RMSEA = .037 [.030, .044], SRMR = .051		
3d	$\chi^2(202) = 341.758^{***}$, $\chi^2/df = 1.69$, SCF = 1.039, CFI = .97, RMSEA = .038 [.031, .045], SRMR = .053	3d vs. 3c	13.14* (4)
3e	$\chi^2(214) = 360.897^{***}$, $\chi^2/df = 1.69$, SCF = 1.037, CFI = .96, RMSEA = .038 [.031, .044], SRMR = .057	3e vs. 3d	19.09 (12)
3f	$\chi^2(220) = 389.991^{***}$, $\chi^2/df = 1.77$, SCF = 1.035, CFI = .96, RMSEA = .040 [.034, .047], SRMR = .063	3f vs. 3e	30.51*** (6)
3g	$\chi^2(218) = 365.818^{***}$, $\chi^2/df = 1.69$, SCF = 1.037, CFI = .96, RMSEA = .038 [.031, .044], SRMR = .059	3g vs. 3e	4.92 (4)

Note. *df* = degrees of freedom; SCF = scaling correction factor (used in computing the Satorra-Bentler scaled chi-square difference tests); CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual. Numbers that appear in square brackets are the 90% confidence intervals for the RMSEA. 3a = freely estimated factor model; 3b = measurement invariance factor model; 3c = freely estimated autoregressive model; 3d = autoregressive stationarity model; 3e = within-outgroup cross-lagged stationarity model; 3f = within- and between-outgroup cross-lagged stationarity model; 3g = within- and between-outgroup cross-lagged stationarity model with the paths between attitudes towards the focal outgroup (T1 and T2) and contact with the target outgroup (T2 and T3) and attitudes towards the focal outgroup (T1 and T3) and contact with the focal outgroup (T2 and T3) only constrained to within-outgroup stationarity. N = 480.

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

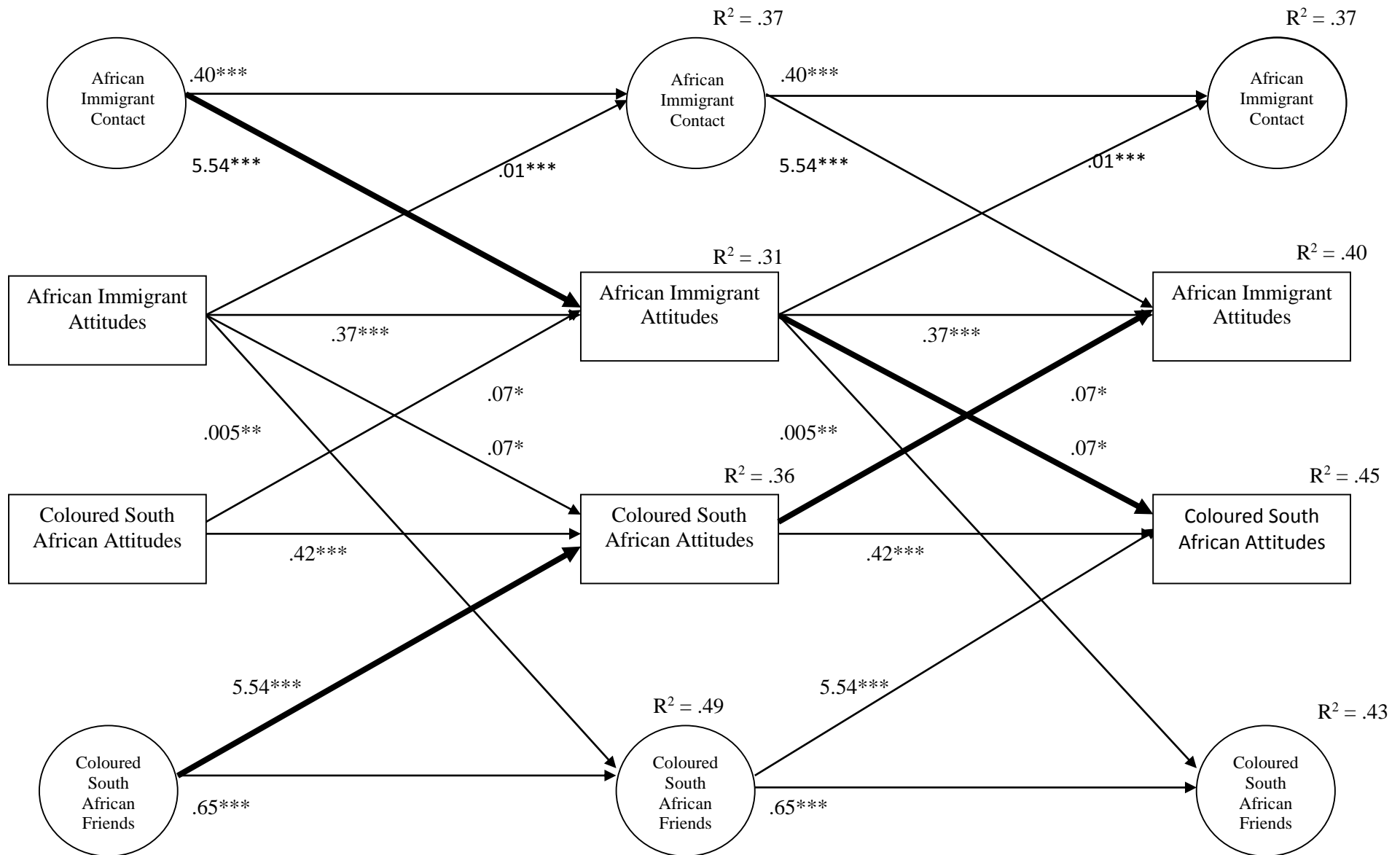


Figure 5.5. A longitudinal SEM showing the relationship between contact with, and attitudes towards Coloured South Africans and African immigrants over twelve months amongst White high school students (N = 480). The **bold lines** highlight the attitude generalization process of the STE. Only significant, unstandardized coefficients are reported. Model fit: $\chi^2(218) = 365.818, p < .001; \chi^2/df = 1.69; CFI = .96; RMSEA = .038 [.031, .044]; SRMR = .059. \dagger \dagger < .08, \dagger p < .06, * p < .05, ** p < .01, *** p < .001$

Effect In South Africa

Once again, clear support for the attitude generalization hypothesis as the key mediating process involved in the STE was evident. The indirect effect of contact with African immigrants at T1 on attitudes towards Coloured South Africans at T3 through more favourable attitudes towards African immigrants at T2, as well as the indirect effect of friendships with Coloured South Africans at T1 on attitudes towards African immigrants at T3 through attitudes towards Coloured South Africans at T2, both reached statistical significance (both $bs = 0.37$, $SE = 0.17$, $p < .03$; bootstrap point estimate = 0.37, 95% CI [0.07, 0.75]).

The products of coefficient tests for the reverse, mediated generalized contact hypothesis, showed that attitudes towards African immigrants at T2 mediated the relationship between attitudes towards Coloured South Africans at T1 and contact with African immigrants at T3 ($b = 0.001$, $SE = 0.001$, $p = .05$). The bootstrapping results, on the other hand, indicated that there was no mediation effect (bootstrap point estimate = 0.001, 95% CI [0.00, 0.00]). Attitudes towards Coloured South Africans at T2, on the other hand, did not mediate the path between attitudes towards African immigrants at T1 and more cross-group friendships with Coloured South Africans at T3 ($b = 0$, $SE = 0.001$, $p > .05$; bootstrap point estimate = 0, 95% [0.00, 0.00]). Lastly, friendships with Coloured South Africans at T2 successfully mediated the relationships between attitudes towards African immigrants at T1 and attitudes towards Coloured South Africans at T3 ($b = 0.03$, $SE = 0.009$, $p < .01$; bootstrap point estimate = 0.03, 99% CI [0.01, 0.05]).

Coloured South African and South African Indian Target Outgroups

The test for within- and between-outgroup stationarity resulted in a significant drop in the chi-square statistic indicating that some of the paths in the model could not be constrained

Effect In South Africa

to between-outgroup stationarity (Model 4f vs. Model 4e: $\Delta\chi^2(6) = 19.31, p < .05$). Upon inspecting the model for the path(s) that led to the significant drop in model fit, the path between attitudes towards Coloured South Africans at T1 and T2 and friendships with Coloured South Africans at T2 and T3 respectively ($b = 0.001, SE = 0.002, p > .05$) was significantly weaker than the same path between attitudes towards South African Indians and contact with South African Indians at subsequent time points ($b = 0.01, SE = .002, p < .001$; $\Delta\chi^2(1) = 17.89, p < .001$). Constraining these two paths only to within-outgroup stationarity resulted in a model (Model 4g: $\chi^2(219) = 325.227, p < .001, \chi^2/df = 1.49, CFI = .97, RMSEA = .032 [.024, .039], SRMR = .057$) that did not differ significantly from the model that specified within-outgroup stationarity (Model 4c vs. Model 4g: $\Delta\chi^2(5) = 7.57, p > .05$).

The model explained a substantial amount of variance in friendships with Coloured South Africans (T2: $R^2 = 38\%$, T3: $R^2 = 31\%$) and contact with South African Indians (T2: $R^2 = 46\%$, T3: $R^2 = 46\%$) as well as attitudes towards Coloured South Africans (T2: $R^2 = 36\%$, T3: $R^2 = 45\%$) and South African Indians (T2: $R^2 = 39\%$, T3: $R^2 = 45\%$). Looking at the primary transfer effects, a similar pattern of results emerge to the previous two models. Contact and intergroup friendships with the respective outgroups were positively associated with attitudes towards the corresponding outgroups from T1 to T2, and then again from T2 to T3 ($b = 5.56, SE = 0.76, p < .001$). As discussed, only attitudes towards South African Indians were associated with downstream contact with South African Indians; attitudes towards Coloured South Africans failed to relate to future friendships with Coloured South Africans. Attitudes towards neither South African Indians nor Coloured South Africans were associated with more positive attitudes towards the other outgroup ($b = -0.04, SE = 0.03, p > .05$). However, coming close to a direct STE, the association between contact with South

Table 5.9.

Autoregressive and Cross-lagged Stationarity Model Fit for the Coloured South African and South African Indian Model.

Model	Model Fit	Model Comparison	$\Delta \chi^2$ (df)
4a	$\chi^2(102) = 120.468^{***}$, $\chi^2/df = 1.18$, SCF = 1.029, CFI = .99, RMSEA = .019 [.000, .032], SRMR = .045		
4b	$\chi^2(110) = 133.229^{***}$, $\chi^2/df = 1.21$, SCF = 1.026, CFI = .99, RMSEA = .021 [.000, .033], SRMR = .049	4b vs. 4a	12.89 (8)
4a	$\chi^2(198) = 291.808^{***}$, $\chi^2/df = 1.47$, SCF = 1.027, CFI = .97, RMSEA = .031[.023, .039], SRMR = .050		
4d	$\chi^2(202) = 302.867^{***}$, $\chi^2/df = 1.50$, SCF = 1.026, CFI = .97, RMSEA = .032[.024, .040], SRMR = .052	4d vs. 4c	11.032* (4)
4e	$\chi^2(214) = 317.667^{***}$, $\chi^2/df = 1.48$, SCF = 1.029, CFI = .97, RMSEA = .032 [.024, .039], SRMR = .054	4e vs. 4d	14.95 (12)
4f	$\chi^2(220) = 336.621^{***}$, $\chi^2/df = 1.53$, SCF = 1.028, CFI = .97, RMSEA = .033 [.026, .040], SRMR = .059	4f vs. 4e	19.31** (6)
4g	$\chi^2(219) = 325.227^{***}$, $\chi^2/df = 1.49$, SCF = .028, CFI = .97, RMSEA = .032 [.024, .039], SRMR = .057	4g vs. 4f	7.57 (5)

Note. *df* = degrees of freedom; SCF = scaling correction factor (used in computing the Satorra-Bentler scaled chi-square difference tests); CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual. Numbers that appear in square brackets are the 90% confidence intervals for the RMSEA. 4a = freely estimated factor model; 4b = measurement invariance factor model; 4c = freely estimated autoregressive model; 4d = autoregressive stationarity model; 4e = within-outgroup cross-lagged stationarity model; 4f = within- and between-outgroup cross-lagged stationarity model; 4g = within- and between-outgroup cross-lagged stationarity model with the path attitudes towards the focal outgroup (T1 and T3) and contact with the focal outgroup (T2 and T3) only constrained to within-outgroup stationarity. N = 480.

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

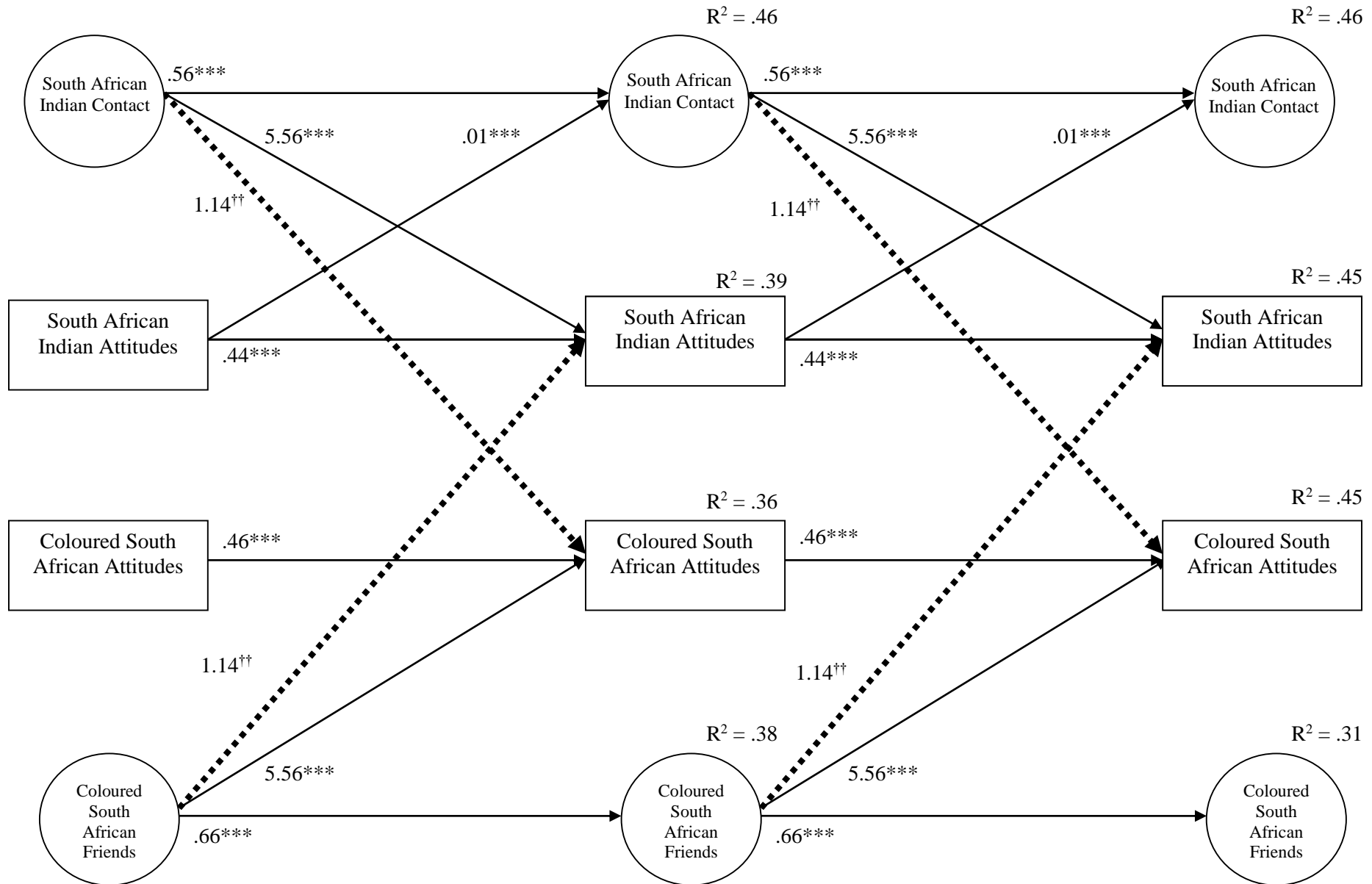


Figure 5.6. A longitudinal SEM showing the relationship between contact with, and attitudes towards Coloured South Africans and South African Indians over twelve months amongst White high school students ($N = 480$). The **bold dotted lines** highlight direct STEs. Only significant, unstandardized coefficients are reported. Model fit: $\chi^2(219) = 325.227, p < .001$ $\chi^2/df = 1.49$; CFI = .97; RMSEA = .032 [0.024, 0.039]; SRMR = .057. †† $p < .08$, † $p < .06$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Effect In South Africa

African Indians and friendships with Coloured South Africans at T1 and T2 and attitudes towards the other outgroup at T2 and T3 approached significance ($b = 1.14$, $SE = 0.65$, $p < .08$).

Concerning the mediation effects, the two mediations that reached statistical significance were those concerning contact and attitudes towards South African Indians in both directions. Firstly, attitudes towards South African Indians at T2 mediated the path between contact with South African Indians at T1 and T3 ($b = 0.06$, $SE = 0.02$, $p < .001$; bootstrap point estimate = 0.06, 99% CI [0.02, 0.10]). Similarly, contact with South African Indians at T2 mediated the relationship between attitudes towards South African Indians at T1 and T3 ($b = 0.06$, $SE = 0.02$, $p < .001$; bootstrap point estimate = 0.06, 99% CI [0.02, 0.10]). For the indirect effect of attitudes towards Coloured South Africans at T2 mediating the path from contact with South African Indians at T1 to attitudes towards Coloured South Africans at T3, the mediation did not reach significance ($b = -0.22$, $SE = 0.19$, $p > .05$; point estimate = -0.22, 95 CI [-0.61, 0.14]) as was the case for the indirect path from friendships with Coloured South Africans at T1 to attitudes towards South African Indians at T3 via attitudes towards South African Indians at T2 ($b = -0.22$, $SE = 0.19$, $p > .05$; point estimate = -0.22, 95 CI [-0.61, 0.14]).

Black South African and African Immigrant Target Outgroups

In comparing the model stipulating within-outgroup stationarity (Model 5e) to the model constraining both within- and between-outgroup equivalence (Model 5f), there was a significant drop in the chi-square statistic ($\Delta\chi^2(12) = 20.867$, $p < .01$). However, when the six single *df* tests were performed, there were no significant differences between any of the paths at the new $p = .01$ level. Once again, the problem arises as whether to accept or reject the

Table 5.10.

Autoregressive and Cross-lagged Stationarity Model Fit for the Black South African and African Immigrant Model (Study 5).

Model	Model Fit	Model Comparison	$\Delta \chi^2$ (df)
5a	$\chi^2(102) = 173.198^{***}$, $\chi^2/df = 1.70$, SCF = 1.104, CFI = .98, RMSEA = .038 [.028, .048], SRMR = .049		
5b	$\chi^2(110) = 188.177^{***}$, $\chi^2/df = 1.71$, SCF = 1.091, CFI = .97, RMSEA = .038 [.029, .048], SRMR = .047	5b vs. 5a	14.98 (8)
5c	$\chi^2(198) = 326.027^{***}$, $\chi^2/df = 1.65$, SCF = 1.076, CFI = .97, RMSEA = .037[.029, .044], SRMR = .048		
5d	$\chi^2(202) = 332.681^{***}$, $\chi^2/df = 1.65$, SCF = 1.080, CFI = .97, RMSEA = .037[.030, .044], SRMR = .049	5d vs. 5c	6.64 (4)
5e	$\chi^2(214) = 348.460^{***}$, $\chi^2/df = 1.80$, SCF = 1.077, CFI = .97, RMSEA = .036[.029, .043], SRMR = .051	5e vs. 5d	15.58 (12)
5f	$\chi^2(220) = 369.323^{***}$, $\chi^2/df = 1.68$, SCF = 1.077, CFI = .96, RMSEA = .038[.031, .044], SRMR = .056	5f vs. 5e	20.86** (6)

Note. *df* = degrees of freedom; SCF = scaling correction factor (used in computing the Satorra-Bentler scaled chi-square difference tests); CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual. Numbers that appear in square brackets are the 90% confidence intervals for the RMSEA. 5a = freely estimated factor model; 5b = measurement invariance factor model; 5c = freely estimated autoregressive model; 5d = autoregressive stationarity model; 5e = within-outgroup cross-lagged stationarity model; 5f = within- and between-outgroup cross-lagged stationarity model. N = 480.

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

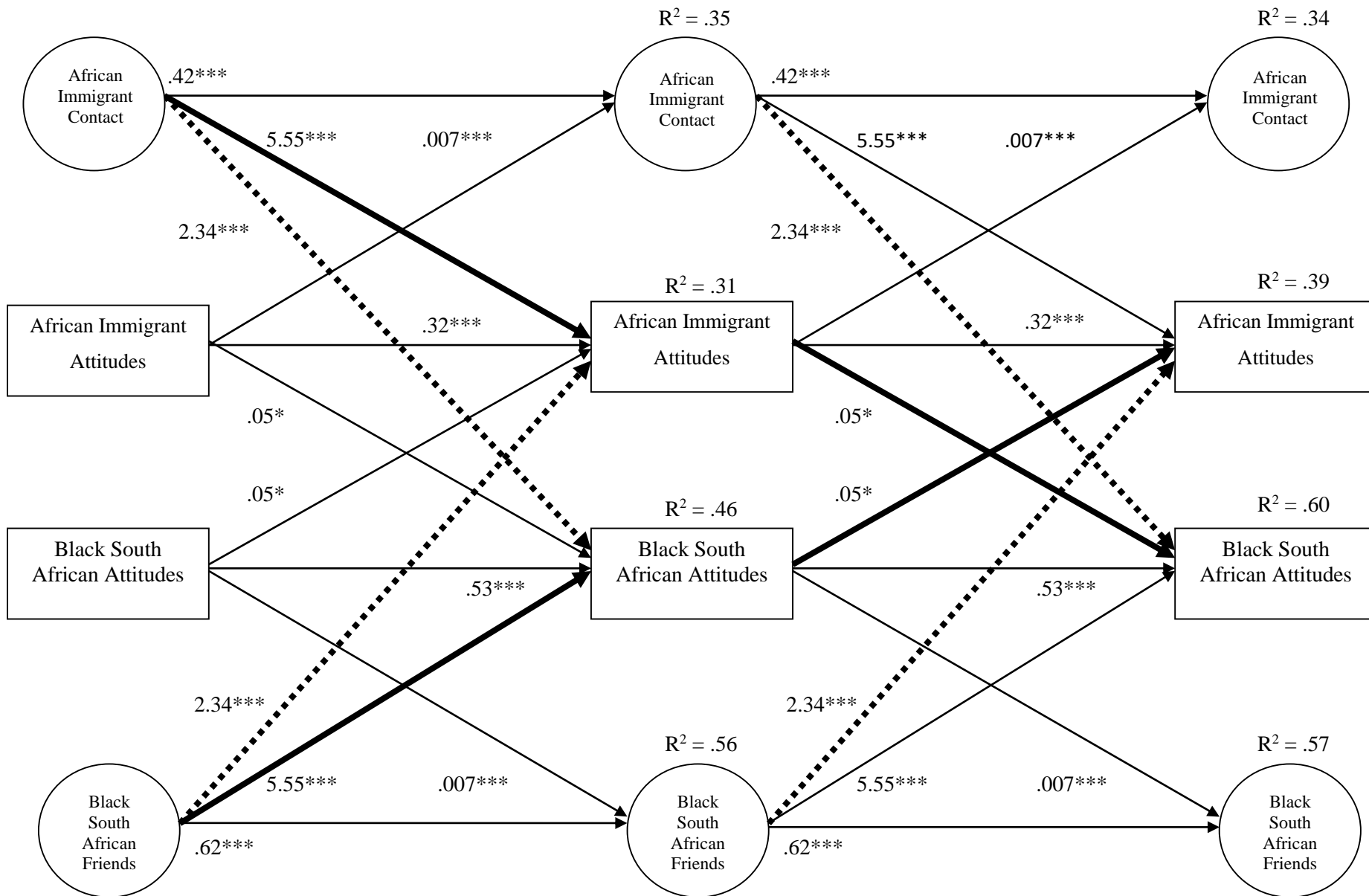


Figure 5.7. A longitudinal SEM showing the relationship between contact with, and attitudes towards Black South Africans and African immigrants over twelve months amongst White high school students ($N = 480$). The **bold dotted lines** highlight direct STEs and the **bold lines** highlight the attitude generalization process of the STE. Only significant, unstandardized coefficients are reported. Model fit: $\chi^2(220) = 369.323$, $p < .001$, $\chi^2/df = 1.68$, CFI = .96, RMSEA = .038 [.031, .044], SRMR = .056. $\dagger\dagger < .08$, $\dagger p < .06$, $* p < .05$, $** p < .01$, $*** p < .001$

Effect In South Africa

assumption of between-outgroup stationarity. Given the lack of change in fit indices— $\Delta\text{CFI} = 0.01$, $\Delta\text{RMSEA} = .002$, and $\Delta\text{SRMR} = .005$ —there was no evidence of substantial deviation in any of these fit statistics between Models 5e and 5f. Indeed, the χ^2/df ratio improved in Model f (1.68) when compared to Model 5e (1.80). Keeping in mind that trivial differences between a nested (Model 5f in this case) and reference model (Model 5e) can lead to a significant change in chi-square statistic in large sample sizes (Schermelleh-Engel & Moosbrugger, 2003) and the stability of the results from the other fit statistics, it was decided to use Model 5f as the final model for the rest of the analyses. Therefore both within- and between-outgroup stationarity was assumed.

Model 5f (see Figure 5.7) showed good model fit, $\chi^2(220) = 369.323$, $p < .001$, $\chi^2/df = 1.68$, $\text{CFI} = .96$, $\text{RMSEA} = .038$ [.031, .044], $\text{SRMR} = .056$. The model explained a substantial amount of variance in friendships with Black South Africans (T2: $R^2 = 56\%$, T3: $R^2 = 57\%$) and contact with African immigrants (T2: $R^2 = 35\%$, T3: $R^2 = 34\%$) as well as attitudes towards Black South Africans (T2: $R^2 = 46\%$, T3: $R^2 = 60\%$) and African immigrants (T2: $R^2 = 31\%$, T3: $R^2 = 39\%$). Looking at the primary transfer effects, contact with African immigrants and friendships with Black South Africans both predicted later attitudes towards the corresponding outgroup (both $bs = 5.55$, $SE = 0.74$, $p < .001$). Looking at the reverse primary transfer effects, attitudes towards African immigrants and Black South Africans each predicted the corresponding outgroup category's contact items at later time points ($b = 0.007$, $SE = 0.001$, $p < .001$). The mediation results show that attitudes towards Black South Africans and African immigrants at T2 successfully mediated the respective outgroup friendship / contact paths between T1 and T3 (both $bs = 0.04$, $SE = 0.009$, $p < .001$). In a similar vein, friends with Black South Africans and contact with African immigrants at

Effect In South Africa

T2 both mediated their respective within-outgroup paths between attitudes towards Black South Africans / African immigrants between T1 and T3 (both $bs = 0.04$, $SE = 0.009$, $p < .001$).

Turning to the secondary transfer effects, there was evidence for a direct STE in that contact with African immigrants at T1 and T2 was associated with more favourable attitudes towards Black South Africans at T2 and T3 respectively ($b = 2.34$, $SE = 0.63$, $p < .001$).

Similarly, cross-group friendships with Black South Africans at T1 and T2 were associated with more favourable attitudes towards African immigrants at T2 and T3 respectively ($b = 2.34$, $SE = 0.63$, $p < .001$). Attitudes towards the focal outgroup at T1 and T2 were associated with more favourable attitudes towards the target outgroup at T2 and T3 respectively (both $bs = 0.05$, $SE = 0.03$, $p = .05$). Testing the attitude generalization hypothesis, attitudes towards Black South Africans at T2 mediated the path between friendships with Black South Africans at T1 and attitudes towards African immigrants at T3 ($b = 0.30$, $SE = 0.15$, $p < .05$; bootstrap point estimate = 0.30, 95% CI [0.01, 0.64]). Similarly, attitudes towards African immigrants at T2 mediated the path between contact with African immigrants at T1 and attitudes towards Black South Africans at T3 ($b = 0.30$, $SE = 0.15$, $p < .05$; bootstrap point estimate = 0.30, 95% CI [0.01, 0.64]).

In contrast to the previous findings for the other models, the indirect effects of attitudes towards Black South Africans (and African immigrants) at T2 did not mediate the path between attitudes towards African immigrants (and Black South Africans) at T1 and contact with African immigrants (and friendships with Black South Africans) at T3 ($b < 0.001$, $SE < 0.001$, $p > .05$; bootstrap point estimate = 0, 95% CI [0.00, 0.00]). In other words, it seems that while contact with the focal outgroup was associated with more favourable

Table 5.11.

Autoregressive and Cross-lagged Stationarity Model Fit for the Black South African and South African Indian Model (Study 5).

Model	Model Fit	Model Comparison	$\Delta \chi^2$ (df)
6a	$\chi^2(102) = 131.239^{***}$, $\chi^2/df = 1.28$, SCF = 1.043, CFI = .99, RMSEA = .024 [.009, .036], SRMR = .050		
6b	$\chi^2(110) = 143.635^{***}$, $\chi^2/df = 1.31$, SCF = 1.034, CFI = .99, RMSEA = .025 [.011, .036], SRMR = .052	6b vs. 6a	12.66 (8)
6c	$\chi^2(198) = 300.906^{***}$, $\chi^2/df = 1.52$, SCF = 1.032, CFI = .97, RMSEA = .033 [.025, .040], SRMR = .049		
6d	$\chi^2(202) = 303.371^{***}$, $\chi^2/df = 1.50$, SCF = 1.033, CFI = .97, RMSEA = .032 [.025, .040], SRMR = .050	6d vs. 6c	2.63 (4)
6e	$\chi^2(214) = 309.811^{***}$, $\chi^2/df = 1.45$, SCF = 1.032, CFI = .97, RMSEA = .031 [.023, .038], SRMR = .050	6e vs. 6d	6.25 (12)
6f	$\chi^2(220) = 323.297^{***}$, $\chi^2/df = 1.47$, SCF = 1.034, CFI = .97, RMSEA = .031 [.024, .038], SRMR = .051	6f vs. 6e	13.18* (6)

Note. *df* = degrees of freedom; SCF = scaling correction factor (used in computing the Satorra-Bentler scaled chi-square difference tests); CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual. Numbers that appear in square brackets are the 90% confidence intervals for the RMSEA. 6a = freely estimated factor model; 6b = measurement invariance factor model; 6c = freely estimated autoregressive model; 6d = autoregressive stationarity model; 6e = within-outgroup cross-lagged stationarity model; 6f = within- and between-outgroup cross-lagged stationarity model. N = 480.

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

Chapter Five: Longitudinal And Experimental Investigations Into The Secondary Transfer Effect In South Africa

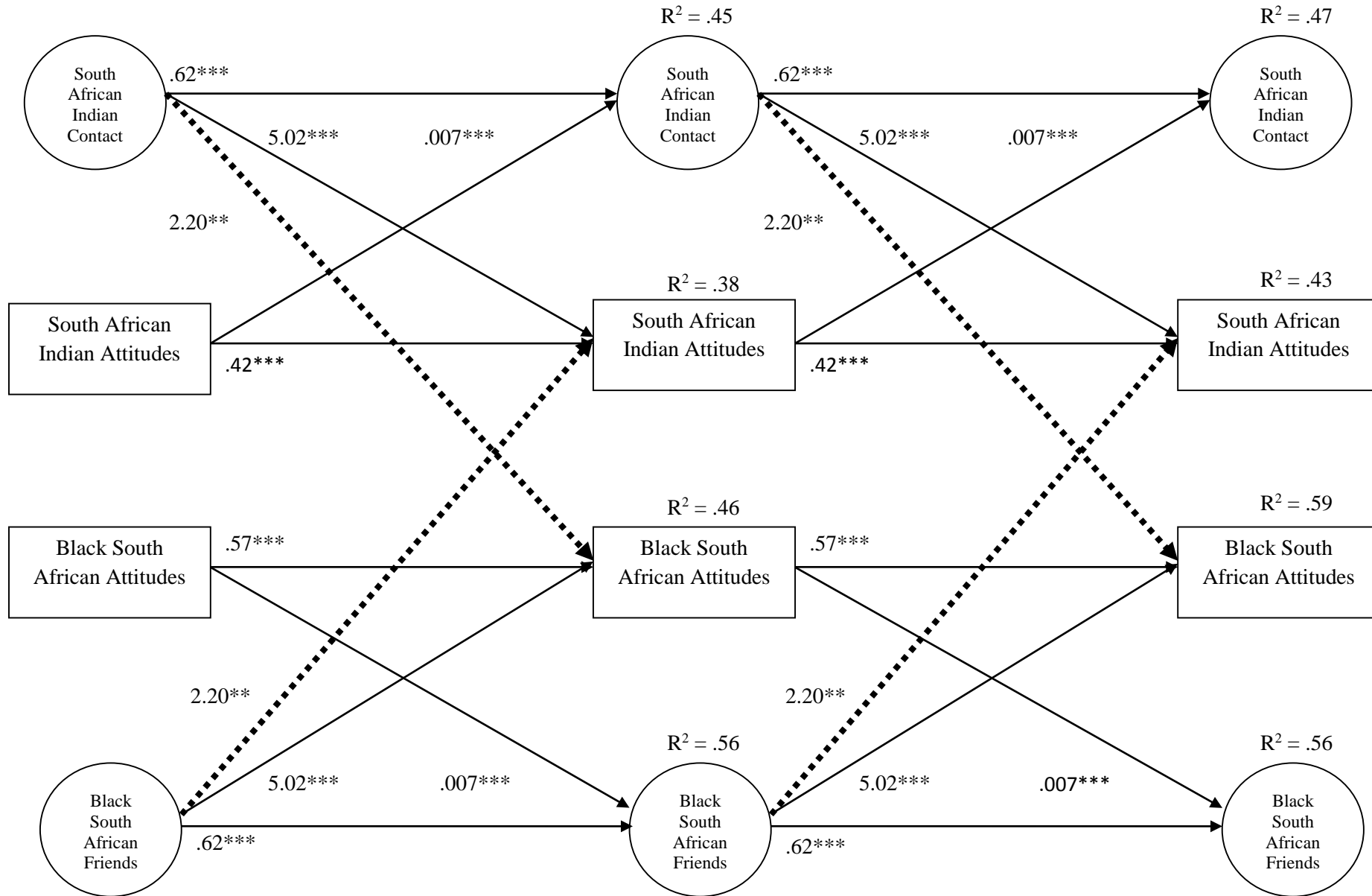


Figure 5.8. A longitudinal SEM showing the relationship between contact with, and attitudes towards Black South Africans and South African Indians over twelve months amongst White high school students ($N = 480$). The **bold dotted lines** highlight direct STEs. Only significant, unstandardized coefficients are reported. Model fit: $\chi^2(220) = 323.297^{***}$; $\chi^2/df = 1.47$; SCF = 1.034; CFI = .97; RMSEA = .031 [.024, .038]; SRMR = .051. $\dagger\dagger < .08$, $\dagger p < .06$, $* p < .05$, $** p < .01$, $*** p < .001$

Effect In South Africa

differences in any of these alternative fit indices that would warrant any concern. Even after constraining the cross-lagged paths to within- and between-outgroup stationarity, Model 6f continued to display excellent model fit ($\chi^2(220) = 323.297, p < .001, \chi^2/df = 1.47, CFI = .97, RMSEA = .031 [.024, .038], SRMR = .051$). Therefore, and based on the previous discussions involving the chi-square statistic and large sample sizes, all paths were constrained to both within- and between-outgroup stationarity. The results for the final model are reported below (see Figure 5.8).

The model explained a substantial amount of variance in friendships with Black South Africans (T2: $R^2 = 56\%$, T3: $R^2 = 56\%$) and contact with South African Indians (T2: $R^2 = 45\%$, T3: $R^2 = 47\%$) as well as attitudes towards Black South Africans (T2: $R^2 = 46\%$, T3: $R^2 = 59\%$) and South African Indians (T2: $R^2 = 38\%$, T3: $R^2 = 43\%$). Beginning with the primary transfer effects, contact with the focal outgroup at T1 and T2 predicted more favourable attitudes towards the focal outgroup at T2 and T3 ($b = 5.02, SE = 0.73, p < .001$). Attitudes towards the focal outgroup at T1 and T2 was associated with more contact with the focal outgroup at T2 and T3 ($b = 0.007, SE = 0.001, p < .001$). Both T2 contact with and attitudes towards the focal outgroup mediated the paths between (a) attitudes towards the focal outgroup at T1 and T3 and (b) contact with the focal outgroup at T1 and T3, respectively (all $bs = 0.03, SE = 0.008, p < .001$).

A direct STE was witnessed such that contact with the focal outgroup at T1 and T2 was associated with more favourable attitudes towards the target outgroup at T2 and T3, respectively ($b = 2.20, SE = 0.70, p < .01$). Attitudes towards the focal outgroup, on the other hand, were not associated with later attitudes towards the target outgroup ($b = 0.008, SE = 0.03, p > .05$). Owing to the non-significant cross-lagged paths between attitudes towards the

Effect In South Africa

two outgroups between time points, attitudes towards the focal outgroup at T2 failed to mediate the paths between contact with the focal outgroup at T1 and attitudes towards the target outgroup at T3 ($b = 0.04$, $SE = 0.16$, $p > .05$; bootstrap point estimate = 0.04, 95% CI [-0.33, 0.36]). Friendships with Black South Africans at T3 were influenced by contact with South African Indians at T1 through attitudes towards Black South Africans at T2 ($b = 1.26$, $SE = 0.40$, $p = .001$; bootstrap point estimate = 1.26, 99% CI [0.20, 2.33]). Similarly, attitudes towards South African Indians at T2 mediated the relationship between friendships with Black South Africans at T1 and attitudes towards South African Indians at T3 ($b = 1.26$, $SE = 0.40$, $p = .001$; bootstrap point estimate = 1.26, 99% CI [0.20, 2.33]). As to be expected, there was no evidence for the STE of attitudes.

African Immigrants and South African Indian Outgroups

The final model met assumptions of both within- and between-outgroup stationarity (Model 7f vs. Model 7e: $\Delta\chi^2(6) = 9.69$, $p > .05$). Showing excellent model fit (Model 7f: $\chi^2(220) = 317.675$, $p < .001$, $\chi^2/df = 1.44$, CFI = .98, RMSEA = .03 [.023, .038], SRMR = .052) the model explained a substantial amount of variance in contact with African immigrants (T2: $R^2 = 38\%$, T3: $R^2 = 39\%$) and contact with South African Indians (T2: $R^2 = 48\%$, T3: $R^2 = 49\%$) as well as attitudes towards African immigrants (T2: $R^2 = 33\%$, T3: $R^2 = 44\%$) and South African Indians (T2: $R^2 = 39\%$, T3: $R^2 = 45\%$). The final model can be found in Figure 5.9 below.

Contact with either outgroup at T1 and T2 had a beneficial effect on attitudes towards the corresponding outgroup at T2 and T3, respectively ($b = 5.87$, $SE = 0.78$, $p < .001$). Similarly, attitudes towards both outgroups at T1 and T2 were positively associated with more contact with the respective outgroup at T2 and T3 ($b = 0.01$, $SE = 0.002$, $p < .001$).

Table 5.12.

Autoregressive and Cross-lagged Stationarity Model Fit for the African immigrant and South African Indian Model.

Model	Model Fit	Model Comparison	$\Delta \chi^2$ (df)
7a	$\chi^2(102) = 151.548^{***}$, $\chi^2/df = 1.49$, SCF = 1.114, CFI = .98, RMSEA = .032 [.020, .042], SRMR = .039		
7b	$\chi^2(110) = 166.174^{***}$, $\chi^2/df = 1.51$, SCF = 1.103, CFI = .98, RMSEA = .033 [.022, .042], SRMR = .040	7b vs. 7a	15.03 (8)
7c	$\chi^2(198) = 290.678^{***}$, $\chi^2/df = 1.47$, SCF = 1.103, CFI = .98, RMSEA = .031 [.032, .039], SRMR = .045		
7d	$\chi^2(202) = 292.998^{***}$, $\chi^2/df = 1.45$, SCF = 1.105, CFI = .98, RMSEA = .031 [.023, .038], SRMR = .045	7d vs. 7c	2.61 (4)
7e	$\chi^2(214) = 307.985^{***}$, $\chi^2/df = 1.44$, SCF = 1.102, CFI = .98, RMSEA = .03 [.022, .038], SRMR = .049	7e vs. 7d	14.87 (12)
7f	$\chi^2(220) = 317.675^{***}$, $\chi^2/df = 1.44$, SCF = 1.102, CFI = .98, RMSEA = .03 [.023, .038], SRMR = .052	7f vs. 7e	9.69 (6)

Note. df = degrees of freedom; SCF = scaling correction factor (used in computing the Satorra-Bentler scaled chi-square difference tests); CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual. Numbers that appear in square brackets are the 90% confidence intervals for the RMSEA. 7a = freely estimated factor model; 7b = measurement invariance factor model; 7c = freely estimated autoregressive model; 7d = autoregressive stationarity model; 7e = within-outgroup cross-lagged stationarity model; 7f = within- and between-outgroup cross-lagged stationarity model. N = 480.

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

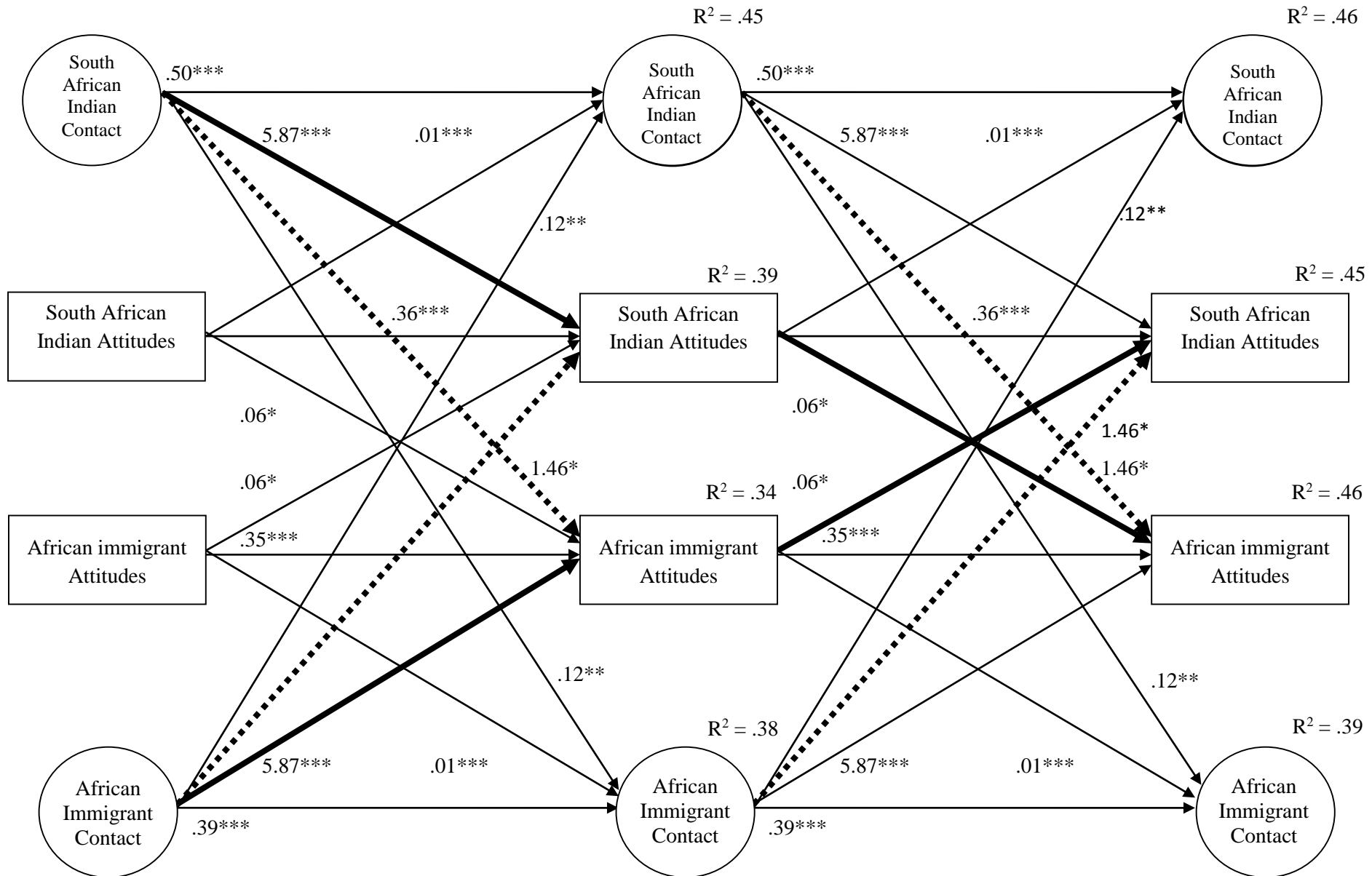


Figure 5.9. A longitudinal SEM showing the relationship between contact with, and attitudes towards South African Indians and African immigrants over twelve months amongst White high school students ($N = 480$). The **bold dotted lines** highlight direct STEs and the **bold lines** highlight the attitude generalization process of the STE. Only significant, unstandardized coefficients are reported. Model fit: $\chi^2(220) = 317.675$, $p < .001$, $\chi^2/df =$, CFI = .98, RMSEA = .03 [.023, .038], SRMR = .052. $\dagger\dagger < .08$, $\dagger p < .06$, $* p < .05$, $** p < .01$, $*** p < .001$

Effect In South Africa

Contact with one of the outgroups at T2 mediated the path between attitudes towards the same outgroup at T1 and T3 ($b = 0.07$, $SE = 0.01$, $p < .001$; bootstrap point estimate = 0.07, 99% CI [0.04, 0.10]). Similarly, attitudes towards both outgroups at T2 mediated the corresponding paths between contact with the outgroup at T1 and T3 ($b = 0.07$, $SE = 0.01$, $p < .001$; bootstrap point estimate = 0.07, 99% CI [0.04, 0.10]).

In this set of analyses, contact with the focal outgroup at T1 and T2 predicted more contact with the target outgroup at T2 and T3 ($b = 0.12$, $SE = 0.04$, $p < .01$). Contact with the focal outgroup at T1 and T2 was associated with more favourable attitudes towards the target outgroup at T2 and T3 ($b = 1.46$, $SE = 0.70$, $p < .04$). Furthermore, attitudes towards the focal outgroup at earlier time points was associated with more favourable attitudes towards the target outgroup at later time points ($b = 0.06$, $SE = 0.03$, $p < .05$).

Attitudes towards the focal outgroup at T2 mediated the relationship between contact with the focal outgroup at T1 and attitudes towards the target outgroup at T3 ($b = 0.35$, $SE = 0.17$, $p < .05$; bootstrap point estimate = 0.35, 95% CI [0.02, 0.93]). Contact with the focal outgroup at T1 also affected attitudes towards the target outgroup at T3 through increased contact with the target outgroup at T2 ($b = 0.71$, $SE = 0.24$, $p < .01$; bootstrap point estimate = .71, 99% CI [0.14, 1.49]).

With regards to a STE of attitudes, attitudes towards the target outgroup at T2 fell just short of statistical significance in mediating the path between attitudes towards the focal outgroup at T1 and more contact with the target outgroup at T3 ($b = 0.001$, $SE < .001$, $p = .054$; bootstrap point estimate = .001, 95% CI [0.00, 0.00]).

Discussion

Study 5 provides the most robust support for the STE yet. Using a full longitudinal design comprising three waves collected in six month intervals (spanning one year in total), I was able to test if prior contact with a focal outgroup was associated with more favourable attitudes towards a target outgroup at later time points after prior contact with and attitudes towards the target outgroup had been controlled for. In other words, I was able to test for the secondary transfer effect of contact. Because I collected three waves of data, I was also able to test the attitude generalization hypothesis. This hypothesis predicts that contact with a focal outgroup affects attitudes towards a target outgroup by effecting a change in attitudes towards the focal outgroup, which is then hypothesised to lead to more favourable attitudes towards the target outgroup.

In this study, some form of the STE (i.e., direct effect or mediated) was found in each of the six models tested. Summarising the results, of the 24 possible STE paths, 16 direct effects were found. Similarly, of the 12 possible mediated paths, eight reached statistical significance.

Inspecting the results from Study 5, an interesting pattern emerged. This pattern can be broken down into three groups, (1) models only showing direct STEs, (2) models showing only mediated STEs, and (3) models showing both direct and mediated STEs. Firstly, the models only showing direct STEs involved (a) Coloured South Africans and South African Indians (Coloured-Indian model), and (b) Black South Africans and South African Indians (Black-Indian model). Secondly, the models to only show support for a mediated STE involved (a) Black and Coloured South Africans (Black-Coloured model) and (b) Coloured South Africans and African immigrants (Coloured-Immigrant model). The third group of models showing both direct and mediated STEs involved (1) Black South Africans and

Effect In South Africa

African immigrants (Black-Immigrant model), and (2) African immigrants and South African Indians (Immigrant-Indian model).

One could argue that, given the historical significance that Black and Coloured South Africans have with regards to race relations in South Africa, these two social groups represent salient groups in the country. One could also argue that, because of the media coverage of the recent xenophobic attacks in South Africa (see <http://www.xenophobia.org.za/press.htm> for a comprehensive list of media publications documenting the xenophobic attacks), African immigrants as a social group have also achieved some degree of group salience, yet remain less salient than Black and Coloured South Africans. South African Indians, on the other hand, are a less salient outgroup in comparison to the other three studied outgroups. This is because, while South African Indians constitute a sizeable proportion of the population in some areas of South Africa (e.g., KwaZulu-Natal; Mukherji, 2011), they constitute a significant minority group in the Western Cape (The High Commission of India in South Africa, 2012). This creates a salience gradient whereby, in the study context (Western Cape, South Africa), Black and Coloured South Africans are the most salient outgroup; African immigrants are the second most salient outgroup; and South African Indians are the least salient outgroup.²⁸

Given this (post-hoc) hierarchy of salience, it would appear that contact with salient outgroups (Black and Coloured) does not have a *direct* effect on attitudes towards the other outgroup, but works primarily through the attitude generalization process. Given that there is

²⁸ The closest test I could perform to confirm this hypothesis given the available variables in the data set was to perform pairwise t-tests on the attitude strength scores towards the various groups. Attitude strength scores should be equal for Black and Coloured South Africans. Both these groups should have higher strong attitude strength scores than African immigrants. Black and Coloured South Africans, as well as African immigrants should have significantly higher attitude strength scores than South African Indians. Across the three waves, this general hypothesised pattern of results was confirmed.

Effect In South Africa

a degree of similarity between Black South Africans and African immigrants to the extent that they are both native to Africa, the finding that the STE also represents only a mediated effect for the Coloured-Immigrants model, is understandable. The models that only evidenced direct STEs involved one of the hypothesised most salient groups (Black and Coloured South Africans) and South African Indians. Given that hypothesised salience towards South African Indians is low, this could help explain the finding that while Black-Indian and Coloured-Indian attitudes are not directly connected, contact with the focal outgroup has an especially pronounced effect on attitudes towards the target outgroup. This direct STE and lack of a mediated STE effect could also point towards a mediation process that was not included in the analyses, such as multiculturalism. This point, however, will be discussed in more detail in the next chapter.

The last category of STEs (which evidenced both direct and mediated STEs), can also be explained, like the first, by using a mixed hypothesis of group salience and similarity. Given the ostensible physical similarity between Black South Africans and African immigrants, contact with one of the outgroups is likely to lead both directly and indirectly to improved attitudes towards the other outgroup because of their perceived similarity. On the other hand, that we find direct and mediated STEs for the model involving African immigrants and South African Indians could be a result of respondents' holding equally weak attitudes towards these two outgroups, allowing both direct and indirect paths to wider attitude change.

For future research, a crude way of testing this hypothesis would be to see if attitude strength towards the *target* outgroup moderates the relationship between contact with the focal outgroup and attitudes towards the target outgroup. I would predict that contact with the focal outgroup would be positively and significantly related to attitudes towards the target

outgroup for individuals who are less certain about their attitudes towards the target outgroup while individuals who are certain about their attitudes towards the target outgroup would not show the direct STE. These effects should be especially pronounced if attitudes towards the focal outgroup were also weak attitudes.

Another novel and important finding from the analyses is that ample evidence was found for the STE of contact but scant was found for the secondary transfer effect of attitudes. In other words, only four of a possible 24 paths linking attitudes towards the focal outgroup at T1 and T2 to more contact with the target outgroup at T2 and T3 reached significance. Furthermore, attitudes towards the target outgroup at T2 mediated none of the paths between attitudes towards the focal outgroup at T1 and contact with the target outgroup at T3. One possibility for the lack of support for the STE of attitudes is the chosen time lag might have been too long to accurately capture the process in progress. However, the finding that the path from contact to prejudice is stronger than the path from prejudice to contact, is consistent with findings in contact research (Pettigrew, 1997; Pettigrew & Tropp, 2006; Swart et al., 2011). Thus, the findings that the STE of contact is more prevalent causal relationship than the STE of attitudes contributes to the contact literature in a novel way.

Study 5 represents the most thorough investigation into the STE to date. By using a three-wave longitudinal design, analysed using structural equation modelling with latent constructs, this study was able to overcome many of the methodological shortcomings present in previous investigations into the STE. The three-wave longitudinal design allowed for more accurate estimates of the hypothesised mediated effects to be explored. Furthermore, it allowed me to test both forward and reverse STE simultaneously. For example, the effect of contact with Black South Africans on attitudes towards Coloured South Africans was estimated concurrently to the effects of contact with Coloured South Africans on attitudes

Effect In South Africa

towards Black South Africans. Using such an analytic approach allows for more accurate parameter estimates of the hypothesised parameters as, when testing one specific path, the effects of all other variables in the model associated with either variable are controlled for. This is especially relevant to the mediation hypotheses as, controlling for previous contact with and attitudes towards the target outgroup, I was able to estimate the unique ability of attitudes towards the focal outgroup to mediate the relationship between contact with the focal outgroup and attitudes towards the target outgroup.

Furthermore, this study employed multiple measures of intergroup contact for each outgroup. Previous studies have either not controlled for prior contact with the target outgroups (Eller & Abrams, 2004; Pettigrew, 1997, 2009; Tausch et al., 2010, Study 1) or have used single measures of prior target outgroup contact (Tausch et al., 2010, Studies 2, 3, and 4). By obtaining multiple measures of contact for each of the outgroups at multiple times, I was able to provide stricter controls for the effect of prior contact on attitudes. Furthermore, I was able to do so within a latent variable framework, thereby controlling for measurement error associated with each of the individual items.

While I have emphasised the advantages of the longitudinal design and its ability to estimate the unique set of relationships between variables by partialling out the influence of other variables, this specific advantage of the study also represents one of its biggest potential drawbacks. The two attitude items analysed per model are correlated with each other.

Preacher and Hayes (2008) warn that the mediated effect (ab) will be attenuated to the degree that the two mediators are correlated, owing to redundancy. The average cross-sectional correlation between the various attitude measures represents a medium to large effect (Average Wave 1 attitudes correlation: $r = .46$; Average Wave 2 attitudes correlation: $r = .44$; Average Wave 3 attitudes correlation: $r = .46$). Therefore, one can expect the mediation

Effect In South Africa

results reported in this study to be somewhat smaller than the true value. However, this represents a more conservative test for the attitude generalization hypothesis therefore boosting our confidence in accepting its importance as a central mechanism by which the STE occurs.

Longitudinal designs, as powerful as they are, cannot, however, strictly test causal hypotheses (Cliff, 1983). While longitudinal models allow for more confidence as to the causal associations among the variables in the model, the analysis is still, essentially, an analysis of correlations. Study 6 was an experimental investigation into the STE.

Study 6

Introduction

In setting out a plan to eliminate poverty and inequality, the most recent Diagnostic Overview from South Africa's National Planning Commission (2011) outlined 9 key areas that pose the greatest challenges to present-day South Africa. One of the identified challenges is the need to tackle the racial divisions that still characterises South African society (National Planning Commission, 2011). For example, 42% of the South Africans who completed the latest round of the South African Reconciliation Barometer reported never or rarely speaking to a person from another race (Lefko-Everett, Nyoka, & Tiscornia, 2011). Indeed, the town in South Africa from which the data for both Studies 5 and 6 were collected remains largely homogenous in its racial composition (Swart, Hewstone, Christ, & Voci, 2010) with clearly marked, racially segregated neighbourhoods (Swart, 2008). Such is the case for the institution in which Study 6 was conducted—Stellenbosch University (SUN).

While SUN recognises the importance of, and actively seeks to develop diversity (see <http://www.sun.ac.za/diversiteit/divframework.htm>), 66.86% of its student body consists of White South African students (Enrolment Statistics, 2012). While, between 2009 and 2012, the university experienced a 1.61% increase in the number of Black students (from 13.93% to 15.54%), the number of Coloured students dropped from 16.50% in 2009 to 15.52% in 2012 (Stellenbosch University Statistical Profile, 2012).²⁹ Thus, the STE represents an appealing way in which the limited intergroup contact that South Africans may have can help improve race relations in general in the country.

In such segregated societies, however, opportunities for individuals to engage in direct contact with members from other social groups may be few and far between. This, then, poses a serious problem for segregated societies as division can lead to intergroup mistrust (National Planning Commission, 2011) and mutual ignorance (Whyte, 1990), thus stunting any efforts made to improve social relations. Given that recent evidence strongly suggests that indirect forms of contact (i.e., becoming aware of positive interactions between a fellow ingroup member and an outgroup member) is also capable of reducing prejudice, this represents an appealing alternative to direct intergroup contact. This *extended contact* effect (Wright et al., 1997) has been shown to be especially beneficial in contexts characterized by continued segregation and limited direct intergroup contact experiences (Christ et al., 2010; Dhont & Van Hiel, 2011).

Thus, while the growing body of literature on the STE, and indeed, the studies presented in this thesis, have gone some way to demonstrate that direct forms of intergroup contact—both general contact and cross-group friendships—have positive effects on attitudes

²⁹ In 2009, 1.92% of the student body consisted of South African Indians. In 2012, this number had risen to 2.08% (Stellenbosch University Statistical Profile, 2012).

Effect In South Africa

towards a wide range of groups, it is still unclear as to whether a STE of *extended* contact exists. There are, indeed, theoretical reasons why one would believe that extended contact would have positive effects on wider attitude generalization. First, extended contact is said to increase the saliency of group categories (Wright et al., 1997). Increased salience of group membership in intergroup encounters has been well documented to increase attitude generalization (Hewstone & Brown, 1986; see Chapter 1). Furthermore, extended contact has been shown to influence ingroup norms (Turner et al., 2008). Because ingroup norms are not specific to an outgroup (i.e., they do not specifically relate to one outgroup, but rather how the individual understands ingroup attitudes towards intergroup friendships), this effect, in combination with increased group salience, should then allow any positive attitudes that came about as a result of the extended contact experience with the focal outgroup member, to generalize to other, target outgroups (Asbrock, Christ, Hewstone, Pettigrew, and Wagner, 2011).

Thus, Study 6 employed an experimental paradigm to explore whether the prejudice reduction brought about by direct and extended contact generalizes to other outgroups not involved in contact situations. Specifically, Study 6 sought to experimentally study the positive effects of intergroup contact for White South African participants with a Black South African on attitudes towards Black South Africans, and if these positive effects generalized to attitudes towards Coloured South Africans. The experiment was designed in such a way that a White South African participant was brought into direct contact with a Black South African, who was a confederate in the study, and the two engaged in closeness-induction task (Sedikides, Campbell, Reeder, & Elliot, 1998). To study if an extended contact experience with the Black South African confederate would also lead to improved attitudes towards Coloured South Africans, a second participant sat and watched the closeness-induction task

from a second room via closed circuit TV. This research design has been successfully used (and independently replicated) in Cyprus to explore changes in intergroup attitudes (see Ioannou, 2008).

Hypotheses

The following hypotheses were tested in this study. Participants in both the direct contact and extended contact condition would show an improvement in their attitudes towards Black South Africans immediately after having come into contact with the Black South African confederate (second wave) when compared to (a) participants in the control group and (b) their respective wave 1 attitude scores. Furthermore, attitudes towards Black South Africans would remain more favourable one week later (third wave) when compared to (a) the control group and (b) their wave 1 scores. Their attitude scores would not differ between wave 2 and wave 3 data collection periods.

Testing the STE, participants in both the direct contact and extended contact condition would show an improvement in their attitudes towards Coloured South Africans immediately after having come into contact with the Black South African confederate (second wave attitude scores) when compared to (a) participants in the control group and (b) their respective wave 1 attitude scores. Furthermore, their attitudes towards Coloured South Africans would remain more favourable one week later (third wave) when compared to (a) the control group and (b) their wave 1 scores. Their attitude scores towards Coloured South Africans would not differ between wave 2 and wave 3 data collection periods. I also predict that participants in the extended contact condition are more likely than participants in the direct contact condition to see the interaction as taking place on an intergroup level rather

than an interpersonal level. Therefore, I predict that participants in the extended contact condition would show stronger STEs than participants in the direct contact condition.

Design

The study consisted of a 3 (type of contact: direct vs. extended vs. control) X 3 (time of measure: pre-intervention vs. post-intervention vs. delayed-intervention) repeated measures ANOVA. The two main dependent variables consisted of attitudes towards Black and Coloured South Africans. The pre-intervention measure was completed one week before the experimental manipulation. The post-intervention measure was taken immediately after the experimental manipulation and the delayed-intervention measure was attained one week after the intervention. The baseline measures (T1 measures) were taken to supplement the control group (Crano & Brewer, 2008).

Participants

A total of 29 female friendship pairs ($N = 58$) were recruited by announcing the study at the end of a first year introductory course to Psychology at the University of Stellenbosch. Two participants (i.e., 1 friendship pair) were dropped from the analyses as they did not follow the experimental instructions properly. The final sample retained for the analyses then, was 56 participants ($N_{\text{pair}} = 26$; $M_{\text{age}} = 20.20$, $SD = 3.22$, range = 18 – 36 years old).

Materials

Variables used to match participants' questionnaires. In order to match the participants' questionnaires over the three time points, participants were asked to provide last

four digits of their student number as well as their day of birth. Because this unique code used only partial information, anonymity was guaranteed.

Demographics and variables to check the random assignment of participants.

Apart from the dependent variables (see below), participants were asked their age, their home language (English, Afrikaans, IsiXhosa, IsiZulu, Other), the broad South African population group that they identified with (White-, Black-, Coloured South African, Other), their year of study (1st -, 2nd -, 3rd -, 4th year, Other) and their accommodation (Private- or University accommodation). At time 1 only, participants were also asked about their contact with each of the outgroups under investigation. To gain a measure of friendships with Black and Coloured South Africans at time 1, participants were asked to separately rate on a seven-point rating scale, “About how many of your friends at University are [Black / Coloured] South Africans?” (1 = *None*, 7 = *All*); “How often do you spend time with them in your college room / housing?”; “How often do you visit them in their college room / housing?”; and “How often do you go out socially with them?” (1 = *Never*, 7 = *Daily*).

Characteristics of experimental intervention. The questionnaire completed just after the experimental manipulation included a few variables aimed at assessing the general characteristics of the contact experience with the confederate. These questions included, “Did [you / your friend] get along well with the other person with whom [you / your friend] had the conversation with.” (1 = *Strongly Disagree* to 5 = *Strongly Agree*); “To what extent did you think of the other person as a member of another group rather than anything else?”; “To what extent did you feel that [you / your friend] and the other person belonged to different groups or communities?”; “To what extent do you think the conversation [you / your friend] just had was of a private nature?” (1 = *Not at all* to 5 = *Extremely so*); “How much

information of a personal nature did [you / your friend] tell the person with whom conversed with?"; and "How much information of a private nature did you feel the person [you / your friend] conversed with shared with [you / your friend]?" (1= *Not at all private* to 5 = *Extremely private*). Two questions were included to assess the construct validity of the experimental manipulation, "Do you think the conversation was a good way to get to know somebody?" and "Are the questions found on the 3 sheets similar to the questions you would normally ask when getting to know someone?" (1 = *Strongly disagree* to 5 = *Strongly agree*).

Attitude variables. Attitudes towards Black and Coloured South Africans were measured across the three time points using feeling thermometers (Converse & Presser, 1986). Participants read the following instructions, "We would like to ask you how you feel towards [the outgroup]. Please rate [the outgroup] on a thermometer that runs from zero (0) to a hundred (100) degrees. The higher the number, the warmer or more favourable you feel towards [the outgroup]. The lower the number, the colder or less favourable you feel. If you feel neither warm nor cold, rate them at 50. *Please use the rater scale to indicate best how you feel towards [the outgroup].*"

Procedure

Ethical clearance for the study was attained from both Stellenbosch University's and Oxford University's respective ethics committees. The participants were recruited by announcing the study at the end of an introduction to psychology lecture. Since there was no system in place to offer course credit for their participation, participants were told that if they took part in all three waves of the data collection, they could stand the chance of winning one of two R500 (c.a. £38.70) prizes in a raffle to be drawn after the completion of the study.

Participants were told that the experiment would take place over a period of three weeks in which they would be expected to complete three online questionnaires spaced one week apart and that they would need to attend an hour-long experimental session at the Department of Education, Stellenbosch University. The Department of Education was chosen as the site for the experiment as the Psychology Department had experienced a fire, which caused considerable damage to the buildings earlier in the year. The Education Department were contacted and consent to use their facilities was achieved before the onset of the experiment.

Participants who displayed an interest in the study were then e-mailed an information sheet providing more details about the study and what was expected of them. The participants were also asked to e-mail three time-slots in which they would be able to attend the experimental session in their friendship pairs. Based on the times provided, an experimental session timetable was set up. One week prior to the participant's experimental session, the participants were e-mailed the first online questionnaire. One week later, and after participants had completed the experimental task, they were asked to complete a second online questionnaire. One week after the experimental session, participants were sent a link to the third and final online questionnaire. Once all questionnaires had been completed, participants were fully debriefed and thanked for their participation. One week after the conclusion of the whole study, the raffle was drawn and the winners announced.

Before the participants arrived for their experimental session, they were randomly assigned into either the experimental or control condition. The participants who were assigned to the experimental condition were further randomly assigned into either the direct ($N = 16$) or extended ($N = 16$) contact condition. The control condition consisted of 18 participants. On the day of the experimental session, participants were met at the front of the

Effect In South Africa

Department of Education by myself and a collaborator, Dr. Hermann Swart. For the experimental session, participants in the direct contact condition engaged in a closeness induction task (Sedikides, Campbell, Reeder, & Elliot, 1998) with a Black South African confederate. The participant in the extended contact condition watched the interaction on a closed circuit television link from another room. The closeness induction task has been used successfully in a similar research design (Ioannou, 2008).

The closeness induction task consisted of interacting with another person in as natural a conversation as possible. The conversation was based on questions found on one of three lists of questions. Each set of questions required more disclosure than the previous set. The direct contact condition participant and the confederate were given one minute to ask each other questions from the first list. A sample item is, "Where are you from?" For the second list of questions, the two participants were given 3 minutes to ask each other questions. A sample item is, "What is one thing happening in your life that makes you stressed out?" Lastly, participants were given 5 minutes to ask each other questions from the third list. A sample item from list 3 is, "What is one thing about yourself that most people would consider surprising?" At the end of each time interval, the experimenter would come into the room and ask the participants to move on to the next set of questions. The same Black confederate was used for every experimental session. Prior to the beginning of the experimental sessions, a script was developed with the confederate to ensure that her answers were consistent across experimental groups. The confederate was reimbursed for her time and travel expenses.

After the closeness induction task had been completed, the participants completed the second online questionnaire on computers provided by the researcher. Afterwards, the extended contact participant was brought into the same room as the direct contact participant and the confederate who were then told that their interaction had been watched by the

participant in the extended contact condition. Participants were then given the chance to withdraw their participation if they felt uncomfortable having been watched by the participant in the extended contact condition. No participants exercised this option. Next, participants were probed for suspicion and partially debriefed, thanked, and told they could leave.

Participants in the control condition were met at the front of the Department of Education and were led to a room where they engaged in the closeness induction task with each other. The same format and timings as the experimental condition were used. Subsequent to the completion of the experimental session, participants were probed for suspicion and partially debriefed, thanked and told they could leave.

Results

Preliminary Analyses

To ensure that the allocation of participants into the experimental (direct vs. extended) and control condition was indeed random, a MANOVA including participant age, university accommodation, their year of study, the contact variables, and the baseline Black and Coloured attitude scores by condition (control vs. direct contact vs. extended contact) was performed. The items measuring Black and Coloured friendships formed a reliable scale (Black friendships $\alpha = .86$; Coloured friendships $\alpha = .82$) and were subsequently averaged to form composite measures of cross-group friendships for each outgroup. The multivariate test was non-significant, Wilks's lambda = 0.77, $F(14, 94) = 0.95$, $p > .05$, partial $\eta^2 = .12$, indicating that the randomization was successful.

Next, a MANOVA was performed using only the experimental conditions, to ascertain if there were any differences between the direct and extended contact conditions in

Effect In South Africa

terms of the experience of the experimental manipulation. A significant Wilks's Lambda indicated an overall multivariate effect, Wilks's Lambda = 0.67, $F(6, 30) = 2.44$, $p < .05$, partial $\eta^2 = .33$). Table 5.14 below shows the means for the various variables by condition. At a univariate level, two effects reached significance and a third approached significance.

Participants in the direct contact condition felt that they got on better with the confederate ($M = 4.70$, $SD = 0.47$) than their friend's perception of the interaction ($M = 4.18$, $SD = 0.64$, $F(1, 35) = 8.26$, $p < .01$). Participants in the extended contact condition, however, perceived the interaction to have taken place between two members of different social groups ($M = 2.53$, $SD = 1.38$) than did the participants in the direct contact condition ($M = 1.45$, $SE = 0.51$, $F(1, 35) = 10.65$, $p < .01$). Lastly, participants in the extended contact condition, more so than participants in the direct contact condition, tended to think of the confederate as a member of another group more than anything else ($M_{direct\ contact\ condition} = 1.60$, $SD = 0.88$ vs. $M_{extended\ contact\ condition} = 2.24$, $SD = 1.09$) with the difference approaching significance, $F(1, 35) = 3.83$, $p < .06$.

It is also interesting to note that, whereas 5.4% of the participants neither agreed nor disagreed that the questions used during the closeness induction task were a good way to get to know somebody, the overwhelming majority (94.6%) either agreed (59.5%) or strongly agreed (35.1%) with the statement. In response to the question, "Are the questions found on the 3 sheets similar to the questions you would normally ask when getting to know someone?", 10.8% of participants disagreed and 8.1% neither agreed nor disagreed, while 81.1% either agreed (59.5%) or strongly agreed (21.6%). Therefore, the questions used during the intervention appeared to have high ecological validity.

Table 5.13.

Mean Ratings of the Experience of Various Aspects of the Experimental Intervention.

Variable	Condition Mean (SD)	
	Direct Contact	Extended Contact
Did [you / your friend] get along well with the other person with whom [you / your friend] had the conversation with.	4.70 _a (0.47)	4.18 _b (0.64)
To what extent do you think the conversation [you / your friend] just had was of a private nature?	2.65 _a (1.14)	2.59 _a (1.06)
To what extent did you think of the other person as a member of another group rather than anything else?	1.60 _a (0.88)	2.24 _{b†} (1.09)
To what extent did you feel that [you / your friend] and the other person belonged to different groups or communities?	1.45 _a (0.51)	2.53 _b (1.38)
How much information of a personal nature did [you / your friend] tell the person with whom conversed with?	2.70 _a (1.08)	2.94 _a (1.09)
How much information of a private nature did you feel the person [you / your friend] conversed with shared with [you / your friend]?	2.80 _a (0.95)	3.06 _a (0.97)

Note. Cell means with different subscripts differ at the $p < .01$ level. $†p < .06$. *SD* = Standard Deviation

Since the participant in the extended contact condition viewed the interaction between their friend and the confederate, this may have introduced dependencies amongst the data. To see if this was indeed the case, the intraclass correlations (ICC) of all the dependent variables were inspected for the experimental group. When there is a possibility of the data being non-independent, it is always wise practice to adopt a liberal alpha level when investigating the ICCs (Judd, McClelland, & Ryan, 2009). Therefore, in order to ascertain if non-independence

was cause for concern in this data set, a new, more liberal alpha level indicating significance of the ICCs was set to $p = .10$.

Table 5.14.

Intraclass Correlations between the Dependent Variables for the Experimental Group at the Different Time Points.

Variable	Time of Measurement	ICC Experimental
Black Attitudes	1	-.04
	2	.22
	3	.22
Coloured Attitudes	1	-.12
	2	.11
	3	.16

$^{\dagger} p < .10$, $* p < .05$, $** p < .01$.

Looking at the intraclass correlations for the experimental groups (see Table 5.15), there was no evidence of non-independence in the data. Therefore, the analyses were performed as a 3 (Condition: direct contact vs. extended contact vs. control) X 3 (Time of measurement: time 1 vs. time 2 vs. time 3) mixed ANOVA with the first factor being between-subjects, and the second, within-subjects.

Primary Transfer Effects

Owing to scattered missing values, the sample size was reduced to 49 ($N_{\text{Direct contact}} = 18$; $N_{\text{Extended contact}} = 13$; $N_{\text{Control}} = 18$). Looking at the primary transfer effects, there was a significant main effect of Time for attitudes towards Black South Africans, $F(2, 92) = 12.97$, $p < .001$, partial $\eta^2 = .22$. Of greater theoretical interest, the Time X Condition interaction approached significance, $F(4, 92) = 2.35$, $p = .06$, $\eta^2 = .09$. Attitudes towards Black South Africans showed a significant improvement from T1 baseline scores ($M = 61.33$, $SD = 18.37$) to T2 post-experimental session scores ($M = 68.47$, $SD = 14.82$, $p < .001$). Furthermore,

Effect In South Africa

attitudes dropped significantly between T2 and T3 ($M = 65.82, SD = 15.04, p < .03$) but did remain significantly more positive at T3 when compared to T1 scores ($p < .01$).

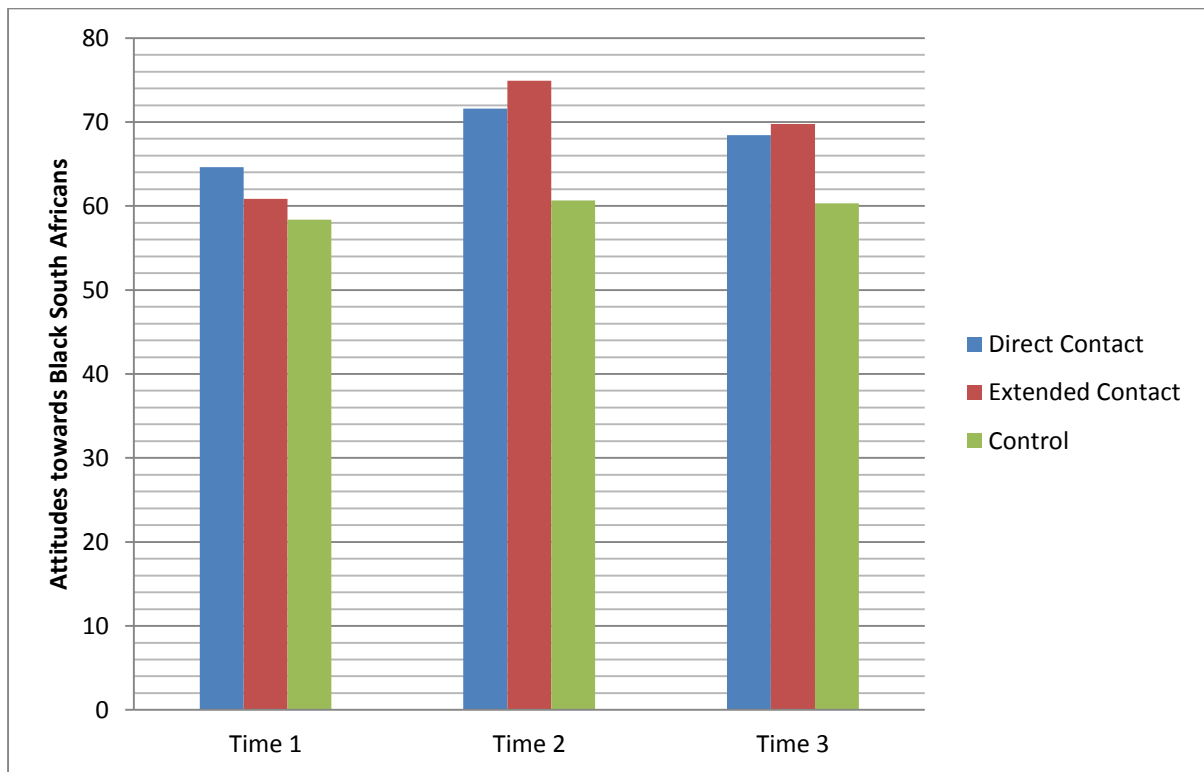


Figure 5.10. Bar graph displaying respondents' attitudes towards Black South Africans per condition, across time (Study 6).

Attitudes towards Black South Africans for the participants in the control condition did not change over the three time points (T1: $M = 58.39, SD = 17.97$; T2: $M = 60.67, SD = 16.00$; T3: $M = 60.33, SD = 15.08$, all $ps > .05$). Participants in the extended contact condition showed significantly more favourable attitudes towards Black South Africans at T2 ($M = 74.92, SD = 14.28$) than at T1 ($M = 60.85, SD = 21.99, p < .001$). While their attitudes towards Black South Africans dropped at T3 ($M = 69.77, SD = 18.47$) compared to their T2 scores ($p < .04$), participants in the extended contact condition remained significantly less prejudiced at T3 when compared to their baseline scores ($p = .01$).

Effect In South Africa

Participants in the direct contact condition showed significantly more favourable attitudes at T2 ($M = 71.61, SD = 10.65$) when compared to their T1 scores ($M = 64.61, SD = 16.38, p = .01$). Their attitudes towards Black South Africans at T3 ($M = 68.44, SD = 10.93$) did not, however, differ from their T1 ($p > .05$) or T2 ($p > .05$) scores.

Inspecting the differences between the various contact conditions at each time point, no significant differences between the baseline (T1) scores between the experimental and control conditions (all $ps > .05$) emerged. At T2, attitudes towards Black South Africans for participants in the extended contact condition were significantly more favourable than attitudes of participants in the control condition ($p < .01$), but were not significantly different when compared to participants in the direct contact condition ($p > .05$). Furthermore, At T2, participants in the direct contact condition showed significantly more favourable attitudes towards Black South Africans than did participants in the control condition ($p = .02$). Attitudes towards Black South Africans at T3 did not, however, differ between any of the conditions (all $ps > .05$).

Secondary Transfer Effects

Looking at the effects of coming into contact with the Black confederate on attitudes towards Coloured South Africans, there was no main effect for Time, $F(2,92) = 0.37, p > .05$, partial $\eta^2 = .01$. There was, however, a significant Time X Condition interaction, $F(4,92) = 2.65, p < .04$, partial $\eta^2 = .10$.

Decomposing the interaction effect, across the time points, there were no differences in cell means for the control (T1: $M = 66.50, SD = 17.24$; T2: $M = 66.06, SD = 14.98$; T3: $M = 66.17, SD = 15.41$) or direct contact (T1: $M = 77.28, SD = 13.86$; T2: $M = 73.83, SD =$

Effect In South Africa

13.35; T3: $M = 73.39$, $SD = 11.36$; all $ps > .05$) conditions. In the extended contact condition, however, attitudes towards Coloured South Africans improved significantly between T1 ($M = 65.62$, $SD = 18.65$) and T2 ($M = 72.69$, $SD = 12.85$, $p < .02$). Attitudes towards Coloured South Africans at T3 ($M = 70.08$, $SD = 17.44$) for participants in the extended contact condition did not differ from their T1 and T2 scores ($p > .05$). There were no differences between the direct, extended and control conditions at each time point (all $ps > .05$). Thus, the only marginal STE occurred for participants in the extended contact condition.

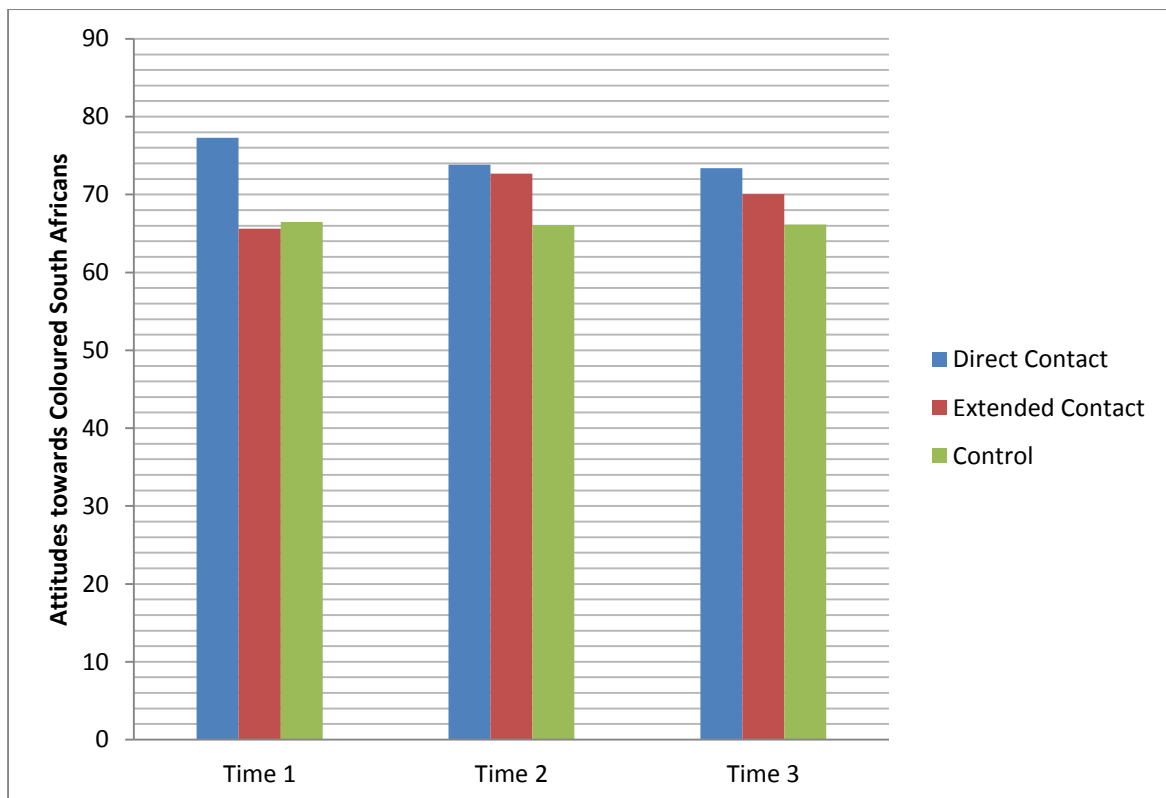


Figure 5.11. Bar graph displaying respondents' attitudes towards Coloured South Africans per condition and across time (Study 6).

Discussion

Study 6 sought to test the STE experimentally. Not only did the study aim to experimentally replicate the findings from the field studies reported in this thesis that direct

Effect In South Africa

contact with an outgroup leads to more favourable attitudes towards a focal outgroup, but it also sought to test the existence for a STE of extended contact. Thus, Study 6 constitutes the first study to manipulate contact with a member of one outgroup and to investigate its effect on attitudes towards a second outgroup for both direct and extended forms of contact. The results from the Study were in partial support for the hypotheses.

The study provided the first experimental evidence that an indirect experience of an intergroup contact scenario can lead to improved attitudes towards a non-contacted outgroup. Furthermore, and in partial support of the hypotheses, participants in the extended contact condition showed a stronger attitude generalization effect than did participants in the direct contact condition—as predicted. Where the evidence failed to support the hypotheses, however, was in the finding that participants in the direct contact condition failed to show any improvement in intergroup attitudes towards Coloured South Africans—the target outgroup. The difference in effects between the STE of direct and the STE of extended contact can be partially explained by the ratings of perceived group salience. Participants in the direct contact condition showed strong evidence for experiencing the contact intervention as an *interpersonal* rather than an *intergroup* encounter. Indeed, their ratings of their experience of the contact scenario as happening between two social groups from different communities were very low ($M = 1.38$). In support of Wright et al.'s (1997) contention, participants in the extended contact condition perceived the contact intervention to have taken place on an intergroup level. In other words, group categories were significantly more salient for participants in the extended contact condition than they were for the participants in the direct contact condition.

Effect In South Africa

It should be noted, however, that participants in the direct contact condition already held very favourable attitudes towards Coloured South Africans at T1 ($M = 73.36$), especially when compared to participants in the extended contact condition ($M = 65.62$). Such high initial attitude scores leaves less room for attitude improvement. Therefore, the null effect for the direct contact condition participants could be the result of (a) a ceiling effect, and (b) the low salience of group categories during the intervention. Future research can improve upon this study by taking heed of these two factors. Future studies should also replicate these findings using a larger sample size as larger sample sizes are likely to provide more statistical power and provide more variance in participants' attitudes towards the various groups. Larger sample sizes also provide more degrees of freedom. It is because the low number of degrees of freedom in this study that I did not test for the attitude generalization hypothesis. Therefore, future studies including larger sample sizes will be able to more readily test both mediation and moderation (i.e., by group salience) hypotheses.

Summary and Conclusions

Studies 5 and 6 sought out to provide the most rigorous evidence for the STE to date. By employing a research design (longitudinal) high in external and another (i.e., experimental) high in internal validity, the results gathered from these two studies provide critical evidence for the STE of direct (Studies 5 and 6) and extended (Study 5) contact as well as its underlying mechanisms (Study 5). Study 5, by taking advantage of a longitudinal latent variable analysis strategy represents the strictest test for the STE of direct contact and the attitude generalization hypothesis to date. The three waves of data allowed the testing of a number of assumptions inherent in testing mediational hypotheses, including autoregressive and cross-lagged stationarity. By modelling the effect that prior variables have on future

Effect In South Africa

versions of the variables (i.e., the autoregressive paths), a large amount of redundant variance is accounted for. By accounting for this variance, more unique variance is left over to be accounted for by the other variables in the model (i.e., the cross-lagged paths), thus providing more accurate parameter estimates of the cross-lagged effects. Furthermore, I was able to take advantage of latent variables which are able to account for measurement error associated with the observed variables. Controlling for such error variance means that error that is usually ignored, is now modelled, thus further providing more accurate parameter estimates. Lastly, Study 5 also goes some way in reducing concerns relating to shared method variances, both within-variable shared method effects (as controlled for by the autoregressive paths), but also for between-variable method effects (i.e., as controlled for by the within-wave correlations). Thus, finding evidence for both direct and mediated STEs in such a restricted model serves to boost confidence in the STE being a *bona fide* phenomenon.

The experimental results from Study 6 also serve to increase our confidence in the STE because a change in attitudes towards the target outgroup was witnessed directly after (extended) contact with a focal outgroup was manipulated. By manipulating one variable and measuring its effects on other variables allows one to confidently claim a causal relationship. In other words, whereas longitudinal experiments are high in external validity, experiments take care of concerns relating to internal validity.

However, moving beyond the purely methodological advancements that Studies 5 and 6 offer, these studies hold important practical implications for segregated societies such as South Africa and Northern Ireland. The mounting evidence presented in this thesis that direct forms of intergroup contact can influence individuals' attitudes towards non-contacted outgroups, has important implications for social policy. Furthermore, showing that just

Effect In South Africa

knowing that an ingroup friend has a friend from another outgroup leads to improved attitudes towards other outgroups holds implicit importance for segregated societies. Individuals do not, themselves, have to have a friend from another social group to enjoy the benefits of intergroup contact. Just knowing that an ingroup friend has a cross-group friend is enough to improve attitudes to other outgroups.

South Africa, 23 years after the abolishment of apartheid, still struggles with the legacy of its tumultuous past. The host of problems facing South Africans, such as unequal opportunity to education and the severe economic inequalities (National Planning Commission, 2011) which serve to exacerbate social divisions, indicate that more than just intergroup contact is needed to tackle the problems of the past (see, also, Hewstone, 2003). However, the findings from Chapter 5, and indeed the other empirical Chapters that constitute this thesis, serves to highlight the important role that intergroup contact can serve in the propagation of peaceful social relations. Furthermore, with mounting evidence for the existence of the STE of both direct and extended contact, this role may be even more important than previously thought.

CHAPTER SIX: SUMMARY AND CONCLUSION

In reviewing the effect of contact on prejudice, Hewstone (2003) asks the simple question, “Does intergroup contact work?” (p. 353) Calling on the plethora of research attesting to the ability of contact to reduce prejudice, specifically an earlier copy of Pettigrew and Tropp’s (2006) meta-analysis, Hewstone (2003) answers his question with an “emphatic yes” (p. 353). As evidence mounts for the secondary transfer effect (STE), one might answer the question, “Does contact work?” with “Yes, and even better than previously thought.” However, before we can claim this emphatically, a number of issues, both methodological and theoretical, have plagued the validity of the STE.

The research that comprises this thesis set out to systematically investigate whether contact with one outgroup leads to improved attitudes towards other, non-contacted outgroups. More specifically, I endeavoured to refine, develop, integrate, and test two contemporary theories of the STE that seek to explicate how contact has such wide spread beneficial effects. These processes include the attitude generalization and deprovincialization hypotheses. In this chapter, I will first highlight the key findings from the 6 studies that constitute this thesis. Second, the theoretical implications of these findings will be discussed, followed by their practical implications. Third, the limitations of the research presented in this thesis will be acknowledged after which I identify several new areas of research that future studies interested in the STE can explore. After this, I will bring this thesis to a closing.

Key Empirical Findings

The major impetus behind the research agenda set for this thesis can be located in the refinement, extension, and development of more nuanced theories for the attitude generalization and deprovincialization hypotheses. Therefore, owing to the emphasis this

thesis has laid on these two processes, I will discuss the key research findings with regards to these two hypotheses in turn.

Key Findings: The Attitude Generalization Hypothesis

The attitude generalization hypothesis describes a process where contact with a focal outgroup improves attitudes towards the focal outgroups, which, in turn, generalize to more favourable attitudes towards the target outgroup. This mediator of the STE has, to date, received the most consistent support (Al Ramiah, 2009; Harwood et al., 2011; Pettigrew, 2009; Swart, 2008; Schmid, Hewstone, Küpper et al., 2012; Tausch et al., 2010; see, also, Lolliot et al., 2012). By replicating and extending these findings by applying stricter controls of contact with the secondary outgroup (Studies 1 through 4) and partialling out the effect of social dominance orientation (Studies 1 and 3), these studies in this thesis serve to strengthen the confidence that we can place on the attitude generalization as having a central role in the STE. These studies, however, utilise a cross-sectional design which is not able to model the effect that prior attitudes towards the outgroups have on subsequent attitudes.

Study 5, to date, provides the strictest test of the STE. First of all, its three-wave design allowed for the most complete test of the STE and its associated attitude generalization hypothesis. The study provided overwhelming support for both the STE of contact and the process of attitude generalization. This support was obtained while strict controls, such as multi-item measures of general contact (quantity and quality) as well as cross-group friendships were employed. The study was also able to obtain more accurate parameter estimates by modelling the effect of prior levels of contact and attitudes and future levels of the constructs. Furthermore, although feeling thermometers were used to gauge attitudes towards all the outgroups, thus raising concerns of shared method effects, the longitudinal design, in combination with the simultaneously, contemporaneous inclusion of

the two attitude measures, goes some way to quelling concerns relating to shared method effects. I state this based on a limitation of including multiple mediators in the same model identified by Preacher and Hayes (2008). These authors, while advocating the simultaneous estimation of the effects of multiple mediators in a model, warn that the extent to which the two mediators are correlated will attenuate the regression coefficients of the cross-lagged paths—specifically the b paths (i.e., the path connecting the mediator variable to the dependent variable). This, limitation, however, could possibly help attenuate concerns relating to shared method variances as the within-wave correlation between the two attitude measures may very well incorporate inflation owing to shared method effects. Thus, by allowing the attitude measures to correlate with each other at each time point will partial out any shared method effects. Thus, finding support for the attitude generalization hypothesis while controlling for these within-wave correlations, the autoregressive paths, and the multi-item measures of cross-group contact goes some way to negate possible alternative explanations for the effect.

Almost most impressively, I found longitudinal evidence for direct STEs. The reason why this is impressive is that in controlling for contact with the target outgroup and prior attitudes towards the focal and target outgroup, leaves less variance to be explained in the later target outgroup attitude scores. Thus, finding that contact with a focal outgroup, in some instances, relates directly to attitudes towards a target outgroup after partialling out the effects of known covariates goes some way to establishing the STE of contact as a robust effect. This finding also points towards the possibility that another important mediating process underlying the STE, such as multiculturalism, may help explain this direct relationship.

Having provided the most robust evidence to date for the attitude generalization hypothesis, this thesis sought to further our understanding of the process. It did so by testing if differential attitude generalization effects occur along a similarity gradient. More

specifically, this thesis tested, and found evidence for the operation of similarity gradients using two different conceptualisations of intergroup similarity. Studies 3 and 4 tested for similarity gradients using a *global* measure of similarity by applying Goffman's (1963) stigma typology. Global measures of similarity, such as Goffman's typology, provide similarity ratings for outgroups that are *not* rated by the participants themselves. Studies 2 and 4, on the other hand, used intergroup similarity measures as rated by the participants' themselves.

Study 4 found the most supportive evidence for the operation of similarity gradients according to Goffman's typology of stigma. This study found that, when outgroups occupied the same stigma category (i.e., category stigma), the positive association between the attitude measures between the outgroups was stronger than when the outgroups fell under different stigma groups (i.e., category stigma and physical stigma). For example, the association between the attitude measures for the ethno-religious outgroup and Travellers (both of whom fall under the category stigma label) was stronger than the association between attitudes for outgroups who did not occupy the same stigma label, (i.e., ethno-religious outgroup (category stigma) and the disabled (physical stigma)). Studies 3 and 5, however, only found partial support for the global measure of similarity.

Study 3, in line with the hypothesis, found that the association between attitudes towards the ethno-religious outgroup and attitudes towards racial minorities (both category stigma) was stronger than the association between attitudes towards the ethno-religious outgroup and attitudes towards gay men (character stigma). Contrary to the hypothesis was the finding that attitudes towards Travellers (category stigma) was significantly more weakly associated with attitudes towards the ethno-religious outgroup than was the association between attitudes towards the ethno-religious outgroup and attitudes towards both racial minorities and gay men. Given the longstanding derogative attitudes held towards the

Chapter Six: Summary And Conclusion

Travellers in Northern Ireland, participants' attitudes seem to be especially entrenched with antipathy and disdain (see Connolly & Keenan, 2001) quite possibly making their attitudes more resistant to the effects of attitude generalization. Supporting this analysis, respondents held the most negative attitudes towards Travellers. This analysis suggests the importance of considering the influence that historical factors and societal norms (see Pettigrew, 1958) may have on the underlying pattern of relationships amongst intergroup attitudes. This point is especially prevalent when considering broad-based intergroup similarity ratings, such as that represented by Goffman's (1963) typology.

In addition to providing a test for the global measure of similarity according to Goffman's (1963) typology, Studies 2 and 4 also included similarity ratings as rated by the participants themselves. These studies are the first, to my knowledge, to test for similarity effects as rated by the participants themselves. The results from Study 4 showed that the participants' level of perceived similarity between the ethno-religious outgroup and (a) racial minorities and (b) Travellers, moderated the attitude generalization path. This moderation was in the direction of the similarity hypothesis: The greater the perceived similarity between the two outgroups, the stronger the link between the participants' attitudes. Conversely, outgroups who are perceived as less similar to each other, while still showing attitude generalization effects, evidenced a weaker link between their attitudes.

There was, however, one null finding. Perceived similarity between the disabled and the ethno-religious outgroup did not moderate the attitude generalization link. This effect could be because the disabled as a target group constitutes a broad category. In other words, the question did not specify *which* disability it was referring to. This is problematic as research has shown that there are stark attitude differences towards the disabled depending on

their form of disability (Crisp, Gelder, Rix, Meltzer, & Rowlands, 2000). Even the effects of contact on attitudes towards the disabled vary significantly (Pettigrew & Tropp, 2006). For example, Pettigrew and Tropp's (2006) meta-analysis found that the correlation between contact with and attitudes towards the physically disabled ($r = -.243$) was stronger than the correlation between contact with and attitudes towards the mentally disabled ($r = -.184$). Therefore, not specifying which form of disability the question was referring to could very well have confounded the moderation results (or lack thereof) for the disabled, as different participants could have been thinking of different types of disabilities when answering the question. It should also be noted that, in this sample, participants held the most favourable attitudes towards the disabled. This could help explain why the attitude generalization link was weaker for the disabled than for the other outgroups—there is less room for participants' attitudes to improve. Therefore, because attitudes were so much more positive towards the disabled, increasing the perceived similarity between them and the focal outgroup still leaves little room for their attitudes to improve.

The longitudinal nature of Study 5 also allowed me to test for the secondary transfer effect of attitudes. Related to the causal sequence problem (Pettigrew, 1997, 1998), it is quite possible that less prejudiced people seek more contact from a wider pool of social groups. Tausch et al. (2010, Study 4) conducted the only test of this reverse causal effect. In their two-wave longitudinal study, they found that attitudes towards the focal outgroup was not directly related with more contact with members of the target outgroup. Study 5, however, provides a stricter test for this hypothesis as the use of structural equation modelling allowed me to test both possibilities simultaneously, whereas Tausch et al.'s reverse causal analysis was run in separate regressions. Furthermore, by using multi-item measures of intergroup contact in a latent variable framework, I was able to provide a stricter test for the effect. Study 5 also tested for direct and mediated STE of attitudes. The direct STE of attitudes

hypothesises that attitudes towards the focal outgroup are directly associated with more contact towards the target outgroup. The mediated STE of attitudes, on the other hand, tests if attitudes towards the focal outgroup lead to more contact with the target outgroup through improving attitudes towards the focal outgroup. Out of a possible 24 tests of a direct STE of attitudes, only four direct reverse causal effects reached statistical significance (compared to the 16 out of 24 direct effects that were found for the STE of contact). Furthermore, none of the 12 possible mediated effects reached statistical significance. Therefore, like research on primary transfer effects, the causal relationship from contact to prejudice seems to be the more significant path than the causal relationship from prejudice to contact.

Taken together, throughout this thesis I have provided the strongest empirical evidence to date attesting to the central role that the attitude generalization process plays in explaining the STE. Furthermore, this thesis uncovered the first systematic evidence attesting to the underlying functioning of the similarity gradients in information. These gradients show that the strength of the attitude generalization process is a function either of the perceived similarity between the two outgroups or because of a shared group categorization. Boosting our confidence in the validity of these results, evidence for similarity gradients was found in four different samples across three different contexts using both cross-sectional and the more restrictive longitudinal designs. However, there was evidence that similarity gradients do not always inform us on the attitude generalization process. These null findings are inherently interesting as they point towards other powerful effects, such as societal norms, that were not measured in the studies, but could very well be exerting powerful influence.

Key Findings: The Deprovincialization Hypothesis

A second major goal of this thesis was to help clarify the deprovincialization hypothesis. Pettigrew's (1997) theorizing on the construct was quite broad including

processes relating to ingroup norms, values, customs, ingroup reappraisal, and infrahumanization. Given this broad definition for the construct, to date, it had only been tested in a narrow way, via a change in ingroup identification. The results from the published tests of the deprovincialization hypothesis are inconsistent, at best. In this thesis, I provided a clearer conceptualization of possible deprovincialization effects and why they would generalize to other outgroups. I argued that intergroup contact can lead to both an increased acceptance and celebration for diversity. This increased acceptance for diversity serves as a proxy for reappraisal of the ingroup. Instead of finding safety in the ingroup only, Study 2 showed that intergroup contact indeed opens individuals up to the opinion that social diversity enriches local life. In turn, diversity beliefs exerted a positive effect on attitudes towards the target outgroups either directly, or via attitudes towards the focal outgroup. Thus, Study 2 provides the first evidence for a more considered approach to the deprovincialization hypothesis.

With diverse societies come diverse cultures. Therefore, it may not be enough to change a respondent's *opinion* that diversity enriches social life. It becomes important for individuals to actually embrace the diversity within their society. One way of demonstrating this is by showing an increase in acceptance and celebration of others' cultural practices and beliefs. Study 4 provides evidence for this contention. In this study, I was able to show that contact with a target outgroup was associated with a greater acceptance for other peoples' cultures, which, in turn, was associated with more favourable attitudes towards both the focal and target outgroups. Both studies provided evidence for the effectiveness of multicultural ideals as mediators of the STE. Furthermore, this particular extension of the deprovincialization hypothesis improves on previous conceptualizations of the process of deprovincialization in two important ways.

Chapter Six: Summary And Conclusion

First, intergroup contact leading to increased endorsement of multicultural values does not require an individual to forsake their identification with an ingroup. According to Social Identity Theory (Tajfel & Turner, 1986), individuals want to belong to a social group; when individuals find a social group they wish to ascribe to, they then incorporate their group membership into their self-concept. As a result, it is unlikely that intergroup contact will necessarily cause individuals to distance themselves from their ingroup. Indeed, in a footnote, Pettigrew (2009) reneges on his earlier formulation of the process of deprovincialization in saying that the process of, “deprovincialization stresses greater openness to outgroups rather than necessarily a distancing away from the ingroup” (p. 59). Therefore, increasing endorsement for multicultural values is one way in which individuals can increase their openness to other outgroups in realising that their own group’s customs, norms, and values are not the only way in which they can view their social world while not requiring them to abandon their own customs, norms, and values. This point neatly complements predictions made by optimal distinctiveness theory (Brewer, 1991). According to this theory, with regards to their social identity, individuals have a need for inclusion in a group and a need for differentiation from other groups (Brewer, 1999; Hewstone et al., 2002). Intergroup bias is said to arise when the ingroup’s distinctiveness is threatened or an individual is feeling socially excluded (Brewer, 1999). An increase in the acknowledgment of other groups’ culture brought about by intergroup contact, however, can serve to highlight the distinctiveness of one’s own cultural heritage, mores, and practices. Therefore, distinctiveness is obtained not at the derogation of other outgroups, but rather at the celebration of the diversity that others bring. Simultaneously, assimilation is achieved by recognising one’s own cultural practices. In this way, multiculturalism both acknowledges and celebrates the multiplicity of group memberships (Yinger, 1994). Furthermore, such

acknowledgement serves to make group categories salient, thus allowing attitudes to generalize to a wider range of outgroups.

Another important contribution that this thesis makes to both the deprovincialization hypothesis and intergroup contact theory in general, is the refined hypotheses I offer that more accurately predict when ingroup identification is likely to relate positively or negatively to outgroup attitudes. Based on social dominance theory (Pratto et al., 1994) and informed by Duckitt's (2006) differential effects approach, I predicted that highly socially dominant individuals would show a strong negative relationship between ingroup identification and attitudes towards outgroups who threaten the ingroup's status or position. For individuals low in social dominance orientation, I predicted no such relationship between ingroup identification and outgroup attitudes. Study 3 provided full support for the hypotheses. Social dominance orientation did indeed moderate the relationship in the hypothesised direction between ingroup identification and outgroup attitudes, but only for the ethno-religious outgroup and not for attitudes towards homosexual men, racial minorities, or Travellers. This finding was predicted as, given the long history of intergroup bias, socially dominant individuals are more likely to see the other religious outgroup as socially threatening. In this instance, intergroup contact had an effect on attitudes towards the ethno-religious outgroup through ingroup identification only for individuals high in social dominance orientation. Extending this finding to include the STE, the three-path mediation results showed that cross-group friendships with the ethno-religious outgroup had an effect on attitudes towards all the target outgroups through ingroup identification and attitudes towards the ethno-religious outgroup only for individuals high in social dominance orientation. Therefore, this effect adds to the previous findings that the deprovincialization and attitude generalization hypothesis do not function independently of each other, but rather work in sequence in spreading the effects of intergroup contact.

Key Findings: Experimental Evidence for the Secondary Transfer Effect

The field studies reported in this thesis provide strong evidence for external validity of the STE. Having demonstrated the STE in cross-sectional and longitudinal work across two different settings and age groups (secondary schools and university respondents), we can certainly say that the effects found in these samples generalize to other populations. But, where these studies excel in external validity, they lack internal validity. If one were to manipulate a contact scenario, would it lead to improved attitudes towards another outgroup? Study 6 was designed to answer this question. Furthermore, Study 6 is the first study to experimentally test the STE of extended contact. Extended contact is thought to generalize to more favourable attitudes towards other outgroups because it leads to heightened group membership salience (Wright et al., 1997). Seeing interactions between two members of different social groups, rather than two idiosyncratic individuals, should encourage wider attitude generalization (Hewstone & Brown, 1986).

Study 6 provided partial support for the hypotheses. First, and surprisingly so, participants in the direct contact condition only showed improved attitudes towards the focal outgroup, Black South Africans; their attitudes did not generalize to improved attitudes towards Coloured South Africans. The participants in the extended contact condition, however, showed improved attitudes towards both Black and Coloured South Africans when compared to baseline levels. Why is it that attitude then generalized for individuals in the extended contact and not the direct contact condition? Inspecting the participant ratings for the characteristics of the intervention provided support for Wright et al.'s (1997) group saliency hypothesis in that participants in the extended contact condition reported perceiving the contact on more of an intergroup level than did participants in the direct contact condition. Study 6, having manipulated intergroup contact itself, permits more confidence

that the wider generalization effects witnessed in the extended contact condition are attributable to the effects of intergroup contact. Thus, whereas the field studies boast external validity, Study 6 provides confidence in the internal validity of the STE.

Contributions to Contact Research

Theoretical and Practical Implications

The theoretical advancements that I put forward and tested in this thesis add significantly to our understanding of the relationship between intergroup contact and prejudice. Given the broad definition of the deprovincialization hypothesis, any number of possible mediators could be argued to encapsulate the process. The deprovincialization hypothesis thus runs a similar risk to early intergroup contact theory: It may become overburdened with too many conceptualizations deemed to be approximations of the deprovincializing process, thus rendering it unfalsifiable. Therefore, the refinement of deprovincialization as a process of multiculturalism represents a compact and theoretically meaningful conceptualization of the process. Doing so also means that the deprovincialization hypothesis can be more accurately submitted to empirical investigation.

It should be noted that investigating the effect of intergroup contact on attitudes towards other outgroups through multiculturalism has theoretical implications of its own. Why does an increase endorsement of multiculturalism lead to more favourable attitudes towards a range of outgroups? First of all, I argued that an increased awareness of others' cultures serves to heighten group salience. While too much group salience can lead to increased threat, and thus to more negative attitudes (Hewstone & Brown, 1986), multiculturalism has been associated with a reduction in perceived threat (González, Verkuyten, Weesie, & Poppe, 2008). Last, I also argued that in creating space for the

existence of others' cultural practices inherently denotes a change in ingroup norms. Therefore, these three processes associated with an increased endorsement of multiculturalism are likely to lead to attitude change to a range of outgroups. In other words, multiculturalism increases group saliency in the absence (or reduction) of threat, and, coupled with a change in more tolerant ingroup norms, which are not outgroup-specific, means that the positive effects accompanying increased acceptance of multicultural values is likely to be associated with wide-spread attitude change.

These positive benefits associated with multiculturalism closely mirror those associated with extended contact, i.e., increase perception of group categories, less intergroup anxiety, and a change in ingroup norms (see Turner et al., 2008; Wright et al., 1997). Having demonstrated that there is indeed a secondary transfer effect of extended contact (Study 6) and that in some cases, it may be more effective than direct forms of contact also attests to the growing body of research that extended contact is indeed an effective prejudice reduction tool. It would be interesting to test if multiculturalism as a mediator of the secondary transfer effect is more effective for indirect than direct forms of contact. Either way, showing that an increase in endorsement of multicultural values improves attitudes to a range of outgroups is even more appealing given the rapid diversification that characterise many societies (Vertovec, 2007b).

Many theories in social psychology aim to integrate with other theories in order to provide a deeper understanding into the psychological processes that drive our social behaviour. For instance, Cuddy, Fiske, and Glick (2007) combined earlier work on their stereotype content model with work on intergroup emotions theory to formulate a framework that more accurately links up stereotypes with behaviours as mediated by different emotions. In a similar fashion, the work presented in this thesis looked at how the deprovincialization and attitude generalization processes are interrelated. This pattern of relationships was

Chapter Six: Summary And Conclusion

replicated over three studies (Studies 2, 3, and 4) using different, but related (Studies 2 and 4) conceptualizations of the deprovincialization process. The benefits of such an integrated model were demonstrated by Study 1b (Chapter 3). Recall that friendships with homosexual women was not directly related to attitudes towards homosexual women, but was indirectly related through increased beliefs in diversity. If the relationship between diversity beliefs and attitudes towards homosexual women had been left out, important primary and secondary transfer effects would have been missed. Therefore, future research should endeavour to develop and further explore the interrelated nature of the deprovincialization and attitude generalization processes. Furthermore, future research should test this interrelated hypothesis using longitudinal and experimental data.

Of specific important theoretical relevance is the fact that I was able to extend previous findings on the causality of contact into the sphere of the secondary transfer effect. One of the major concerns that has long hassled the contact hypothesis is the question of causal order: Does contact lead to less prejudice, or do less prejudice people seek out more contact? Given the relative dearth of longitudinal models testing the contact hypothesis (Pettigrew & Tropp, 2006; Swart et al., 2011), researchers have had to rely on cross-sectional modelling techniques, such as non-recursive structural equation models (Pettigrew, 1997). However, while research does indicate that there is a bi-directional relationship between contact and prejudice, longitudinal (Swart et al., 2011) and meta-analytic (Pettigrew & Tropp, 2006) results indicate that the path from contact to prejudice is the more prevalent path.

In terms of the STE, the question of causal order asks if intergroup contact is associated with more favourable attitudes towards other outgroups, or do less prejudiced people seek more contact from a wider range of social groups? The question of causality with regards to the STE is still left unsatisfactorily answered. Tausch et al. (2010, Study 4) is the only study to have tested for reverse causal effects and found evidence for the STE of

attitudes. Study 5 was able to test two iterations of the STE of attitudes. First, it was able to test if attitudes towards the focal outgroup at earlier time points were directly related to contact with the target outgroup at later time points. Second, I was able to investigate a possible mediated STE of attitudes whereby attitudes towards the focal outgroup at T1 was associated with more contact with the target outgroup at T3 through improved attitudes towards the target outgroup at T2. With regards to direct STE of attitude effects, none were found. Similarly, scant evidence was found for the mediated STE of attitudes. Therefore, this study provides the most critical evidence to date that contact is associated with attitudes towards other outgroups, and that less prejudiced people do not necessarily seek more intergroup contact with individuals from other outgroups.

Practical Implications

The implications of this research do not only pertain to the theoretical advancement of the effect, but the findings also hold important practical applications. Given that segregation still permeates South Africa (Dixon & Durrheim, 2003; Durrheim & Dixon, 2005) and Northern Ireland (Cairns, & Hewstone, 2002; Hewstone et al., 2005; Lloyd et al., 2004; Niens et al., 2003), the STE has obvious practical application in such settings. Schools and universities may play an especially important role in such diverse, yet segregated societies. Erasmus and Ferreira (2002) talk about the challenges facing schools in diversifying societies. Schools need to be prepared to host students from different cultural, socio-economic, and historic-political backgrounds and to prepare them to “live with fellow citizens from diverse backgrounds” (Erasmus & Ferreira, 2002, p. 34). Thus, given that intergroup contact has been shown to reliably improve attitudes towards both contacted and non-contacted outgroups, intergroup contact has a central role to play in preparing the citizens of tomorrow for life in the diverse societies of today.

Criticism and Limitations

While, in this thesis, I have tried to overcome a number of identified shortcomings associated with research on the STE, it would be prudent to acknowledge those that still exist. First, four of the six studies in this thesis relied on cross-sectional data to test causal models. Maxwell and Cole (2007) and Maxwell, Cole, and Mitchell (2011) demonstrate conclusively that severe bias is introduced when analysing causal processes with cross-sectional data. While I have tried to buffer against such concerns by (a) replicating as many of the findings as possible, while (b) using different samples, (c) in different contexts, (d) using latent variables and (e) the latest techniques to test for mediation, (e) by including relevant control variables, and (f) using a combination of fit indices (MacCullum & Austin, 2000), there is no escaping the fact that these studies remain cross-sectional and so the results need to be treated with due caution. Cross-sectional studies are not only prone to bias in the parameter estimates, but they are unable to tease out the causal relations between the variables. This problem is especially prevalent in path analytic models as while one model may fit the data well, so may a number of variations of that model (Tomarken & Waller, 2003). However, the longitudinal (Study 5) and experimental (Study 6) studies presented in this thesis help overcome concerns relating to causality.

Another concern is, while I stressed the importance of using latent variables wherever possible, most of the studies reported in this thesis either relied on measured variables for all the variables included in the model (Studies 1, 2, 3, and 6) or used measured variables in combination with latent variables (Study 5). The use of non-latent, measured variables means that one is unable to control for measurement error associated with the variable. While Study 1 had multiple observed variables gauging attitudes towards the two outgroups, the study's smaller sample size did not allow for the use of latent variables. The rest of the studies used single item feeling thermometers in measuring intergroup attitudes. The choice behind

relying on feeling thermometers was largely to reduce concerns related to participant fatigue as the questionnaires contained a number of questions (some in excess of 100 questions). Feeling thermometers have also been shown to be more reliable and valid than other types of rating scales (i.e., a 7-point rating scale; Alwin, 1992, 1997). Furthermore, some researchers argue that some single item measures can more accurately measure the underlying construct than multi-item measures (see Hayduk & Littvay, 2012). Thus, these arguments drove the decision to use the single item feeling thermometer to gauge intergroup attitudes. As convincing as these arguments may be, feeling thermometers are still single item measures and are therefore assumed to be error free in the models.

Another concern related to the use of feeling thermometers as measures of intergroup attitudes for all the outgroups in question is that bias owing to shared method effects is introduced. That is, because the same attitude measure was used to gauge prejudice towards the different outgroups, the wording and manner in which attitudes are indicated (i.e., on a rating scale, Likert-type question) were also identical. This high content and rating overlap could serve to artificially inflate the relationship between the two attitude scores. Two approaches were adopted to try and minimize concerns relating to common method variances. First, following Podsakoff et al.'s (2003) advice, the attitude measures were spread throughout the questionnaires in order to maximize temporal space between them. Second, as discussed earlier on, the within-wave correlations could go some way to partialling out shared variance between the attitude measures owing to shared methods effects. This, however, does not rule out possible inflation of the parameter estimates owing to shared method effects. While other studies have used different attitude measures in testing for the STE (Pettigrew, 2009; Schmid et al., 2012), they did so using correlational designs. Therefore, using different measures of attitudes towards the various outgroups needs to be replicated longitudinally if one is to more fully account for such shared method effects.

Directions for Future Research

Having covered the findings reported in this thesis, as well as the shortcomings of the current work, it is now time to look ahead to future research. Given its relative infancy, there are a number of avenues in which the STE can expand into, making it a fruitful area of investigation. In this section, I will touch upon some of the directions that social psychologists interested in the STE can explore. First, the results that have been reported in this thesis need to be replicated with stricter controls. Second, I offer further conceptualizations for the deprovincialization hypothesis. In this section, in addition to deprovincialization by multiculturalism, I believe that social identity complexity could, indeed, fully encapsulate the ingroup reappraisal part of the deprovincialization. Third, I will explore possible alternative avenues for exploring, and even manipulating, similarity gradients. Fourth, I explore two potential moderators of the STE, attitude strength and group saliency. Fifth, I offer future directions for the STE and the role of extended contact. Lastly, I close by talking about the importance of considering normative and contextual effects in relation to the STE.

Replication, Replication, Replication

As with any scientific investigation, results need to be replicated. This is especially true for the hypotheses presented in this thesis. While, as far as possible, I have tried to provide more than one test for the hypotheses I put forward in this thesis, they need to be replicated. For example, Study 4 and Study 2, while replicating previous findings relating to the relationship between contact and multiculturalism (Verkutyen et al., 2010) and those relating to the relationship between multiculturalism and attitudes towards various outgroups (Tadmor et al., 2012), tested these findings using cross-sectional data for what is a longitudinal process. Therefore, in order to test if multiculturalism really is a process

involved in the STE, it needs to be replicated in more restrictive longitudinal and experimental settings.

Similarly, the findings relating to the attitude generalization hypothesis and the hypothesised similarity gradients also deserve replication. Similarity gradients have a potentially important role to play in the STE, and if they can be replicated under stricter conditions they have obvious potential for informing policy on how best to ensure that attitudes generalize as far as possible, especially in resource-poor contexts.

Deprovincialization

While I argued that social dominance orientation can help explicate the relationship between ingroup identification and outgroup attitude, it may not always be desirable to require individuals to distance themselves from the ingroup. This is because ingroup identification is important both psychologically and socially to the individual (Leach et al., 2008; Tajfel & Turner, 1979). Indeed, in a footnote, Pettigrew (2009) commented that the process of deprovincialization, instead of distancing an individual away from the ingroup, emphasises greater openness to outgroups. Therefore, strategies that aim to ‘rewire’ how our ingroup identity (or identities, even) relate to other social groups are more appealing than those strategies that require the complete relinquishing of psychologically important identities. I believe that social identity complexity (Roccas & Brewer, 2002) quite possibly most closely approximates the process of ingroup reappraisal, and therefore, has a central role to play in future research on the STE.

Deprovincialization by Social Identity Complexity

A person’s social identity complexity refers to their cognitive representation of the interrelationships between their multiple ingroup identities (Brewer & Pierce, 2005; Roccas

& Brewer, 2002). Put differently, people who are high in social identity complexity realize that they may share ingroup membership with another person on one category (for example, two people may both be social psychologists) but may perceive that person as an outgroup member on another category (e.g., one social psychologist may be a Democrat while the other is a Republican). People with low social identity complexity, on the other hand, will only consider Democrat (or Republican) social psychologists as part of their ingroup.

In a footnote, Pettigrew (2009) mentioned the possibility that social identity complexity might be a good proxy for deprovincialization (see also Brewer, 2008, for a more complete theoretical exposition of deprovincialization in terms of social identity complexity). Pettigrew's (1997) original formulation of the deprovincialization hypothesis refers to a *reappraisal* of the ingroup; social identity complexity seems to be well suited for the task as individuals who have more intergroup contact tend to have a more complex social identity which, in turn, is related to less prejudicial attitudes (Brewer & Pierce, 2005; Roccas & Brewer, 2002; Schmid, Hewstone, Tausch, Cairns, & Hughes, 2009).

In two correlational studies conducted in different contexts—Germany and Northern Ireland—Schmid, Hewstone, Tausch, Cairns, and Hughes (2013) provided the first empirical test of this hypothesis in the context of the STE. In Study 1, conducted with a large sample of adults in Germany, they found that positive intergroup contact with (non-German) Western Europeans improved Germans' attitudes towards people of Turkish and Russian descent; both paths were mediated by social identity complexity. In a second study using a large sample of adults from both Catholic and Protestant communities in Northern Ireland, Schmid, Hewstone, Tausch et al. (2011, Study 2) examined the relationship between the number of ethno-religious outgroup friends and attitudes towards immigrants and homosexuals. The analyses revealed that social identity complexity, once again, acted as an intervening mechanism in the generalization of attitudes to the non-target outgroups, even after

controlling for direct contact with each of the secondary outgroups. Thus it seems that part of the STE of contact can be explained by variations in cognitive re-structuring of one's social identity, that is, social identity complexity.

Attitude Generalization and Extensions to the Similarity Gradient Hypothesis

Pettigrew's (2009) identification of the possibility of similarity gradients holds great potential for the STE and its application in society. Asbrock et al., (2011) and Lolliot et al. (2012), each propose promising avenues for expanding the similarity tests provided in this thesis. Asbrock et al. (2011) were able to show stronger secondary transfer effects for secondary outgroups that were rated as similar to a primary outgroup on the warmth and competence dimensions of Fiske, et al.'s (2002) stereotype content model. Using a German sample, Asbrock et al. (2011) were able to show that direct contact with foreigners in Germany (focal outgroup) was directly associated with improved attitudes to all target outgroups (with the exception of attitudes towards Jews). Furthermore, this direct link was stronger for those groups rated more (Muslims, homeless people, homosexuals) than those rated less (non-traditional women, Jews) similar in terms of the warmth and competence dimensions of the stereotype content model (Fiske et al., 2002) to the focal outgroup. Testing similarity gradients according to the stereotype content model provides an interesting opportunity for theorists interested in the STE and the attitude generalization hypothesis.

Lolliot et al. (2013) offer an interesting take on individual measures of intergroup similarity. They hypothesize that the *amount* or *level* of stigma may moderate the relationship between attitudes towards the focal outgroup and attitudes towards the target outgroup. For instance, if two outgroups are seen as experiencing similar levels of discrimination (i.e., two outgroups may experience different *types* of discrimination, but if the individual perceives

them as both experiencing high *levels* of their respective discrimination), then the positive effects of contact may generalize from the focal to the target outgroup.

Potential Moderators of the Secondary Transfer Effect

Attitude strength. Recall that in Study 5, direct STE effects were found involving outgroups towards which the participants held the least certain attitudes—one of the components of attitude strength. Attitude strength may help us uncover when attitudes generalize more strongly. Since attitude strength increases with the amount of exposure to the attitude object (Krosnick & Petty, 1995), if an individual has had little contact with an outgroup (see Christ et al., 2010, and Vonofakou, Hewstone, & Voci, 2007, for evidence of intergroup contact increasing attitude strength), their attitudes towards that outgroup may be more malleable. Therefore, I hypothesize that attitude strength could act as a potential moderator such that intergroup contact with a primary outgroup will show stronger secondary transfer effects for attitudes towards secondary outgroup(s) that are lower in attitude strength than those that are held strongly. Attitude strength may play an important role not only in maintaining STEs, but also in helping buffer the positive effects of contact against negative contact experiences. The attitudes that are held more strongly are said to be more resistant to change and persist longer over time. This is important as research indicates that negative information influences evaluations to a greater degree than does positive information (Ito, Larsen, Smith, & Cacioppo, 1998). While one should always promote positive contact, unfortunately, individuals are likely also to have some negative contact experiences with an outgroup. Given that recent research indicates that negative contact increase prejudice more than positive contact ameliorates it (Barlow et al., 2012), the importance for creating positive attitudes that are strong and resistant to change becomes an obvious priority for contact researchers.

Group saliency. Throughout this thesis, group saliency has come up as a recurring theme. I have relied on various iterations of the concept of group saliency to help explain the observed findings in this thesis (Studies 2, 4, 5, and 6). For example, the direct STEs and the lack of evidence for the attitude generalization hypothesis in Study 5 were explained in terms of relative group salience. In Study 6, extended contact was argued to lead to improved attitudes towards the target outgroup because group categories were made more salient during the intervention. Indeed, participants in the direct contact condition, who did not show evidence for the STE, viewed the interaction they took part in as happening between two individuals rather than between two social groups. Furthermore, the effects of diversity beliefs and multiculturalism in Studies 2 and 4, respectively, were said to lead to more favourable attitudes towards other outgroups because it highlighted the positive aspects of living in diverse contexts. In other words, it made salient the existence of other groups. Indeed, intergroup saliency is known to be an important moderating factor of intergroup contact effects (Brown & Hewstone, 2005; Hewstone & Brown, 1986). Therefore, future research should explore the effects of manipulating the saliency of group categories on wider attitude generalization.

Extended Contact and the Secondary Transfer Effect

The results from Study 6 provide promising avenues for future research on the STE. The results strongly suggest that the STE works for extended contact participants because the intergroup contact is seen as happening on an intergroup rather than interpersonal level. Two other mediating factors of the extended contact hypothesis provide exciting possibilities for future STE research. First, extended contact was hypothesised to positively change ingroup norms (Wright et al., 1997) with Turner et al. (2008) showing that this is indeed the case; extended contact was associated with the perception that the ingroup was more in favour of

cross-group friendships. As they concern the perceived attitudes of the ingroup towards intergroup contact, ingroup norms are not outgroup specific. Therefore, and by extension, extended contact with a focal outgroup should lead to improved attitudes towards target outgroups with this path being mediated by more favourable ingroup norms.

Another important benefit of extended contact is that the vicarious experience of intergroup contact occurs without fear of being rejected or discriminated against by the outgroup member. In other words, it occurs in the absence of intergroup anxiety. According to Pettigrew and Tropp's (2008) meta-analysis of three mediators—intergroup anxiety, empathy, and increased knowledge of the outgroup—intergroup anxiety emerged as the most powerful mediator of the contact-prejudice relationship (Pettigrew & Tropp, 2008; Swart et al., 2011). With decreased levels of intergroup anxiety, ameliorated attitudes should generalize more readily. Another related avenue for research is future expectations of intergroup contact; extended contact should result in less anxiety with regards to future contact encounters (Turner et al., 2008). Similarly, feeling more confident in one's ability to interact with one outgroup should increase individuals' willingness to spend more time with members from various outgroups. In other words, it should increase willingness for future contact. Feeling more confident and less anxious for future contact situations should, itself, lead to more confidence and less anxiety for intergroup contact in general, and not just with the contacted outgroup.

Thus, extended contact with one outgroup should lead to more favourable attitudes to a wide range of outgroups through the perception of more accepting ingroup norms, the absence of intergroup anxiety and the increased perceived confidence in future interactions, with heightened intergroup salience aiding the generalization process.

Normative and Contextual Effects

As further data are gathered with more refined research tools, it becomes increasingly apparent that the psychological and sociological correlates of prejudice are elaborately intertwined and that both are essential to provide an adequate theoretical framework for this complex phenomenon (Pettigrew, 1958, p. 29).

In the article from which the above quote is taken, Pettigrew (1958) noted that in a South African and Northern American sample (from the south), individuals displayed high levels of prejudice towards Black individuals. What was interesting about the respondents' levels of prejudice, is that they did not correspond with very high scores on the F-scale (an early version of the right-wing authoritarianism measure), as might have been expected. Interpreting these results, Pettigrew offered the following hypothesis: "In areas with historically imbedded traditions of racial intolerance, externalizing personality factors underlying prejudice remain important, but socio-cultural factors are unusually crucial and account for the heightened racial hostility." (p. 40). Recall that Minard (1952), in his investigation into intergroup relations between White and Black Americans in a West Virginian coal mine, found that White respondents were happy working alongside, and indeed, sometimes under the supervision of their fellow African American mine workers. However, when the time came to come above ground, the social norms of segregation that existed in southern American states of the 1950s were clearly witnessed by the White-Black divide on the bus trip home.

These contextual effects, thus, obviously have potent influence over what happens on an individual level. Yet, even after a more recent call for these contextual effects to be taken into account (Christ & Wagner, 2012; Pettigrew, 2008), they remain understudied. With the increasing availability of multilevel modelling methods (see Christ & Wagner, 2012;

Preacher, Zhang, & Zyphur, 2011; Preacher, Zyphur, & Zhang, 2010) researchers are now better positioned to investigate contextual level effects on individual and group level processes. With immigration levels on the rise, and the increasing emphasis on tolerant societal norms, contextual effects have an obvious place to play in investigations of the STE.

Summary and Conclusions

The findings in this thesis aimed to not only establish the existence of the STE and to clarify its underlying processes, but I also sought to approach a number of criticisms that cast doubt over the reliability of the effect. Given the cumulative results presented in this thesis, it does indeed seem that the effect of intergroup contact is more pervasive than first thought when the contact hypothesis was conceived six decades ago. These findings seem to have come in the nick of time. As societies become increasingly diverse (even super-diverse, see Vertovec, 2007b), it is inevitable that intergroup tensions are bound to arise. Thus, as stated in Chapter 1, the obvious challenge facing diversifying societies is to find some way in which this myriad of social groups can function peacefully. Given the mounting evidence for the existence of the STE, attention does need to be focused on policy development to help promote peaceful relations within our diversifying societies (Brown & Hewstone, 2005; Pettigrew, 2008). The development of theories relating to the secondary transfer effect, such as deprovincialization for example, provides useful backdrops against which policy development can take place.

Looking beyond intergroup relations at the community level, there is increasing interest in the concept of ‘cosmopolitanism’ in both the behavioural and social sciences (Lolliot et al., 2012). Cosmopolitanism, as defined by Hannerz (1990), “includes a stance toward diversity itself, toward the coexistence of cultures . . . an orientation, a willingness to engage with the Other. It is a . . . stance of openness toward divergent cultural experiences” (p.

Chapter Six: Summary And Conclusion

239). Thus, if intergroup contact can improve attitudes beyond an immediately contacted outgroup—which the research reported in this thesis attests to—then intergroup contact represents one of the most powerful tools available for improving intergroup relations in the world’s growing cosmopolitan societies.

References

References

- A Shared Future (2005). *Policy and Strategic Framework for Good Relations in Northern Ireland*. Office of the First Minister and Deputy Minister. Retrieved on September 27, 2012, from <http://www.ofmdfnni.gov.uk/policy-strategic-framework-good-relations.pdf>
- Abdalla, S., Quirke, B., Fitzpatrick, P., & Daly, L. (2010). All Ireland Traveller health study: Our Geels. Retrieved on September 29, 2012, from http://www.dohc.ie/publications/aiths2010/TR2/AITHS2010_TechnicalReport2_HR_PartA.pdf?direct=1
- Akenson, D. H. (1970). *The Irish education experiment: The national system of education in the nineteenth century*. New York: Routledge.
- Al Ramiah, A. (2009). Intergroup relations in Malaysia: Identity, contact and threat (Unpublished doctoral dissertation). Oxford University, Oxford.
- Al Ramiah, A., & Hewstone, M. (2012). 'Rallying around the flag': Can an intergroup contact intervention promote national unity? *British Journal of Social Psychology*, *51*, 239-256.
- Alexander, R. A. (1988). Group homogeneity, range restriction, and range enhancement effects on correlations. *Personnel Psychology*, *41*, 773-777.
- Allen, K. (2009). Rainbow nation's outsiders live in fear. *BBC News*, 28 May 2009. Retrieved on August 08, 2009, from <http://news.bbc.co.uk/1/hi/world/africa/8070919.stm>
- Allport, G.W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.
- Allport, G.W., & Kramer, B.M. (1946). Some roots of prejudice. *Journal of Psychology*, *22*, 9-39.

References

- Alwin, D.F. (1992). Information transmission in the survey interview: Number of response categories and the reliability of attitude measurement. *Sociological Methodology*, 22, 83-118.
- Alwin, D.F. (1997). Feeling thermometers versus 7-point scales: Which are better? *Sociological Methods Research*, 25, 318-340. doi: 10.1177/0049124197025003003
- Alwin, D.F., & Hauser, R.M. (1975). The decomposition of effects in path analysis. *American Sociological Review*, 40, 37-47.
- Amir, Y. (1969). Contact hypothesis in ethnic relations. *Psychological Bulletin*, 71, 319–342. doi: 10.1037/h0027352
- Anderson, J.C., & Gerbing, D.W. (1988). Structural equation modelling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103, 411-423.
- Anderson, T.W. (1957). Maximum Likelihood estimates for a multivariate normal distribution when some observations are missing. *Journal of the American Statistical Association*, 52, 200-203.
- Apfelbaum, E.P., Sommers, S.R., & Norton, M.I. (2008). Seeing race and seeming racist? Evaluating strategic colorblindness in social interaction. *Journal of Personality and Social Psychology*, 95, 918-932. doi: 10.1037/a0011990
- Appiah, K. A. (2006). *Cosmopolitanism: Ethics in a world of strangers*. New York, NY: Norton.
- ARK. (2009, June) Northern Ireland Life and Times Survey, 2008 [computer file]. ARK Retrieved on October 09, 2012, from www.ark.ac.uk/nilt [distributor], June 2009.
- ARK. (2011, June) Northern Ireland Life and Times Survey. 2010 [computer file]. ARK. Retrieved on September 06, 2012, from www.ark.ac.uk/nilt [distributor].

References

- Armstrong, J.C. (1980). The slaves, 1652-1795. In R. Elphick & H. Gioliomee (Eds.), *The shaping of South African society: 1652-1820* (pp. 75-115). Cape Town: Printpack (Cape) Ltd.
- Aron, A. Aron, E.N., & Smollan, D. (1992). Inclusion of other in self scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, *63*, 596-612.
- Asbrock, F., Christ, O., Hewstone, M., Pettigrew, T.F., & Wagner, U. (2011). *Comparing the secondary transfer effect of direct and extended intergroup contact: The generalization of positive attitudes and its limitations*. Manuscript submitted for publication.
- Asians in Britain (n.d.). *Learning: Asians in Britain*. British Library. Available at: <http://www.bl.uk/learning/histcitizen/asians/asiansinbritain.html>
- Baker, P.E. (1934). Negro-White Adjustment in America. *The Journal of Negro Education*, *3*, 194-204.
- Ballard, R. (2002). The South Asian Presence in Britain and its Transnational connections. In H. Singh & S. Vertovec (Eds.), *Culture and Economy in the Indian Diaspora*. London: Routledge. Retrieved on December 02, 2012 from <http://casas.org.uk/papers/pdfpapers/southasianbritain.pdf>
- Barlow, F.K., Paolini, S., Pedersen, A., Hornsey, M.J., Radke, H.R.M., Harwood, J., Rubin, M., & Sibley, C.G. (2012). The contact caveat: Negative contact predicts increased prejudice more than positive contact predicts reduced prejudice. *Personality and Social Psychology Bulletin*, *38*, 1629-1643. doi: 10.1177/0146167212457953
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182. doi:10.1037/0022-3514.51.6.1173
- Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences*, *42*, 815-824. doi: 10.1016/j.paid.2006.09.018

References

- Barton , K.C., & McCully, A.W. (2005). History, Identity and the School Curriculum in Northern Ireland: An Empirical Study of Secondary Students' Ideas and Perspectives. *Journal of Curriculum Studies*, 37, 85-116.
- Batson, C.D., & Ahmad, N.Y. (2009). Using empathy to improve intergroup attitudes and relations. *Social Issues and Policy Review*, 3, 141-177.
- Batson, C.D., Polycarpou, M.P., Harmon-Jones, E., Imhoff, H.J., Mitchener, E.C., Bednar, L.L., Klein, T.R., & 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.
- BBC History (2007a). *The Road to Northern Ireland, 1167 to 1921*. BBC History. Available at: http://www.bbc.co.uk/history/recent/troubles/overview_ni_article_01.shtml
- BBC History (2007b). *The Troubles, 1963 to 1985*. BBC History. Available at http://www.bbc.co.uk/history/recent/troubles/the_troubles_article_01.shtml
- BBC News (2009a, March 10). Fear for 'scary times' returning. Retrieved from http://news.bbc.co.uk/1/hi/northern_ireland/7934996.stm
- BBC News (2009b, March 08). 'Real IRA was behind attack. Retrieved from http://news.bbc.co.uk/1/hi/northern_ireland/7930995.stm
- Benedictus, L. (2005, January 21). Every race, colour, nation and religion on earth. *The Guardian*. Retrieved on August January 08, 2012 from
- Benedictus, L. (2006, January 23). All together now. *The Guardian*. Retrieved on August 29, 2011 from <http://www.guardian.co.uk/uk/2005/jan/21/britishidentity1>
<http://www.guardian.co.uk/uk/2006/jan/23/britishidentity.features118?INTCMP=ILCN>
[ETTXT3487](http://www.guardian.co.uk/uk/2006/jan/23/britishidentity.features118?INTCMP=ILCN)
- Bentler, P.M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238-246.

References

- Bentler, P.M. (2007). On tests and indices for evaluating structural models. *Personality and Individual Differences, 42*, 825-829. doi: 10.1016/j.paid.2006.09.024
- Bentler, P.M., & Bonnett, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*, 588-606.
- Bentler, P.M., & Chou, C. (1987). Practical issues in structural modeling. *Sociological Methods & research, 16*, 78-117.
- Berman, G., & Paradies, Y. (2008). Racism, disadvantage and multiculturalism: Towards effective anti-racist praxis. *Ethnic and Racial Studies, 33*, 1-19. doi: 10.1080/01419870802302272
- Biesanz J., & Smith, L.M. (1951). Race relations of Panama and the Canal Zone. *American Journal of Sociology, 57*, 7-14.
- Bilton, H. (2009). St. Mungo's health report: Homelessness: It makes you sick. Retrieved on November 23, 2011 from www.mungos.org/documents/771
- Binder, J., Zagefka, H., Brown, R., Funke, F., Kessler, T., Mummendey, A., Maquil, A., Demoulin, S., & Leyens, J.-P. (2009). Does contact reduce prejudice or does prejudice reduce contact? A longitudinal test of the contact hypothesis among majority and minority groups in three European countries. *Journal of Personality and Social Psychology, 96*, 843–856. doi: 10.1037/a0013470
- Bogardus, E.S. (1928). *Immigration and Race Attitudes*. Boston: Heath.
- Bollen K.A., & Stine, R.A. (1992). Bootstrapping goodness-of-fit measures in structural equation models. *Sociological Methods Research, 21*, 205-229.
doi: 10.1177/0049124192021002004
- Bollen, K. A., & Stine, R.A (1990). Direct and indirect effects: Classical and bootstrap estimates of variability. *Sociological Methodology, 20*, 115-140.

References

- Bollen, K.A. (2002). Latent variables in psychology and the social sciences. *Annual Review of Psychology, 53*, 605-634.
- Bollen, K.A., & Long, J.S. (1992). A test for structural equation models: Introduction. *Sociological Methods and Research, 21*, 121-131.
- Boomsma, A., & Hoogland, J.J. (2001). The robustness of LIREL modeling revisited. In R. Cudeck, S. du Toit, & D. Sörbom (Eds.), *Structural equation models: Present and future. A festschrift in honor of Karl Jöreskog* (pp. 139-168). Lincolnwood, IL: Scientific Software International.
- Brah, A. (2008). The 'Asian' in Britain. In N. Ali, V.S. Karla, & S. Sayyid (Eds.), *A postcolonial people: South Asians in Britain* (35-61). New York: Columbia University Press.
- Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin, 17*, 475–482.
- Brewer, M.B. (1999). The psychology of prejudice: Ingroup love or outgroup hate? *Journal of Social Issues, 55*, 429-444.
- Brewer, M.B. (2008). Deprovincialization: Social identity complexity and outgroup acceptance. In U. Wagner, L. Tropp, G. Finchilescu, & C. Tredoux (Eds.), *Emerging research directions for improving intergroup relations – Building on the legacy of Thomas F. Pettigrew* (pp. 160-176). Oxford, UK: Blackwell.
- Brewer, M.B., & Pierce, K.P. (2005). Social identity complexity and outgroup tolerance. *Personality and Social Psychology Bulletin, 31*, 428-437.
- Briggs, N. (2006). Estimation of the standard error and confidence interval of the indirect effect in multiple mediator models. *Dissertation Abstracts International, 37*, 4755B.
- Brophy, I.N. (1946). The luxury of anti-Negro prejudice. *Public Opinion Quarterly, 9*, 456-466.

References

- Brown, R., & Hewstone, M. (2005). An integrated theory of intergroup contact. In Zanna, M. (ed.), *Advances in experimental social psychology* (Vol. 37, pp. 255-343). San Diego, CA: 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.
- Brown, R., Vivian, J., & Hewstone, M. (1999). Changing attitudes through intergroup contact: The effects of group membership salience. *European Journal of Social Psychology, 29*, 741-764.
- Brown, T.A. (2006). *Confirmatory factor analysis for applied research*. New York: Guilford Press.
- Bullock, H.E., Harlow, L.L., & Mulaik, S.A. (1994). Causation issues in structural equation modeling research. *Structural Equation Modeling: A Multidisciplinary Journal, 1*, 253-267. doi: 10.1080/10705519409539977
- Byrne, B.M. (2010). *Structural equation modelling with AMOS: Basic concepts, applications, and programming* (Second Edition). New York: Routledge.
- Byrnes, M.B. (1996). *South Africa: A country study*. Washington: GPO for the Library of Congress.
- Caditz, J. (1976). Ethnic identification, interethnic contact, and belief in integration. *Social Forces, 54*, 632-645.
- Cairns, E. (1982). Intergroup conflict in Northern Ireland. In H. Tajfel (ed.), *Social identity and intergroup relations* (pp. 277-298). Cambridge: Cambridge University Press.
- Cairns, E., & Darby, J. (1998). The conflict in Northern Ireland: Causes, consequences and controls. *American Psychologist, 53*, 757-760.
- Cairns, E., & Hewstone, M. (2002). Northern Ireland: The Impact of Peacemaking in Northern Ireland on Intergroup Behaviour. In B. Nevo, & Salomon, G. (Eds.), *Peace*

References

- Education: The concept, principles and practices around the world* (pp. 1-2). Larry Erlbaum Associates.
- Cairns, E., & Mecer, G.W. (1984). Social identity in Northern Ireland. *Human Relations*, 37, 1095-1102.
- Campbell, D.T. (1965). Ethnocentrism and other altruistic motives. In D. Levine (ed.), *Nebraska symposium on motivation* (pp. 283-301). Lincoln: University of Nebraska Press.
- Cartwright, D. (1979). Contemporary social psychology in historical perspective. *Social Psychology Quarterly*, 42, 82-93.
- Catton, W.R. (1960-1961). The functions and dysfunctions of ethnocentrism: A theory. *Social Problems*, 8, 201-211.
- Cebulla, A., Rice, B., Tomaszewski, W., & Hough, J. (2009). Profiling London's rough sleepers: A longitudinal analysis of CHAIN data. Retrieved on November 25, 2012 from http://www.broadwaylondon.org/CHAIN/CHAINResearch/ProfilingLondonsRoughSleepers2009/main_content/ProfilingLondonsRoughSleepersSummaryReport.pdf
- Chen, F., Curran, P.J., Bollen, K.A., Kirby, J., & Paxton, P. (2008). An empirical evaluation of the use of fixed cutoff points in RMSEA test statistic in structural equation models. *Sociological Methods & Research*, 36, 462-494. doi: 10.1177/0049124108314720
- Chrisafis, A. (2004). Racist war of the loyalist street gangs. *The Guardian*, 10 January 2004. Retrieved on 22 November, 2012 from <http://www.guardian.co.uk/uk/2004/jan/10/northernireland.race>

References

- Christ, O., Hewstone, M., Tausch, N., Wagner, U., Voci, A., Hughes, J., & Cairns, E. (2010). Direct contact as a moderator of extended contact effects: Cross-sectional and longitudinal impact on outgroup attitudes, behavioral intentions, and attitude certainty. *Personality and Social Psychology Bulletin*, *36*, 1662-1674. doi: 10.1177/014616721038696
- Christ, O., Hewstone, M., Wagner, U., & Tropp, L. (2012). Dynamic processes in intergroup contact. *British Journal of Social Psychology*, *51*, 219-220. doi: 10.1111/j.2044-8309.2012.02104.x
- Christ, O., & Wagner, U. (2012). Methodological issues in the study of intergroup contact. In G. Hodson, & M. Hewstone (Eds.), *Advances in intergroup contact* (pp. 233-261). London, UK: Psychology Press.
- Clément, R., Gardner, R.C., & Smythe, P.C. (1977). Interethnic contact: Attitudinal consequences. *Canadian Journal of Behavioral Science*, *9*, 205-215.
- Cliff, N. (1983). Some cautions concerning the application of causal modeling methods. *Multivariate Behavioral Research*, *18*, 115-126.
- Clogg, C.C., Petkova, E. & Haritou, A. (1995). Statistical methods for comparing regression coefficients between models. *American Journal of Sociology*, *100*, 1261-1293.
- Cole, D.A., & Maxwell, S.E. (2003) Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology*, *112*, 558 –577. doi: 10.1037/0021-843X.112.4.558
- Connolly, P., & Keenan, M. (2001). *The hidden truth: Racist harassment in Northern Ireland*. Belfast: Northern Ireland Statistics and Research Agency. Retrieved on September 06, 2012, from <http://www.equality.nisra.gov.uk/thehiddentruth.doc>

References

- Converse, J.M., & Presser, S. (1986). *Survey questions: Handcrafting the standardized questionnaire*. California, USA: Sage Publications.
- Conway, B. (2003). Active remembering, selective forgetting, and collective identity: The case of Bloody Sunday. *Identity: An International Journal of Theory and Research*, 3, 305-323. doi: [10.1207/S1532706XID0304_01](https://doi.org/10.1207/S1532706XID0304_01)
- Cook S.W. (1962). The systematic analysis of socially significant events: a strategy for social research. *Journal of Social Issues*, 18, 66-84.
- Cottrell, R. (2005). *Northern Ireland and England: The Troubles*. Philadelphia: Chelsea House Publications
- Cowan, K. (2007). Living together: British attitudes to lesbian and gay people. *Stonewall*. Retrieved on November 21, 2012, from http://www.stonewall.org.uk/documents/living_together_final_web.pdf
- Craig, C.C. (1936). On the frequency function of xy . *Annals of Mathematical Statistics*, 7, 1-15.
- Crano, D.C., & Brewer, M.B. (2008). *Principles and methods of social research* (2nd Edition). New Jersey: Lawrence Erlbaum Associates, Inc., Publishers.
- Crawford, M.T., Sherman, S.J., & Hamilton, D.L. (2002). Perceived entiativity, stereotype formation, and the interchangeability of group members. *Journal of Personality and Social Psychology*, 83, 1076-1094. doi: [10.1037//0022-3514.83.5.1076](https://doi.org/10.1037//0022-3514.83.5.1076)
- Crisp, A.H., Gelder, M.G., Rix. S., Meltzer, H.I., & Rowlands, O.J. (2000). Stigmatisation of people with mental illnesses. *The British Journal of Psychiatry*, 177, 4-7. doi: [10.1192/bjp.177.1.4](https://doi.org/10.1192/bjp.177.1.4)
- 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](https://doi.org/10.1037/a0014718)

References

- 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*, 188-236.
- Crisp, R.J., Stathi, S., Turner, R.N., & Husnu, S. (2008). Imagined intergroup contact: Theory, paradigm, and practice. *Social and Personality Psychology Compass, 3*, 1-18.
- Cronbach, L.J. (1987). Statistical tests for moderator variables: Flaws in analyses recently proposed. *Psychological Bulletin, 102*, 414-417.
- Crush, J. (2008). *The perfect storm: The realities of xenophobia in contemporary South Africa*. Southern African Migration Project. Cape Town: Idasa.
- Cuddy, A.J.C., Fiske, S.T., Glick, P. (2007). The BIAS Map: Behaviours from intergroup affect and stereotypes. *Journal of Personality and Social Psychology, 92*, 631-648. doi: 10.1037/0022-3514.92.4.631
- Curran, P.J., Bollen, K.A., Chen, F., Paxton, P., & Kirby, J.B. (2003). Finite sampling properties of the point estimates and confidence interval of the RMSEA. *Sociological Methods Research, 32*, 208-252. doi: 10.1177/0049124103256130
- Dalal, D.K., & Zickar, M.J. (2012). Some common myths about centering predictor variables in moderated multiple regression and polynomial regression. *Organizational Research Methods, 15*, 339-362. doi: 10.1177/1094428111430540
- Dale, A. (2008). Migration, marriage and employment amongst Indian, Pakistani, and Bangladeshi residents in the UK (CCSR Working paper 2008-02). Cathie Marsh Centre for Census and Survey Research. Retrieved on January 01, 2013, from <http://www.ccsr.ac.uk/publications/working/2008-02.pdf>
- Darby, J. (2001). Profile: Northern Ireland. In J. Darby (Ed.), *The effects of violence on peace process* (pp. 15-26). Washington: United States Institute of Peace.

References

- 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, 15*, 332-351. doi: 10.1177/1088868311411103
- Davies, K., Wright, S.C., Aron, A., & Comeau, J. (2012). Intergroup contact through friendship: Intimacy and norms. In G. Hodson, & M. Hewstone (Eds.), *Advances in intergroup contact* (pp. 200-2229). London, UK: Psychology Press.
- Department for Communities and Local Government (2008). *No one left out: Communities ending rough sleeping*. West Yorkshire: Communities and Local Government Publications. Retrieved on November 25, 2012, from http://www.dhcarenetworks.org.uk/library/Resources/Housing/Support_materials/Other_reports_and_guidance/endingroughsleeping.pdf
- Department of Education Northern Ireland (2007) Pupil Religion Series. Bangor: Department of Education.
- Department of Employment of Learning (2009). *The economic, labour market and skills impacts of migrant workers in Northern Ireland*. Lisburn, UK: Oxford Economics. Retrieved from http://www.delni.gov.uk/the_economic_labour_market_and_skills_impact_of_migrant_workers_in_northern_ireland.pdf
- Deutsch, M., & Collins, M.E. (1951). *Interracial housing: A psychological evaluation of a social experiment*. Minneapolis: University of Minnesota Press.
- Devine, P., & Robinson, G. (2012). Research Update: No more 'us and them' for 16 year olds. *Economic & Social Research Council*. Retrieved on September 06, 2012, from <http://www.ark.ac.uk/publications/updates/update79.pdf>
- Dewey, R.L. (1937). The Merchant Marine Act of 1936. *The American Economic Review, 27*, 240-252.

References

- Dhaliwal, S., & Kangis, P. (2006). Asians in the UK: Gender, generations and enterprise. *Equal Opportunities International*, 25, 92-108. doi: 10.1108/02610150610679529
- Dhont, K., & Van Hiel, A. (2009). We must not be enemies: Interracial contact and the reduction of prejudice among authoritarians. *Personality and Individual Differences*, 46, 172-177. doi: 10.1016/j.paid.2008.09.022
- Dhont, K., & Van Hiel, A. (2011). Direct contact and authoritarianism as moderators between extended contact and reduced prejudice: Lower threat and greater trust as mediators. *Group Processes & Intergroup Relations*, 14, 223-237. doi: 0.1177/1368430210391121
- Dhont, K., Van Hiel, A., De Bolle, M., & Roets, A. (2012). Longitudinal intergroup contact effects on prejudice using self- and observer-reports. *British Journal of Social Psychology*, 51, 221-238.
- Dick, S. (2008). Homophobic hate crime: The gay British crime survey. *Stonewall*. Retrieved on November 20, 2012, from http://www.stonewall.org.uk/documents/homophobic_hate_crime_final_report.pdf
- Dixon, J., & Durrheim, K. (2003). Contact and the ecology of racial division: Some varieties of informal segregation. *British Journal of Social Psychology*, 42, 1-23.
- Dixon, J., Durrheim, K., & Tredoux, C. (2005). Beyond the optimal contact strategy: A reality check for the contact hypothesis. *American Psychologist*, 60, 697-711. doi: 10.1037/0003-066X.60.7.697
- Donahue, M., McVeigh, R., & Ward, M. (2003) *Misli, Crush, Misli, Irish Travellers and Nomadism*. Ireland: Irish Traveller Movement. Retrieved on August 13, 2012, from <http://itmtrav.ie/uploads/publication/MISLI-CRUSH-MISLI.pdf>
- Dovidio, J.F., Eller, A., & Hewstone, M. (2011). Improving intergroup relations through direct, extended and other forms of indirect contact. *Group Processes & Intergroup Relations*, 14, 147-160. doi: 10.1177/1368430210390555

References

- Dovidio, J.F., Gaertner, S.L., & Kawakami, K. (2003). Intergroup contact: The past, present, and the future. *Group Processes & Intergroup Relations*, 6, 5-21.
- Drummond, A. (2007). The Construction of Irish Travellers (and Gypsies) as a ‘Problem’. In M.Ó. hAodha (ed.), *Migrants and memory: The forgotten “postcolonials”* (pp. 2-41). Newcastle: Cambridge Scholars Publishing.
- Duckitt, J. & Parra, C. (2004). Dimensions of group identification and out-group attitudes in four ethnic groups in New Zealand. *Basic and Applied Social Psychology*, 26, 237-247.
- Duckitt, J. (1992). A historical analysis and integrative framework. *American Psychologist*, 47, 1182-1193.
- Duckitt, J. (2006). Differential effects of right wing authoritarianism and social dominance orientation on outgroup attitudes and their mediation by threat from and competitiveness to outgroups. *Personality and Social Psychology Bulletin*, 32, 684-969. doi: 0.1177/0146167205284282
- Duckitt, J., & Mphuthing, T. (1998). Group identification and intergroup attitudes: A longitudinal analysis in South Africa. *Journal of Personality and Social Psychology*, 74, 80–85.
- Duckitt, J., Callaghan, J., & Wagner, C. (2005). Group identification and outgroup attitudes in four South African ethnic groups: A multidimensional approach. *Personality and Social Psychology Bulletin*, 31, 633-646.
- Dunn, G., Everitt, B., & Pickles, A. (1993). *Modelling covariances and latent variables using EQS* (5th Edition). Cornwall: Chapman & Hall.
- Dunn, S., & Morgan, V. (1999). ‘A fraught path’: Education as a basis for developing improved community relations in Northern Ireland. *Oxford Review of Education*, 25, 141-153. doi: 10.1080/030549899104170

References

- Durrheim, K., & Dixon, J. (2005). *Racial encounter: The social psychology of contact and desegregation*. East Sussex: Routledge.
- Edgett, G.L. (1956). Multiple regression with missing observations among the independent variables. *Journal of the American Statistical Association*, *51*, 122-131. doi: 10.1080/01621459.1956.10501315
- Effron, B. (1987). Better bootstrap confidence intervals. *Journal of the American Statistical Association*, *82*, 171-185.
- 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.
- Eller, A., Abrams, D., & Gómez, A. (2012). When the direct route is blocked: The extended contact pathway to improving intergroup relations. *International Journal of Intercultural Relations*, *36*, 637-646. doi: [10.1016/j.ijintrel.2012.03.005](https://doi.org/10.1016/j.ijintrel.2012.03.005)
- Eller, A., Abrams, D., & Zimmerman, A. (2011). Two degrees of separation: A longitudinal study of actual and perceived extended international contact. *Group Processes & Intergroup Relations*, *14*, 175-191. doi: 10.1177/1368430210391120
- Ellis, S., Kitzinger, C., & Wilkinson, S. (2002). Attitudes towards lesbians and gay men and support for lesbian and gay human rights among psychology students. *Journal of Homosexuality*, *44*, 121-138.
- Enders, C.K., & Bandalos, D.L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Educational Psychology Papers and Publications* (Paper 64).

References

- Equality Commission for Northern Ireland (2009) *Equality Awareness Survey 2008*. Belfast, Equality Commission for Northern Ireland. Retrieved on September 13, 2012, from <http://www.equalityni.org/archive/pdf/ECSurvey2008.pdf>
- Equality Commission for Northern Ireland (2012) *Equality Awareness Survey 2011*. Belfast, Equality Commission. Retrieved on September 13, 2012, from [http://www.equalityni.org/archive/pdf/DYMMSurveyMainReport\(webB\).pdf](http://www.equalityni.org/archive/pdf/DYMMSurveyMainReport(webB).pdf)
- Erasmus, P. & Ferreira, G.V. (2006). Black grade 9 learners in historically white suburban schools and their experience of integration. *South African Journal of Education*, 22, 28-35.
- Every Child and Equal Child (2008). *An Equality Commission Statement on Key Inequalities in Education and a Strategy for Intervention*. Equality Commission for Northern Ireland. Retrieved on September 26, 2012, from <http://www.equalityni.org/archive/pdf/ECkeyinequalities.pdf>
- Fan, X., Thompson, B., & Wang, L. (1999). Effects of sample size, estimation methods, and model specification on structural equation modelling fit indexes. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 56-83. doi: 10.1080/10705519909540119
- Fazio, R.H., Eiser, J.R., & Shook, N.J. (2004). Attitude formation through exploration: Valence asymmetries. *Journal of Personality and Social Psychology*, 87, 293-311.
- Feddes, A.R., Novak, P., & Rutland, A. (2009). Direct and Extended Friendship Effects on Minority and Majority Children's Interethnic Attitudes: A Longitudinal Study. *Child Development*, 80, 377-390. doi: 10.1111/j.1467-8624.2009.01266.x
- Fiedler, K., Schott, M. & Meiser, T. (2011). What mediation analysis can (not) do. *Journal of Experimental Social Psychology*, 47, 1231-1236. doi:10.1016/j.jesp.2011.05.007
- Field, A. (2005). *Discovering statistics using SPSS (2nd Edition)*. London: Sage Publications Ltd.

References

- Finkbeiner, C. (1979). Estimation for the multiple factor model when data are missing. *Psychometrika*, 44, 409–420.
- Fiske, S.T., Cuddy, A.J.C., Click, 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
- Forbes, H.D. (1997). *Ethnic conflict: Commerce, culture, and the contact hypothesis*. New Haven: Yale University Press.
- Fraser, M. (1974), *Children in Conflict*. Middlesex: Penguin.
- Frees, E.W. (2004). *Longitudinal and panel data: Analysis and applications in the social sciences*. New York: Cambridge University Press.
- Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, 18, 233-239.
- Gaertner, S.L., Dovidio, J.F., Rust, M.C., Nier, J.A., Banker, B.S., Ward, C.M., Mottola, G.R., & Houlette, M. (1999). Reducing intergroup bias: Elements of intergroup cooperation. *Journal of Personality and Social Psychology*, 76, 388-402.
- Gaither, S.E., & Sommers, S.R. (2012). Living with an other-race roommate shapes Whites' behaviour in subsequent diverse settings. *Journal of Experimental Social Psychology*. doi: 10.1016/j.jesp.2012.10.020
- Gallagher, T (2005) Faith schools and Northern Ireland: A review of research. In R. Gardner, J. Cairns, & D. Lawton, (Eds.), *Faith Schools: consensus or conflict?* (pp. 156-165). Oxford: Routledge Falmer.
- Gausp, A. (2012). *Stonewall School Report: The experiences of gay young people in Britain's schools in 2012*. Stonewall. Retrieved on November 20, 2012, from http://www.stonewall.org.uk/documents/different_families_final_for_web.pdf

References

- Gergely, A. (2009). Battle for jobs feeds Northern Ireland xenophobia. *Reuters*, 18 August. Retrieved on August 23, 2012, from <http://www.reuters.com/article/2009/08/19/us-friction-irish-idUSTRE57I00M20090819>
- Gibson, J.L. (2004). *Overcoming apartheid: Can truth reconcile a divided nation?* New York, Russell Sage Foundation.
- Giliomee, H., & Schlemmer, L. (1991). *From apartheid to nation-building: Contemporary South African debates*. Cape Town: Oxford University Press.
- Girden, E.R. (1992). *ANOVA: Repeated measures*. California: Sage Publications, Inc.
- Goffman, E. (1963). *Stigma: Notes on the Management of Spoiled Identity*. Englewood Cliffs NJ: Prentice Hall. *Group Processes and Intergroup Relations*, 4, 81-97.
- Gold, M.S., Bentler, P.M., & Kim K.H. (2003). A comparison of maximum-likelihood and asymptotically distribution-free methods of treating incomplete nonnormal data. *Structural Equation Modeling: A Multidisciplinary Journal*, 10, 48–82
- Gollob, H.F., & Reichardt. C.S. (1987). Taking account of time lags in causal models. *Child Development*, 58, 80-92.
- Gómez, A., Eller, A., & Vázquez, A. (2012). Verification of ingroup identity as a longitudinal mediator between intergroup contact and outgroup evaluation. Manuscript in preparation.
- González, K.V., Verkuyten, M., & Weesie, J., Poppe, E. (2008). Prejudice towards Muslims in the Netherlands: Testing integrated threat theory. *British Journal of Social Psychology*, 47, 667-685. doi: 10.1348/014466608X284443
- Goodman, J.S., & Blum, T.C. (1996). Assessing the non-random sampling effects of subject attrition in longitudinal research. *Journal of Management*, 22, 627-. doi:

References

10.1177/014920639602200405

Hainsworth, P. (1998). *Divided society: Ethnic minorities and racism in Northern Ireland*.

Haller, J.S. (1971). *Outcasts from evolution: Scientific attitudes of racial inferiority, 1859-1900*. Illinois: Illinois University Press.

Hamberger, J., & Hewstone, M. (1997). Inter-ethnic contact as a predictor of prejudice: Tests of a model in four Western European nations. *British Journal of Social Psychology*, 36, 173-190. London: Pluto Press.

Hannerz, U. (1990). Cosmopolitanism and locals in world culture. *Theory Culture Society*, 4, 237-251. doi: 10.1177/026327690007002014

Harding, J., & Hogrefe, R. (1952). Attitudes of white department store employees towards Negro co-workers. *Journal of Social Issues*, 8, 18-28.

Harrington, D. (2009). *Confirmatory Factor Analysis*. New York: Oxford University Press, Inc.

Hartley, E.L. (1946/1969). *Problems in Prejudice*. Dallas, Texas: Taylor Publishing Company.

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.

Hau, K., & Marsh, H.W. (2004). The use of item parcels in structural equation modeling: Non-normal data and small samples sizes. *British Journal of Mathematical Statistical Psychology*, 57, 327-351.

Haughey, F. (2012). Haunted by racism in Northern Ireland. *OpenDemocracy*, 24 February. Retrieved on August 12, 2012, from <http://www.opendemocracy.net/fiona-haughey/haunted-by-racism-in-northern-ireland>

References

- Hayduk, L.A., & Littvay, L. (2012). Should researchers use single indicators, best indicators, or multiple indicators in structural equation models? *Medical Research Methodology*, *12*.
- Hayduk, L.A., Cummings, G., Boadu, K., Pazderka-Robinson, H., & Boulianne, S. (2007). Testing! Testing! One, two, three – Testing the theory in structural equation models! *Personality and Individual Differences*, *42*, 841-580. doi:10.1016/j.paid.2006.10.001
- Hayes, A.F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, *76*, 408-420. doi: 10.1080/03637750903310360
- Hayes, A.F., & McAllister, I. (2009). Education as a mechanism for conflict resolution in Northern Ireland. *Oxford Review of Education*, *35*, 437-450. doi: 10.1080/03054980902957796
- Hays, W.L. (1988). *Statistics* (4th Edition). Florida: Holt, Rinehart & Winston.
- Heath, A., & Cheung, S.Y. (2006). *Ethnic penalties in the labour market: Employers and discrimination* (Research report No. 341). Department for Work and Pensions Corporate Document Services, Leeds. Retrieved on November 29, 2012, from <http://statistics.dwp.gov.uk/asd/asd5/rports2005-2006/rrep341.pdf>
- Hedeker, D., & Gibbons, R.D. (2006). *Longitudinal data analysis*. New Jersey: John Wiley & Sons, Inc.
- Helleiner, J. (2003). *Racism and the politics of culture: Irish Travellers*. Toronto: University of Toronto Press.
- Hennessey, T. (2001). *The Northern Ireland peace process: Ending the Troubles?* New York: St Martin's Press.

References

- Herek, G.M. (1998). Heterosexuals' attitudes toward lesbians and gay men: Correlates and gender differences. *Journal of Sex Research, 25*, 451-477. doi: 10.1080/00224498809551476
- Herek, G.M. (2000). Sexual prejudice and gender: Do heterosexuals' attitudes toward lesbians and gay men differ? *Journal of Social Issues, 56*, 251-266.
- Herek, G.M. (2002). Gender gaps in public opinion about lesbian and gay men. *Public Opinion Quarterly, 66*, 40-66.
- Herek, G.M. & Capitanio, J.P. (1996). "Some of my best friends" Intergroup contact, concealable stigma, and heterosexuals' attitudes towards gay men and lesbians. *Personality and Social Psychology Bulletin, 22*, 412-424. doi: 10.1177/0146167296224007
- Herzog, W., & Boomsma, A. (2009). Small-sample robust estimators of noncentrality-based and incremental model fit. *Structural Equation Modeling: A Multidisciplinary Journal, 16*, 1-27. doi: 10.1080/10705510802561279
- Hewstone, M. (2003). Intergroup contact: Panacea for prejudice? *Psychologist, 16*, 352-355.
- Hewstone, M. (2009). Living apart, living together? The role of intergroup contact in social integration. *Proceedings of the British Academy, 162*, 243-300.
- Hewstone, M., & Brown, R. (1986). Contact is not enough: An intergroup perspective on the 'contact hypothesis'. In M. Hewstone, & R. Brown (Eds.), *Contact and conflict in intergroup encounters* (pp. 1-44). Oxford: Basil Blackwell.
- Hewstone, M., Cairns, E., Voci, A., Hamberger, J., & Niens, U. (2006). Intergroup contact, forgiveness, and experience of "The Troubles" in Northern Ireland. *Journal of Social Issues, 62*, 99-120.
- Hewstone, M., Cairns, E., Voci, A., McLernon, F., Niens, U., & Noor, M. (2004). Intergroup forgiveness and guilt in Northern Ireland: Social psychological dimensions of "The

References

- Troubles". In N.R. Branscombe, & Dooske, B. (Eds.), *Collective guilt: International perspectives* (pp. 193-215). New York: Cambridge University Press.
- Hewstone, M., Cairns, E., Voci, A., Paolini, S., McLernon, F., Crisp, R., Niens, U., & Craig, J. (2005). Intergroup contact in a divided society: Challenging segregation in Northern Ireland. In D. Abrams, Marques, J.M., & Hogg, M.A. (Eds.), *The social psychology of inclusion and exclusion* (pp. 265-292). Philadelphia: Psychology Press.
- Hewstone, M., Kenworthy, J.B., Cairns, E., Tausch, N., Hughes, J., Tam, T., Voci, A., von Hecker, U., & Pinder, C. (2008). Stepping stones to reconciliation in Northern Ireland: Intergroup contact, forgiveness and trust. In A. Nadler, T. Malloy, & J.D. Fisher (Eds.), *The social psychology of inter-group reconciliation* (pp. 199-226). New York: Oxford University Press.
- Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology*, 53, 575–604.
- Hewstone, M., & Swart, H. (2011). Fifty-odd years of inter-group contact: From hypothesis to integrated theory. *British Journal of Social Psychology*, 50, 374-386.
- Hickman, M.J. (2005). Ruling an empire, governing a multinational state: The impact of Britain's historical legacy on the contemporary ethno-racial regime. In G. Loury, T. Modood, & S. Teles (Eds.), *Ethnicity, social mobility, and public policy: Comparing the US and UK* (pp. 21-49). New York: Cambridge University Press.
- Higginbotham, P. (2012). *The old poor law*. The Workhouse. Retrieved on November 27, 2012, from <http://www.workhouses.org.uk/poorlaws/oldpoorlaw.shtml#Settlement>
- Hodson, G. (2008). Interracial prison contact: The pros for (socially dominant) cons. *British Journal of Social Psychology*, 47, 325-351.

References

- Hodson, G. (2011). Do ideologically intolerant people benefit from intergroup contact? *Current Directions in Psychological Science*, 20, 154-159. doi: 10.1177/0963721411409025
- Hodson, G., Harry, H., & Mitchell, A. (2009). Independent benefits of contact and friendship on attitudes towards homosexuals among authoritarians and highly identified heterosexuals. *European Journal of Social Psychology*, 39, 509-525. doi: 10.1002/ejsp.558
- Hodson, G., & Hewstone, M. (2012). Introduction: Advances in intergroup contact. In G. Hodson & M. Hewstone M. (Eds.), *Advances in intergroup contact* (pp.3-20). London, UK: Psychology Press.
- Hodson, G., Hewstone, M., & Swart, H. (2012). Advances in intergroup contact: Epilogue and future directions. In G. Hodson & M. Hewstone M. (Eds.), *Advances in intergroup contact* (pp.262-305). London, UK: Psychology Press.
- Hofmeyr, J. (2000). The emerging school landscape in post-apartheid South Africa. Unpublished mimeo. Retrieved on August 23, 2012, from <http://www.sun.ac.za/if/Taakgroepe/iptg/hofmeyr.pdf>
- Home Office (2012, September 13). *Statistical news release: Hate crimes, England and Wales*. London: Home Office.
- Hooper, D., Coughlan, J., & Mullen, M.R. (2008). Structural equation modelling: Guidelines for determining model fit. *The Electronic Journal of Business Research*, 6, 53-60. Retrieved on September 22, 2009 from www.ejbrm.com.
- Hu, L., & Bentler, P. M. (1995). Evaluating model fit. In R.H. Hoyle (ed.), *Structural equation modelling: Issues, concepts, and applications* (pp. 76-99). Newbury Park, CA: Sage.

References

- Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*, 424-453.
- 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
- Huber, P. J. (1967). The behavior of maximum likelihood estimates under nonstandard conditions. In L. Lecam & J. Neyman (Eds.), *Proceedings of the fifth Berkeley symposium on mathematical statistics and probability, volume I: Theory of Statistics* (pp. 221–33). Berkeley: University of California Press.
- Hughes, J., Campbell, A., Lolliot, S., & Hewstone, M. (2012). Inter-group contact at school and social attitudes: Evidence from Northern Ireland. Manuscript submitted for publication.
- Hughes, J., Lolliot, S., Hewstone, M., Schmid, K., & Carlisle, K. (2012). Sharing classes between separate schools: A mechanism for improving inter-group relations in Northern Ireland? *Policy Futures in Education, 10*, 528-539. doi: 10.2304/pfie.2012.10.5.528
- Hume, D. (1739-1740/2010). *A treatise of human nature*. Retrieved from <http://books.google.co.uk/books?id=EEo5ombCkzwC&printsec=frontcover&dq=A+treatise+of+human+nature&hl=en&sa=X&ei=C13KUMzGNMLL0QWCwoDoDg&ved=0CC8Q6AEwAA#v=onepage&q&f=false>
- Hunt, R. & Jensen, J. (2007). *Stonewall School Report: The experiences of young gay people in Britain's schools*. Stonewall. Retrieved on November 20, 2012, from http://www.stonewall.org.uk/documents/school_report.pdf
- Ioannou, M. (2008). *Comparing direct and extended contact in Cyprus*. Unpublished master's thesis: Oxford University, United Kingdom.

References

- Ito, T.A., Larsen, J.T., Smith, N.K., & Cacioppo, J.T. (1998). Negative information weights more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology*, 75, 887-900.
- Jackson, J.W. (2002). Intergroup attitudes as a function of different dimensions of group identification and perceived intergroup conflict. *Self and Identity*, 1, 11-33. doi: 10.1080/152988602317232777
- Jarman, N. (2009). *Prejudice and tolerance in Northern Ireland* (Research update No. 63). Northern Ireland Access, Research, Knowledge; Social and Political Archive. Retrieved on September 06, 2012, from <http://www.ark.ac.uk/publications/updates/update63.pdf>
- Jarman, N. (2010). *Attitudes towards lesbian, gay and bisexual people in Northern Ireland* (Research update No. 66). Northern Ireland Access Research Knowledge. Retrieved on September 06, 2012, from <http://www.ark.ac.uk/publications/updates/update66.pdf>
- Jarman, N. & Tennant, A. (2003). *An Acceptable Prejudice? Homophobic Violence and Harassment in Northern Ireland*. Belfast: Institute for Conflict Research. Retrieved on September 13, 2012, from <http://cain.ulst.ac.uk/icr/reports/jarman03homophobic.pdf>
- Jöreskog, K.G. (1978). Structural analysis of covariance and correlation matrices. *Psychometrika*, 43, 443-477.
- Jöreskog, K.G. (1993). Testing structural equation models. In K.A. Bollen & J.S. Long (Eds.), *Testing structural equation models* (pp. 294-316). California: Sage Publications, Inc.
- Judd, C.M., & Kenny, D.A. (1981). Process analysis: Estimating mediation in treatment evaluations. *Evaluation Review*, 5, 602-619.
- Judd, C.M., McClelland, G.H., & Ryan, C.S. (2009). *Data analysis: A model comparison approach* (2nd Edition). New York: Routledge Press.
- Kenny, D. A. (1979). *Correlation and causality*. New York, NY: Wiley.

References

- Kenny, D. A. (2008). Reflections on mediation. *Organizational Research Methods, 11*, 353-358. doi: 10.1177/1094428107308978
- Kenny, D. A., & McCoach, D.B. (2003). Effect of the Number of Variables on Measures of Fit in Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal, 10*, 333-351. doi: 10.1207/S15328007SEM1003_1
- Kite, M.E., & Whitely, B.E. (1996). Sex differences in attitudes towards homosexual persons, behaviors, and civil rights: A meta-analysis. *Personality and Social Psychology Bulletin, 22*, 336-353. doi: 10.1177/0146167296224002
- Knox, C., & Hughes, J. (1996). Crossing the Divide: Community Relations in Northern Ireland. *Journal of Peace Research, 33*, 83-98.
- Kole, S.K. (2007). Globalizing queer? AIDS, homophobia and the politics of sexual identity in India. *Globalization and Health, 3*.
- Koschate, M., Hofmann, W., & Schmitt, M. (2012). When East meets West: A longitudinal examination of the relationship between group relative deprivation and intergroup contact in reunified Germany. *British Journal of Social Psychology, 51*, 290-311. doi: 10.1111/j.2044-8309.2011.02056.x
- Krosnick, J.A., & Petty, R.E. (1995). Attitude strength: An overview. In R.E. Petty & J.A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 1–24). Hillsdale, NJ: Erlbaum
- Kruglanski, A.W. & Webster, D.M. (1996). Motivated closing of the mind: “Seizing” and “Freezing”. *Psychological Review, 103*, 263-283.
- LaMar, L., & Kite, M. (1998). Sex differences in attitudes toward gay men and lesbians: A multidimensional perspective. *Journal of Sex Research, 35*, 189-196. doi: 10.1080/00224499809551932

References

- Leach, C. W., van Zomeren, M., Zebel, S., Vliek, M., Pennekamp, S. F., Doosje, B.,
Ouwkerk, J.W., Spears, R. (2008). Group-level self-definition and self-investment: A
hierarchical (multi-component) model of in-group identification. *Journal of Personality
and Social Psychology*, 95, 144–165.
- Leavy, A. (2005). ‘When I meet them I talk to them’: the challenges of diversity for
preservice teacher education. *Irish Educational Studies*, 24, 159-177. doi:
10.1080/03323310500435422
- Lefko-Everett, K., Nyokam A., & Tiscornia, L. (2011). SA Reconciliation Barometer 2011
Report. Retrieved January 09, 2013 from [http://reconciliationbarometer.org/wp-
content/uploads/2011/12/2011-SA-Reconciliation-Barometer.pdf](http://reconciliationbarometer.org/wp-content/uploads/2011/12/2011-SA-Reconciliation-Barometer.pdf)
- Leohlin, J.C. (2004). *Latent variable models: An introduction to factor, path, and structural
equation analysis* (Fourth edition). New Jersey: Lawrence Erlbaum Associates,
Publishers.
- Lesovitch, L. (2005). Roma education needs in Ireland: Context and challenges. Retrieved on
September 05, 2012 from http://paveepoint.ie/pdf/Roma_Report.pdf
- Lever, H. (1965). An experimental modification of social distance in South Africa. *Human
Relations*, 18, 149-154.
- Levin, S., Matthews, M., Guidmond, S., Sidanius, J., Pratto, F., Kteily, N., Pitpitan, E.V., &
Dover, T. (2012). Assimilation, multiculturalism, and colorblindness: Mediated and
moderated relationships between social dominance orientation and prejudice. *Journal
of Experimental Psychology*, 48, 207-212. doi: 10.1016/j.jesp.2011.06.019
- Levin, S., van Laar, C., & Sidanius, J. (2003). The effects of ingroup and outgroup
friendships on ethnic attitudes in college: A longitudinal study. *Group Processes &
Intergroup Relations*, 6, 76 –92. doi: 10.1177/1368430203006001013

References

- Li, Q., & Brewer, M.B. (2004). What does it mean to be an American? Patriotism, nationalism, and American identity after 9/11. *Political Psychology, 25*, 727-739.
- Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits, *Structural Equation Modeling, 9*, 151–173. doi: 10.1207/S15328007SEM0902_1
- Little, T. D., Preacher, K. J., Selig, J. P., & Card, N. A. (2007). New developments in latent variable panel analysis of longitudinal data. *International Journal of Behavioral Development, 31*, 357-365. doi: 10.1177/0165025407077757
- Little, T.D., Slegers, D.W., & Card, N.A. (2006). A non-arbitrary method of identifying and scaling latent variables in SEM and MACS models. *Structural Equation Modeling: A Multidisciplinary Journal, 13*, 59-72. doi: 10.1207/s15328007sem1301_3
- Lloyd, C., Shuttleworth, I., & McNair (2004). Measuring local segregation in Northern Ireland. Retrieved on September 24, 2012 from <http://www.qub.ac.uk/c-star/pubs/lloydetal.pdf>
- Lolliot, S.D., Schmid, K., Hewstone, M., Al Ramiah, A., Tausch, N., & Swart, H. (2012). Generalized effects of intergroup contact: The secondary transfer effect. In G. Hodson, & M. Hewstone (Eds.), *Advances in intergroup contact* (81-112). London, UK: Psychology Press.
- Lord, F.M. (1955). Estimation of parameters from incomplete data. *Journal of the American Statistical Association, 50*, 870-876. doi: 10.1080/01621459.1955.10501972
- Louderback, L.A., & Whitely, B.E. (1997). Perceived erotic value of homosexuality and sex-role attitudes as mediators of sex differences in heterosexual college students' attitudes toward lesbians and gays. *Journal of Sex Research, 34*, 175-182. doi: 10.1080/00224499709551882

References

- Lyons, P.A., Kenworthy, J. B. & Popan, J.R. (2010). Ingroup identification and group-level narcissism as predictors of U.S. citizens' attitudes and behaviour towards Arab immigrants. *Personality and Social Psychology Bulletin*, *36*, 1267-1280. doi: 10.1177/0146167210380604
- MacCallum R.C., & Austin, J.T. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology*, *51*, 201-226.
- MacCallum R.C., Browne, M.W., & Sugawara, H. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, *1*, 130-149. doi: 1082-989X/96/S3.00
- MacKinnon, D.P. (2008). *Introduction to statistical mediation analysis*. Mahwah, NJ: Erlbaum.
- MacKinnon, D. P., & Fairchild, A.J. (2009). Current directions in mediation analysis. *Current Directions in Psychological Science*, *18*, 16-20. doi: 10.1111/j.1467-8721.2009.01598.x.
- MacKinnon, D.P., Fairchild, A.J., & Fritz, M.S. (2007). Mediation analysis. *Annual Review of Psychology*, *58*, 593-614. doi: 10.1146/annurev.psych.58.110405.085542
- MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding, and suppression effect. *Prevention Science*, *1*, 173-181.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test the significance of the mediated effect. *Psychological Methods*, *7*, 83–104. doi:10.1037/1082-989X.7.1.83
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, *39*, 99-128.

References

- Marsh, H.W., Hau, K., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis testing approaches to setting cutoff values for fit indexes and dangers of overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling: A Multidisciplinary Journal*, *11*, 320-341. doi: 10.1207/s15328007sem1103_2
- Martin, P.Y., Laing, J., Martin, R., & Mitchell, M. (2005). Caffeine, cognition, and persuasion: Evidence for caffeine increasing the systematic processing of persuasive messages. *Journal of Applied Social Psychology*, *35*, 160-182.
- Martin, R., & Hewstone, M. (2008). Majority versus minority influence, message processing and attitude change: The source-context-elaboration model. *Advances in Experimental Social Psychology*, *40*, 237-326.
- Mathieu, J.E., & Taylor, S.R. (2006). Clarifying conditions and decision points for mediational type inferences in organizational behavior. *Journal of Organization Behavior*, *27*, 1031-1056. doi: 10.1002/job.406
- Maxwell, S.E., & Cole, D.A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological Methods*, *12*, 23-44. doi: 10.1037/1082-989X.12.1.23
- Maxwell, S.E., Cole, D.A., & Mitchell, M.A. (2011). Bias in cross-sectional analyses of longitudinal mediation: Partial and complete mediation under an autoregressive model. *Multivariate Behavioral Research*, *46*, 816-841. doi: 10.1080/00273171.2011.606716
- McClenahan Cairns, E., Dunn, S., & Morgan, V. (1996). Intergroup friendships: Integrated and desegregated schools in Northern Ireland. *The Journal of Social Psychology*, *136*, 549-558. doi: 10.1080/00224545.1996.9714039
- McDonald, D.A. (2000). *On borders: Perspectives on international migration in Southern Africa*. New York: St. Martin's Press.
- McGinty, R., Muldoon, O., & Ferguson, R. (2007). No war, no peace: Northern Ireland after the Agreement. *Political Psychology*, *28*, 1-11.

References

- McQuaid, R., Hollywood, E., & Canduela, J. (2010). Employment inequalities in an economic downturn. *Equality Commission for Northern Ireland*. Retrieved on September 13, 2012 from <http://researchrepository.napier.ac.uk/3842/1/EconDownturnFinalFullReport260910.pdf>
- McVeigh, R. (1997). Theorising Sedentarism: the roots of anti-nomadism. In T. Acton (ed.), *Gypsy politics and Traveller identity*. Hatfield: University of Hertfordshire Press.
- McVeigh, R., & Dúchán, A. (2006). The next Stephen Lawrence?: Racist violence and criminal justice in Northern Ireland. *Northern Ireland Council for Ethnic Minorities*. Retrieved on October 04, 2012, from http://www.nicem.org.uk/uploads/publications/the_next_Stephen_report.pdf
- Meade Bache, R. (1895). Reaction time with reference to race. *Psychological Review*, 2, 474-486.
- Meredith, W., & Teresi, J.A. (2006). An essay on measurement and factorial invariance. *Medical Care*, 44, S59-S77. doi: 10.1097/01.mlr.0000245438.73837.89
- Minard, R.D. (1952). Race Relations in the Poca-hontas Coal Field. *Journal of Social Issues*, 7, 29-44.
- Mitchell, T.R., & James, L.R. (2001). Building better theory: Time and the specification of when things happen. *The Academy of Management Review*, 26, 530-547.
- Monahan, J.L., Murphey, S.T., & Zajonc, R.B. (2000). Subliminal mere exposure: Specific, general, and diffuse effects. *Psychological Science*, 11, 462-466.
- Moran, A. (2012). Multiculturalism as nation-building in Australia: Inclusive national identity and the embrace of diversity. *Ethnic and Racial Studies*, 34, 2153-2172. doi: 10.1080/01419870.2011.573081

References

- Mukherji, A. (2011). Durban largest 'Indian' city outside India. *The Times of India*, 23 July. Retrieved on August 02, 2012, from http://articles.timesofindia.indiatimes.com/2011-07-23/mumbai/29807173_1_durban-south-africa-uk
- Mulaik, S. (2007). There is a place for approximate fit in structural equation modeling. *Personality and Individual Differences*, 42, 883-891. doi:10.1016/j.paid.2006.10.024
- Muldoon, O.T., Trew, K., Todd, J., Rougier, N. & McLaughlin, K. (2006). Religious and national identity of the Belfast Good Friday Agreement. *Political Psychology*, 28, 89-103. DOI: 10.1111/j.1467-9221.2007.00553.x
- Muller, D, Judd, C.M, & Yzerbyt, Y.V. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, 89, 852-863.
- Mummendey, A., Klink, A., & Brown, R. (2001). Nationalism and patriotism: National identification and out-group rejection. *British Journal of Social Psychology*, 40, 159-172.
- Muthén, B., Kaplan, D., & Hollis, M. (1987). On structural equation modeling with data that are not missing completely at random. *Psychometrika*, 52, 431-462.
- Muthén, L.K., & Muthén, B.O. (1998-2007). *Mplus user's guide* (5th ed.). Los Angeles, CA: Muthén and Muthén.
- Myung, J. (2003). Tutorial on maximum likelihood estimation. *Journal of Mathematical Psychology*, 47, 90-100. doi: 10.1016/S0022-2496(02)00028-7
- Nesdale, D. & Todd, P. (1993). Internationalising Australian universities: The intercultural contact issue. *Journal of Tertiary Education Administration*, 15, 189-202. doi: 10.1080/1036970930150205
- Newman, D. A. (2003). Longitudinal modeling with randomly and systematically missing data: A simulation of ad hoc, maximum likelihood, and multiple imputation techniques. *Organizational Research Methods*, 6, 328–362. doi: 10.1177/1094428103254673

References

- Newman, D. A. (2003). Longitudinal modelling with randomly and systematically missing data: A simulation of ad hoc, maximum likelihood, and multiple imputation techniques. *Organizational Research Methods, 6*, 328-362. doi: 10.1177/1094428103254673
- Niens, U., Cairns, E., & Hewstone, M. (2003). Contact and conflict in Northern Ireland. In O. Hargie, & D. Dickson (Eds.), *Researching The Troubles: Social science perspectives on the Northern Ireland conflict* (pp. 123–140). Edinburgh: Mainstream Publishing.
- Noonan, P. (1998). Pathologization and resistance: Traveller, nomadism and the state. In P. Hainsworth (ed.), *Divided society, ethnic minorities and racism in Northern Ireland* (pp. 152-184). London: Pluto Press.
- Northern Ireland Council for Integrated Education (2012). *The History of NICIE*. Available at: <http://www.nicie.org/about-us/nicie/the-history-of-nicie/>
- Northern Ireland History (1999). *1993-94 The Downing Street declaration and the IRA ceasefire*. BBC: Northern Ireland History, The Search for Peace. Retrieved on September 21, 2012, from http://news.bbc.co.uk/1/hi/events/northern_ireland/history/69283.stm
- O'Brien, R.G., & Kaiser, M.K. (1985). MANOVA method for analyzing repeated measures designs: An extensive primer. *Psychological Bulletin, 97*, 316-333.
- 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
- Page-Gould, E., Mendoza-Denton, R., Alegre, J.M., Siy, J.O. (2010). Understanding the impact of cross-group friendship on interactions with novel outgroup members. *Journal of Personality and Social Psychology, 98*, 775-793.

References

- 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
- Paternoster, R., Brame, R., Mazerolle, P., & Piquero, A. (1998). Using the correct statistical test for the equality of regression coefficients. *Criminology, 36*, 859-866.
- Patterson, H. (2010). Sectarianism revisited: The Provisional IREA campaign in a border region of Northern Ireland. *Terrorism and Political Violence, 22*, 337-356. doi: 10.1080/09546551003659335
- Perceval-Maxwell, M. (1973). *The Scottish migration to Ulster in the reign of James I*. Bristol, UK: Western Printing Services Ltd.
- Pettigrew, T. F. (1958). Personality and sociocultural factors in intergroup attitudes: A cross-national comparison. *The Journal of Conflict Resolution, 2*, 29-42.
- Pettigrew, T. F. (1986). The contact hypothesis revisited. In M. Hewstone, & R. Brown (Eds.), *Contact and conflict in intergroup encounters* (pp. 1-44). Oxford: Basil Blackwell.
- Pettigrew, T.F. (1997). Generalized intergroup contact effects on prejudice. *Personality and Social Psychology Bulletin, 23*, 173-185.
- Pettigrew, T.F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65-85.
- Pettigrew, T.F. (2008). Future directions for intergroup contact theory and research. *International Journal of Intercultural Relations, 32*, 187-199.
doi:10.1016/j.ijintrel.2007.12.002
- Pettigrew, T.F. (2009). Secondary transfer effect of contact: Do intergroup contact effects spread to noncontacted outgroups? *Social Psychology, 40*, 55-65.

References

- Pettigrew, T.F., & Tropp, L.R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology, 90*, 751-783.
- 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.
- Pettigrew, T.F., Tropp, L.R., Wagner, U., & Christ, O. (2011). Recent advancements in intergroup contact theory. *International Journal of Intercultural Relations, 35*, 271-280. doi:10.1016/j.ijintrel.2011.03.001
- Pituch, K.A., Stapleton, L.M., & Kang, K.Y. (2006). A comparison of single sample and bootstrap methods to assess mediation in cluster randomized trials. *Multivariate Behavioral Research, 41*, 367-400. doi: 0.1207/s15327906mbr4103_5
- Plaut, V.C., Thomas, K.M., & Goren, M.J. (2009). Is multiculturalism or Color Blindness Better for Minorities? *Psychological Science, 20*, 444-446.
- Ployhart, R.E., & Vandenberg, R.J. (2010). Longitudinal research: The theory, design, and analysis of change. *Journal of Management, 36*, 94-120. doi: 10.1177/0149206309352110
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879-903.
- Police Service Northern Ireland (2012). Statistical Press Notice: The PSNI's Statistical Report: 1st April 2011 to 31st March 2012. Retrieved on September 25, 2012, from http://www.psni.police.uk/psni_11_12_stats_press_release_final.pdf
- Polzer, T. (2010). *Population movements in and to South Africa: Migration Fact Sheet 1*. University of Witwatersrand: Forced Migration Studies Programme. Available at: http://oppenheimer.mcgill.ca/IMG/pdf/FMSP_Fact_Sheet_Migration_in_SA_June_2010_doc_2_.pdf

References

- Ponte, S., Roberts, S., & van Stittert, L. (2007). 'Black economic empowerment', business and the state in South Africa. *Development and Change*, 38, 933-955.
- Poole, M. (1982). Religious segregation in urban Northern Ireland. In F.W. Boal & J.N.H. Douglas (Eds.), *Integration and division: Geographical perspectives on the Northern Ireland problem* (pp. 281-308). London: Academic Press.
- Posel, D. (2001). What's in a name? Racial categorisations under apartheid and their afterlife. *Transformation*, 47, 50-74.
- Pratto, F., Sidanius, J., Stallworth, L.M., & Malle, B.F. (1994). Social dominance orientation: A personality variable preceding social and political attitudes. *Journal of Personality and Social Psychology*, 67, 741-763.
- 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
- Preacher, K.J., Rucker, D.D., & Hayes, A.F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185-227.
- Preacher, K.J., Zhang, Z., & Zyphur, M.J. (2011). Alternative methods for assessing mediation in multilevel data: The advantages of multilevel SEM. *Structural Equation Modeling: A Multidisciplinary Journal*, 18, 161-182.
- Preacher, K.J., Zyphur, M.J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods*, 15, 209-233.
- Ranganath, K.A., & Nosek, B.A. (2008). Implicit attitude generalization occurs immediately; Explicit attitude generalization takes time. *Psychological Science*, 19, 249-254.
- Ravenhill, M. (2008). *The culture of homelessness*. Aldershot, Hampshire: Ashgate Publishing Company.

References

- Raykov, T., & Marcoulides, G.A. (2006). *A first course in structural equation modeling* (2nd Edition). Mahwah, NJ: Erlbaum
- Redmond, A. (2008). 'Out of Site, Out of Mind': An Historical Overview of Accommodating Irish Travellers' Nomadic Culture in Northern Ireland. *Shared Space*, 5, 59-73. Retrieved 11 June, 2010 from <http://www.community-relations.org.uk/fs/doc/shared-space-issue-chapter5-59-73-web.pdf>
- Reeve, K., & Batty, E. (2011, May). The hidden truth about homelessness: Experiences of single homelessness in England. *Centre for Regional Economic and Social Research*. Retrieved on November 23, 2012, from http://www.crisis.org.uk/data/files/publications/HiddenTruthAboutHomelessness_web.pdf
- Reilly, J. (2012). Is Britain a racist nation? One in three Brits 'admits to being racist', according to poll. *Mail Online*, 28 May. Retrieved on January 08, 2013, from <http://www.dailymail.co.uk/news/article-2151056/Is-Britain-racist-nation-One-Brits-admits-racist-according-poll.html>
- Reilly, J., Muldoon, O.T., & Byrne, C. (2004). Young men as victims and perpetrators of violence in Northern Ireland: A qualitative analysis. *Journal of Social Issues*, 60, 469-484.
- Reitzes, D.C. (1953). The role of organizational structures: Union versus neighborhood in a tension situation. *Journal of Social Issues*, 9, 37-44.
- Rhodes, C. (2012, July). *Unemployment rates by ethnic background* (Standard Note: SN/6385). Economic Policy Statistic. Retrieved on January 08, 2013, from www.parliament.uk/briefing-papers/sn06385.pdf

References

- Richeson, J.A., & Nussbaum, R.J. (2004). The impact of multiculturalism versus color-blindness on racial bias. *Journal of Experimental Social Psychology, 40*, 417-423. doi: [10.1016/j.jesp.2003.09.002](https://doi.org/10.1016/j.jesp.2003.09.002)
- Robinson, V., & Valeny, R. (2005). Ethnic minorities, employment, self-employment, and social mobility in postwar Britain. In G. Loury, T. Modood, & S. Teles (Eds.), *Ethnicity, social mobility, and public policy: Comparing the US and UK* (pp. 414-448). New York: Cambridge University Press.
- Roccas, S., & Brewer, M.B. (2002). Social Identity Complexity. *Personality and Social Psychology Review, 6*, 88-106.
- Roets, A., & Van Hiel, A. (2006). Need for closure relations with authoritarianism, conservative beliefs and racism: The impact of urgency and permanence tendencies. *Psychologica Belgica, 43*, 235-252.
- Rothbart, M., & John, O. P. (1985). Social categorization and behavioural episodes: A cognitive analysis of the effects of intergroup contact. *Journal of Social Issues, 41*, 81-104.
- Rucker, D.D., Preacher, K.J., Tormala, Z.L., & Petty, R.E. (2011). Mediation analysis in social psychology: Current practices and new recommendations. *Social and Personality Psychology Compass, 5*, 359-371. doi: 10.1111/j.1751-9004.2011.00355.x
- Russell, R. (2012). Migration in Northern Ireland: An update (Research and information service research paper). *Northern Ireland Assembly*. Retrieved on September 17, 2012, from <http://www.niassembly.gov.uk/Documents/RaISe/Publications/2012/general/3112.pdf>
- Samelson, F. (1978). From “race psychology” to “studies in prejudice”: Some observations on the thematic reversal in social psychology. *Journal of the History of the Behavioral Sciences, 14*, 265-278.

References

- Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika*, *66*, 507–514. doi: 10.1007/BF02296192
- Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*, 147–177. doi:10.1037/1082-989X.7.2.147
- Schermelleh-Engel, K., & Moosbrugger, H. (2003). Evaluating the fit of structural equation models: Tests for significance and descriptive goodness-of-fit- measures. *Methods of Psychological Research Online*, *8*, 23-27.
- Schmid, K., Hewstone, M., Küpper, B., Zick, A., & Wagner, U. (2012). Secondary transfer effects of intergroup contact: A cross-national comparison in Europe. *Social Psychology Quarterly*.
- Schmid, K., Hewstone, M., Tausch, N., Cairns, E., & Hughes, J. (2009). Antecedents and consequences of social identity complexity: Intergroup contact, distinctiveness threat, and outgroup attitudes. *Personality and Social Psychology Bulletin*, *35*, 1085-1098.
- Schmid, K., Hewstone, M., Tausch, N., Cairns, E., & Hughes, J. (2013). Secondary transfer effects of intergroup contact: Deprovincialization via social identity complexity and attitude generalization via perceived outgroup variability. Manuscript in press.
- Sedikides, C., Campbell, K.W., Reeder, G.D., & Elliot, A.J. (1998). The self-serving bias in relational context. *Journal of Personality and Social Psychology*, *74* (2), 378-386.
- Sherif, M., Harvey, O.J., White, B.J., Hood, W.R., & Sherif, C.W. (1961). *Experimental study of positive and negative intergroup attitudes between experimentally produced groups: Robber's cave experiment*. Norman: University of Oklahoma Press.
- Shook, N.J., Fazio, R.H., & Eiser, J.R. (2007). Attitude generalization: Similarity, valence, and extremity. *Journal of Experimental Social Psychology*, *43*, 641-647.
- Short, G. (2003). Faith schools and social cohesion: Opening up the debate. *British Journal of Religious Education*, *25*, 129-141. doi: 10.1080/0141620030250205

References

- Shrout, P.E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422-445.
- Shuttleworth, I., Bar, P.J., & Gould, M. (2013). Does Internal Migration in Northern Ireland Increase Religious and Social Segregation? Perspectives from the Northern Ireland Longitudinal Study (NILS) 2001–2007. *Population, Space and Place*, 19, 72-86. doi: 10.1002/psp.1717
- Singer, H.A. (1948). The veteran and race relations. *Journal of Educational Sociology*, 21, 397-408.
- Smith, A. (1999, April). *Education and the peace process in Northern Ireland*. Paper presented at the Annual Conference of the American Education Research Association, Montreal. Retrieved from <http://cain.ulst.ac.uk/issues/education/docs/smith99.htm>
- Smith, A. (2001). Religious Segregation and the Emergence of Integrated Schools in Northern Ireland. *Oxford Review of Education*, 27, 559-575.
- Smith, A. (2003). Citizenship education in Northern Ireland: Beyond national identity? *Cambridge Journal of Education*, 33, 15-31. doi: 10.1080/0305764032000064631
- Smith, K., Lader, D., Hoare, J., & Lau, I. (2012). Hate crime, cyber security and the experience of crime among children: Findings from the 2010/11 British crime survey (Supplementary Volume 3 to Crime in England and Wales 2010/11). *Home Office Statistical Bulletin*. Retrieved on November 26, 2012, from <http://report-it.org.uk/files/hosb0612-2.pdf>
- Sobel, M.E. (1982). Asymptotic confidence intervals for indirect effects in structural models. In S. Leinhardt (ed.), *Sociological Methodology 1982* (pp. 290-312). Washington DC: American Sociological Association.

References

- Soudien, C. (2004). 'Constituting the class': An analysis of the process of 'integration' in South African schools. In L. Chisholm (ed.), *Changing Class: Education and Social Change in post-apartheid South Africa* (pp. 89-114). Cape Town: HSRC Press
- St Mungo's (2012). *History of homelessness*. Available at:
<http://www.mungos.org/homelessness/history>
- Statistics South Africa (2007). *Community survey, 2007 (Revised version)*. Retrieved August 23, 2011 from <http://www.statssa.gov.za/publications/P0301/P0301.pdf>
- Statistics South Africa (2007). *Quarterly labour force survey* (Statistical release P0211). Retrieved on August 27, 2012, from
<http://www.statssa.gov.za/publications/P0211/P02112ndQuarter2012.pdf>
- Steenkamp, C. (2009). Xenophobia in South Africa: What does it say about trust? *The Round Table*, 98, 439-447. doi: 10.1080/0035853090301794
- Steiger, J.H. (2007). Understanding the limitations of global fit assessment in structural equation modelling. *Personality and Individual Differences*, 42, 893-898. doi: 10.1016/j.paid.2006.09.017
- Stellenbosch University Statistical Profile (2012). *Core Statistics: Enrolments according to race and year*. Retrieved on January 09, 2013, from
<http://www.sun.ac.za/university/statistieke/statseng.html>
- Stephan, W. G., & Stephan, C. W. (1985). Intergroup anxiety. *Journal of Social Issues*, 41, 157-175. doi:10.1111/j.1540-4560.1985.tb01134.x
- Stevens, J.P. (2009). *Applied multivariate statistics for the social sciences* (5th Edition). New York: Routledge.
- Stone, C.A., & Sobel, M.E. (1990). The robustness of estimates of total indirect effects in covariance structure models estimated by maximum likelihood. *Psychometrika*, 55, 337-352.

References

- Stringer, M., Irwing, P., McClenahan, M.G., Wilson, R., & Hunter, J.A. (2009). Intergroup contact, friendship quality and political attitudes in integrated and segregated schools in Northern Ireland. *British Journal of Educational Psychology, 79*, 239-257. doi: 10.1348/978185408X368878
- Survey of Needs and Provisions (2012). *Homelessness services for single people and couples without dependents in England*. Homeless Watch. Retrieved on November 25, 2012, from <http://homeless.org.uk/sites/default/files/SNAP2012%20fullreport.pdf>
- Swart, H. (2008). *Affective mediators of intergroup contact: Cross-sectional and longitudinal analyses in South Africa* (Unpublished doctoral dissertation). Oxford University, Oxford.
- Swart, H., Hewstone, M., Christ, O., & Voci, A. (2010). The impact of crossgroup friendships in South Africa: Affective mediators and multigroup comparisons. *Journal of Social Issues, 66*, 309-333.
- 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, 101*, 1221-1238. doi: 10.1037/a0024450
- Tadmor, C.T., Hong, Y., Chao, M.C., Wiruchnipawan, F., & Wang, W. (2012). Multicultural Experiences Reduce Intergroup Bias Through Epistemic Unfreezing. *Journal of Personality and Social Psychology*. Advance online publication. doi: 10.1037/a0029719
- Tajfel, H. & Turner, J.C. (1986). The social identity theory of intergroup behaviour. In S. Worchel & W.G. Austin (Eds), *Psychology of intergroup relations*. Chicago: Nelson-Hall.

References

- 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. 33-48). Monterey, CA: Brooks/Cole.
- Tajfel, H., Billig, M.G., Bundy, R.P., & Flament, C. (1971). Social categorization and intergroup behavior. *European Journal of Social Psychology, 1*, 149-178.
- Talwar, D. (2012). More than 87,000 racist incidents recorded in schools. *BBC News*, 23 May. Retrieved on December 20, 2012 from <http://m.bbc.co.uk/news/education-18155255>
- Tam, T., Hewstone, M., Cairns, E., Tausch, N., Maio, G., & Kenworthy, J.B. (2007). The impact of intergroup emotions on forgiveness in Northern Ireland. *Group Processes and Intergroup Relations, 10*, 119-136.
- Tam, T., Hewstone, M., Kenworthy, J., Cairns, E. (2009). Intergroup trust in Northern Ireland. *Personality and Social Psychology Bulletin, 35*, 45-59. doi: 10.1177/0146167208325004
- Tam, T., Hewstone, M., Kenworthy, J., Cairns, E., Marinetti, C., Geddes, L., & Parkinson, B. (2008). Postconflict reconciliation: Intergroup forgiveness and implicit biases in Northern Ireland. *Journal of Social Issues, 64*, 303-320.
- Tausch, N., Tam, T., Hewstone, M., Kenworthy, J., Cairns, E. (2007). Individual-level and group-level mediators of contact effects in Northern Ireland: The moderating role of social identification. *British Journal of Social Psychology, 46*, 541-556. doi: 10.1348/014466606X155150
- Tausch, N., Hewstone, M., Kenworthy, J.B., Cairns, E., & Chris, O. (2007). Cross-community contact, perceived status differences, and intergroup attitudes in Northern

References

- Ireland: The mediating roles of individual-level versus group-level threats and the moderating role of social identification. *Political Psychology*, 28, 53-68.
- Tausch, N., Hewstone, M., Kenworthy, J.B., Psaltis, C., Schmid, K., Popan, J.R., Cairns, E., & Hughes, J. (2010). Secondary transfer effects of intergroup contact: Alternative accounts and underlying processes. *Journal of Personality and Social Psychology*, 99, 282-302.
- Taylor, A.B., MacKinnon, D.P., & Tein, J. (2007). Tests of the three-path mediated effect. *Organizational Research Methods*, 11, 241-. doi: 10.1177/1094428107300344
- The High Commission of India in South Africa (2012). *The Indian origin community in South Africa*. Available at: <http://www.indiainsouthafrica.com/india-in-south-africa/indian-community.html>
- The National Planning Commission (2012). *Diagnostic Overview: National Planning Commission's Vision for 2030*. The Presidency, Republic of South Africa. Retrieved on January 09, 2013, from <http://www.info.gov.za/view/DownloadFileAction?id=147192>
- Tise, L.E. (1987). *A history of the defense of slavery in America, 1701-1840*. Georgia: University of Georgia Press.
- Todd, P., & Nesdale, D. (1997). Promoting intercultural contact between Australian and international university students. *Journal of Higher Education Policy and Management*, 19, 61-76. doi: 10.1080/1360080970190108
- Tomarken, A.J., & Waller, N.G. (2003). Potential problems with “well fitting” models. *Journal of Abnormal Psychology*, 112, 578-598. doi: 10.1037/0021-843X.112.4.578
- Toro, P.A., Tompsett, C.J., Lombardo, S., Philippot, P., Nachtergaeel, H., Galand, B., Schilienz, N., Stammel, N., Yabar, Y., Blume, M., MacKay, L., & Harvey, K. (2007).

References

- Homelessness in Europe and the United States: A comparison of prevalence and public opinion. *Journal of Social Issues*, 63, 505-524.
- Tropp, L.R., & Pettigrew, T.F. (2005). Differential relationships between intergroup contact and affective and cognitive prejudice. *Personality and Social Psychology Bulletin*, 31, 1145-1158. doi: 10.1177/0146167205274854
- Tropp, L.R., Hawi, D.R., Van Laar, C., & Levin, S. (2012). Cross-ethnic friendships, perceived discrimination, and their effects on ethnic activism over time: A longitudinal investigation of three ethnic minority groups. *British Journal of Social Psychology*, 51, 257-272. doi: 10.1111/j.2044-8309.2011.02050.x
- Turner, R.N., & Feddes, A.R. (2011). How intergroup friendship works: A longitudinal study of friendship effects on outgroup attitudes. *European Journal of Social Psychology*, 41, 914-923. doi: 10.1002/ejsp.843
- 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, & 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/a0011434843

References

- United Nations Department of Economic and Social Affairs (2010). Population facts (No. 2010/6). Retrieved from <http://www.un.org/en/development/desa/population/publications/factsheets/>
- Van Hiel, A., Pandelaere, M., & Duriez, B. (2004). The impact of need for closure on conservative beliefs and racism: Differential mediation by authoritarian submission and authoritarian dominance. *Personality and Social Psychology Bulletin*, *30*, 824-837. doi: 10.1177/0146167204264333
- Van Laar, C., Levin, S., Sinclair, S., & Sidanius, J. (2005). The effect of university roommate contact on ethnic attitudes and behaviour. *Journal of Experimental Social Psychology*, *41*, 329-345.
- Van Oudenhoven, J.P., Groenewoud, J.T., & Hewstone, M. (1996). Cooperation, ethnic salience and generalization of interethnic attitudes. *European Journal of Social Psychology*, *26*, 649-661.
- Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, *3*, 4-70. doi: 10.1177/109442810031002
- Verkuyten, M. (2005). Ethnic group identification and group evaluation among minority and majority groups: Testing the multiculturalism hypothesis. *Journal of Personality and Social Psychology*, *88*, 121-138.
- Verkuyten, M., Thijs, J., & Bekhuis, H. (2010). Intergroup contact and ingroup reappraisal: Examining the deprovincialization hypothesis. *Social Psychology Quarterly*, *73*, 398-416.
- Vertovec, S. (2006). The emergence of super-diversity in Britain (Working paper No. 26). *Centre on Migration, Policy and Society*. Retrieved on January 06, 2013, from

References

http://www.compas.ox.ac.uk/fileadmin/files/Publications/working_papers/WP_2006/WP0625_Vertovec.pdf

Vertovec, S. (2007a). New ethnic communities: From multiculturalism to super-diversity. In J. Clarke (ed.), *Britain Today* (p 94). Swindon: Economic and Social Research Council. Retrieved on January 10, 2013, from

http://www.esrc.ac.uk/images/BritainToday%20PeopleOfBritain%20section_tcm8-8179.pdf

Vertovec, S. (2007b). Super-diversity and its implications. *Ethnic and Racial Studies*, 30, 1024-1054. doi: 10.1080/01419870701599465

Vezzali, L., & Giovannini, D. (2011). Secondary transfer effect of intergroup contact: The role of intergroup attitudes, intergroup anxiety, and perspective taking. *Journal of Community & Applied Social Psychology*. Advanced online publication. doi: 10.1002/casp.1103

Vezzali, L., Giovannini, D., & Capozza, D. (2010). Longitudinal effects of contact on intergroup relations. The role of majority and minority group membership and intergroup emotions. *Journal of Community & Applied Psychology*, 20, 462-479. doi: 10.1002/casp.1058

Voci, A., & Hewstone, M. (2003). Intergroup contact and prejudice towards immigrants in Italy: The mediational role of anxiety and the moderational role of group salience. *Group Processes & Intergroup Relations*, 6, 37-54. doi: 10.1177/1368430203006001011

Vonofakou, C., Hewstone, M., & Voci, A. (2007). Contact with out-group friends as a predictor of meta-attitudinal strength and accessibility of attitudes towards gay men. *Journal of Personality and Social Psychology*, 92, 804-820. doi: 10.1037/0022-3514.92.5.804

References

- Wallis Simons, J. (2012, September 20). Sectarian hatred is being overtaken by xenophobic racism in Northern Ireland. *The Telegraph*. Retrieved on October 10, 2012, from <http://blogs.telegraph.co.uk/news/jakewallissimons/100181659/sectarian-hatred-is-being-overtaken-by-xenophobic-racism-in-northern-ireland/>
- Walther, E. (2002). Guilt by mere association: Evaluative conditioning and the spreading attitude effect. *Journal of Personality and Social Psychology*, 82, 919-934. doi: 10.1037//0022-3514.82.6.919
- Warner, C., & Finchilescu, G. (2003). Living with prejudice: Xenophobia and race. *Agenda*, 55, 36-44.
- Weigert, K.M. (1976). Intergroup contact and attitudes about a third group: A survey of Black soldiers' perceptions. *International Journal of Group Tensions*, 6, 110-124.
- Weiner, M.J., & Wright, F.E. (1973). Effects of undergoing arbitrary discrimination upon subsequent attitudes toward a minority group. *Journal of Applied Social Psychology*, 3, 94-102.
- West, S.G., Finch, J.F., & Curran, P.J. (1995). Structural equation models with nonnormal variables: Problems and remedies. In R.H. Hoyle (ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 56–75). Thousand Oaks, CA: Sage.
- Wheaton, B., Muthén, B., Alwin, D.F., & Summers, G.F. (1977). Assessing reliability and stability in panel models. *Sociological Methodology*, 9, 84-136.
- White, F.A., & Abu-Rayya, H.M. (2012). A dual identity-electronic contact (DIEC) experiment promoting short- and long-term intergroup harmony. *Journal of Experimental Social Psychology*, 48, 597-608. doi: 10.1016/j.jesp.2012.01.007
- White, H. (1982). Maximum likelihood estimation of misspecified models. *Econometrica*, 50, 1-25.

References

- Whitely, B.E. (1999). Right-wing authoritarianism, social dominance orientation, and prejudice. *Journal of Personality and Social Psychology*, *77*, 126-134.
- Whyte, J. (1990). *Interpreting Northern Ireland*. Oxford: Clarendon Press.
- Widaman, K.F., & Thompson, J.S. (2003). On specifying the null model for incremental fit indices in structural equation modelling. *Psychological Methods*, *8*, 16-37. doi: 10.1037/1082-989X.8.1.16
- Wilder, D.A. (1984). Intergroup contact: The typical member and the exception to the rule. *Journal of Experimental Social Psychology*, *20*, 177-194.
- Willett, J.B. (1989). Some results on reliability for the longitudinal measurement of change: Implications for the design of studies of individual growth. *Educational and Psychological Measurement*, *49*, 587-602. doi: 10.1177/001316448904900309
- Williams, J., & MacKinnon, D. P. (2008). Resampling and distribution of the product methods for testing indirect effects in complex models. *Structural Equation Modeling*, *15*, 23-51. doi: 10.1080/10705510701758166
- Williams, R.M. (1947). *The reduction of intergroup tensions*. New York: Social Science Research Council.
- World Migration Report (2010). *The future of migration: Building capacities for change*. Switzerland: International Organization for Migration. Retrieved on August 29, 2012, from http://publications.iom.int/bookstore/free/WMR_2010_ENGLISH.pdf
- 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.
- Yinger, J. M. (1994). *Ethnicity: Source of strength? Source of conflict?* Albany: SUNY Press.
- Zajonc, R.B. (1968). Attitudinal effects of mere exposures. *Journal of Personality and Social Psychology*, *9*, 1-27.

References

- Zajonc, R.B. (2001). Mere exposure: A gateway to the subliminal *Current Directions in Psychological Science*, 10, 224-228.
- Zhang, Z., & Wang, L. (2008). Methods for evaluating mediation effects: Rationale and comparison. In K. Shigemasu, A. Okada, T. Imaizumi, & T. Hoshino (Eds.), *New trends in psychometrics* (pp. 595–604). Tokyo, Japan: Universal.
- Zhao, X., Lynch, J.G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37, 197-206.

Appendix

The full 16-item social dominance orientation scale (Pratto et al., 1994) used in Study 3.

1. Some groups of people are just more worthy than others ^a
2. In getting what your group wants, it is sometimes necessary to use force against other groups
3. It's OK if some groups have more of a chance in life than others
4. To get ahead in life, it is sometimes necessary to step on other groups
5. If certain groups of people stayed in their place, we would have fewer problems
6. It's probably a good thing that certain groups are at the top and other groups are at the bottom
7. Inferior groups should stay in their place
8. Sometimes other groups must be kept in their place
9. It would be good if all groups could be equal (reverse coded)
10. Group equality should be our ideal (reverse coded)
11. All groups should be given an equal chance in life (reverse coded)
12. We should do what we can to equalize conditions for different groups (reverse coded)
13. We should increase social equality (reverse coded)
14. We would have fewer problems if we treated different groups more equally (reverse coded)
15. We should strive to make incomes more equal (reverse coded)
16. No one group should dominate in society (reverse coded)