

The Person-Based Approach to Measuring Attitudes toward Gay Men and Lesbians.

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Submitted in total fulfilment of the requirements of the degree of Doctor of Philosophy

February, 2016

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Abstract

Implicit anti-gay attitudes are relatively unconscious, automatic evaluations of gay men and lesbians which are measured by assessing the strength of associations in a speeded classification task. In contrast to other implicit prejudices (e.g., racism, sexism) there are unique challenges to overcome when measuring implicit attitudes toward gay men and lesbians. For example, there is no visible characteristic that can be reliably used to identify sexual orientation, nor are there any names, and only a few nouns (e.g., gay) which are uniquely associated with this social category. As the measurement of implicit anti-gay attitudes relies on the presentation of at least six stimuli to represent the social category, continued discussion on stimuli selection is needed. To date, researchers have relied on the use of stimuli that are conceptually related to the category of GAY (e.g., the rainbow flag, same-sex wedding cake toppers), and therefore these measures may be eliciting related attitudes (e.g., attitudes toward the amorphous category GAY, rather than to GAY PEOPLE). The main aim of this thesis was to present a new approach which addresses this shortcoming. I provided evidence for the person-based approach to implicit antigay attitudes in two initial studies. Study 1 demonstrated that presenting faces of straight male, straight female, gay male, and lesbian target stimuli (who are known for their sexual orientation) with opposite gender distracter stimuli elicits implicit gender attitudes consistent with previous research (Rudman & Goodwin, 2004). However, the *same* set of gay target stimuli presented with straight distracter stimuli of the same gender (e.g., lesbian targets, and straight female distracters), substantially reduced and reversed the pattern of results, such that gay men are weakly implicitly associated with positive and lesbians are weakly implicitly associated with negative. Moreover, these patterns are affected by participant's own gender and sexual orientation (Study 2). These findings are

interpreted as evidence that the person-based approach is assessing constructs of implicit gender attitudes and implicit sexual orientation-based attitudes that are distinct. Furthermore, Study 3 replicated the results of previous implicit prejudice research (using stimuli that have typically represented gay men and lesbians in implicit measures; e.g., Nosek, 2005) and the findings of Study 1 (i.e., using the person-based approach) providing evidence of the meaningful differences between implicit attitudes towards the category GAY and to GAY PEOPLE. Finally, studies 4 and 5 explored the role of religion and religiosity, known predictors of anti-gay attitudes, on implicit person-based antigay attitudes. Study 4 revealed that only religious fundamentalism was a strong predictor of explicit gay attitudes, and that no significant regression model was found that predicted implicit person-based anti-gay attitudes. In contrast, Study 5 used contextual variation to prime the construct of religion (i.e., distracter stimuli were faces of religious individuals, such as nuns and priests) and revealed that relevant religious stimuli led to a subsequent increase in positive implicit person-based attitudes towards gay people for Atheist, but not Christian participants. Taken together, these findings provide strong evidence for the person-based approach to anti-gay attitudes, suggest that implicit prejudice towards gay people differs from in important ways from implicit attitudes towards the category gay, and demonstrated that implicit person-based anti-gay attitudes have a meaningful, but complex relationship with religiosity. As a result, the proposed measure of implicit person-based anti-gay attitudes makes a novel and important contribution to the current anti-gay literature and provides researchers with a much needed and well validated alternative to the typical approach.

Thesis Relevant Publications and Conference Proceedings

Publications

- Anderson, J. R. (2015). The social psychology of religion: The importance of studying religion using scientific methodologies. In B. Mohan (Ed.), *Constructions of Social Psychology*. Lisbon, Portugal: inScience Press.
- Anderson, J. R. & Holland, E. (2015a). Special Edition on Sexual Orientation and Gender: Editorial. *Sensoria: A Journal for Mind, Brain, & Culture*, 12, 1-3.
- Anderson, J. R. & Holland, E. (2015b). The medical legacy of homosexuality. *Sensoria: A Journal for Mind, Brain, & Culture*, 12, 4-12.
- Anderson, J. R., Kaufmann, L. M., & de la Piedad Garcia, X. (2015). Disentangling gender and sexuality-based classifications: Person-based approaches to implicit representation. *Manuscript under review*. Victoria, Australia: Australian Catholic University.
- Anderson, J. R., Kaufmann, L. M., & de la Piedad Garcia, X. (2015). Religious Fundamentalism Predicts Explicit, But Not Implicit, Anti-Gay Attitudes. *Manuscript under review*. Victoria, Australia: Australian Catholic University.
- Anderson, J. R., Kaufmann, L. M., & de la Piedad Garcia, X. (2015). Religious contextual priming increases positive attitudes toward gay men and women in Atheists, but not Christians. *Manuscript under review*. Victoria, Australia: Australian Catholic University.
- Anderson, J. R., & Koc, Y. (2015). Exploring patterns of explicit and implicit anti-gay attitudes in Muslims and Atheists. *European Journal of Social Psychology*.
- Kaufmann, L. M., Williams, B. J., Hosking, W., Anderson, J. R., & Pedder, D. (2015). Identifying as in, out, or sexually inexperienced: Perception of sex-related personal disclosures. *Sensoria: A journal of Mind, Brain, and Culture*, 12, 26-33.

Conference Proceedings

- Anderson, J.R., & Koc, Y. (2014, July). *Attitudes towards disadvantaged groups: Understanding the antecedents of prejudice across cultures*. Presenter and Co-chair of the symposium at 22nd Congress of the International Association for Cross-Cultural Psychology, Reims, France.
- Anderson, J. R., Kaufmann, L. M., & de la Piedad Garcia, X. (2014, July). *Person-based representations of homosexuality in implicit measurement in a sample of Christians and Atheists*. Poster presented to the European Association of Social Psychology, held in Amsterdam, the Netherlands.

- Anderson, J. R., Kaufmann, L. M., & de la Piedad Garcia, X. (2014, April). *What is implicit homophobia? Person-based approaches to implicit representation and the homophobia-religion relationship*. Papers presented to The Society for Australasian Social Psychology, held in Canberra, Australia.
 **note: this presentation was runner-up in the 2014 outstanding post-graduate research award.
- Anderson, J. R., Kaufmann, L. M., & de la Piedad Garcia, X. (2013, September). *Quantifying the confusion: Exploring the biblical proscription-tolerance paradox*. Papers presented to the second Australian Catholic University School of Psychology Research Conference, held in Melbourne, Australia.
- Anderson, J. R. (2013, September). *Understanding the Implications of the Medical Legacy of Homosexuality*. Papers presented to the Australian Homosexual Histories Conference, held in Melbourne, Australia.
- Anderson, J. R., Kaufmann, L. M., & de la Piedad Garcia, X. (2013, June). *Does Doctrinal Priming Affect the Implicit Social Attitudes of Christians and Atheists?* Papers presented at the First International conference of LGBT Psychology and related fields, held in Lisbon, Portugal.
- Anderson, J. R., Kaufmann, L. M., & de la Piedad Garcia, X. (2013, April). *Exploring the biblical proscription-tolerance paradox: Comparing the effects of doctrine priming on prejudice between Christians and Atheists*. Papers presented to the Society for Australasian Social Psychology, held in Cairns, Australia.
- Anderson, J. R. (2012) "Reparative therapy: The role of psychology and religion in 'fixing' homosexuality" in Gahan, L., & Jones, T. (Eds.), *Sexuality and Sacred Places*. ARCSHS, La Trobe University, Melbourne.
- Anderson, J. R., & Kaufmann, L. M. (2012, September). *The consequences of gender versus sexuality – based social categorisation*. Papers presented at the Inaugural Australian Catholic University School of Psychology Research Conference, held in Melbourne, Australia.
- Anderson, J. R., & Kaufmann, L. M. (2012, July). *Exploring homophobia: Implicit attitudes in Australian males*. Papers presented to the American Psychological Association Annual Convention, held in Orlando FL, United States of America.
- Anderson, J. R., & Kaufmann, L. K. (2012, April). *Female in-group bias: are Lesbians more biased than heterosexual women?* Papers presented to the Society for Australasian Social Psychology, held in Adelaide, Australia.
- Anderson, J. R., & Kaufmann, L. K. (2012, January). *What do you really believe? Religious beliefs predict explicit, but not implicit, homophobia*. Papers presented SPSP pre-conference on the Psychology of Religion and Spirituality, held in San Diego, CA, United States of America.

- Anderson, J. R., & Kaufmann, L. K. (2012, January). *Using contextual variation to create salient social categories: Assessing non-primitive implicit attitudes*. Papers presented to the Society for Personality and Social Psychology, held in San Diego, CA, United States of America.
- Anderson, J. R., & Kaufmann, L. K. (2011, July). *Context effects and salient social categories: implicit attitudes towards homosexuality in Australia*. Papers presented to the European Association of Social Psychology, held in Stockholm, Sweden.
- Anderson, J. R., & Kaufmann, L. K. (2011, July). *Exploring the attenuated in-group bias phenomenon: Do males prefer females as much as themselves?* Papers presented to the Asian Association of Social Psychology, held in KunMing, China.
- Anderson, J. R., & Kaufmann, L. K. (2011, April). *Exploring attitudes toward homosexuality: The role of attitude-relevant factors and context effects*. Papers presented to The Society for Australasian Social Psychology, held in Sydney, Australia.

Declaration

This thesis contains no material that has been accepted for the award of any other degree or diploma in any university or other institution and, to the best of my knowledge and belief, it contains no material previously published or written by another person, except where due reference is made.

The ethical principles and procedures specified by the Australian Catholic University's policy document on Human Research and Experimentation have been adhered to in the preparation of this report.

Signed [Redacted]
.....

Date 06.06.2015

Acknowledgments

I anticipate submission of this thesis to be associated with feelings of pride and glory, followed by a series of more tangible benefits (for example, outrageous job offers, Nobel Laureate nominations, etc.). While I look forward to reaping these benefits, the reality is that this mammoth undertaking will never have eventuated beyond tears and frustration without the network of individuals that provided me with sanity, structure, and support throughout this process... a process that feels like it has been ongoing since before the dawn of time.

I must start with my supervisors. Without the presence of these two amazing and inspiring individuals, I would be working at Starbucks (also a noble career, but I drink too much coffee as it is). My supervisors, Dr. Leah Kaufmann and Dr. Xochitl de la Piedad Garcia have provided me with a sound knowledge of research ethics and integrity, a respect for scientific process, and a continued love of psychology. Potentially more important than being great supervisors, they have been great mentors, ensuring I have the appropriate exposure to academia, teaching responsibilities, and encouraging me to research the phenomena in life that intrigue me (even elderly hurricanes). I look forward to many years of collaboration with them both.

My amazing parents, who have been nothing but supportive of my perpetual student status for all these years... dare I say decades, are the best parents one could hope for; they have been a constant source of knowledge, wisdom, advice, and motivation through life and I'm very lucky to have such a supportive family (even my brothers). Also a special shout-out to my Gran who is always supportive of this work, and is both encouraging and inspiring.

I have made some amazing friends at conferences and PhD summer schools who have become colleagues and partners in crime across time. The prime offenders are Yasin Koç and Elise Holland. The hours on skype could have been used to finish this thesis a year earlier and the amounts of coffee and crêpes that have been consumed could sink a ship. And to my academic siblings Jodie Chapman and Rose Ferguson... without the constant reminders that I'm not a doctor yet, I would never have finished this dissertation. Also, thanks to my other collaborators: Izzy Rossen, Avelie Stuart, Yao Guan, Radka Antalikova, 谢天, 叶嘉雯, Michael Thai, and Thekla Morgenstroth for sharing the journey so far.

Thanks also go to Nitha Prakash who stopped me from withdrawing from the PhD program on a weekly basis, kept me sane, and gave me my first job in psychology. She is also a fantastic friend, colleague, and one hell of a cook. And of course, my non-psychology besties - Pats, Pats, and Patsy (Chris, James, and Catherine) are an absolute blessing; you listen to me whinge about how much I hate psychology and then listen to me prattle about how much I love psychology three minutes later without yelling at me for it too often. You are my rocks of insanity.

Finally, to my fellow PhD gang at the Australian Catholic University – Bec, Kim, Susan, Amanda, Tina, Dave, Tara, Kasia, Jake, Prem and Chris... Some have finished, some are so close... some are barely started. It doesn't matter what stage you're at, the thing to remember is that no one else cares!!

Chapter 1 – Introduction and Overview

While many minority groups are the target for prejudice... and discrimination... in our society, few persons face this hostility without the support and acceptance of their family as [those who are] gay, lesbian, and bisexual.

-Virginia Uribe and Karen Harbeck (1992, p.13)

1.1 Attitudes toward Gay Men and Lesbians

Gay men and lesbians have long been victims of personal and social discrimination. Until relatively recently, individuals admitting to having a minority sexual orientation (i.e., not being straight) were considered to have a mental illness (Hooker, 1961; Stone, 2000). Though this is typically no longer the case, gay people still frequently face prejudice and discrimination in the form of ostracism from their social groups (Rivers, 2000) or family (Ryan, Huebner, Diaz, & Sanchez, 2009), as well as physical and psychological abuse (i.e., hate crimes; Grein, McFalls, & Smith, 2001; Herek, 2009a; Herek, Gillis, & Cogan, 1999). In addition, 79 countries around the world still have criminal laws against homosexual activities (The International Lesbian Gay Bisexual Trans and Intersex Association [IGLA], 2014), with a further 10 countries that have laws where (even alleged) homosexual activities can be punished by public whipping or by being stoned to death (Rupar, 2014).

Gay people also face more subtle and insidious discrimination, including being paid less than straight people (Berg & Lien, 2002), being more likely to be overlooked for employment (Tilcsik, 2011), being less likely to receive help when needed (Gabriel & Banse, 2006), and being evaluated more harshly when they make decisions that are unsuccessful (Shepherd & Patzelt, 2014). As can be seen from these examples, there are

social and cultural norms and practices that result in the unfair treatment of gay people (Kelley, 2001). Ranging from physical violence or incarceration, to lack of support, there is abundant evidence that gay people around the world face prejudice and discrimination on the basis of their sexual orientation.

Sexual orientation-based inequality in Australia has become a topic of much social debate with growing public support for same-sex marriage, which has been dismissed by the government. Specifically, in 2009 the Australian Marriage Bill (The Parliament of the Commonwealth of Australia, 2009) was amended to redefine marriage as the union of a man to a woman by adding the wording “to the exclusion of all others” to the bill (Attorney-Generals’ Department, 2010, subsection 5[1]). In amending this law, the Australian Government has sought to deny gay people the right to marry a same-sex partner. In 2013, same-sex marriage was legalized in the Australian Capital Territory (The Marriage Equality [Same Sex] Act 2013, Australian Capital Territory Government, 2001). However, only five days later, the federal High Court unanimously voted to revoke the Act in its entirety, voiding the 31 marriages that had taken place (Marszalek, 2013). For many (Brown, 2010; Byrne, 2013; Patten, 2010), this is considered a clear example of institutionalised discrimination and further support for notion that anti-gay attitudes appear to be an acceptable form of prejudice (Pereira, Monteiro, & Camino, 2009).

While the literature has reported unequivocally negative attitudes toward gay men and lesbians (Whitley, 2009), there is some evidence that anti-gay attitudes are weakening and that attitudes are becoming more progressive (see Herek & McLemore, 2013; Kelley, 2001). However, this is not always the case (Herek, 2007). One explanation of these inconsistencies is that people are becoming increasingly aware that admitting to being

prejudiced reflects poorly on them, and thus some individuals are more concerned about admitting their anti-gay attitudes. Previous research has found that norms of social desirability, which typically produce lower explicit prejudice and discrimination, are unrelated to anti-gay attitudes (Pereira et al., 2009). For this reason, social psychologists are careful to ensure that the effect of these factors on attitudes toward gay men and lesbians are limited (Cullen & Barnes-Holmes, 2008; Gabriel, Banse, & Hug, 2007; Rohner & Björklund, 2006).

1.2 Dual Attitudes: Measuring Attitudes Explicitly and Implicitly

Traditionally, attitudes have been conceptualised and measured *explicitly*. That is, attitudes have been defined as consciously held evaluations of a target that can be measured simply by asking people to report their views (i.e., self-report, usually in the form of a survey or questionnaire). A common approach to measuring explicit attitudes is to ask participants their level of agreement with pre-validated items using a Likert or Likert-type scale (e.g., ranging from 1 [*strongly disagree*] to 5 [*strongly agree*]; for a discussion on measuring attitudes, see Summers, 1971).

An alternative approach is to use *indirect measures* (Cook & Selltiz, 1964) which allow researchers to assess a participant's attitude by evaluating either their behaviour or performance on a related task. This is especially useful when measuring attitudes towards sensitive topics. A classic example of how behaviours can be used to indicate attitudes is the work of Bogardus (1927), who showed that racial friendliness is linked to where people choose to sit, to the extent that individuals with more negative racial attitudes sit further away from stigmatized ethnic group members. Following this tradition, recent advances in social cognition research have seen attitudes conceptualized and measured *implicitly*. In

short, implicit attitudes have been proposed to be the implicit association between an attitude object (e.g., a social category such as gay men) and valence (i.e., GOOD and BAD) with positive implicit attitudes being those where the attitude object is more strongly associated with GOOD than BAD, and implicitly negative attitudes are the reverse (Greenwald & Banaji, 1995). Implicit association measures use response accuracy or latency to assess the strength of implicit associations between attitude objects and valence (Dovidio & Fazio, 1992; Fazio & Olson, 2003; Greenwald & Banaji, 1995; Greenwald, McGhee, & Schwartz, 1998; Nosek & Banaji, 2001) with the most common implicit measure used in social psychology being the Implicit Association Test (IAT; Greenwald et al., 1998), with growing support for the Go/No-Go Association Task (GNAT; Nosek & Banaji, 2001). The underlying approach of these measures is that assigning an attitude object and positive or negative attributes to a single response action will facilitate response speed and accuracy when these pairings are strongly implicitly associated, or impair performance if these pairings are unrelated or weakly implicitly associated.

The measurement of implicit attitudes relies on stimuli that represent the attitude object(s) and valence (i.e., positive and negative) to which participants will respond. Selecting stimuli to represent many social groups is typically quite simple, and this becomes an easy task. For example, in the case of gender, age, or ethnicity, photos of faces of individuals that belong to the social category is a representation of the category itself, because these categories are readily identified visually (e.g., a Caucasian face is easily differentiated from a picture of a non-Caucasian face; see Brewer, 1988; Fiske & Neuberg, 1990). Moreover, some of these categories can be easily represented by well-chosen, word stimuli by using names that are associated with specific groups from ethnicity (e.g.,

LATOYA vs. LINDA), gender (e.g., JACK vs. SALLY), and even age (e.g., DORIS vs. DEBBIE). However, this is not the case for all social categories.

Selecting stimuli to represent gay men or lesbians in an implicit attitude measure can be a challenge. A person's sexual orientation cannot be reliably identified from a person's physical features (Freeman, Johnson, Ambady, & Rule, 2010), thus using pictures of gay people as stimuli is largely futile. Similarly, there are no typically 'gay' names, or pronouns, and too few (non-derogative) nouns denoting the category (e.g., gay, lesbian) to allow the use of such words as stimuli. As a result, researchers have used images, largely comprising symbols (i.e., interlocking symbols of the same-gender) and pictures of same sex couples (i.e., either in romantic or non-romantic poses, photos of same-sex marriage, etc.) both of which are not equivalent to other implicit attitude measures (e.g., an equivalent measure of gender would be to have women represented by images of high heels and tears), and potentially less a measure of implicit attitudes to gay people than it is to the broader issues associated with this group (e.g., marriage equality).

In this dissertation, I will argue for the interpretation of typical implicit measures of anti-gay attitudes as assessing the nebulous construct of homosexuality¹ rather than specifically measuring attitudes toward gay men and lesbians. I will first argue that the typical stimuli represent a superordinate construct of homosexuality which includes gay people, but also the broad and social issues associated with this category (e.g., same-sex marriage, political activism, sexual behaviours, and even HIV/AIDS stigma). Moreover, because the stimuli include a range of images, inclusion or exclusion of any specific image

¹ Throughout this dissertation, "attitudes towards homosexuality" will refer to attitudes towards the social category, including attitudes towards gay people but also (likely) encompassing a wider range of related constructs, as will be argued throughout.

(e.g., same-sex wedding cake-toppers) can affect which aspects of the broad concept are being assessed, which is likely to produce inconsistency in the findings of specific studies. Based on this criticism, it is the fundamental aim of this thesis is to present an alternative, namely, the person-based approach to measuring implicit anti-gay attitudes.

1.3 The Current Research Project: General Aims and Hypotheses

This dissertation will present the person-based approach to measuring implicit anti-gay attitudes. The empirical component of this dissertation is divided into two sections; the first section presents the initial evidence for the person-based approach and the second section presents empirical research that uses the person-based approach when exploring the relationship between anti-gay attitudes and religion. The evidence for the person-based approach is provided by addressing four main research questions:

1. *Can contextual variation be used to make the gender or sexual orientation of a target salient, which would facilitate assessment of implicit person-based gender attitudes and implicit sexual orientation attitudes toward the same target?*
2. *Does this person-based approach measure implicit anti-gay attitudes that are different to those measured using typical stimuli?*
3. *What individual difference factors predict implicit person-based anti-gay attitudes?*
4. *Can contextual variation be used to prime a relevant attitudinal context that differentially affects implicit person-based anti-gay attitudes?*

1.4 Structure of Thesis

Following this introduction and overview chapter, I present three theoretical chapters: first, a general overview of the history of the conceptions of homosexuality in psychology and related disciplines; second, a comprehensive review of empirical studies of explicit and implicit anti-gay attitudes; and finally, a summary of key issues in implicit anti-gay attitude measurement including the presentation of the person-based approach to measurement. The following two empirical chapters present initial evidence (referring to questions 1 and 2 above) and are followed by an interim discussion and a brief theoretical chapter introducing the social psychology of religion, which will then allow an empirical exploration of the relationship between religion and implicit person-based anti-gay attitudes. The final empirical chapters explore this relationship while addressing questions 3 and 4 above. Finally I will close with a general discussion and conclusions.

1.4.1 Theoretical and review chapters

Chapter 2 (*A Brief History of Sexual Orientation: Theoretical Frameworks and Definitions*) discusses key terms and definitions used in research on attitudes toward gay men and lesbians and a background on the historical context in which these terms and definitions evolved. The chapter presents the history of the inclusion and treatment of homosexuality as a diagnosable condition in the psychiatric literature, as well as the little-known processes that led to the various reclassifications of this diagnosis in the psychiatric and psychology nomenclatures. This review is important because much of the history about how gay men and lesbians have been considered by the mental health professions still has implications for how sexual orientation is viewed and treated today (including the ongoing, albeit rare, treatment of homosexuality as an illness despite its exclusion from medical

nomenclatures). Thus, it is important in understanding contemporary issues around gay attitudes².

Chapter 3 (*Attitudes toward Gay Men and Lesbians*) introduces the concept of dual attitudes and their measurement, and reviews the literature that has applied the concepts to anti-gay attitudes and sexual prejudice. The chapter provides an overview of research on explicit and implicit attitudes towards gay men and lesbians, including a comprehensive review of the demographic and ideological factors that lead to explicit reports or implicit demonstrations of positive or negative attitudes.

Chapter 4 (*Presenting the Person-Based Approach*) presents an overview, rationale, and the protocol of the person-based approach. In particular, this chapter outlines the limitations of traditional approaches to the measurement of implicit anti-gay attitudes, which have used category-based representations of gay men and lesbians. After introducing the Go/No-Go Association Task (GNAT; Nosek & Banaji, 2001), this chapter provides a detailed account of the protocols of the person-based approach, highlighting the way in which this approach attempts to address the named weaknesses of the traditional account.

1.4.2 Empirical chapters

1.4.2.1 Evidence of the person-based approach

Chapter 5 (*Studies 1 and 2: Initial Evidence for the Person-Based Approach*) presents two studies, which are used to provide the initial evidence for the use of this

² Chapter 2 is a truncated version of a manuscript in press in *Sensoria: A Journal for Mind, Brain, and Culture*. This forms part of a special edition on the intersection of gender and sexual orientation.

approach³. The first study uses a homogenous community sample of straight females. The second study uses participants sampled from key groups (e.g., gay men, lesbians, and straight men and women – a participant gender by participant sexual orientation design). Chapter 5 provides compelling support for the person-based approach to the measurement of implicit anti-gay attitudes as measured with stimuli that are faces of gay people, rather than symbolic representations of the social category. Following this, Chapter 6 (*Study 3: Comparing Typical and Person-Based Representations*) presents an experiment that provides an empirical comparison of the person-based approach and the traditional approach to the measurement of implicit anti-gay attitudes. The findings of this study reveal that these two approaches provide very different results. Acknowledging the importance of having replicated the findings presented in Chapter 5, the conclusions highlight the important and unique contribution of the person-based approach to the implicit anti-gay attitudes literature. Chapter 7 (*Discussion: Evidence for the Person-Based Approach*) is a summary and interim discussion chapter, which reviews the strengths and limitations of the person-based approach, and provides an argument for its utility in the implicit measurement of attitudes toward gay men and lesbians.

1.4.2.2 Person-based anti-gay attitudes and religion

It has been famously suggested that religion can have paradoxical effects on attitudes; it can either promote tolerance and acceptance, or result in non-tolerance and prejudice (Allport, 1954; see also Allport and Ross, 1967). In the specific case of attitudes toward gay men and lesbians, the relationship between religion and anti-gay attitudes tends to be negative. That is, more religious people tend to hold stronger negative attitudes

³ The three experiments presented in empirical chapters 5 and 6 are currently being considered for publication with the *Journal of Sex Research*.

towards gay men and lesbians as demonstrated consistently across several decades of research (Whitley, 2009). However, there is a relatively limited range of empirical studies exploring the relationship between religion and *implicit* anti-gay attitudes. Furthermore, the existing literature is only includes experiments using the traditional approach (i.e., category-based) to the measurement of implicit anti-gay attitudes. Chapter 8 (*Literature Review: Religion and Religiosity*) discusses the relationship between religion (whether measured as a categorical religious affiliation or when measured as a continuous individual difference factor) and anti-gay attitudes in detail.⁴

Chapter 9 (*Study 4: Predictors of Implicit person-based Gay Attitudes*) presents an exploration of demographic factors and religiosity dimensions as predictors of explicit and implicit person-based attitudes toward gay men and lesbians. In this fourth study, I explored the predictive ability of factors that are known correlates of negative attitudes toward gay men and lesbians (i.e., being male, Christian, older, and straight), and of individual differences in religion (i.e., religiosity). This was achieved by using a Multiple Regression Analysis (MRA) that included known predictors in the first step and religiosity variables in the second step (i.e., religious fundamentalism, intrinsic and extrinsic religious orientations, and quest)⁵. Separate MRAs were conducted for explicit and then implicit anti-gay attitudes, revealing that explicit attitudes were stably predicted, yet neither demographic nor religiosity factors predicted implicit person-based attitudes.

Chapter 10 (*Study 5: Religious Priming and Person-Based Attitudes*) explores the effects of religious priming on subsequent implicit person-based anti-gay attitudes.

⁴ Parts of chapter 8 have been used in a book chapter on the social psychology of religion (Anderson, 2015).

⁵ The third empirical chapter (i.e., chapter 9) is currently under review for publication in *Personality and Individual Differences*.

Specifically, grounded in social comparison theory (Festinger, 1954), this fifth study used religious distracter stimuli to prime religious concepts while participants were responding to an implicit measure of person-based anti-gay attitudes⁶. The religious prime led to subsequent positive implicit attitudes towards gay people from Atheist, but not Christian participants.

Chapter 11 (*General Discussion and Conclusion*) presents a full discussion on the evidence and application of the person-based approach and re-visits the highlights of the empirical chapters within this dissertation. After reviewing the findings, the limitations and conclusions of each study are conferred, before presenting the general implications and future directions of the dissertation in its entirety.

⁶ The fourth empirical chapter (i.e., chapter 10) is currently being considered for publication in *Social Psychology and Personality Science*.

Chapter 2 – A Brief History of Sexual Orientation: Theoretical Frameworks and Definitions

Every orientation presupposes a disorientation...
 - Hans Magnus Enzensberger (b. 1929)

In the early decades of the nineteenth century, sexuality was conceptualised in highly heteronormative terms which were strongly influenced by religious discourse, even when claiming to be based in science or medicine (Bayer, 1987). In the late nineteenth century research using scientific principles began to inform understandings of sexuality. Although this meant a lessening of religious influence, this research was still largely framed by religious social values. As a result, researchers who attempted to report findings that deviated from the heteronormative expectations often faced negative consequences including social exclusion and professional isolation (Lenzer, 2003). Interestingly, even after research began to explore alternative sexual orientations, the assumption remained that homosexuality⁷ (or *any* variation from heterosexuality) was aberrant and, thus, was treated as pathological (see Hooker, 1956).

In this chapter I will briefly discuss the work of two pioneers whose work still informs contemporary sexuality research and research into related issues. Specifically, I will discuss the work of: Alfred Kinsey (June 23, 1894 – August 25, 1956) who is widely considered the first sexologist and published work that liberated the existing conservative thought on the frequency and range of sexuality and sexual behaviour; and the work of Evelyn Hooker (née Gentry, September 2, 1907 – November 18, 1996) whose substantial

⁷ The APA6 publication manual (2009, P. 74) suggests the term *gay* instead of *homosexual*. Throughout the thesis I have retained *homosexual/homosexuality* when appropriate for context (i.e., discussion of the historical treatment), or when referring to previous studies (if the researchers had used *homosexual* instead of *gay*). In all other cases I have used the preferred term *gay*.

body of research that cumulatively provided evidence that there are no detectable differences in the mental adjustments of gay and straight men. After reviewing the work of these pioneers, I will detail the evolution of the terminology around attitudes towards non-heterosexual orientations.

2.1 A Tribute to Early Researchers

2.1.1 Alfred Kinsey

Alfred Kinsey (1894 – 1956) was trained as a biologist and zoologist but is best known for his famous Kinsey reports.

2.1.1.1 The Kinsey Reports.

The Kinsey reports entitled *Sexual Behaviour in the Human Male* (Kinsey, Pomeroy, & Martin, 1948) and *Sexual Behaviour in the Human Female* (Kinsey, Pomeroy, Martin, & Gebhard, 1953; see also Gebhard & Johnson, 1979) are widely considered to be pivotal in the scientific research of sexuality. Specifically, they are believed to be the first research to candidly explore human sexuality via personal interviews (5300 males and 5940 females, respectively) and, although they have been heavily criticized, paved the way for future research into sexuality.

The Kinsey Reports challenged widely held beliefs about sexuality, including views about pre-marital sex, masturbation, homosexuality, and female orgasm (Christensen, 1971; Pomeroy, 1972). Regarding the breadth of sexual experience, Kinsey and colleagues (1948) shocked readers by reporting that 37% of all men have at least once had same-sex physical contact to the point of orgasm, and that approximately 10% of males had been more or less exclusively homosexual for a period of at least three years in their lives (Kinsey et al.,

1948). Similarly, Kinsey and colleagues (1953) reported that 28% of females had actively engaged in homosexual experiences by the age of 45 (Kinsey et al., 1953). These figures revealed that, while same-sex sexual practice was less common than opposite-sex sexual practices, it was more common than had been previously thought, especially given that such acts were typically labelled as sexual perversion (Kinsey, Pomeroy, Martin, & Gebhard, 1949). As a result, Kinsey and colleagues (1949) posited that the problems associated with sexuality are actually a matter of adjustment between the individual and society, rather than a pathology which affects individuals.

Kinsey and colleagues' (1949, 1955) research drew heavy criticism from scientific circles including concerns about the over-representation of certain minority groups in the sample (Bowman et al., 1956) and statistical techniques used during analyses. For example, the findings reported in *Sexual Behaviour in the Human Male* came from a sample comprising 25% prison inmates and 5% male prostitutes. Another issue was that the report also classified couples who had lived together for at least a year as being married. However, Kinsey's most vocal critic was the statistician John Tukey who was highly critical of Kinsey's reliance on samples of convenience, especially the use of snowballing techniques (i.e., people who knew each other). In particular, a concern about this recruitment practice was that socially related participants, in comparison with more representative samples, likely resulted in estimates that misrepresent the actual frequency of (especially unusual or infrequent) sexual practices. In fact, Tukey famously (and very publically) said that "a random selection of three people would be better than a group of 300 chosen by Mr. Kinsey" (as cited in Leonhardt, 2008).

Another criticism of Kinsey's recruitment practice was that he failed to consider volunteer bias (Christensen, 1971). That is, that the data gathered from people who volunteer to participate in discussions of taboo topics is unlikely to be similar to the data that would be collected from a general population, or from those who would have been reluctant to discuss the intimate details of their sex lives. Support for this criticism was demonstrated by Maslow and Sakoda (1952) who tested Kinsey's volunteers and concluded that Kinsey's sample was unrepresentative of the general population, as it included an over-representation of certain social groups (i.e., as mentioned, prison inmates and prostitutes). Kinsey argued that a probabilistic sample was not appropriate, since many disclosures during the data gathering process would have led to "certain loss of social prestige" and "legal ramifications" (Kinsey et al., 1955, p. 812).

In response to the claims of critics, staff at the *Kinsey Institute for Sex Research* more recently undertook processes to remove biased data (Gebhard & Johnson, 1979). For example, all material derived from prison populations in the original samples were removed and then the data was re-analysed. The results of this re-analysis revealed that none of Kinsey's original estimates were significantly misrepresented. As a result, they claim that data collected from populations comprising prisoners or male prostitutes, and those who willingly participated in research on taboo sexual topics had the same response tendencies as the general population. For example, the original data suggested that 37% of men have had at least one homosexual experience. After removing data contributed by those in prison, the data was adjusted to slightly higher than 36%, and the 10% figure of men who were "more or less exclusively homosexual" for at least three years, came to 9.90% for white, college-educated males and 12.70% for those with less education (Duberman, 1977).

Although heavily criticised, Kinsey's controversial work on male and female sexual behaviour was ground breaking. The major contribution of this work was that it challenged widely held beliefs about sex and sexuality. It also provided the first scientific evidence that homosexuality was sufficiently common as to potentially belong to the normal range of human sexual behaviours. More importantly, these studies provide a foundation for a line of scientific enquiry into sex and sexuality that, by extension, paved the way for research into attitudes towards these topics and this dissertation.

2.1.1.2 The Kinsey Scale.

Even in the early years of researching sexual orientation, there was a tendency to assume an underlying dichotomy (e.g., straight or gay) as the appropriate method for quantifying this variable, rather than a continuous variable (i.e., from solely same-sex sexually attracted to solely other-sex sexually attract via bisexual and/or asexual). However, Kinsey and colleagues suggested a new way of considering sexuality:

“Males do not represent two discrete populations, heterosexual and homosexual... It is a fundamental of taxonomy that nature rarely deals with discrete categories. Only the human mind invents categories and tries to force facts into separated pigeon-holes. The living world is a continuum in each and every one of its aspects. The sooner we learn this concerning human sexual behaviour the sooner we shall reach a sound understanding of the realities of sex. . . .”

(Kinsey et al., 1948, p. 639)

Kinsey and colleagues (1948) argued that sexual orientation should not be categorized, instead sexual orientation could be conceptualised on a spectrum that is continuous, fluid, and expected to change across the lifespan. His wish to emphasize the continuity of the gradations between straight and gay orientations resulted in the

development of a new classification system which he argued is best assessed using “a seven-point scale [which] comes nearer to showing the many gradients that actually exist” (Kinsey et al., 1948, p. 656). The Kinsey scale ranges from 0 (*exclusively heterosexual*) to 6 (*exclusively homosexual*) with a midpoint of 3 which reflects bisexuality or an equal attraction to both same and opposite sex individuals. The Kinsey scale has contributed to current understandings of sexuality, and while used in sexual identity research more than the research of attitudes, it adds to the growing body of research that a homosexual orientation is a normal variation of sexual attraction.

2.1.2 Evelyn Hooker

Even though the Kinsey reports demonstrated that the range of sexuality and sexual practices was much more diverse than socially accepted, it was still widely believed that homosexuality was pathological. Even ten years after the release of the first Kinsey report, legal penalties for homosexual behaviour were common and harsh (e.g., Szasz, 1965). Moreover, psychiatric diagnoses of homosexuality described this condition as a severe and pervasive emotional disorder (see Anderson & Holland, 2015b).

The status of homosexuality as a diagnosable psychiatric disorder may reflect the fact that all studies conducted on a homosexual population at the time used samples in therapy, or from prisons, mental institutions, or the disciplinary ward of the armed services. Consequently, it is hardly surprising that homosexuality was conflated with mental health. However, not all professionals agreed. For example, Evelyn Hooker was a pioneer in this area and published the first empirical research that ultimately led to removal of

"homosexuality" from the Diagnostic and Statistical Manual of Mental Disorders (Hooker, 1957; see also Hooker, 1956, 1965a, 1965b, 1969).

Hooker's (1957) study *The Adjustment of the Male Overt Homosexual* investigated whether 30 gay and 30 straight men who were functioning normally in society differed significantly in their psychological adjustment as measured by three projective tests (Rorschach Inkblot Test, Rorschach, 1942; Thematic Apperception Test [TAT], Murray, 1943; Make-A-Picture-Story [MAPS] Test, Shneidman, 1947). The two groups were matched for age, IQ, and education. The data was examined by three independent expert clinicians who were unaware of the subjects' sexual orientation and revealed that the judges could not distinguish between the two groups based on the test results, which allowed Hooker to conclude that homosexuality is not a clinical condition (Hooker, 1958, 1961, 1963).

Hooker's findings have since been replicated by many other investigators using a variety of research methods. Freedman (1971) used Hooker's basic design to compare data from lesbian and straight women using objectively-scored personality tests rather than projective tests. Consistent with Hooker's findings, he found no significant differences between the personality-profiles of lesbian and straight women. Consequently both Hooker and Freedman argued that medicalisation of homosexuality was the result of subjective prejudice, rather than empirical evidence.

Current research has been strongly influenced by the arguments of Evelyn Hooker, ultimately leading to the 1973 removal of homosexuality from the psychiatric and psychology nomenclature. This reclassification of the DSM-III-R (American Psychological

Association [APA], 1968) was considered by some to be a progressive step that liberated this sexual minority (e.g., see Spiegel, 2007). However, the opposing school of thought posited that homosexuality was a threat to the basic family unit, and undermined the scientific authority of psychiatry (Spitzer, 1973, 1974). In combination, the contributions of Kinsey and Hooker are fundamental to our current understandings of homosexuality and homosexuals, and thus the attitudes that straight (and gay) people have towards them.

2.2 Evolution of definitions

2.2.1 Defining non-heterosexuality

It is commonly suggested that the category of ‘homosexual’ did not exist previously as it does in the current sexual discourses of the 21st century (Boswell, 1980; Foucault, 1976) as same-sex sexual contact was simply considered a part of the range of usual sexual practices. Herek argued that it was only after the 1870 publication by Westphal (cited in Herek, 1991a) on “contrary sexual sensations” that the concept of a sexual orientation was born. Thus, the notion that a sexual orientation is something to be explored, celebrated or repressed is a relatively modern one.

The term *homosexual* is first thought to have entered English scientific literature in the 1895 translation of Richard von Krafft-Ebing's 1886 *Psychopathia Sexualis*, an early study on sexual practices (as cited in Halperin, 1990). The original text is believed to be a seminal medical text on sexual deviance and perversion which referred to homosexuality as an ‘antipathic sexual instinct’. Prior to this term, same-sex sexual activity had been described by a variety of terms. One very early term was the German word ‘urning’ which

was used in the 1860s to describe a male body with a female psyche, who was attracted to men instead of women (Kennedy, 1997).

The first English medical textbook on ‘homosexuality’ was called *Sexual Inversion* (Ellis, 1897, 1933). This text used the terms inversion and intersex⁸ interchangeably to refer to same-sex sexual activity. These terms then dominated the literature for several decades. In the early twentieth century Freud (1953) introduced the term “Psychosexual hermaphroditism” because of his presumption that gay individuals to have the neurological or hormonal physiology of the opposite sex . The final term worthy of mention that dominated the scientific discourse was the word ‘homophile’. The term was coined by the German psychoanalyst Karl-Günther Heimsoth in his 1924 doctoral dissertation "Hetero- und Homophilie" (Heimsoth, 1924; see also Hancock, 1998). Although the term homosexual was widely used by this stage in the literature, homophile had less negative clinical associations and came to common use throughout the 1950s and 1960s by homosexual organisations and publications. In essence, this phrase was the preferred terminology by the group it referred to. However, the frequency of its use decreased until its occasional contemporary use as slang terminology for a straight individual who champions for the civil rights of gay people (Meeker, 2001).

The lifespan of the concept of homosexuality has been relatively short, and has undergone rapid development. The APA 6th edition Publication Manual has suggested that the term homosexuality is problematic because of the historical and contemporary associations with “negative stereotypes, pathology, and the reduction of people’s identities

⁸ The contemporary use of the word intersex refer to a discrepancy between the external genitals and the internal genitals (i.e., the testes and the ovaries; Donohue, 2011).

to [only] their sexual behaviour” (APA, 2009, p. 75; see also American Psychiatric Association, 2009). As such, the APA advocates for the use of the terms *gay men*, *lesbians*, *bisexual men*, and *bisexual women* to refer to individuals who self-identify this way, and the term *gay* to refer to the shared identity of culture of individuals who collectively identify this way.

2.2.2 Attitudes toward gay men and lesbians

Interestingly, the trajectory of the terminology describing attitudes towards gay men and lesbians mirrors the debate around the terminology describing this group. That is, although some progress has been made, there is still a lack of consensus about the best term for use in scientific dialogue about this topic. Specifically, consistent with the pervasive conceptualisation of homosexuality as an aberration (medical or otherwise), attitudes towards acts of homosexuality and the people who engage in them has been consistently negative. So much so, that the consistently negative attitudes (i.e., prejudice) have also earned their own terminology. For example, prejudice toward gay people has been called *homoerotica* (Churchill, 1967; see also Muscarella, 2000), *anti-homosexuality* (Hacker, 1971), *homosexphobia* (Morin & Garfinkle, 1978), and *homonegativism* (Hudson & Ricketts, 1980, evidence taken from Herek 1991b; for full discussion of terminologies, also see Herek 2000; Anderson, Papadopolous, Chapman, Hinton, & James, 2015). Several terms have received particular attention in the psychology literature, and these will now be discussed.

The most common term for prejudice toward gay men and lesbians is *homophobia*, which was originally defined as the “dread of being in close quarters with homosexuals”

(Weinberg, 1972, p. 4). This is still commonly used in some research disciplines (including medicine, education, and politics), but has been criticized in the psychology literature as being out-dated and inaccurate (e.g., Herek, 1984b). For example, Herek (Herek, 1984b, 2004; Herek & McLemore, 2013), a leading psychological researcher in this field, argues that there are several important issues with this term, the first of which is that the literal meaning of homophobia is “fear of sameness”. He also argues that the homophobia reflects three assumptions that actually fuel the prejudice. First, that this prejudice is primarily a fear. Second, that the fear is appropriately directed toward dysfunctional individuals, and finally that it occurs in response to aberrant individuals, rather than towards a healthy and normal social category. A further consideration is that this term was widely used at the time when being gay or lesbian was considered a disorder and is, consequently associated with the erroneous medicalisation of gay and lesbian sexuality (see Shields & Harriman, 1984). Although these assumptions are implied through the terminology, they are not supported by empirical data (Fyfe, 1983; Herek, 1984b, 1986; Meyer & Dean, 1998).

Another common term for prejudice towards gay men and lesbians is *heterosexism*, which has been defined as an “ideological system that denies, denigrates, and stigmatizes any non-heterosexual form of behaviour, identity, relationship, or community” (Herek, 1990, p. 316). This term was introduced to make prejudice against gay men and lesbians comparable to other prejudices (e.g., sexism, racism, ageism, etc.). One way the term homophobia differs from heterosexism is that the former has been used to describe individual’s attitudes toward gay people, while the latter has been used to describe institutional- or cultural-level attitudes. For example, Australian instances of heterosexism include the laws that prevent marriage, adoption, and IVF access for gay people (Tomazin,

2014), laws that allow discrimination in the workplace against gay people based on religious grounds (Koziol, 2014; Sammut, 2014), and laws that allow religious hospitals and community welfare organisations to discriminate against gay patients, clients, and employees (Lawrie, 2014).

Herek has spent much of his academic career advocating for the replacement of homophobia with the term *sexual prejudice* (Herek, 2000a), which he conceptualises as negative attitudes toward any individual on the basis of their sexual orientation (gay, bisexual, or straight). He argues that, unlike homophobia and heterosexism, sexual prejudice is descriptive of the attitude without implying an underlying motive or the origin of the attitude (Herek, 2004). He also argues that the use of this term links the study of anti-gay attitudes with an existing literature on prejudice toward other targets. An alternative to sexual prejudice is *sexual stigma* - defined as an inferior status that society collectively assigns to any identity, behaviour, or relationship that is non-heterosexual in nature (Herek, 1991b, 2007, 2009a). This stigma becomes a shared knowledge of homosexuality's devalued status within the dominant culture, which has been reinforced throughout the history of sexuality. The aims of the current thesis are to identify attitudes toward gay people and to distinguish these from attitudes towards the broader construct of gay, thus I have decided not to adopt *sexual prejudice* or *sexual stigma* (nor the relatively outdated *homophobia* or *heterosexism*). Rather, I will refer specifically to the gender of the attitude-target (i.e., attitudes toward gay men, or attitudes towards lesbians). When appropriate to simultaneously refer to attitudes towards gay men and lesbians, I will refer to these attitudes as attitudes toward gay people. When these attitudes are negative, I will refer to them as anti-gay attitudes (consistent with some literature; e.g., Cannon, 2005; Goodnight,

Cook, Parrott, & Peterson, 2013; Haddock & Zanna, 1998; Haslam & Levy, 2006; Hatzenbuehler, Dovidio, Nolen-Hoeksema, & Phills, 2009; Hegarty & Pratto, 2001; Wilkinson, 2004).

Chapter 3 Attitudes toward Gay Men and Lesbians

What's unnatural is homophobia. Homo sapiens is the only species in all of nature that responds with hate to homosexuality...

- Alex Sanchez (2008, p.65)

3.1 Anti-gay Attitudes

Racism has dominated psychological research on prejudice (e.g., Allport, 1954; Bogardus, 1927; Cohn, Bucolo, Pride, & Sommers, 2009; Dovidio & Gaertner, 1991; Talaska, Fiske, & Chaiken, 2008). However, since the declassification of homosexuality in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R) in 1973 (APA, 1987; Spitzer, 1973, also see the previous chapter) prejudice research has been extended to include the study of negative attitudes toward gay men and lesbians (e.g., Breen & Karpinski, 2013; Elliss, Kitzinger, & Wilkinson, 2003; Gabriel & Banse, 2006; Gelbal & Duyan, 2006; Herek, 2000a, 2004; Jellison, McConnell, & Gabriel, 2004; Larsen, Reed, & Hoffman, 1980; Morrison & Morrison, 2003; Steffens, 2005; Steffens & Wagner, 2004). This research has found that, while there has been more than 40 years since the declassification of homosexuality, gay men and lesbians still face considerable prejudice as well as behavioural discrimination (e.g., Herek, 1984b; Herek & McLemore, 2013; Krajeski, 1996; Loftus, 2001).

One problem of research on attitudes toward gay men and lesbians is that these attitudes have been found to vary with social norms of equality and egalitarianism. For example, when experimentally inducted with egalitarian norms, participants reported more positive attitudes towards gay men and lesbians (Falomir-Pichastor, Berent, Mugny, & Faniko, 2015), and to endorse biological theories of homosexuality (Falomir-Pichastor &

Hegarty, 2014) than when inducted with either a discriminatory norm, or not inducted at all (i.e., a control group). This is consistent with the general trend for the explicit expression of prejudice to be increasingly socially undesirable and politically incorrect (e.g., Pereira et al., 2009), but makes findings very difficult to interpret because it becomes unclear whether attitudes are actually less negative or just that negative attitudes are less expressed.

Consequently, the measurement of prejudice has become increasingly complex requiring an understanding of the contribution of complex factors such as social norms and motivations (e.g., to control prejudiced responses) as well as the introduction of measures which are less affected by presentation strategies (e.g., implicit measures; see Fazio & Olson, 2003 for discussion).

Currently, the overall outcomes from research on anti-gay attitudes seem to have been relatively unaffected by egalitarian social values in the same way that other attitudes have (Dovidio & Gaertner, 2000; Judd, Park, Ryan, Brauer, & Kraus, 1995; Rudman, 2011). This seems to be because the expression of prejudice towards gay men and lesbians seems more legitimate, defensible, or even acceptable, especially among people who believe sexual orientation is chosen (Falomir-Pichastor & Mugny, 2009; Herek, 1984b, 2000a). However, it is possible that this will not always be true and, for this reason, research on anti-gay prejudice will be well-placed by incorporating both explicit and implicit anti-gay attitudes. Moreover, consistent with theorising which posits that explicit and implicit attitudes are distinct but related constructs (Nosek & Smyth, 2007) which have different antecedents and consequences (e.g., Gawronski & Bodenhausen, 2006; Wilson, Lindsey, & Schooler, 2000) both implicit and explicit anti-gay attitudes will play

an essential role in the development of a nuanced understanding of anti-gay prejudice. Empirical evidence for these concepts will now be reviewed.

3.2 Dual Pathways to Anti-gay Attitudes

3.2.1 Explicit anti-gay attitudes

Research has found consistently negative explicit attitudes toward gay men and lesbians (Fox, 2009; Gabriel & Banse, 2006; Herek, 1987, 2000a, 2000b, 2009b; Herek & McLemore, 2013). Herek (2007) suggests there are five socio-demographic determinants of these anti-gay attitudes. Namely, age, gender, education, religion, and previous contact with gay people are strong contributors to attitudes towards both gay men and lesbians. The literature provides substantial empirical evidence to support his claim. Perhaps the most tenacious example is the finding that men tend to express anti-gay attitudes more than women (e.g., Dolinski, 2010; Mata, Ghavami, & Wittig, 2010; Nagoshi et al., 2008). Furthermore, it is suggested that straight men who know fewer gay men are more likely to demonstrate anti-gay attitudes (Goodnight et al., 2013; Smith et al., 2009). Studies have also shown that African Americans, relative to European Americans, reported more negative attitudes toward gay people (Lemelle & Battle, 2004; Lewis, 2003; Vincent, Peterson, & Parrott, 2009). The other determinants as suggested by Herek are also persistently reported throughout the literature: older age (Herek, 2000a), religion (both identifying as religious relative to identifying as non-religious, and higher levels of religiosity [see Chapter 8, for a review], Whitley, 2009), and educational influences (i.e., lower education levels are correlated with anti-gay attitudes; Ohlander, Batalova, & Treas, 2005), have consistently been linked with more negative attitudes towards both gay men and lesbians. Finally, higher levels of previous contact with gay men or lesbians have been

shown to be consistent related to positive attitudes, and arguably a strong intervention against anti-gay attitudes (Herek & Capitanio, 1996; Smith et al., 2009; Techakesari, Louis, & Barlow, 2015).

Beyond the socio-demographic predictors of anti-gay attitudes, it has been argued that certain cultural components can contribute to anti-gay attitudes. For example, relationships have been empirically established between anti-gay attitudes and cultural lifestyle (e.g., lower social and socio-economic status is correlated with anti-gay attitudes; Slootmaeckers & Lievens, 2014). Similarly, involvement in some (especially typically masculine) extracurricular activities and sporting cultures has been found to increase men's anti-gay attitudes (i.e., males who participated in core sports [football, baseball, etc.] were more than three times as likely to report anti-gay attitudes; Osborne & Wagner, 2007).

Research has, however, found that anti-gay attitudes are decreasing for some demographic groups. In particular, members of certain religious orientations (Rowatt, LaBouff, Johnson, Froese, & Tsang, 2009) and political orientations (Lewis & Gossett, 2008) have shown trends of less negative attitudes. Specifically, Democrats, and less religious individuals have become much more supportive of same-sex marriage, while the attitudes of Republicans, Protestants, and African-Americans are unchanged over the last two decades (Rowatt et al., 2009). Research examining workplace attitudes also argue that attitudes toward gay people in the workplace are also becoming increasingly positive (Bernstein & Kostelac, 2002; Levitt & Klassen, 1976; Seidman, Meeks, & Traschen, 1999)⁹. For example, an American poll reported a substantial increase in the percentage of

⁹ The finding that attitudes toward gay people are becoming increasingly positive in the workplace may actually be driven by the fact that the norms and legislations around reporting these attitudes are rapidly

straight people who reported a preference for affirmative action opportunities for gay men and lesbians. Specifically, respondents reported an increase from 56% in 1977 to 88% in 2003 (Loftus, 2001).

There is also evidence that anti-gay attitudes are prevalent in Western society, and that these attitudes are meaningfully related to discriminatory behaviours. For example, previous correlational work has examined whether fears of being perceived as gay impacted the attitudes and behaviours of straight Australians. Results indicated that choices of what subjects to study, sports to play, ways of interacting with other males, and displays of emotion are shown to be related to anti-gay attitudes (Lewes & White, 2009). Experimental work has revealed a similar pattern of results; Morrison and Morrison (2003) found that individuals who reported explicit anti-gay attitudes were less likely to sit beside individuals wearing T-shirts with pro-gay slogans. Interestingly, where given the opportunity, these individuals would justify their seating choice with reasons that non-prejudicial in nature suggesting at least some motivation to not express prejudice. In contrast to the research so far reviewed, there is a small body of research that contends that anti-gay attitudes are not becoming more progressive (see Embrick, Walther, & Wickens, 2007 for a discussion).

The consequences for gay men and lesbians of explicit anti-gay attitudes take a variety of forms. Herek (2009a) found that an internet survey revealed approximately 20% of gay male and lesbian respondents had experienced a person or property crime as a result of their sexual orientation. Studies have also found that various methods of discrimination are increasingly being used to exclude gay men and lesbians from the workplace (Embrick

changing; this could be a desirable responding effect rather than a legitimate decrease in anti-gay workplace attitudes.

et al., 2007, a famous [albeit recently repealed] example is the ‘don’t ask, don’t tell’ policy on service by gays and lesbians in the United States military; Willis, 2012). As a result, individuals who seek to conceal their homosexual sexual orientation in the workplace has increased across a diverse range of work settings (Smith, Oades, & McCarthy, 2013; Willis, 2010, 2011) . Finally, in a study regarding the medical treatment of gay people, Røndahl (2009) found that both the patients and their partners felt discriminated against by nursing staff in clinical settings, after disclosing their sexual orientation. He also found that negative attitudes of nursing staff increased after the disclosure (see also Eliason, DeJoseph, Dibble, Deevey, & Chinn, 2011 and Ellis & Kitzinger, 2008, for similar findings in samples of psychology students; Røndahl, Innala, & Carlsson, 2004).

Gay people also experience the internalisation of heterosexist social norms (Allen & Oleson, 1999; Meyer & Dean, 1998; Newcomb & Mustanski, 2011; Ross & Rosser, 1996). Internalised anti-gay attitudes are found to be related to same-sex relationship problems, both generally and among coupled participants (Frost & Meyer, 2009), and mental health issues (Williamson, 2000). While research into this domain is important with very serious implications for this population, it is beyond the scope of this thesis and will not be reviewed in detail here (for a non-exhaustive overview of this area, see Newcomb & Mustanski, 2011; Ross & Rosser, 1996; Warriner, Nagoshi, & Nagoshi, 2013; Williamson, 2000, etc.)

3.2.2 Implicit anti-gay attitudes

The most common form of implicit anti-gay attitudes is a stronger implicit association between GAY-BAD and STRAIGHT-GOOD, compared to the reverse pairing

(i.e., GAY-GOOD and STRAIGHT-BAD) as measured by the Implicit Association Test (IAT; Greenwald, McGhee, & Schwarz, 1998). As with explicit anti-gay attitudes of straight participants, implicit anti-gay attitudes have been found to be generally be negative. For example, using the homosexuality-IAT, Banse, Seise, and Zerbes (2001) found straight, but not gay, participants demonstrated strong implicit anti-gay attitudes as measured by an IAT that assessed the implicit associations between HOMOSEXUAL¹⁰ (e.g., photographs of same-sex couples) and HETEROSEXUAL (e.g., photographs of opposite sex couples), and GOOD and BAD . In addition, they found participants were able to fake positive explicit attitudes, but not implicit attitudes toward homosexuality. Discrepancies between explicit and implicit anti-gay attitudes were accounted for by motivation to control prejudiced responses (Banse et al., 2001, Study 2). Taken together, these findings provided the first evidence for the known group and construct validity of IAT-measured implicit anti-gay attitudes.

De Houwer and De Bruycker (2007) replicated Banse and colleagues' (2001) findings using the same version of the IAT. Since then, investigations of implicit anti-gay attitudes have almost exclusively relied on the use of the homosexuality-IAT (Banse et al., 2001; Boysen, Vogel, & Madon, 2006; Cochran, Mays, Alegria, Ortega, & Takeuchi, 2007; Dasgupta & Rivera, 2006; Dasgupta & Rivera, 2008; Gabriel et al., 2007; Jellison et al., 2004; Jonathan, 2008; Lemm, 2006; Steffens, 2005; Steffens & Buchner, 2003; Steffens & Wagner, 2004; Vilaythong, Lindner, & Nosek, 2010), or the single-category IAT (Breen & Karpinski, 2013) and typically demonstrated consistent moderate to strong implicit anti-gay attitudes.

¹⁰ The terms GAY and STRAIGHT are currently preferred, as evidenced by the APA6 publication manual (2009). However, when researchers have previously conducted work in this domain and used the terms HOMOSEXUAL and HETEROSEXUAL, I will also use these so I can accurately describe their work.

Steffens and Buchner (2003) used a Homosexuality-IAT to measure implicit attitudes towards gay men. In this procedure, they represented the category GAY by presenting two male names intended to indicate a gay couple [e.g., Christian + Felix], while HETEROSEXUAL was represented by the presentation of a male and a female name indicating a straight couple [e.g., Julia + Sven]. They found that, while explicit attitudes towards gay men were positive and stable across situations, implicit attitudes measured through the IAT were negative.

Dasgupta and Rivera (2006) assessed whether implicit anti-gay attitudes and sexual orientation-based discrimination was moderated by conscious processes (i.e., egalitarian beliefs and behavioural control). Specifically, they asked straight participants to interact with a male confederate who they believed to be gay. The results revealed that, if conscious egalitarian beliefs or behavioural control processes are deactivated, then those who had stronger implicit anti-gay attitudes displayed more discriminatory behaviours than those who had weaker implicit anti-gay attitudes. This was interpreted as evidence that implicit prejudice produces biased behaviour when conscious processes are inhibited consistent with findings for racial prejudice (e.g., Devine, 1989).

Rohner and Björklund (2006) used a homosexuality-IAT to explore implicit attitudes and self-presentation concerns. They used picture stimuli to represent sexual orientation (i.e., pictures of two individuals involved in romantic situations such as kissing or getting married; homosexuality was represented with both male-male and female-female individuals and heterosexuality was represented with opposite-sex individuals). Self-presentation was manipulated by telling half of the participants that the study concerned attitudes to sexual orientation (i.e., socially sensitive topic), and the remaining participants

that the study concerned attitudes to age (i.e., a less sensitive topic). The age-instruction group reported more explicit anti-gay attitudes than the sexual orientation-instruction group. However, the manipulation did not affect the correlation between the explicit and implicit attitudes. They interpreted these findings as being problematic for the argument that the low correlations between implicit and explicit attitude measures are primarily due to self-presentation concerns. Indeed, contemporary arguments on divergence between explicit and implicit attitudes revolved around postulations of dual processes (e.g., Gawronski & Bodenhausen, 2006; Wilson et al., 2000), although a series of theoretical and methodological explanations are available (for a discussion, and some evidence, see Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005).

In sum, early studies on implicit anti-gay attitudes revealed substantial support for the homosexuality-IAT using a range of stimuli. Specifically, these findings are evidence of good psychometric properties and that IAT-measured implicit attitudes are less susceptible to faking than explicit measures (Fiedler & Bluemke, 2005; Steffens, 2004). In addition, further evidence for implicit anti-gay attitudes as measured by the homosexuality-IAT is found from large-scale studies conducted by project implicit, hosted by Harvard University (<https://implicit.harvard.edu/implicit/>). This website collates large amounts of data from a website that hosts the IAT, and allows for large-scale analyses of attitudes toward a variety of social targets, including gay people (Nosek, Smyth, et al., 2007). Across six years, the website collected data from over 2.5 million participants from a variety of locations, which included a widely range of demographically heterogeneous participants. This study found evidence that negative explicit and implicit anti-gay attitudes can be found across the population. In fact, 68% of the sample demonstrated stronger implicit associations between

HETEROSEXUAL+GOOD, and HOMOSEXUAL+BAD, compared to HETEROSEXUAL+BAD, and HOMOSEXUAL+GOOD. This is consistent with the majority of implicit anti-gay attitude findings which reveal moderate to strong levels of implicit anti-gay attitudes (Boysen et al., 2006; Dasgupta & Rivera, 2008; De Houwer & De Bruycker, 2007; Lemm, 2006; Steffens & Buchner, 2003).

Two studies have published substantially inconsistent results. First, Breen and Karpinski (2013, Study 1) used a single category IAT to assess implicit anti-gay attitudes and found neutral implicit anti-gay attitudes (i.e., participants had neither positive nor negative associations toward GAY as represented by symbols e.g., same-sex wedding cake toppers). However, when they used separate blocks to measure attitudes toward gay men and lesbians (Study 2) they found that implicit attitudes toward gay men were neutral (i.e., ambivalent associations with symbols representing the category of GAY MALE), and implicit attitudes toward lesbians that were positive (i.e., positive associations with symbols representing the category of LESBIAN). This result is consistent with Steffens (2005) who was the first to measure implicit attitudes toward gay men and lesbians in separate blocks of a homosexuality-IAT using words to represent the respective categories. She found that female responses to a homosexuality-IAT in Germany were as positive toward lesbians as toward heterosexual targets (although male participants demonstrated negative implicit attitudes toward lesbians, and all participants demonstrated negative implicit attitudes toward gay men).

Cullen and Barnes-Holmes (2008) published a review of studies of implicit anti-gay attitudes¹¹. They found that implicit attitudes toward gay men and lesbians differed as a function of participant's sexual orientation. Specifically gay men and lesbians demonstrated positive implicit attitudes. In contrast, straight participants consistently demonstrated implicit anti-gay attitudes. The authors interpreted these results as demonstrations of implicit in-group "pride" and out-group "prejudice" for both gay and straight groups.

In its entirety, research on implicit anti-gay attitudes is relatively limited, but is largely consistent in its findings. First, implicit attitudes tend to be negative, and predicted by factors that predict other forms of implicit prejudice (Cullen & Barnes-Holmes, 2008). Second, as with other forms of prejudice, implicit attitudes have important behavioural outcomes (Jellison et al., 2004). Finally, empirical evidence supports the theoretical proposition that explicit and implicit anti-gay attitudes related but distinct constructs (Nosek, 2007; Nosek & Smyth, 2007).

3.3 Remaining Challenges for the Field

Research on anti-gay attitudes is built on the twin literatures of explicit and implicit anti-gay attitudes, and for this reason is propelled and constrained by developments in the field of explicit/implicit cognition. For example, some debate still lingers about the psychometric properties (e.g., Tetlock & Mitchell, 2008), the interpretation of reaction time data (e.g., Arkes & Tetlock, 2004), the interpretation of the evidence (Blanton et al., 2009), and even the exact nature of implicit cognitions (e.g., Gawronski, Hofmann, & Wilbur, 2006). However, there is a substantial empirical support the meaningful use of explicit and

¹¹ These authors defined these implicit attitudes as implicit homonegativity; a concept they defined as relatively unconscious attitudes toward homosexuals that are beyond volitional control.

implicit measures of anti-gay attitudes, including several theoretical frameworks (e.g., Fazio, 2007; Gawronski & Bodenhausen, 2006; Wilson et al., 2000), meta-analyses (e.g., Hofmann et al., 2005; Lenton, Bruder, & Sedikides, 2009), data providing evidence of sound psychometric properties (e.g., Cunningham, Preacher, & Banaji, 2001; De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009; Williams & Kaufmann, 2012), and knowledge about the relationship between explicit and implicit measures (e.g., Dovidio, Kawakami, & Beach, 2008; Nosek, 2007; Nosek & Smyth, 2007; Rohner & Björklund, 2006).

To date, research on implicit anti-gay attitudes has not received the same conceptual and empirical attention as other implicit attitudes, for a variety of reasons. First, there are simply fewer researchers undertaking anti-gay attitudes research than other forms of attitude research. Second, there are unique challenges in measuring anti-gay attitudes. Addressing the latter of these is the primary goal of this dissertation and in doing so, I will present an alternative method of representation that other researchers in this domain can consider adopting in situations where they are interested in measuring implicit attitudes toward gay men and lesbians specifically as gay people rather than as members of the amorphous social category of homosexuality.

Chapter 4—Attitudes: Conceptual Understanding and Measurement

The problem is getting at the truth; unlike geologists, attitude researchers cannot whip out a measuring tape and wrap it around a rock.

- Laurie Rudman (2011, p.1)

4.1 Background to Implicit Measures

The effectiveness of self-report measures in sensitive domains such as attitudes toward gay people has been called into question (e.g., Fazio & Olson, 2003). Consequently, researchers of these topics have sought to measure attitudes without interference from conscious control or intentions. One popular approach is to use measures that assess implicit attitudes (for a review, see Fazio & Olson, 2003). Implicit attitudes are argued to be automatic because they are outside of conscious awareness (Bargh, 1989, 1994; Bargh & Chartrand, 1998). They have also been argued to be non-conscious (Blair, 2001; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Quillian, 2008) or involuntary (Banse et al., 2001; Egloff & Schmukle, 2002) although the use of these terms has been contested. The debate around the non-conscious nature of implicit attitudes is ongoing (Fazio & Olson, 2003; Gawronski & LeBel, 2008; Gawronski, LeBel, & Peters, 2007; Rudman, 2011) and while contributing to this discussion is beyond the primary goals of this dissertation, it is worth noting the growing body of literature supporting the psychometric properties of implicit measures (Banse et al., 2001; Cunningham et al., 2001; Nosek, Greenwald, & Banaji, 2005; Williams & Kaufmann, 2012) and their usefulness (particularly pertaining to evidence suggesting that implicit attitudes often predict attitude-related behaviours better than explicit attitudes; Egloff & Schmukle, 2002; Fazio & Olson, 2003; Greenwald, Poehlman, Uhlmann, & Banaji, 2009).

As argued in Chapter 1, the measurement of implicit anti-gay attitudes comes with unique challenges that are not faced when measuring implicit attitudes to categories that are associated with visible physical features (Freeman et al., 2010) or in pronouns or names. Thus, researchers into these issues have needed to generate alternative methods of representation. The major aim of this chapter is to outline an alternative method of representation that is person-based. I will first provide an overview of the apparatus and stimuli typically used in implicit anti-gay attitudes research. I will then outline the limitations of traditional approaches to implicit anti-gay attitude measures (i.e., those that have used typical category-based representations of gay men and lesbians) before outlining the protocol and advantages of the person-based approach, and discussing how this approach addresses the named weaknesses of the traditional account.

4.2 Implicit Measures of Association

Although there are a range of implicit measures, I will limit the discussion to the IAT (Greenwald et al., 1998) and the GNAT (Nosek & Banaji, 2001) as these have been the most commonly used in implicit anti-gay attitude research. Although other tools exist that could be used (e.g., the EAST, De Houwer, 2003; and sequential priming techniques, Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Powell & Fazio, 1984), they are not central to the arguments of this chapter.

4.2.1 The implicit association test

Many implicit measures have been developed in recent years, yet the IAT is the most popular (De Houwer et al., 2009; Fazio & Olson, 2003). The IAT involves the presentation of single stimulus on a computer screen (paper and pencil versions have also

been validated; Lemm, Lane, Sattler, Khan, & Nosek, 2008). Each stimulus belongs to one of the four targets (i.e., two categories and two attributes), which are paired so that one category and one attribute are each assigned to a single key. Each time a stimulus is presented, participants are asked to press the key to which it has been assigned. The essence of this task is that when the categories and attributes assigned to the same key are highly compatible, making the correct response to stimuli representing these is very easy. In contrast, when categories and attributes assigned to the same key are incongruous, this makes the task very difficult. Consequently, the IAT effect is the name given to the finding of significantly faster response times for congruent compared to incongruent pairings. In cases of implicit prejudice, the IAT effect is usually found when minority groups (e.g., race, sexual orientation, weight) are paired with a negative attribute and the majority group is paired with a positive attribute.

The typical homosexuality-IAT (Banse et al., 2001) pairs the categories GAY and STRAIGHT, as represented by symbols or pictures (e.g., same-sex wedding cake toppers or pictures of same-sex couples) with the attributes GOOD and BAD. Each trial presents a positive or negative word, or (for example) a picture of a gay or straight couple on a black background. In the GAY-GOOD blocks, participants press the letter 'E' if either a positive word or a picture of a gay couple is presented. Alternatively, participants press the letter 'I' if a negative word or a picture of a straight couple is presented. In the GAY-BAD block, the attributes are reassigned to the other key following a short practice block where participant learn this new assignment by classifying only valence stimuli. The IAT effect for implicit anti-gay attitudes is the difference in performance (i.e., a latency-based score) for the critical blocks (note: the assigned key is counterbalanced across critical blocks).

There is now a sizable body of literature which provide support for the IAT as a valid and reliable measure of attitudes (Nosek, Greenwald, & Banaji, 2007). For example, previous research has empirically demonstrated that IAT scores are meaningfully related to attitude-relevant behaviours (Greenwald et al., 2009; McConnell & Leibold, 2001; Ziegert & Hanges, 2005; although these findings have been challenged, e.g., Blanton et al., 2009), individual differences and group membership (Greenwald et al., 1998) and, under certain conditions, to the related explicit attitude (Nosek, 2005; for a meta-analysis on explicit-implicit relationship effect sizes, and a discussion of theoretical explanations for the lack of quantifiable relationships, see Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). However, the IAT has several methodological and conceptual limitations (De Houwer, 2002; Fiedler, Messner, & Bluemke, 2006; Greenwald & Nosek, 2001; Williams & Kaufmann, 2012).

Potentially the most concerning limitation of the IAT is that it provides a single index for each *relative* implicit attitude. For example, in the homosexuality-IAT, implicit anti-gay attitudes manifest as a stronger implicit association between STRAIGHT-GOOD and GAY-BAD, compared to STRAIGHT-BAD and GAY-GOOD. As a result, (e.g., Rudman & Heppen, 2003), it is unclear whether respondents were demonstrating implicit negativity towards the category of gay, implicit positivity towards the category of straight, or a combination of both. The IAT has also been criticised based on grounds of construct (Arkes & Tetlock, 2004; Rothermund & Wentura, 2004) and internal validity (McFarland & Crouch, 2002; Ottaway, Hayden, & Oakes, 2001), and evidence has also been presented which suggests that the IAT is more susceptible to deliberate distortion of responses than

originally believed (Fiedler & Bluemke, 2005). These problems have stimulated researchers to look for alternative measures that could be used instead of or in addition to the IAT.

4.2.2 The go/no-go association task (GNAT)

The GNAT (Nosek & Banaji, 2001) is similar to the IAT; participants rapidly classify stimuli presented one at a time that represent concepts or attributes. However, unlike the IAT, each GNAT uses only a single target concept and target attribute to which participants respond with a single key (a “go” response). Any stimulus presented that does not represent the target category or attribute is not responded to (a “no go” response), allowing the trial to elapse. Stimuli are presented in rapid succession, with a response deadline of, typically, 600-800ms. Participants typically receive feedback after each trial.

There are several important differences between the IAT and the GNAT. First, while the IAT asks participants to respond to four presented targets (i.e., two categories and two attributes), the GNAT requires participants to respond to only one target category and attribute, and to ignore other stimuli (i.e., typically a second category and attribute). This is achieved by the use of a response deadline in the GNAT which also means that GNAT responses are less subject to strategy (e.g., intentionally slowing responses) than those of the IAT. Finally, the GNAT is scored using the Signal Detection Theory parameter of d' (e.g., Green & Swets, 1966) based on the number of correct responses to target and distracter stimuli. In this way, scoring of the GNAT relies on response accuracy whereas scoring of the IAT relies on response latency.

Here is a concrete example of this contrast: the homosexuality-IAT would assign GAY and BAD to one key, and STRAIGHT and GOOD to another key in the congruent

block, and GAY and GOOD, and STRAIGHT and BAD in the incongruent block. In contrast, GNAT measured implicit anti-gay attitudes would use GAY and BAD as targets in the congruent block and GAY and GOOD as targets in the incongruent block. Thus, while the interpretations of IAT effects are comparative, the interpretation of the GNAT effect is a simple association between GAY and GOOD compared to GAY and BAD. It is also a methodological strength of the GNAT that the use of a single key response removes issues of handedness and the need to counterbalance blocks to address this issue.

The GNAT was introduced a mere three years after the IAT, yet the sheer popularity of the IAT seems to have eclipsed and restricted the use of this and several subsequent implicit measures. However, the GNAT has gained strong support due to both its methodological advantages as well as its psychometric properties (Bar-Anan & Nosek, 2014; Ingram, 2014; Williams & Kaufmann, 2012). For these reasons, I have chosen to use the GNAT in this dissertation.

4.3 Designing a GNAT

When assessing implicit attitudes to any target, it is typical to use a two-block GNAT to assess the implicit associations between the target and the attributes GOOD and BAD (i.e., one attribute per block). Distracter stimuli are used to ensure that there are equal numbers of target-present and target-absent trials. In addition, distracters include both distracter category stimuli and distracter attribute stimuli to ensure equal numbers of each type (i.e., category – typically nouns or pictures; attribute – typically adjectives) are presented so as to ensure similarity between targets and distracters in comparable blocks. For this reason, consideration of categories and attributes, and the examples of each that will be used as stimuli is given much consideration.

4.3.1 Stimuli selection

A growing body of literature exists that demonstrates the importance of stimuli selection (Anderson & Antalíková, 2014; De Houwer, 2001; Govan & Williams, 2004; Mitchell, Nosek, & Banaji, 2003; Steffens, Kirschbaum, & Glados, 2008; Steffens & Plewe, 2001). Stimuli selection research has shown that poor stimuli choice can allow specific and especially non-typical exemplars to affect findings. For example, Bluemke and Friese (2006), who explored whether individual stimuli that is consistent with its category can influence the magnitude or direction of an IAT effect. For example, a race-IAT effect would usually reveal demonstrations of attitudes that WHITE is usually preferred to BLACK, however not all white stimuli are liked (e.g., Charles Manson [a convicted murderer] is white but disliked). Following this logic, they argued that evaluations of generic categories and evaluations of specific stimuli that represent them are conceptually distinct from each other. For example, an individual might like vegetables (the generic category) but dislike broccoli (a specific exemplar), and also dislike enokitake mushrooms (a non-typical exemplar). Thus, although they may sometimes converge, attitudes towards vegetables should be conceptualised as different from both attitudes toward broccoli and attitudes toward enokitake mushrooms.

Empirical evidence has revealed that typical IAT effects can be reversed as a function of specific stimuli that are incongruent with their category. For example, Govan and Williams (2004) explored the effects of congruent and incongruent stimulus-associations in an IAT. First, they replicated the seminal IAT finding (i.e., pairings of FLOWERS+GOOD and INSECTS+BAD, and the reverse) with typical stimuli. Specifically, in this condition, flowers were represented by words such as ROSE or TULIP,

while insects were represented by words such as WASP or BEE and the expected IAT effect was demonstrated (an implicit preference for flowers relative to insects). In the second condition, they reversed the valence of the specific stimuli used to represent each category. In this condition, flowers were represented by words such as POISON IVY, while insects were represented by words such as BUTTERFLY which led to a reversal in the valence of the IAT effect.

Taken together, these findings provided evidence that stimuli selection for measures of implicit attitudes is important. To date, however, this issue has yet to be fully considered in the specific case of measuring implicit anti-gay attitudes.

4.3.2 Selecting stimuli when measuring implicit anti-gay attitudes

Research on implicit gender and ethnicity attitudes have used picture (faces of male vs. female/black vs. white individuals) or word (male or female names, gendered pronouns, names that stereotypically belong to an ethnic group) stimuli that are representative of the attitude-object's social group. These studies have delivered robust findings (for an ongoing debate on effect sizes, see Greenwald, Banaji, & Nosek, 2014; Greenwald et al., 2009; Oswald, Mitchell, Blanton, Jaccard, & Tetlock, 2013, 2015). The social category of gay, unlike racial, gender, age, and weight social categories, is not easily or reliably detectable from the physical features of group members (e.g., a picture of a non-familiar individual belonging to each of these social categories could be correctly identified; Bargh, 1988; McArthur & Baron, 1983). As a result, stimuli selection for use in a GNAT assessing implicit anti-gay attitudes is difficult. Although deliberate identification of sexual orientation has been found to occur with an accuracy level slightly above chance (e.g.,

Freeman et al., 2010), this would not be sufficient to allow the use a pictures of unfamiliar gay individuals as stimuli in an implicit measure of anti-gay attitudes.

Researchers of implicit anti-gay attitudes have attempted to overcome these issues by using a variety of stimuli representing the category, including pictures of same-sex couples in neutral or non-romantic (e.g., Cochran, Peavy, & Cauce, 2007; Lemm, 2006; e.g., Nosek et al., 2005; Rowatt et al., 2006; Tsang & Rowatt, 2007) or romantic poses (e.g., Dasgupta & Rivera, 2006; Dasgupta & Rivera, 2008; Gabriel et al., 2007; Jellison et al., 2004), names of hypothetical same-sex couples (e.g., PETER + JACK; Steffens & Buchner, 2003, Experiment 1), words stereotypically associated with the category (Steffens & Buchner, 2003, Experiment 2) , and category nouns (e.g., HOMOSEXUAL; Cárdenas & Barrientos, 2008; Lemm, 2006, Experiment 1). I argue that these stimuli represent a range of related issues from the broad category of gay (e.g., inclusive of political and social issues, HIV stigma, etc.) to the rather specific issue of gay relationships, but they are unlikely to measure attitudes to gay people. For example, in the case that pictures of same-sex wedding cake decorations are used as stimuli to represent gay people, two primary issues can be identified – first, the stimuli are not of gay people (but of caketoppers), and second that although these pictures might represent GAY in the broader sense they more specifically represent gay marriage.¹² Attitudes towards gay marriage tend to be driven (for example) by political allegiance and specific notions religious fundamentalism, whereas attitudes towards gay people tend to be driven (for example) by political orientation and

¹² Although speculative, it could be argued that when same-sex wedding cake decorations are used as stimuli, they most likely evoke attitudes towards same-sex marriage. At a secondary level, these stimuli might evoke attitudes towards gay people – however, they equally might facilitate the measurement of attitudes towards cake toppers/decorations. This example demonstrates the need for precise and meaningful selection of stimuli in implicit measures.

notions of moral and religious violations (e.g., Baunach, 2011). While the findings from research using these stimuli sets have contributed to the literature on anti-gay attitudes, a new approach seems warranted to allow anti-gay attitude research to be integrated with implicit gender and implicit ethnicity research.

4.3.2 Implicit contextual variation

Implicit contextual variation (Mitchell et al., 2003) is a technique that allows a social category to be made salient through the use of distracters. For example, individuals belongs to several social categories (e.g., age and race and gender etc.; Crisp & Hewstone, 2000a, 2000b, 2007), and while these differ in chronic salience (Bargh, 1994; Brewer, 1988; Fiske & Neuberg, 1990; Hamilton & Sherman, 1996; Nelson, 2005), it is possible to increase the salience of a particular social category by introducing a contrast (e.g., for a single target, gender can be made salient by the presentation of opposite gender distracters, whereas race can be made salient by the presentation of distracters from a different racial group; Mitchell et al., 2003).

Mitchell and colleagues (2003) proposed contextual variations as a method for assessing implicit attitudes to a single set of people on the basis of their various social category memberships. It is, however, worth noting that the effects of context on explicit attitudes had been widely reported previously (e.g., Sherman, Rose, Koch, Presson, & Chassin, 2003), although implicit attitudes were widely considered to be inflexible (DeCoster, Banner, Smith, & Semin, 2006). Mitchell and colleagues were specifically interested the differential effect of different social categories¹³ on implicit attitudes which

¹³ Mitchell and colleagues (2003) referred to this as *category distinctiveness*; In this dissertation, I refer to this as social category salience.

was achieved by either manipulating the category labels used (between experimental blocks) in the instructions of the GNAT¹⁴ or by manipulating the distracter stimuli (but holding the target constant) between different experimental blocks. They were interested in the category salience of ethnicity (BLACK vs WHITE) and its intersection with occupation (ATHLETE vs POLITICIAN) and with gender (FEMALE vs MALE; see table 1 for a synopsis of this series of experiments).

Across five experiments, they observed that implicit attitudes changed as a function of the salient social category elicited by contextual variation. For example, they found that evaluations of the same individuals on the basis of their gender could be completely reversed when the evaluation reflected ethnicity (see Table 1). In combination, this series of studies both (a) demonstrated evidence for implicit contextual variation and (b) demonstrated the importance of stimuli selection, particularly for distracter stimuli (when in practice are supposedly ignored by the participant). The work of Mitchell and colleagues (2003) has laid the framework for the person-based approach to the implicit representation when measuring implicit anti-gay attitudes, which will now be outlined.

¹⁴ These category labels are also present during practice and experimental trials; I have also used this technique to successfully demonstrate implicit contextual variation to the extent that the same stimuli elicit substantially different results when labelled as MUSLIM compared to when they are labelled as IMMIGRANT (Anderson & Antalíková, 2014).

Table 1

Summary of Studies by Mitchell et al., (2003)

	Apparatus	Target Stimuli	Target attributes	Major findings
Study 1	Occupation-IAT and race-IAT	Names of liked Black athletes and disliked White politicians	Positive and negative evaluative words	Implicit attitudes were positive toward liked Black athletes and negative towards disliked White politicians when occupation was salient, but were reversed when ethnicity was salient.
Study 2	Race-IATs	Names of liked Black and disliked White targets (race-IAT 1) and disliked Black and liked White targets (race-IAT 2).	Positive and negative evaluative words	Implicit attitudes were more negative toward black than white targets; however, the effect was demonstrably more negative towards disliked black targets than black liked targets. This suggests that implicit attitudes are sensitive to specific representative exemplars.
Study 3	Occupation-IAT and race-IAT	Names of liked Black athletes and disliked White politicians	Positive and negative evaluative words	Implicit attitudes were positive toward liked Black athletes and negative towards disliked White politicians when occupation was salient, but were reversed when ethnicity was salient.
Study 4	Gender-GNAT and race-GNAT	Black female and White male names	Positive and negative evaluative words	Expected main effects of race and ethnicity. However, Implicit attitudes were negative toward (black) females when race was salient, but were positive when gender was salient. Conversely, implicit attitudes were positive toward (white) males when race was salient, but were negative when gender was salient.

Study 5	Gender-GNAT and race- GNAT	Black female and White male faces	Positive and negative images	The major findings of Study 4 were replicated, although with slightly smaller effect sizes (as expected, Nosek, Banaji, & Greenwald, 2002).
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Notes: Study 3 also contained a cola IAT, but as this was not relevant to implicit contextual variations, it has been excluded from this table; Studies 1-3 elicited implicit contextual variations by manipulating the target labels. Studies 4-5 elicited implicit contextual variations by manipulating the distracter stimuli.

4.4 The Person-Based Approach to Implicit Anti-Gay Attitudes

The person-based approach to implicit anti-gay attitudes builds on the work of Mitchell et al. (2003) implicit contextual variation. Consistent with implicit race, gender, and age attitudes, the person-based approach to implicit anti-gay attitudes uses pictures of faces as targets and distracters, however, sexual orientation is made salient by manipulating the distracter stimuli (i.e., the stimuli that the participant does not responding to). For example, a typical gender attitudes GNAT might use a picture of Sean Hayes¹⁵, a well-known gay man, as a target stimuli with pictures of famous females as distracter stimuli (see figure 1a). In this case, the salient social comparison between the target and distracter stimuli is gender. However, if the same picture of Sean Hayes is used as a target, but distracter stimuli are famous straight males (see figure 1b), the gender comparison is no longer available, and thus sexual orientation is the salient social category.



Figure 1. An example of stimuli used in the person-based approach: Sean Hayes presented as a target in a gender salient block with female distracter (1a) and as a target in the sexual orientation salient block with a straight male distracter (1b).

¹⁵ In any experimental block, a minimum of 6 stimuli should be used (Nosek & Banaji, 2001); in this example the reference is to the face of Sean Hayes as a single stimulus, but it should be noted that this stimulus is one in a set of 6 stimuli all belonging to the same gender and sexual orientation categories.

Thus, the person-based approach allows targets that are known for their sexual orientation to be evaluated distinctly on the basis of either their sexual orientation or gender. Thus, theoretically the attitudes towards the same targets may be qualitatively different (Kite & Deaux, 1987; Mitchell et al., 2003).

There are several conceptual advantages of the person-based approach to implicit anti-gay attitudes. First, this approach permits demonstration of the distinct gender-based and sexual orientation-based attitudes for the same target (see Chapter 5). In addition, this approach ensures that the attitudes measured relate directly to gay people, albeit famous gay people, rather than just to the broader concept gay or associated social issues (e.g., gay rights, gay marriage; see Chapter 6). A further advantage is that the use of face stimuli increases the comparability of the findings of implicit anti-gay research and other implicit prejudice findings. Finally, researchers interested in the measurement and applications of anti-gay attitudes have an alternative to the previous category-based methods of representation.

In addition to conceptual advantages, there are procedural advantages to the person-based approach. As this technique uses the GNAT, issues of handedness, counterbalancing, and the relative (vs. individual) attitude index are addressed. In addition, the use of faces of famous gay people as stimuli in this method of representation is efficient, eliminating the need for a learning phase. This is achieved by selecting stimuli that are either piloted (e.g., recognised as famous and gay; as per this dissertation) or personalised (so that each participant ranks a list of well-known people and then stimuli ranked highest by that participant are used in experimental blocks, as per Mitchell et al., 2003). However, this

does mean that all attitudes measured are to famous or known gay people, and these attitudes may be more favourable than attitudes to unknown or unfamiliar gay people as is the case more generally with famous compared to non-famous people (e.g., Dasgupta & Rivera, 2008).

Of course, the option of introducing participants to novel non-familiar targets during a learning phase would eliminate any fame effects (which are discussed at length in Chapter 7). The names or the faces of these novel stimuli could then be used, and such approaches have successfully in previous research (Mitchell et al., 2003; Phelan & Rudman, 2011; Rudman, McLean, & Bunzl, 2013; Rudman, Moss-Racusin, Phelan, & Nauts, 2012)¹⁶. This would improve the internal validity of the findings, or at least refine any interpretation confounds that may result from the interaction of the targets' sexual orientation and fame, but at the cost of the participants' cognitive resources and time. In addition, it is questionable that learning stimuli representing gay and straight begin as equivalent (Lick & Johnson, 2013). As a result, attitudes toward these categories affect learning and then also the measurement of these attitudes raising other confounds. These issues are discussed in Chapter 7.

In summary, by using faces of well-known male and female individuals who are straight or gay, the current study can expand the previous work of Mitchell and colleagues (2003) and explore implicit attitudes towards male and female targets as a function of their gender and sexual orientation by making these group memberships salient through the context provided by the distracter stimuli. The upcoming empirical studies hypothesise that

¹⁶ I am currently collaborating on empirical research to explore for differences between person-based implicit attitudes elicited from well-known target stimuli compared to novel stimuli (i.e., after a learning phase) which will allow a discussion on halo effects (Anderson, Antalíková, et al., 2015) .

gender based attitudes should be the same toward gay and straight targets (of the same gender) when gender is the salient social category, but that when the attitudes are based on sexual orientation, the attitudes will be qualitatively different (see Figure 2 for a visual representation).

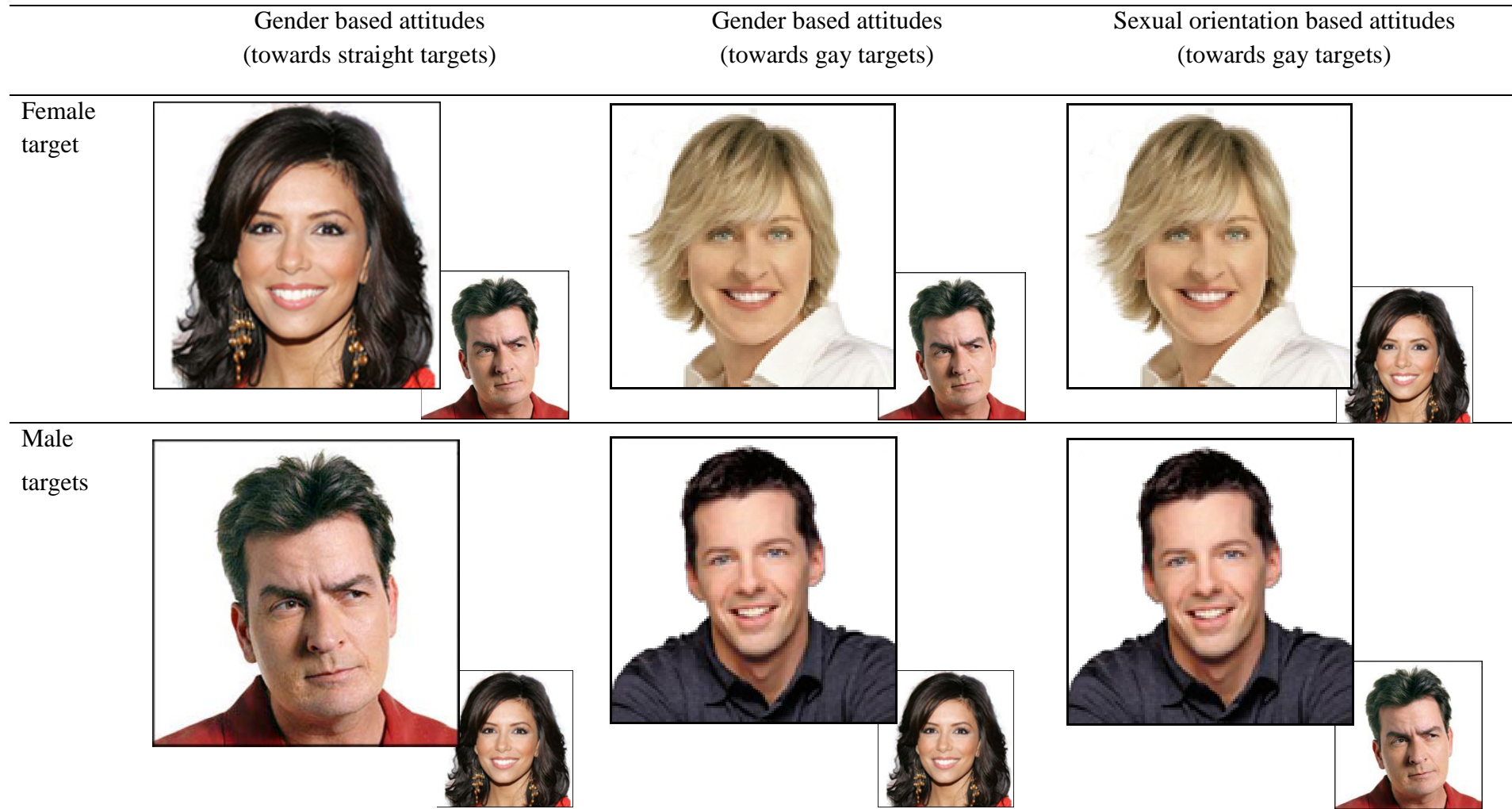


Figure 2. Visual representations of implicit contextual variation techniques as used in the person-based approach to measurement
 (Note: larger images represent target stimuli, smaller images represent distracter stimuli).

Chapter 5 – Studies 1 and 2: Initial Evidence for the Person-Based Approach

Why do our labels for social categories possess such extraordinary power?
- Rothbart and Taylor (1992, p.11)

Title

A Person-Based Approach: Gender vs. Sexual Orientation-Based Implicit Attitudes

Abstract

The current study presents the person-based approach to measuring implicit anti-gay attitudes. I propose that by varying distracter stimuli, contextual variation (Mitchell et al., 2003) can be used to assess implicit attitudes toward the gender *or* the sexual orientation of the same target. In Study 1, 51 straight women demonstrated the effectiveness of the person-based approach for assessing implicit gender and sexual orientation based attitudes using the Go/No Go Association Task (GNAT: Nosek & Banaji, 2001). Consistent with previous findings, implicit gender attitudes were more positive toward female than male targets, however, this finding was reversed when sexual orientation-based attitudes were assessed. Study 2 explored effects of group membership (i.e., gender and sexual orientation) for a sample of straight men, lesbians, and straight women ($n = 24$ per group), who completed person-based gender and sexual orientation GNATs. Implicit attitudes were found to vary as a function of participants' sexual orientation and gender, demonstrating evidence for in-group biases among women, and out-group sexual orientation based prejudice. Taken together, these results provide evidence for the validity and meaningful use of the person-based approach to measuring implicit anti-gay bias.

5.1.1 Introduction

Implicit anti-gay attitudes research has found that, much like explicit anti-gay bias research, straight men have more negative implicit attitudes than straight women (Cullen & Barnes-Holmes, 2008). Moreover, when gay person's gender is also considered, men tend to be even more negative toward gay male targets than lesbian targets (Dasgupta & Rivera, 2008; Nosek et al., 2005; Steffens, 2005). However, evidence for gender-specific implicit anti-gay attitudes is less well established as implicit anti-gay attitudes are often assessed as "gay" attitudes (i.e., toward the category of gay, rather than toward gay men or lesbians; (i.e., toward the category of gay, rather than toward gay men or lesbians; Banse et al., 2001; Boysen & Vogel, 2008; Boysen et al., 2006; Gabriel et al., 2007; Inbar, Pizarro, Knobe, & Bloom, 2009) rather than as separate implicit attitudes. This is likely because of the difficulty in finding stimuli to represent gay men or lesbians as highlighted in Chapters 3 and 4.

To briefly restate, one of the main challenges facing implicit anti-gay attitudes researchers: how can we select stimuli that visually represent GAY in order to be able to validly measure implicit anti-gay attitudes? This issue includes whether or not measurement should be measured toward both gay men and lesbians as a single anti-gay attitude, as well as more generally definitional concerns (e.g., what, if any, is the role of gay rights activism in implicit anti-gay attitudes)¹⁷.

As previously discussed, implicit measures of race-, gender-, and age-based prejudice, can use words or physical features uniquely associated with target groups. In

¹⁷Generally, more recent research treats implicit attitudes toward gay men as a separate construct from implicit attitudes toward lesbians. For a review see Chapter 3 of this dissertation, or a review by Cullen and Barnes-Holmes (2008).

contrast, implicit anti-gay bias is more difficult and, for this reason, researchers have used symbols and pictures that represent the category (e.g., Breen & Karpinski, 2013; Tsang & Rowatt, 2007) or pictures of same-sex individuals displaying affection toward each other (e.g., Banse et al., 2001; Dasgupta & Rivera, 2006, 2008; Gabriel et al., 2007). However, as demonstrated by these examples it is possible that while symbol and picture stimuli evoke the construct of gay, they also reflect other concepts. For example, the rainbow flag is associated not only with homosexuality but also with gay pride for those who understand its meaning. In contrast, same-sex cake toppers require no interpretation, but are likely to connote gay marriage rather than just homosexuality. Finally, a photograph of two men or women embracing or kissing requires a degree of the sexual explicitness to be distinguished from friendship, and may be inherently confronting because of its intimate, rather than homosexual nature. For this reason the choice of stimuli representing the gay category is critical to this research and failure to consider this issue may be a source of inconsistent findings.

One solution to the problem of symbol and image stimuli used in previous implicit anti-gay research is a person-based approach based on Mitchell and colleagues (2003) contextual variation (see Chapter 4 for discussion) This approach circumvents several major weaknesses of previous approaches including stimulus familiarity (e.g., participants needn't be familiar with symbols such as ♀♂) and confounding factors (e.g., gay pride, gay marriage), and has the benefit of assessing implicit anti-gay bias as the response to people rather than an abstract category.

5.1.2 The current research

Adapting the contextual variation approach (Mitchell et al., 2003), I explored the implicit evaluations of men and women as a function of their gender (i.e., implicit gender-based attitudes) and their sexual orientation (i.e., implicit sexual orientation-based attitudes). This was achieved by using distracter stimuli that differed from the target stimuli either in terms of gender (creating gender-salience), or in terms of sexual orientation (but not gender, thus creating sexual orientation-salience). In doing so, implicit person-based anti-gay attitudes were assessed.

5.2 Study 1

5.2.1 Rationale and hypotheses

To explore the use of the contextual variation GNAT as a person-based measure of implicit anti-gay attitudes, a sample of straight women were recruited. This approach was taken to limit the effects of extraneous factors (i.e., the homogeneity of the sample eliminated potential inter-group confounds) as this initial study was principally concerned with demonstrating the usefulness of this approach.

Assessment of implicit gender attitudes toward famous straight men and women, and famous gay men and lesbians was undertaken by using targets of one gender and distracters of the opposite gender. Implicit anti-gay attitudes toward famous gay men and lesbians were assessed by using targets and distracters of the same gender who were well known as being either gay or straight. In addition, participants' explicit anti-gay attitudes were assessed by having participants complete the Attitudes Toward Lesbians and Gay men scale (ATLG; Herek, 1984a).

I hypothesized that there would be low levels of explicit anti-gay attitudes toward both gay men and lesbians consistent with previous research which has found that women tend to report relatively positive attitudes (Breen & Karpinski, 2013; Dasgupta & Rivera, 2006, 2008; Gabriel et al., 2007; Herek, 2009a; Morrison & Morrison, 2003; Morrison, Morrison, & Franklin, 2009; Whitley, 2009). In addition, and consistent with previous findings (e.g., Richeson & Ambady, 2001; Rudman & Goodwin, 2004), I predicted that when measuring implicit gender-based attitudes, female targets would be evaluated as more implicitly positive than male targets, regardless of their sexual orientation (i.e., WOMEN-GOOD > WOMEN-BAD, demonstrated by a positive d' difference score), whereas male targets would be evaluated as more implicitly negative than female targets (i.e., MEN-GOOD < MEN-BAD, demonstrated by a negative d' difference score). In contrast, when measuring implicit sexual orientation-based attitudes, I predicted that lesbian and gay male targets would be evaluated as more implicitly negative than straight targets, consistent with general findings of the implicit anti-gay attitudes literature (Banse et al., 2001; Dasgupta & Rivera, 2006, 2008; Gabriel et al., 2007). Finally, I predicted that there would be a modest relationship between measures of implicit and explicit anti-gay attitudes (e.g., Gawronski & Bodenhausen, 2006; Nosek, 2007; Nosek & Smyth, 2007). Together, these findings will provide evidence that contextual variation by same- or opposite-sex distracters allows the assessment of person-based attitudes that are either gender-based or sexual orientation-based.

5.2.2 Method

5.2.2.1 Participants.

Participants were 51 straight women ($M_{\text{age}} = 22.50$ years, $SD_{\text{age}} = 3.02$ years) from an online sample of convenience, recruited via social networking sites. Seven participants did not disclose their age. Participants whose performance on the implicit measure was equal to or less than chance ($d' \leq 0$) were excluded from analyses ($n = 2$). The sample size exceeds that used in previous research to validate original homosexuality-IAT (e.g., Banse et al., 2001).

5.2.2.2 Measures.

5.2.2.2.1 Explicit measure. The Attitudes Toward Lesbians and Gay Men Scale (ATLG; Herek, 1984a) comprises 10 items, each measuring explicit attitudes toward lesbians (ATL; e.g., “Lesbians just can’t fit into our society”) and gay men (ATG; e.g., “Male homosexuals should *not* be allowed to teach school”). Participants responded to items on a scale from 1 (*strongly disagree*) to 9 (*strongly agree*). The scales demonstrated high levels of reliability in the current sample (ATL $\alpha = .91$; ATG $\alpha = .89$; ATLG $\alpha = .93$).

5.2.2.2.2 Implicit measure. A 12-block GNAT (Nosek & Banaji, 2001) assessed implicit associations between male and female targets, and positive and negative attributes. Four blocks assessed implicit gender-based attitudes toward straight women and men, four blocks assessed implicit gender-based attitudes toward lesbians and gay men, and four blocks measured implicit sexual orientation-based attitudes toward lesbians and gay men (See Table 2).

Stimuli representing the categories male and female and the attributes positive and negative were used as both targets and distracters. Eight photographs of faces of famous gay males (e.g., Carson Kressley), lesbians (e.g., Ellen DeGeneres), straight males (e.g., Matt Damon), and straight females (e.g., Sarah Jessica Parker) represented the categories. Using celebrities who are easily recognized for both their gender and their sexual orientation permitted manipulation of the target factor (i.e., gender *or* sexual orientation) using contextual variation. For this reason, photograph stimuli were selected on the basis of being correctly identified by 90% of a pilot sample as being a celebrity and either straight or gay. Eight positive-meaning words (e.g., HAPPY) and eight negative-meaning words (e.g., AWFUL) were selected from a list of valence terms on the basis of similar word length and frequency (i.e., positive terms: average length = 5.0, average frequency = 76.0; negative terms: average length = 4.7; average frequency = 93.2; Francis & Kucera, 1982). All stimuli are presented in Appendix A.

Implicit associations are calculated using the procedure recommended by Nosek and Banaji (2001). Specifically, scores for each block are calculated using the signal detection theory index of d' (e.g., Green & Swets, 1966) based on the ratio of correctly identified targets (i.e., participants pressed the spacebar key when a target photograph or word was presented) and incorrectly identified distracters (i.e., participants pressed the spacebar key when a distracter photograph or word was presented). The estimated reliability for blocks was good ($M_{\text{RaSSH}} = .72$, $SD_{\text{RaSSH}} = .04$) ranging from $\text{RaSSH} = .62$ to $\text{RaSSH} = .76$ using the method described by Williams and Kaufmann (2012). For ease of interpretation, a single implicit attitude index was calculated for each target (e.g., GAY MEN) by subtracting the d' for negative blocks (e.g., GAY MEN-BAD) from positive blocks (e.g.,

GAY MEN-GOOD) so that positive scores indicate positive implicit attitudes and negative scores indicate negative implicit attitudes.

5.2.2.3 Procedure.

A link to the online study was posted on Facebook. Participants followed the link to the studies website where they could read an information letter about the purpose and methods of the study. If they chose to participate, participants indicated their informed consent before providing demographic information (i.e., age, gender, and sexual orientation) and completing the explicit anti-gay bias measure. Finally, participants then completed the 12-block GNAT.

For each block, participants were instructed that they would see a picture or word presented briefly in the centre of the computer screen to which they should respond by pressing the spacebar key (i.e., a “go” response) if the word or picture represented either target (i.e., category or attribute) named in the top left and right corners of the screen. Alternatively, participants were asked to make no response (i.e., a “no-go” response) if the word or picture did not belong to either of the named targets. Prior to each block, participants were presented with a complete set of target category stimuli (i.e., photographs) and were told that target label (e.g., “MEN” and “GOOD”) for that block would be present throughout the block of trials.

Table 2

GNAT blocks as a Function of Target and Distracter Categories (Studies 1 and 2)

Factor measured	Sexual orientation	Target category	Distracter	Target valence
Gender-based attitudes (towards straight targets)	Straight	Straight male	Straight female	Positive
		Straight male	Straight female	Negative
	Straight	Straight female	Straight male	Positive
		Straight female	Straight male	Negative
Gender-based attitudes (towards gay targets)	Straight	Gay male	Straight female	Positive
		Gay male	Straight female	Negative
	Straight	Gay female	Straight male	Positive
		Gay female	Straight male	Negative
Sexual orientation-based attitudes	Gay	Gay male	Straight male	Positive
		Gay male	Straight male	Negative
	Gay	Gay female	Straight female	Positive
		Gay female	Straight female	Negative

Each block comprised 20 practice trials and 80 experimental trials including equal numbers of “go” trials (i.e., target) and “no-go” trials (i.e., distracter). Each trial had a response deadline of 600ms, separated by an inter-stimulus interval (ISI) of 200ms. Word stimuli were presented in white 24-point uppercase Arial font. Image stimuli were presented in a white 10cm x 10cm frame. All stimuli were presented against a black background screen. Feedback followed every trial with a green “O” following correct responses, and a red “X” following incorrect responses. The order of GNAT blocks was randomized to limit order effects across the sample.

5.2.3 Results

5.2.3.1 Explicit Attitudes.

Distributions for ATL and ATG scales were positively skewed, so Natural Log transformations were applied. Raw scores are reported for ease of interpretation, but statistical analyses were performed on transformed data. Explicit attitudes toward both gay men ($M = 2.46$, $SD = 0.27$) and lesbians ($M = 2.60$, $SD = 0.24$) were relatively low, and did not differ significantly ($p = .22$). Negative explicit attitudes towards gay men and lesbians were to be highly and positively correlated ($r = .92$, $p < .001$).

5.2.3.2 Implicit Attitudes.

Implicit gender attitudes revealed the predicted implicit associations between women and positive, and men and negative. This pattern of results was repeated for gay men and lesbians, but only when gender was salient. Interestingly, the pattern was both strongly attenuated and reversed when gay men and lesbians were evaluated on the basis of their sexual orientation (see Figure 3).

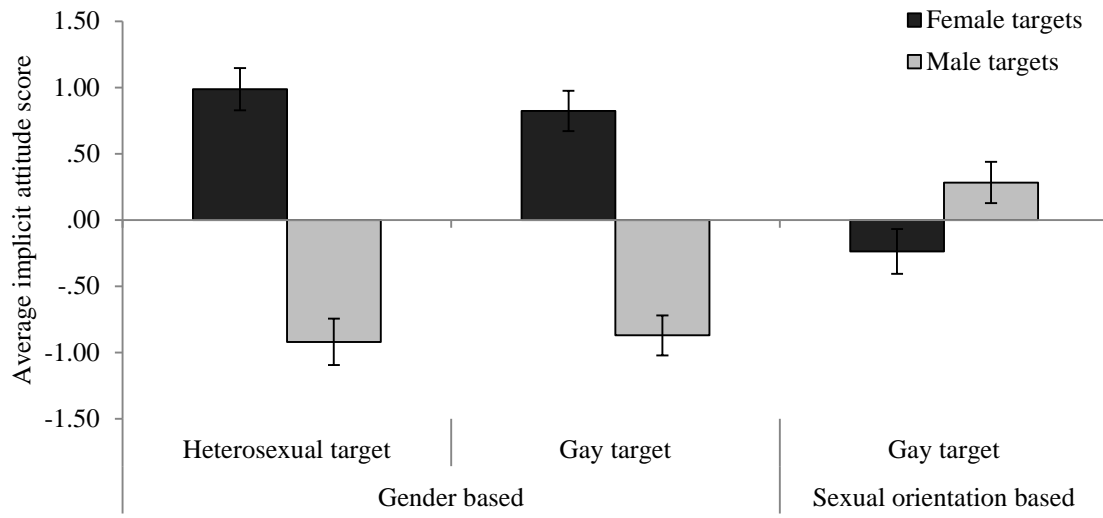


Figure 3. Mean (and standard error) d' difference scores for female and male targets (Study 1)

A repeated-measures factorial ANOVA was used to explore implicit attitudes toward female and male targets using within-subject factors of *target gender* (2: female targets, male targets) and *GNAT variation* (3: gender-salient straight targets, gender-salient gay targets, sexual orientation-salient gay targets). Analysis revealed a significant interaction between *target gender* and the *GNAT variation* $F(2, 86)=23.27, p < .001, \eta_p^2 = .35$.

Post-hoc tests revealed that female targets were significantly more implicitly associated with positive than male targets when gender was salient, regardless of the sexual orientation of the target, i.e., straight targets $t(54) = 5.12, p < .001$, gay targets $t(45) = 5.31, p < .001$. This pattern was found to be reversed for sexual orientation-salient blocks with gay males being significantly more implicitly associated with positive than lesbians, $t(47) = -2.30, p = .03$.

5.2.2.3 Explicit-implicit correlations. There were few correlations between explicit and implicit measures; explicit measures were only related to gender-based implicit attitudes towards gay targets. No other correlations reached significance ($ps > .10$)

Correlation coefficients are presented in Table 3.

5.2.4 Discussion

Consistent with predictions, implicit gender attitudes toward women were positive and implicit gender attitudes toward men were negative (i.e., toward straight targets and gay targets when their gender was salient). Interestingly, this difference was attenuated and the pattern reversed for lesbian and gay male targets when sexual orientation was salient. This was partially inconsistent with the predictions. Specifically, gay male targets were slightly implicitly associated with positive which is inconsistent with previous research (Banse et al., 2001; Dasgupta & Rivera, 2006, 2008; Gabriel et al., 2007). However, the finding that lesbians were slightly implicitly associated with negative was consistent with predictions. The lack of significant relationship between implicit and explicit results was inconsistent with previous results (e.g., Nosek, 2007), though not inconsistent with the wider literature which has demonstrated that implicit-explicit relationships are frequently limited by factors ranging from conceptual distinctness to method variance (e.g., Nosek & Smyth, 2007, see also Chapter 3). In the current study, it seems likely that the lack of significant correlation may be driven by low levels of explicit general (i.e., group-related) anti-gay bias.

Table 3

Correlation coefficients for the relationship between explicit and implicit attitudes scores (N = 51).

	1.	2.	3.	4.	5.	6.	7.
<i>Explicit attitudes</i>							
1. ATL	-						
2. ATG	.92**	-					
<i>Implicit attitudes - straight targets</i>							
3. Straight women	-.11	-.14	-				
4. Straight men	.03	.02	-.04	-			
<i>Implicit attitudes - gender salient gay targets</i>							
5. Lesbian women	-.22*	-.20*	.12	-.13	-		
6. Gay men	.23*	.20*	-.10	.17*	-.27*	-	
<i>Implicit attitudes – sexuality salient gay targets</i>							
7. Lesbian women	-.01	-.06	.02	-.03	.17	.01	-
8. Gay men	-.08	-.08	.11	-.13	-.07	.01	.03

Note: * $p < .05$; ** $p < .001$. Significant correlations are presented in boldface. ATL = attitudes towards lesbians; ATG = attitudes towards gay men.

Given the homogenous straight female sample, it is possible to conclude that the results of Study 1 demonstrate a simple in-group bias effect (i.e., in-group is significantly more implicitly positive than all out-groups). However, this explanation does not easily account for the finding that women's implicit negativity toward men (i.e., when gender was

salient) was significantly reduced toward gay men (i.e., when sexual orientation was salient). This finding is particularly striking when considering that this finding is reflecting a change of attitudes being measured toward the same set of targets. One possible account of this finding is offered by implicit inversion theory (Kite & Deaux, 1987) which is derived from classic theories of sexuality (e.g., Ellis, 1915; Freud, 1953), and posits that gay people are more similar to straight opposite-gender people than straight own-gender people. Consequently, the implicit positivity toward gay men, and the negativity toward straight men and lesbians observed in the data of an all straight female sample may have resulted from this perceived similarity (i.e., sexual orientation-based in-group; straight women perceived themselves as more similar to gay men than straight men and lesbians). Interestingly, this interpretation accounts for the current findings quite neatly, but seems unlikely to hold for any other group. For example, previous implicit gender attitudes research has found that straight men are also implicitly more positive to women than men (e.g., Rudman & Goodwin, 2004). Similarly, it seems naïve to expect that lesbians would be implicitly positive toward straight men when there is little evidence from previous literature that even straight men show this in-group bias (e.g., Eagly, Mladinic, & Otto, 1991). Thus, a more cautious and less theory-laden interpretation is preferred at this stage. Specifically, at this point, I observe that straight women are simply more implicitly positive toward women than men (both straight and gay [when their gender is salient]), and less implicitly anti-gay toward gay men than lesbians (when their sexual orientation is salient).

The value of the person-based approach to implicit gender- and sexual orientation-based attitudes is apparent when considering the current findings in the context of previous research. For example, the current finding reveals it is important to evaluate attitudes

toward gay men and lesbians separately, which is only possible with certain stimuli (e.g., cake toppers, gender symbols). Consequently, the person-based approach is well-suited to this task, as it is able to assess both implicit sexual orientation- and gender-attitudes toward either gay men or lesbians. It even can even differentiate the gender-based attitudes from the sexual orientation-based attitudes of the same target (e.g., Ellen DeGeneres compared to John Travolta vs. Ellen DeGeneres compared to Sarah Jessica Parker). Secondly, these findings demonstrate that it is possible to implicitly evaluate gay men and lesbians as people, rather than just the abstract categories of gender and anti-gay bias¹⁸. This results in a unique pattern of implicit associations which reveal that men may face more implicit negativity than gay people, at least from straight women. Finally, a person-based measure of implicit anti-gay bias has the potential to address inconsistent findings from various approaches and stimuli by eliminating confounding influences (e.g., attitudes to gay marriage, gay pride, and public displays of affection).

5.3 Study 2

5.3.1 Rationale and hypotheses

The first study provided evidence for the usefulness of the contextual variation approach to measuring implicit person-based anti-gay bias, and demonstrated the variability of implicit gender- and sexual orientation-based attitudes as a function of (distracter-based) context. The next step was to fully explore the role of in-group bias in these implicit evaluations. For example, would any group other than straight women (i.e., lesbian, straight men, or gay men) demonstrate an implicit gender or sexual orientation-based in-

¹⁸ This finding also extends to evaluations of straight men and women, however, the use of faces to measure gender attitudes is standard in the literature. Conversely, these findings presented here pertaining to gay men and lesbians are a novel addition to the literature.

group bias, and do results provide any further evidence for implicit inversion theory? To address this question, Study 2 replicated the method used in Study 1, using gay men, lesbians, and straight men and women samples (i.e., gender by sexual design).

Consistent with previous research (e.g., Rudman & Goodwin, 2004) and the findings of Study 1, I predicted all participants would demonstrate more implicit positivity toward females than toward males and more implicit negativity toward gay men when gender is salient than lesbians when gender is salient. In addition, I tentatively predicted implicit attitudes toward gay male and lesbian targets when sexual orientation is salient would be generally consistent with implicit anti-gay bias, such that neither target will be strongly implicitly positive even for gay male and lesbian participants (e.g., Banse et al., 2001; Breen & Karpinski, 2013; Dasgupta & Rivera, 2006, 2008; Jonathan, 2008; Lemm, 2006; Steffens, 2005). However, based on the findings of Study 1, I predicted straight female and gay male participants would demonstrate more implicitly positive attitudes toward gay male targets when their sexual orientation is salient than toward lesbian targets when their sexual orientation is salient. Similarly, I tentatively predicted that lesbian participants will demonstrate an in-group effect resulting in more implicit positivity toward lesbian targets when sexual orientation is salient from this group than from other participant groups, consistent with previous research (e.g., Banse et al., 2001).

5.3.2 Method

5.3.2.1 Participants.

Participants were 24 straight women ($M_{\text{age}} = 24.08$ years, $SD_{\text{age}} = 4.68$ years), 24 lesbians ($M_{\text{age}} = 25.27$ years, $SD_{\text{age}} = 6.70$ years), 24 straight men ($M_{\text{age}} = 24.67$ years, $SD_{\text{age}} = 5.85$ years), and 24 gay men ($M_{\text{age}} = 24.78$ years, $SD_{\text{age}} = 4.44$ years). Participants were

recruited from social networking sites to participate in this online, anonymous research. Thirty-two of these participants did not disclose their age. No participants were excluded for poor (i.e., at or below chance) performance on the GNAT. The sample size was based on previous research matching the sample size used to validate original homosexuality-IAT (Banse et al., 2001).

5.3.2.2 Measures and Procedure.

Using the same procedure as Study 1, participants read an information letter and provided informed consent before completing measures.

5.3.3 Results

5.3.3.1 Explicit Attitudes.

Distributions for ATL and ATG scores were positively skewed so Natural Log transformations were applied. The sample reported relatively positive explicit attitudes toward both gay men and lesbians. For ease of interpretation, untransformed means and standard deviations are reported in Table 4.

A mixed-design factorial ANOVA was used to explore explicit attitudes toward gay male and lesbian targets using the within-subjects factor *target* (2: lesbian, gay male) and the between-subjects factors of *participant gender* (2: female, male) and *participant sexual orientation* (2: straight, gay). The expected main effects were found for *participant gender* $F(1, 92) = 13.80, p < .001, \eta_p^2 = .13$, and *sexual orientation* $F(1, 92) = 19.70, p < .001, \eta_p^2 = .18$. Specifically, males reported more anti-gay attitudes than females, and straight participants reported more anti-gay attitudes than gay participants (p 's $< .001$). No significant interaction was found between *participant gender* and *participant sexual*

Table 4

Descriptive Statistics for Explicit Attitudes towards Gay Men and Lesbians as a Function of Participant's Gender and Sexual Orientation (Study 2)

	ATL ($\alpha = .93$)		ATG ($\alpha = .90$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Female participants				
Straight	2.94	0.50	2.79	0.57
Gay	2.57	0.27	2.48	0.20
Male participants				
Straight	3.31	0.67	3.41	0.70
Gay	2.70	0.39	2.71	0.42

Note: (ATLG $\alpha_{\text{total}} = .96$)

orientation ($p = .11$), however, analyses revealed a significant interaction between the *target* and *participant gender* $F(1,92) = 13.60, p < .001, \eta_p^2 = .13$ such that each gender demonstrated more explicit negativity towards gay people of their own gender.

Specifically, male participants reported more negative explicit attitudes towards gay men than towards lesbians while female participants reported more negative explicit attitudes towards lesbians than towards gay men. No interaction was found between the target gender and the participants' sexual orientation ($p = .62$), and no higher-order interaction existed ($p = .09$). The explicit attitudes toward gay men and toward lesbians were highly correlated ($r = .84, p < .001$).

5.3.3.2 *Implicit Attitudes.*

As predicted, female targets evaluated on the basis of their gender were implicitly associated with positive attributes by all participants. Interestingly, gay male targets evaluated on the basis of their sexual orientation were also implicitly associated with positive by all participants, albeit less strongly than female targets. These findings were consistent for both straight and gay male participants who demonstrated positive implicit attitudes toward gay male targets evaluated on the basis of their sexual orientation and negative implicit attitudes toward gay male targets evaluated on the basis of their gender. However, only gay male participants demonstrated positive implicit associations toward straight male targets when gender was salient. Means and standard deviations for implicit attitudes are presented in Figure 4.

A mixed-design factorial ANOVA was used to explore implicit attitudes toward female and male targets using as a function of participant in-group bias using the within-subjects factors of *target* (2: female targets, male targets) and *GNAT variation* (3: gender-salient straight targets, gender-salient gay targets, sexual orientation-salient gay targets), and the between-subjects factors of *participant gender* (2: female, male) and *participant sexual orientation* (2: straight, gay). As in Study 1, analysis revealed a main effect of *target gender*, $F(1,92) = 64.09, p < .001, \eta_p^2 = .41$, which was complicated by a significant interaction with *GNAT variation* $F(2,92) = 59.59, p < .001, \eta_p^2 = .39$.

However, as a four-way interaction was found $F(2,184) = 3.98, p = .02, \eta_p^2 = .04$ (corrections were made using a Huynh-Feldt adjustment due to violations of sphericity), only this result was interpreted. Post hoc analyses revealed that *participant sexual orientation* differences for female participants $F(2,94) = 4.19, p < .02, \eta_p^2 = .08$, but not

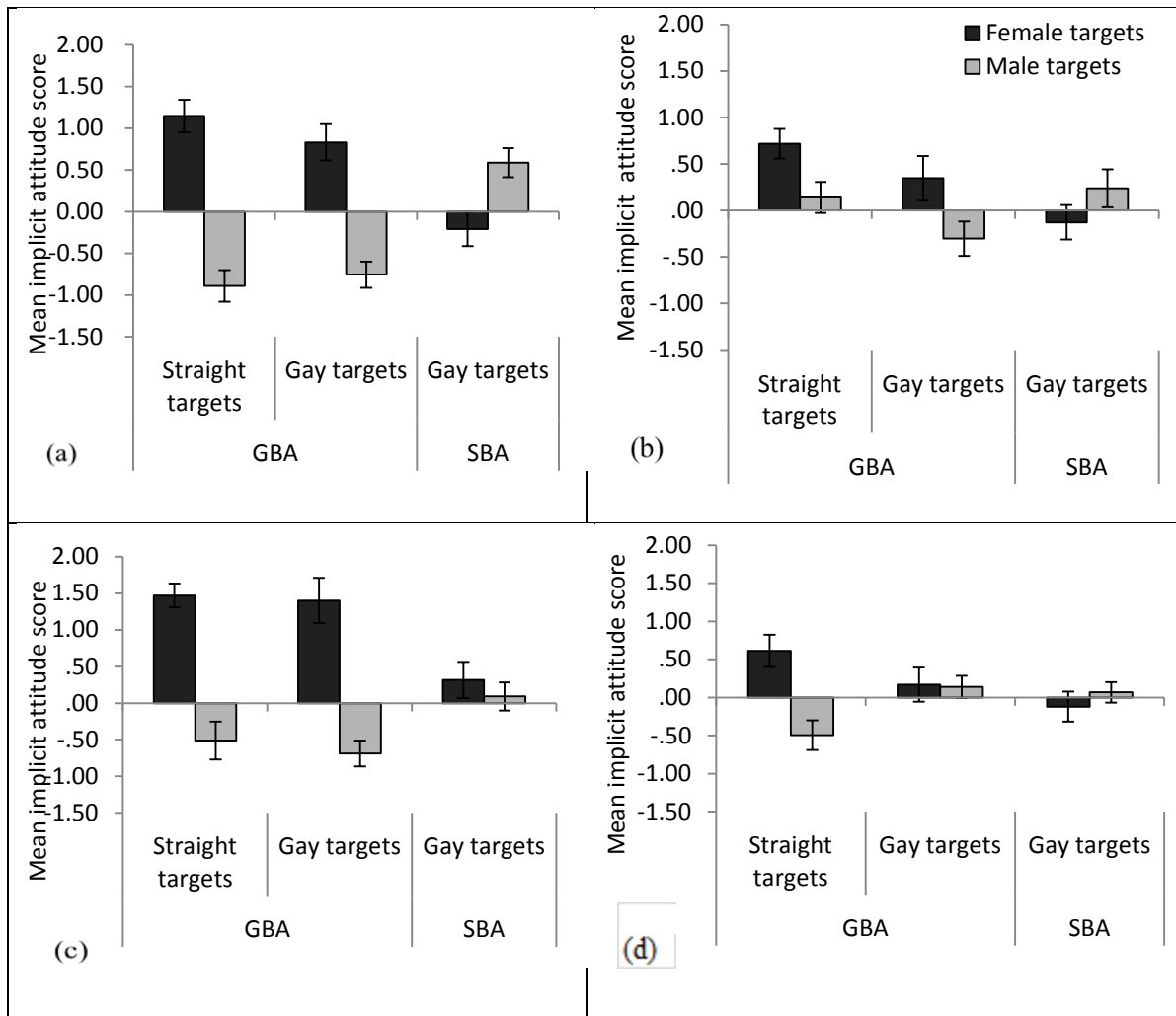


Figure 4. Mean (and standard error) d' difference scores toward female and male targets on the basis of gender or sexual orientation (M and SE d' scores) for (a) straight female, (b) straight male, (c) lesbian, and (d) gay male participants (Study 2). Error bars represent ± 1 SE; GBA = gender-based attitudes, SBA = sexual orientation-based attitudes.

male participants ($p = .07$), and *participant gender* difference for straight participants $F(2,102) = 12.33, p < .001, \eta_p^2 = .20$, but not gay participants ($p = .31$) was the basis for this complicated effect. Specifically, after correcting for multiple comparisons, t-tests revealed that straight female participants demonstrated significantly more positive implicit attitudes toward women than men when gender was salient (i.e., regardless of the sexual orientation of the target; straight targets $t(23) = 6.95, p < .001$ and gender-salient gay targets $t(23) = 5.48, p < .001$). This effect also existed for lesbian participants (straight targets $t(23) = 5.67, p < .001$ and gender-salient gay targets $t(23) = 6.66, p < .001$). However, straight women also demonstrated an implicit positivity toward gay male targets and implicit negativity toward lesbian targets $t(23) = -2.90, p = .01$. In contrast, lesbian participants demonstrated no significant difference in implicit positivity toward gay males and lesbians (i.e., $p = .41$).

Implicit attitudes of men were attenuated relative to the implicit attitudes demonstrated by women. However, like women, men demonstrated significantly more implicit positive attitudes toward straight female targets than to male targets $t(48) = 3.86, p < .001$. No other differences reached significance (i.e., all p 's $> .48$). Interestingly, male participants' performance did not differ significantly as a function of their sexual orientation (all p 's $> .12$).

5.3.3.3 Implicit-explicit correlations.

Correlation analyses were conducted separately for gay men, lesbians, and straight men and women. No significant correlations were found between measures for straight women (all p 's $> .31$). For lesbian participants, explicit attitudes toward gay men were negatively correlated with implicit attitudes toward gay men when sexual orientation was

Table 5

Correlation coefficients for the relationship between explicit and implicit attitudes scores for female participants (Ns = 24 straight women, 24 lesbians).

	1.	2.	3.	4.	5.	6.	7.	8.
<i>Explicit attitudes</i>								
1. ATL	-	.68**	-.02	-.02	-.32	-.01	-.18	-.06
2. ATG	.77**	-	.11	-.23	-.17	-.17	-.18	-.03
<i>Implicit attitudes - straight targets</i>								
3. Straight women	-.02	.04	-	-.03	-.09	.03	-.04	-.02
4. Straight men	.04	-.21	-.11	-	-.25	.30*	.13	-.09
<i>Implicit attitudes - gender salient gay targets</i>								
5. Lesbian women	-.27	-.12	-.02	-.25	-	-.32*	.23	-.24
6. Gay men	.05	-.15	.05	.32*	-.47*	-	.04	.06
<i>Implicit attitudes – sexuality salient gay targets</i>								
7. Lesbian women	-.15	-.20	-.18	.11	.28	-.04	-	-.03
8. Gay men	-.13	-.05	.08	-.04	-.27	.10	-.12	-

Note: * $p < .05$; ** $p < .001$. Significant correlations are presented in boldface. ATL = attitudes towards lesbians; ATG = attitudes towards gay men. Coefficients presented below the diagonal pertain to straight female participants; coefficients presented above the diagonal pertain to lesbian participants.

salient, $r = -.41$, $p = .05$ (i.e., negative explicit attitudes were related to negative implicit attitudes when sexual orientation was salient). The correlation coefficients for female participants are presented in Table 5.

For straight men, explicit attitudes toward gay people were negatively correlated with implicit attitudes toward women when gender was salient (straight female targets: ATG $r = -.43$, $p = .04$; ATL $r = -.51$, $p = .01$; lesbian targets: ATG $r = -.40$, $p = .05$; ATL $r = -.46$, $p = .02$). Finally, for gay men, explicit attitudes toward lesbians were negatively correlated with implicit attitudes toward gay men when gender was salient, $r = -.45$, $p = .03$ ¹⁹. The correlation coefficients for male participants are presented in Table 6.

5.3.4 Discussion

Consistent with predictions and previous research (e.g., Rudman & Goodwin, 2004), all participants demonstrated implicit positivity toward female targets when gender was salient. This finding provides an example of the “women are wonderful” effect (Eagly & Mladinic, 1994), rather than evidence for an in-group bias among female participants. No in-group gender-based bias was found for straight men participants, however, small in-group positivity biases were observed for gay men and lesbian participants on both gender and sexual orientation. That is, gay men demonstrated implicit positivity toward straight male targets when gender was salient, and gay male targets when sexual orientation was salient. Similarly, lesbians demonstrated implicit positivity toward all female targets regardless of the salient factor. It is interesting to note that gay male participants were

¹⁹ Given that the explicit and implicit measures are scored in different directions (i.e., a higher implicit attitude score represents a positive attitude, while a higher negative explicit attitude score represents a negative attitude), all correlations presented here actually represent attitudes in the same direction. Specifically, in all cases, negative explicit attitudes were related to negative implicit attitudes.

Table 6

Correlation coefficients for the relationship between explicit and implicit attitudes scores for male participants (Ns = 24 straight men, 24 gay men).

	1.	2.	3.	4.	5.	6.	7.	8.
<i>Explicit attitudes</i>								
1. ATL	-	.61**	-.02	.08	.14	.32	.31	.03
2. ATG	.89**	-	-.21	.31	.29	.18	.21	-.18
<i>Implicit attitudes - straight targets</i>								
3. Straight women	-.36	-.26	-	.04	.09	-.06	-.23	.13
4. Straight men	.10	.13	-.52*	-	-.07	-.26	-.04	-.33
<i>Implicit attitudes - gender salient gay targets</i>								
5. Lesbian women	-.47*	-.50*	.31	-.18	-	.09	.10	-.20
6. Gay men	.31	.41*	-.01	.20	-.31	-	.13	.15
<i>Implicit attitudes – sexuality salient gay targets</i>								
7. Lesbian women	-.05	-.15	.11	.03	.39	-.16	-	.10
8. Gay men	.15	.01	.07	-.13	.03	.12	-.12	-

Note: * $p < .05$; ** $p < .001$. Significant correlations are presented in boldface. ATL = attitudes towards lesbians; ATG = attitudes towards gay men. Coefficients presented below the diagonal pertain to straight male participants; coefficients presented above the diagonal pertain to gay male participants.

implicitly negative toward gay male targets when gender was salient, although there is no clear interpretation of this finding.

The findings of Study 2 provide limited support for the predictions of general anti-gay bias. Specifically, implicit attitudes toward gay men and lesbian targets were significantly less positive than toward straight female targets, although they were more positive than toward straight male targets. What is clear, however, is that the person-based sexual orientation-based attitudes observed in Study 2 were far more neutral than is typically observed with implicit measures of abstract (i.e., not person-based) anti-gay bias (Banse et al., 2001; Dasgupta & Rivera, 2006, 2008; Gabriel et al., 2007). This finding suggests that implicit person-based anti-gay bias may be far less negative than the abstract or category-based anti-gay bias (e.g., Herek & McLemore, 2013).

Finally, few significant correlations existed between implicit and explicit measures. Specifically, a positive relationship between implicit and explicit attitudes toward gay male targets was found for lesbian participants suggesting that they hold congruent attitudes (i.e., negative explicit attitudes were related to negative implicit attitudes). In contrast, straight male participants demonstrated consistently negative correlations between implicit anti-gay bias and attitudes toward women when gender was salient suggesting that stronger implicit “women are wonderful” effect is related to higher levels of explicit anti-gay bias.

Study 2 replicated and extended the findings of Study 1 providing further evidence that the person-based method provides a unique approach for assessing implicit attitudes to a social category, even when there are no unique visible features associated with that social category (e.g., Freeman et al., 2010). Moreover, these results demonstrate consistencies (e.g., attitudes toward women when gender is salient) as well as important patterns of

variability reflecting gender- and sexual orientation-based group memberships which are frequently overlooked in research on gender attitudes and anti-gay bias.cERS

5.4 General Discussion

Two studies present the implicit person-based measure of attitudes toward gender and sexual orientation. Study 1 demonstrated that implicit attitudes to the same targets did, indeed, vary as a function of the target's gender and sexual orientation, while Study 2 revealed implicit gender- and sexual orientation-based attitudes as a function of participant's own gender and sexual orientation.

Specifically, explicit attitudes were predictably low, consistent with previous findings (Herek & McLemore, 2013). Unexpectedly, the findings revealed little evidence of implicit (person-based) anti-gay attitudes (i.e., strong negative implicit associations), especially toward gay male targets, although moderate implicit anti-gay attitudes were found towards lesbians. This latter finding is seemingly consistent with previous implicit anti-gay findings (e.g., Breen & Karpinski, 2013; Steffens, 2005). Finally, the findings of Study 2 also revealed important effects of participant's own gender and sexual orientation (e.g., consistent with positive in-group biases for gay participants).

The findings of the current studies are distinct from previous empirical findings (e.g., Banse et al., 2001; Boysen & Vogel, 2008; Gabriel et al., 2007; Jonathan, 2008; Rowatt et al., 2009; Steffens & Buchner, 2003). I argue that this is because the person-based approach assesses implicit anti-gay bias to gay people and previous research, which has used symbols or images (see Chapter 4.3 for a thorough discussion of stimuli used in previous research), has assessed a much broader construct of GAY and associated issues

(e.g., gay marriage). Future research should directly compare these approaches within a single study to further examine the potential different outcomes of these approaches.

As previously discussed (see Chapter 4), I acknowledge the potential limitation of using of famous people as targets. Specifically, that famous gay men and lesbians, just like famous straight men and women, differ from non-famous targets in several important ways (e.g., fame, wealth, power). However, due to the use of famous people as both targets and distracters, this factor should equally affect both straight and gay targets. For example, it is possible that all of the attitudes measured here may tend toward positivity due to the use of famous targets (i.e., halo effects; Thorndike, 1920) which should not differentially affect the attitudes toward gay or straight targets. Furthermore, by examining gender- and sexual orientation-based attitudes toward the same target (e.g., Ellen DeGeneres), I was able to compare these results to previous research and found that the implicit gender attitudes for gay and straight targets were comparable with previous findings (e.g., Rudman & Goodwin, 2004). Specifically, the implicit negativity found toward straight male targets is consistent with previous research for non-famous targets (e.g., Rudman & Goodwin, 2004), which suggests that any effect driven by the fame of the targets is of limited concern.

The findings of the current research suggest that person-based measures of gender and sexual orientation based attitudes should not be undertaken without considering both factors, or at least considering factor salience during interpretation of the results. This is because every person target has both a gender and a sexual orientation that can (independently) strongly attenuate, or even reverse, implicit attitudes.

The current study has three implications. First, the findings demonstrate that gay men and lesbians are distinct enough to caution the use of unisex representations of GAY

which has been common in some previous implicit anti-gay bias research (Banse et al., 2001; Boysen & Vogel, 2008; Boysen et al., 2006; Cochran et al., 2007; Gabriel et al., 2007; Inbar et al., 2009). This effect is even more obvious once a participant's own gender and sexual orientation are also included, suggesting this is an important consideration for researchers. Thus, the second implication of these findings is that participant factors such as participants' own sexual orientation and gender should at least be reported, and where possible, recruitment should be inclusive (i.e., representation of participants across gender and sexual orientation). The final implication of the current findings is that there is still substantial research to be undertaken to continue to refine the measurement of implicit attitudes toward gay men and lesbians.

What is clear from the current research is that the person-based approach overcomes several important methodological challenges in measuring anti-gay attitudes to gay men and lesbians. Moreover, this approach allows researchers to assess implicit attitudes toward gay people as a function of their gender (i.e., gay men or lesbians), making it more applicable for researchers who are interested in this person-based prejudice. This also reduces the difficulty interpreting findings, especially inconsistent findings that may reflect slight differences in the selection of symbols or images. In sum, there is strong evidence for the usefulness of the person-based approach to measuring implicit anti-gay bias, as well as clear directions for the future studies.

Chapter 6 –Study 3: Comparing Typical and Person-Based Approaches

If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it.

- H. J. Harrington (1999, p.19)

Title

Category and Person-Based Approaches Reveal Opposite Patterns of Attitudes.

Abstract

Implicit measures of anti-gay attitudes routinely use pictorial representations (e.g., same-sex wedding cake-toppers). These representations are clearly relevant to the target category GAY, but are also relevant to much broader constructs (e.g., gay marriage). In this chapter, I compare the person-based measure of implicit anti-gay attitudes to typical, category-based measure of implicit anti-gay attitudes. Participants completed measures of explicit anti-gay attitudes, and measure of implicit anti-gay attitudes using typical and person-based stimuli. Results revealed an interaction between implicit attitudes towards gay men and lesbians (i.e., target gender) and stimuli type (i.e., typical or person-based). Specifically, typical stimuli elicited positive implicit associations with lesbians and negative implicit associations with gay men consistent with previous research using this approach. This pattern was reversed for person-based stimuli consistent with the research presented in this thesis. These findings are interpreted as evidence that the person-based approach reflects implicit attitudes toward gay men and lesbians, and raises important questions about what is measured when typical stimuli is used.

6.1 Introduction

6.1.1 Background

Attitudes toward the concept of GAY (and associated attitude-relevant constructs, such as gay marriage, same-sex behaviour, etc.) are conceivably different to attitudes toward an individual who is gay but is not politically active, or may not be involved in a romantic relationship. This may be because attitudes toward social categories such as GAY are likely to be socially entrenched (see Herek, 2004), and may reflect value violations and deviation from majority views, behaviours, or expectations. However, a gay person may not bring to mind these concepts. As such, attitudes towards gay people could be qualitatively different to attitudes toward the social category.

Findings which stem from the contact hypothesis literature (i.e., prejudice reduction as a function of a conditional contact between majority and minority group members; Allport, 1954) would provide evidence that attitudes toward GAY PEOPLE may be different to attitudes toward the category of GAY. For example, Herek and Capitanio (1996) conducted a large scale probability survey to explore attitudes toward gay men and lesbians, and found that frequency of contact with gay individuals led to a significant reduction in reported anti-gay attitudes. This highlights the importance of disclosing one's sexual orientation (as gay) as a feature that could facilitate negative attitude reduction. As a result, these findings suggest that contact affects people's attitudes toward gay people, but does not extend to the superordinate construct of GAY.

6.1.2 Typical stimuli used to represent of gay men and lesbians in implicit measures of anti-gay attitudes

Implicit anti-gay attitude research has measured associations between valence (e.g., good or bad) and the category GAY as represented by visual symbols (e.g., ♂♂), mainly by using the homosexuality-IAT (Greenwald et al., 1998). Banse et al. (2001) were the first to use the homosexuality- IAT. In their study, the category of straight was represented using 10 pictures of opposite-sex couples, and the category of gay (i.e., a mixture of gay men and lesbians) was represented using 5 pictures of pairs of men and 5 pictures of pairs of women (none of the couples were depicted in romantic positions). Following the IAT protocol discussed in previous chapters, the results of this study revealed the expected IAT effect from straight male and female participants, but not gay male or lesbian participants, and this was taken as evidence of the measure's known-group validity.

Since then, research using the IAT to explore implicit anti-gay attitudes has used a variety of different stimuli to represent the categories of gay men and lesbians. As discussed, implicit measures commonly represent gay men and lesbians with pictures of same-sex couples. Some studies used individuals of the same gender in neutral poses (e.g., Cochran et al., 2007; Lemm, 2006; Nosek et al., 2005; Rowatt et al., 2006; Tsang & Rowatt, 2007). However, the non-romantic depiction of couples in these stimuli raises questions about the nature of their relationship. To counter this, other studies have used same-sex couples in romantic poses (e.g., Dasgupta & Rivera, 2006, 2008; Gabriel et al., 2007; Jellison et al., 2004). This seems a logical improvement in refining the attitude-target being represented by such stimuli, however, representations of gay couples (who are

actively transgressing social norms) are qualitatively different to a representation of a gay individual.

Other stimuli used in representing gay men and lesbians in the literature include the names of hypothetical same-sex couples (e.g., Peter + Jack; Steffens & Buchner, 2003, Experiment 1), words stereotypically associated with the category (e.g., 'drag queen'; Steffens & Buchner, 2003, Experiment 2), and word-based stimuli involving the category itself (e.g., HOMOSEXUAL; Cárdenas & Barrientos, 2008; Lemm, 2006, Experiment 1). Gay men and lesbians have also been represented using visual stimuli representative of the category, such as interlocking gender symbols or same-sex wedding cake toppers, etc. (usually in conjunction with pictures of same sex couples; e.g., Cochran et al., 2007; Gabriel et al., 2007; Inbar et al., 2009; Jonathan, 2008; Lemm, 2006; Rowatt et al., 2006; Tsang & Rowatt, 2007).

6.1.3 Rationale and hypotheses

While the stimuli used in previous research arguably represent the broad range of issues associated with the social category of GAY, there is little to suggest that they are a good measure of attitudes toward gay people. Thus, there is reason to be cautious when interpreting the findings of research using these stimuli. Moreover, the range of stimuli provides a potential explanation for the few inconsistent finding which include neutral implicit attitudes toward gay men and lesbians, (Breen & Karpinski, 2013, Study 1), and positive implicit attitudes toward lesbians (Breen & Karpinski, 2013, Study 2; Steffens, 2005). That is, due to the use of specific stimuli, certain aspects of the broader construct of GAY may be emphasised.

In Chapter 5, I presented the person-based approach, which elicits implicit attitudes toward gay individuals by comparing associations toward famous gay men and lesbians relative to associations toward famous straight men and women (see also Chapter 4). The strength of this approach lies in the idea of varying the context in which the association is measured. In the case of attitudes towards a well-known gay male, one can measure attitudes toward Sean Hayes as an individual who is male (if the comparison context is Portia de Rossi) or as an individual who is gay (if the comparison context is Justin Timberlake).

The findings presented in Chapter 5 are inconsistent with the majority of previous findings that have used typical stimuli. Specifically, previous research has found moderate to strong implicit anti-gay attitudes (Banse et al., 2001; Cullen & Barnes-Holmes, 2008), and anti-gay attitudes toward gay men and not lesbians (Breen & Karpinski, 2013; Steffens, 2005). These latter findings are more consistent with gender-based attitudes (e.g., Chapter 5; Rudman & Goodwin, 2004) and in direct contrast to the findings of the person-based approach which found positive implicit attitudes toward gay men and negative implicit attitudes toward lesbians (when their sexual orientation, but not their gender, was made salient). Taken together, these findings were interpreted as evidence that implicit attitudes toward gay people (person-based) may be different to attitudes toward the idea of GAY (category-based). However, such a conclusion requires direct comparison of the person-based versus category-based representations of GAY. The current study measures implicit gay attitudes using both forms of representation, in order to compare them directly.

I expect implicit attitudes toward gay men and lesbians that are measured by the person-based approach to be qualitatively different to those measured by the category-

based approach. Specifically, I hypothesise that person-based representations will elicit more positive implicit attitudes toward gay men than toward lesbians (replicating the findings of Chapter 5, Studies 1 and 2). Conversely, I hypothesise that category-based representations will elicit more positive implicit attitudes toward lesbians than toward gay men (in line with the existing literature; Banse et al., 2001; Breen & Karpinski, 2013, Study 2). Due to the characteristics of the sample (i.e., young students) I expect low levels of explicit anti-gay attitudes.

6.2 Method

6.2.1 Participants

Sixty-three student participants ($M_{\text{age}} = 25.03$ years, $SD_{\text{age}} = 10.74$, 50 women) were recruited from the participating university. Ten participants (15.87%) were excluded from analyses after identifying as non-heterosexual (6 bisexual females, 3 gay men, and 1 lesbian woman). Two participants (3.17%) were excluded from analyses for performing below the level of chance accuracy on the implicit measure. The final sample comprised 51 straight students ($M_{\text{age}} = 24.94$ years, $SD_{\text{age}} = 11.38$ years, 42 women). All participants were eligible for research credit in an undergraduate psychology unit in exchange for their participation.

6.2.2 Materials

6.2.2.1 Implicit Anti-Gay Attitudes.

An 8-block GNAT (Nosek & Banaji, 2001) assessed implicit attitudes toward gay targets. Specifically, four blocks assessed implicit attitudes toward gay men and lesbians using category-based representations of gay men and lesbians, and a further four blocks measured implicit attitudes toward gay men and lesbians using a person-based approach to

implicit measurement (see Table 7). The design of this study was fully within-subjects, and blocks were presented in randomized fashion.

In blocks using the category-based approach, target stimuli were 24 pictures of couples in romantic poses, representations of marriage, and gender symbols. Eight of these represented the category of heterosexual²⁰, eight represented the category of gay men, and eight represented the category of lesbian (selection was based on stimuli used in previous research e.g., Banse et al., 2001; Breen & Karpinski, 2013). In blocks using the person-based approach, the stimuli were Chapter 5 were again used (i.e., eight photographs each of famous gay men, lesbians, straight men, and straight women. All stimuli were matched for attractiveness, likeability, and recognisability both of their celebrity status and their sexual orientation. Image stimuli were presented in a white 10cm x 10cm frame. The target attribute stimuli (i.e., a list of eight words with a positive valence and a list of eight words with a negative valence) were the same as those used in Chapter 5. Word stimuli were presented in white 24-point uppercase Arial font. All stimuli were presented against a black background screen. The administration and scoring protocol of the GNAT used in Chapter 5 was followed again in this study.

²⁰ Stimuli representing the category of heterosexual necessarily uses a combination of genders, because typically used stimuli requires the stimuli to have one male and one female present. Interestingly, the person-based approach could be used to counter-act this and measure implicit attitudes towards heterosexual (but sexual orientation salient) male or female targets.

Table 7

GNAT Blocks as a Function of Target and Distracter Categories (with Stimuli Examples)

GNAT	Block	Target stimuli	Distracter
Category-based	GAY MALE+GOOD	Symbols representing gay males (e.g., same-sex wedding cake toppers)	Symbols representing heterosexuality (e.g., traditional wedding cake toppers)
	GAY MALE+BAD	Symbols representing gay males	Symbols representing heterosexuality
	LESBIAN+GOOD	Symbols representing lesbians	Symbols representing heterosexuality
	LESBIAN+BAD	Symbols representing lesbians	Symbols representing heterosexuality
Person-based	GAY MALE+GOOD	Famous gay male faces (e.g., Sean Hayes)	Famous straight male faces (e.g., Justin Timberlake)
	GAY MALE+BAD	Famous gay male faces	Famous straight male faces
	LESBIAN+GOOD	Famous lesbian faces (e.g., Ellen De Generes)	Famous straight female faces (e.g., Sarah Jessica Parker)
	LESBIAN+BAD	Famous lesbian faces	Famous straight female faces

6.2.2.2 Explicit Anti-Gay Attitudes.

The Attitudes Toward Lesbians and Gay Men Scale (ATLG; Herek, 1984a) comprises 10 self-report items explicitly measuring attitudes toward lesbians (ATL; e.g., “Lesbians just can’t fit into our society”) and 10 self-report items explicitly measuring attitudes toward gay men (ATG; e.g., “I think male homosexuals are disgusting”). Participants endorsed their responses on a nine-point Likert-type scale ranging from 1 (*strongly disagree*) to 9 (*strongly agree*). After reverse scoring appropriate items, an average score is calculated. Higher scores indicate more explicit anti-gay attitudes.

The Index of Homophobia (IHP; Hudson & Ricketts, 1980) comprises 25 Likert-type items explicitly measuring emotional reactions when thinking about or interacting with gay men and lesbians (e.g., “I would feel nervous being in a group of homosexuals”). This scale does not separate the gender of the targets. Participants endorsed their responses on a nine-point Likert-type scale ranging from 1 (*strongly disagree*) to 9 (*strongly agree*). After reverse scoring appropriate items, an average score is calculated. Higher scores indicate more negative affective responses toward gay men and lesbians.

6.2.3 Procedure

The study was advertised on the University’s online research participation system. Participants read an information letter about the purpose and methods of the study, and indicated their informed consent before being directed to a webpage to provide demographic information (i.e., age, gender, religious affiliation, and sexual orientation) and complete the explicit anti-gay attitudes measures, followed by the 8-block GNAT. Participants were then thanked for their time and debriefed.

6.3 Results

6.3.1 Implicit anti-gay attitudes

Figure 5 presents the mean implicit attitude scores toward gay men and lesbians as a function of the type of representation used (category-based vs. person-based). Implicit attitudes toward lesbians were more positive than implicit attitudes toward gay men when using a category-based approach. However, this pattern of results was reversed when stimuli represented gay men and lesbians using a person-based approach.

A mixed-design factorial ANOVA was used to analyse implicit anti-gay attitudes using the within-subject factors of *GNAT type* (2: category-based, person-based) and *target* (2: gay male, lesbian). No main effects were found (p 's > .07). There was a significant interaction between the *GNAT type* and *target* variables, $F(1, 40) = 13.64, p = .001, \eta_p^2 = .25$. Post-hoc tests revealed that when using a category-based representation, implicit attitudes toward lesbians were significantly more positive than implicit attitudes toward gay men, $t(41) = -2.31, p = .03$. However, when using a person-based representation, implicit attitudes toward lesbians were significantly more negative than implicit attitudes toward gay men, $t(41) = 2.74, p = .01$. Implicit attitudes toward lesbians were also significantly more negative when measured using a person-based representation than when using a category-based representation, $t(41) = 4.05, p < .001$. There were no differences in implicit attitudes toward gay men as a function of *GNAT type* ($p = .22$).

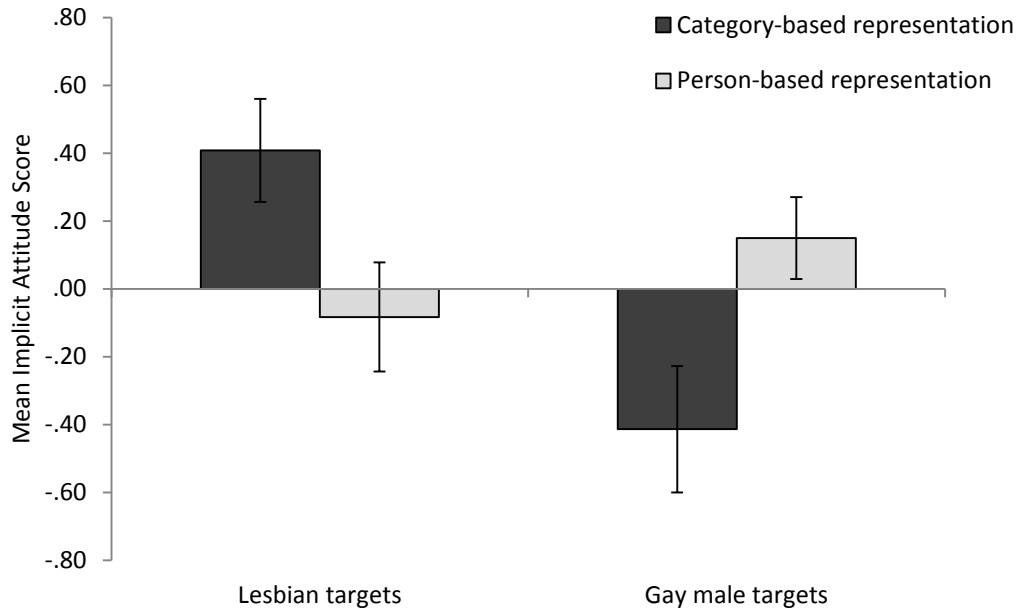


Figure 5. Mean (and standard error) d' difference scores toward lesbian and gay male targets for category-based and person-based representations (Study 3). Error bars represent ± 1 SE.

6.3.2 Explicit anti-gay attitudes

Self-reported anti-gay attitudes in the sample were low, with attitudes toward lesbians (ATL; $M = 2.91$, $SD = 1.43$) reported as slightly (but not significantly) less negative than attitudes toward gay men (ATG; $M = 3.00$, $SD = 1.69$, $p = .41$). Affective attitude ratings were more negative (IHP; $M = 3.83$, $SD = 1.03$), with the average score being slightly below the scale midpoint. Correlation coefficients and reliabilities for each measure are reported in Table 7. Bivariate correlations revealed that all explicit anti-gay attitude measures were strongly and positively correlated (all p 's $< .001$). Conversely, none of the blocks of implicit measurement were correlated to each other (p 's $> .13$). Affective explicit responses (i.e., IHP) were negatively correlated with implicit person-based attitudes

Table 8

Correlations between Explicit and Implicit Measures of Anti-Gay Attitudes.

	Explicit Measures			Implicit Measures		
	1	2	3	4	5	6
<i>Explicit Measures</i>						
1. ATL	(.91)					
2. ATG	.82**	(.89)				
3. IHP	.61**	.71**	(.86)			
<i>Implicit Measures</i>						
4. Gay men (category-based)	-.10	-.07	-.06			
5. Lesbians (category-based)	-.03	-.02	-.23	.02		
6. Gay men (person-based)	-.10	-.22	-.36*	.17	.19	
7. Lesbians (person-based)	-.24	-.23	-.26	-.01	.24	.13

Note: * $p < .01$; ** $p < .001$. Alpha Cronbach coefficients are presented in parentheses.

Higher implicit attitude scores represent positive implicit attitudes; higher explicit scores represent negative explicit attitudes.

toward gay men (i.e., negative IHP scores were related to negative implicit [person-based] attitudes). Implicit person-based attitudes were more strongly correlated with their same-gender explicit counterpart than category-based implicit attitudes (e.g., implicit person-based attitudes toward gay men correlate with explicit attitudes toward gay men, but not lesbians, more strongly than category-based implicit attitudes).

6.4 Discussion

The current study compared person-based and typical measures of implicit anti-gay attitudes towards gay men and lesbians. As predicted, using typical stimuli, lesbians were moderately implicitly associated with positive (e.g., Breen & Karpinski, 2013; Steffens, 2005) and gay men were moderately implicitly associated with negative consistent with previous research (e.g., Banse et al., 2001; Steffens & Buchner, 2003). In contrast, the person-based approach elicited the predicted reversed pattern of results, though the implicit associations were weaker, consistent with the findings presented in Chapter 5.

Finally, as expected, the sample showed low levels of explicit anti-gay attitudes. I also found that reported attitudes toward gay men were slightly more negative than those toward lesbians, although this difference was not significant (e.g., Dolinski, 2010; Nagoshi et al., 2008) and self-reported negative attitudes were higher when measured as affective expectancy (i.e., IHP; Hudson & Ricketts, 1980) than when measured as endorsements to attitudinal items (i.e., ATL, ATG; Herek, 1984a). This is likely to be a function of social desirability; if participants are aware that endorsing global negative attitudes reflects poorly on them and conflicts with social norms (e.g., Crandall, Eshleman, & O'Brien, 2002), then the logical response is to attenuate their responses. However, this might not extend to more automatic affective responses. This finding might be a result of participants being better

rehearsed at identifying their own affective responses, such as feelings of discomfort. Furthermore, participants may feel that affective responses are more valid to report than attitudes (which are governed more directly by social norms). Overall, the findings of this study support my hypotheses.

While the findings for typical stimuli is consistent with previous research (e.g., Banse et al., 2001; Dasgupta & Rivera, 2008; Nosek et al., 2005), they are also generally consistent with implicit gender findings (e.g., Rudman & Goodwin, 2004) which may suggest gender attitudes are influencing implicit attitudes to gay men and lesbians measured by broadly associated stimuli. In contrast, the person-based approach ensures sexual orientation is salient and leads to an attenuated but reversed pattern of results which are consistent with implicit inversion theory (Kite & Deaux, 1987), which suggests that gay individuals are more similar to heterosexual people of the opposite gender than heterosexual people of the same gender. Thus, gay men (like straight women) are implicitly associated with positive, and lesbians (like straight men) are implicitly associated with negative (e.g., Richeson & Ambady, 2001; Rudman & Goodwin, 2004).

Implicit attitudes measured with the person-based approach to the representation of gay men were negatively correlated to the affective self-report measure of anti-gay attitudes. The lack of correlation between most implicit and explicit attitudes is consistent with previous research what has demonstrated limited relationship between these related but distinct constructs (see Hofmann et al., 2005; e.g., Wilson et al., 2000).

6.4.1 Limitations and implications

As is often the case with anti-gay attitudes research, the current study may lack generalizability as a function of the sample (i.e., students, self-selected, disproportionately more females). However, this is not unusual for this literature and is a likely explanation for the low levels of anti-gay prejudice (e.g., education and being female has been found to be related to politically liberal views, egalitarian values, and positive attitudes toward gay men and lesbians (e.g., Steffens, 2005). This is likely exacerbated by the recruitment strategy which allowed participants volunteer to participate in this research, suggesting they were unconcerned by the topic. Nonetheless, while these factors are likely to have constricted the range of observed prejudice, they are unlikely to compromise the key finding; namely, that there is a clear and meaningful difference between implicit anti-gay attitudes measured using typical and person-based approaches.

6.4.2 Conclusion

The findings of this study are that a person-based approach to measuring attitudes toward gay men and lesbians elicits dramatically different results to the typically used category-based representations. In other words, the measured construct depends strongly on the stimuli used to represent it, highlighting the importance of stimuli selection in the measurement of implicit anti-gay attitudes. For this reason, if researchers are interested in the implicit evaluation of the broad construct of GAY, then category-based representations of implicit anti-gay attitudes can be used. However, the interpretation of the results of such a measure should be carefully interpreted within this framework. Conversely, researchers who are interested in implicit attitudes toward gay people may prefer to use a person-based

approach to measuring implicit attitudes. Furthermore, the person-based approach allows for a simpler interpretation of any findings as implicit sexual orientation-based attitudes.

The findings of the current study highlight the importance of stimuli selection in understanding implicit anti-gay attitudes (Freeman et al., 2010). These findings demonstrate that implicit person-based anti-gay attitudes are replicable and differ meaningfully from the findings based on typical stimuli. As a result, I cautiously raise the question of whether the existing literature may have only been measuring an overly inclusive version of implicit anti-gay attitudes. For these reasons, the person-based approach makes an important and timely contribution to the literature.

Chapter 7 –Discussion of Initial Evidence

7.1 Introduction and Overview

As previously stated, the main aims of this thesis were twofold: first, to present initial evidence for an alternative measure of implicit anti-gay attitudes that uses contextual variation techniques (Mitchell et al., 2003); and second, to demonstrate the use of this new method by exploring the relationship between implicit person-based anti-gay attitudes and religion. The first major aim of the thesis was concretely operationalised in the first chapter with the following two questions:

1. *Can contextual variation be used to make the gender or sexual orientation of a target salient, which would facilitate assessment of implicit person-based gender attitudes and implicit sexual orientation attitudes toward the same target?*
2. *Does this person-based approach measure implicit anti-gay attitudes that are different to those measured using typical stimuli?*

These questions were addressed by evidence from three studies. The first study demonstrated that contextual variation can elicit (*toward the same targets*) distinct gender- and sexual orientation-based. Notably, the gender-based attitudes were consistent with previous research, while the sexual orientation-based attitudes were unique which was interpreted as evidence for the important contribution of implicit person-based attitudes to the anti-gay literature. The second study showed that the pattern of implicit person-based

attitudes to gay men and lesbians is largely consistent across gay male, lesbian, and heterosexual male and female participants with variations reflecting important social group memberships. Finally, the third study provided evidence that these person-based anti-gay attitudes are distinct from category-based anti-gay attitudes as predicted.

Each study will be reiterated here in brief, followed by a discussion of the strengths and limitations of these findings and the approach.

7.1.1 Review of Studies 1 and 2

Two studies were used to explore the potential for implicit contextual variation (Mitchell et al., 2003) to demonstrate that gender-based and sexual orientation-based implicit attitudes could be measured for the same famous gay male and lesbian targets. Consistent with the contextual variation techniques, the category was made salient through the manipulation of the distracter stimuli. For example, the use of male distracters when the targets were lesbians allowed gender attitudes to be measured whereas the use of heterosexual female distracters when the targets were lesbians allowed sexual orientation-based attitude to be measured; the lack of a gender comparison left sexual orientation as the remaining relevant evaluative social category. In Study 1, the implicit person-based anti-gay attitudes of a homogenous sample of heterosexual females were assessed. Specifically, participants completed six GNAT blocks (three for each target gender; see Figure 2, p.60), that were designed to measure implicit gender attitudes towards straight men and women (i.e., baseline), implicit gender attitudes towards gay men and lesbians (i.e., attitudes towards gay individuals, but with gender as the salient social category), and finally implicit

anti-gay attitudes using the person-based approach (i.e., attitudes towards gay individuals but with sexual orientation as the salient social category).

The study replicated the well-known finding of positive attitudes towards female targets and negative attitudes towards male targets (e.g., Eagly & Mladinic, 1994; Rudman & Goodwin, 2004). Specifically, implicit associations were demonstrated between straight female targets and positive attributes, and between straight male targets and negative attributes. Importantly, when gay male and lesbian targets were presented with gender as the salient social category (i.e., when the distracter stimuli were the opposite gender to the targets, allowing a gender comparison), the pattern of gender attitudes of heterosexual targets and gay targets was the same. That is, lesbian targets were implicitly associated with positive attributes, and gay male targets were implicitly associated with negative attributes. However, when sexual orientation was salient, the same set of gay targets the pattern of results was strongly attenuated but reversed. It is important to note that this reversal in the pattern of results occurred as a function of manipulating the distracter targets in the task. That is, the same set of pictures (e.g. famous lesbians) elicited positive attitudes when the distracter stimuli were pictures of males but negative attitudes when the distracter stimuli were pictures of heterosexual females.

Using the same method, Study 2 showed that pattern of implicit attitudes found in Study 1 were generally replicated across samples of gay men, lesbians, and heterosexual men and women, however, with a few important variations. First, the attitudes elicited using contextual variations appears to be strongest with female participants; gay and heterosexual male participants demonstrated attenuated levels of implicit attitudes towards all targets. This finding could be explained by the suggestion of Rudman and Goodwin

(2004) that men lack a mechanism that stimulates automatic own group preferences. This explanation would also be consistent with the results from Studies 4 and 5 by Mitchell and colleagues (2003) who used only female participants. Second, there was evidence that lesbian participants extend the female in-group bias to include sexual orientation. Specifically, lesbian participants demonstrated the in-group bias (i.e., stronger FEMALE+GOOD than FEMALE+BAD implicit associations) to female targets across all blocks, regardless of whether they were straight or lesbians.

In summary, these two studies provide initial evidence that the person-based approach is able to assess the two intended facets of these stimuli (i.e., gender and sexual orientation), allowing these important and often intertwined attitudes to be separated. It is important to recognize that this effect (i.e., the reversal patterns of the valence of attitudes) appears to be stronger for women, or attenuated for men. This appears to be evidence that the automatic in-group bias of female targets (as suggested by Rudman & Goodwin, 2004) extends to lesbian women. Furthermore, the findings of these studies demonstrate that attitudes toward gay men and lesbians are distinct, and differ as a function of the gender and sexual orientation of the attitude-holder, and for these reasons they should be assessed separately. Thus, in response to the first major aim of this thesis, the evidence suggests that the person-based approach can indeed use contextual variations to make gender or sexual orientation salient, and thus disentangle implicit gender attitudes from implicit sexual orientation attitudes.

7.1.2 Review of Study 3

Although the first two studies provided evidence that contextual variation can be used to disentangle implicit attitudes towards the gender of a target from the implicit attitudes towards the sexual orientation of a target, the question still remained of whether the observed attitudes towards the sexual orientation of targets in this study would be any different from the observed attitude towards sexual orientation found in studies using category-based approaches (e.g., Banse et al., 2001; Gabriel & Banse, 2006; Gabriel et al., 2007; Steffens, 2005; Steffens & Buchner, 2003, etc.). Thus, the second empirical chapter used a within-subjects manipulation to directly compare implicit person-based anti-gay attitudes with responses to implicit category-based anti-gay attitudes. Although implicit attitudes in this sample were relatively weak, they varied widely as a function of the method of representation used. When responding to category-based stimuli, participants implicitly evaluated lesbians as more implicit positive than gay men. However, when responding to person-based stimuli, participants implicitly evaluated lesbians as less positive than gay men (i.e., a reversed pattern of results), consistent with the findings of Studies 1 and 2. Thus, in response to the second major aim of the thesis, the evidence suggests that the person-based approach does indeed measure implicit gay attitudes that are different from those elicited by typically used stimuli.

In summary, Studies 1 and 2 revealed that implicit attitudes towards a gay target diverged as a function of the salient social category being measured (e.g., gender- or sexual orientation-based attitudes) when assessed using the person-based approach. Study 3 provided evidence that implicit category-based anti-gay attitudes (i.e., toward the social category of GAY) differ from implicit person-based anti-gay attitudes (i.e., towards gay

people). In fact, the former more strongly conform to pattern of the gender-based attitudes than sexual orientation implicit person-based attitudes. This shows, at the very least, that the two approaches measure something different from each other, though further research will be needed to understand the implication of these findings.

7.2 Issues of Stimuli Selection

The evidence presented for the person-based approach has produced some exciting findings, but has also raised questions that need addressing. These questions largely result from potential confounds inherent in the stimuli used in the person-based approach, and in particular their fame-status. In the use of famous faces raises three stimuli-specific potential confounds: (a) halo effects driven by the celebrity status of the stimuli, (b) a stereotype-congruence bias, and (c) stimuli recognition issues. Before doing so, it is worth noting that, although stimuli used in this thesis were pre-tested to ensure equivalence on several important dimensions (including fame, attractiveness, and likeability), they were piloted in isolation and not in the context of social category salience. Given that the stimuli were used in experiments in a fashion that made their gender or sexual orientation salient, it might have made more sense to pilot them under the same conditions. However, the present studies showed that attitudes towards the stimuli vary as a function of category salience (which is achieved by manipulating the distractor stimuli) despite the fact that the target stimuli did not change. For example, the set of stimuli that are well-known gay men elicited negative implicit attitudes when their gender was salient, and *the same set of stimuli* elicited positive implicit attitudes when their sexual orientation is salient. Thus, given that the stimuli do not change, this over-sight when pre-testing the stimuli is unlikely to account for the observed experimental results.

7.2.1 Fame-based halo effects

The first potential confound of using pictures of famous gay and straight people as stimuli in the person-based approach is famous gay men and lesbians, just like famous straight men and women, differ from non-famous gay or straight targets in several important ways. Apart from their fame, which has the potential to produce halo effects (i.e., a response bias in which the global opinion of someone is based on one element; e.g., Thorndike, 1920), famous people are more familiar than non-famous people (also consider mere exposure effects, see Jacoby, Kelley, Brown, & Jasechko, 1989), and they are also likely to be substantially wealthier, more powerful, more attractive, and better-liked (i.e., higher status).

Research has shown that stereotypically attractive faces of both genders elicit more positive evaluative responses than non-attractive faces (Van Leeuwen & Neil Macrae, 2004). Bearing in mind that famous people are more likely to be attractive than non-famous people, this may impact the implicit evaluations of famous stimuli. Moreover, Dasgupta and Greenwald (2001) demonstrated the effect of positive and negative fame on implicit attitudes. They used well-liked African Americans and disliked Caucasian Americans (e.g., Michael Jordan and Ted Bundy), and then they used well-liked Caucasian Americans disliked African Americans (e.g., John F. Kennedy and Mike Tyson). They found that using well-liked African Americans and disliked Caucasian Americans weakened implicit racial bias in an IAT both immediately after exposure, and after a 24-hour period.

Both of the findings discussed above demonstrate the effect of stimuli that differ in attractiveness or valence. This is not the case with the person-based approach, which uses

straight men, straight women, gay men, and lesbian individuals who have equal levels of fame as stimuli, essentially controlling for fame. Thus, while it is possible that fame-based halo effect may attenuate negative implicit associations, there is no reason to assume that this would not occur equally for each of the straight male and female, and gay male and lesbian stimuli. As a result, any effect of fame should not have systematically influenced the findings with the exception of reducing the overall negative implicit associations. However, as can be seen from Studies 1 - 3, strong negative implicit associations were found for famous straight and gay men when gender was salient is consistent with previous research for non-famous targets (e.g., Rudman & Goodwin, 2004). That is, the implicit positive attitudes towards females and negative attitudes towards (famous) males, which suggests that the potential for halo effects is of limited concern.

7.2.2 Stereotype-congruence bias

A second potential confound of the fame stimuli is that of a stereotype-congruence bias (i.e., stereotypes of gay men being creative and dramatic; (see Clausell & Fiske, 2005). As such, it is stereotype-congruent for gay men to pursue artistic vocations (e.g., acting, singing, dancing) in which being creative and dramatic is not only acceptable, but would be advantageous (e.g., Niedlich & Steffens, 2015). Thus, gay men who were famous for being actors and singers are stereotype-congruent stimuli. In contrast, the stereotypes of lesbians reflect competitive and goal-oriented pursuits (Brambilla, Carnaghi, & Ravenna, 2011; in line with implicit inversion theory, see Kite & Deaux, 1987), which means the use of famous lesbian actresses, were less stereotype consistent stimuli. It is unclear if there are relevant stereotypes for heterosexual men and women. However, it is possible that the stereotype-consistency disparity for gay men and lesbian stimuli may have produced a

difference in fluency that could partly explain the unexpected negative implicit person-based attitudes towards lesbians (e.g., Rubin, Paolini, & Crisp, 2010). However, given that the implicit gender-based attitudes towards these *same* famous lesbian targets were reversed (when compared to their sexual orientation based attitudes), this would, again, appear to be of limited concern.

7.2.3 Stimuli recognition versus task performance

Male participants in Study 2 demonstrated attenuated implicit associations, which could be driven by the accuracy and frequency of stimuli recognition (as a function of the fame of the stimuli). For example, there may be gender differences in length of time spent being exposed to famous individuals, or levels of motivation to be familiar with famous individuals. Thus, the gender differences in attitudes reported in Study 1 could be group-based bias (Rudman & Goodwin, 2004), or alternatively the attenuated results of the male participants could arguably be attributed to females being more familiar with famous faces than males. However, three factors suggest this may not be the case. First, stimuli were piloted with a sample of men and women who were asked to identify whether the person was famous or not, and whether they knew them as being straight or gay. Only stimuli that were correctly identified by > 90% of the sample were used. Second, participants were shown the faces of all target stimuli prior to each experimental block. Finally, empirical research has also shown that there are no gender differences in name or face recognition of famous individuals (Rizzo, Venneri, & Papagno, 2002). Thus, it seems more likely that the attenuated results of male participants reflect strong task performance on both positive and negative blocks resulting in smaller difference (i.e., attitude) scores. A speculative explanation to this could be in gender differences in the amount of time spent playing video

games, on average males spend more time than females playing video games both as adults and as children (Cassell & Jenkins, 2000; Kafai, Heeter, Denner, & Sun, 2008). This suggests that they may be better rehearsed at, and be more familiar with learning about, tasks that are similar to implicit measures.

7.3 Future Direction and New Challenges

As discussed in Chapter 4, it is possible to introduce participants to novel, ordinary targets during a learning phase of the experiment, which would address all of the issues resulting from the use of famous stimuli. The names or the faces of these novel stimuli could then be used, and have been used in domains such as attitudes towards politicians (green vs. not green; Rudman et al., 2013), males (feminist [vs. nonfeminist] men; Rudman et al., 2012), and even towards affirmative action (vs. merit based) companies (Phelan & Rudman, 2011). However, these approaches are less efficient than the person-based approach, due to the use of a learning phase. In summary, while there are some fame-based issues with using well-known individuals as stimuli, the evidence presented so far suggests that the person-based approach is a useable methodology that is meaningfully different from existing techniques. As more evidence for the person-based approach accumulates, researchers using this approach can refine any interpretation confounds that may result from the interaction of the targets' sexual orientation and fame.

7.4 Conclusions from the Initial Evidence

The evidence presented across these three studies suggests that the person-based method of representation is a good alternative to existing methods of representation. The limitations of this method are few and of limited concern while its advantages are numerous. For example, there is compelling evidence that the person-based method is able

to elicit demonstrably different attitudes towards a target's gender from the same target's sexual orientation, and that this occurs only as a function of the contextual variation of the salient social category. This cannot be achieved by typical category-based stimuli. Moreover, these attitudes are qualitatively different from those elicited by category-based attitudes. The person-based approach allows the stimuli to more closely align with those used in other implicit attitude research (i.e., the use of a single face to represent the evaluated construct). Finally, this approach is efficient in that participants do not need to complete a stimuli learning phase (as would need to occur with non-familiar stimuli) which is time consuming, cognitively depleting, and likely to have a high rate of error.

Thus far, the findings from the person-based approach have been replicated across three studies and different samples, demonstrating their ability to be replicated. In each case, the measure has demonstrated good to excellent reliability. In combination, the evidence suggests that the person-based approach provides a unique methodological alternative when assessing implicit attitudes to a social category, even when there are no unique visible features associated with that social category (e.g., Freeman et al., 2010). Moreover, these results demonstrate consistencies with the existing literature (e.g., positive attitudes toward women when gender is salient), but also important patterns of variability in attitudes towards gender- and sexual orientation-based group memberships, which are frequently overlooked in research into gender and anti-gay attitudes. However, it is worth noting that this effect appears to be specific to female participants.

The first half of this dissertation has aimed to demonstrate the initial evidence for the person-based approach. The second half aims to demonstrate its application.

Specifically, by exploring the relationship between religion and implicit person-based anti-gay attitudes I will address two remaining unanswered questions:

3. *What individual difference factors predict implicit person-based gay attitudes?*
4. *Can the person-based approach, as used to make social categories salient, also be used to create a method-based contextual prime?*

Thus, in Chapter 8, I review the relevant literature on social psychology of attitudes and their interplay with religious-relevant factors. In Chapter 9, I will present research that explores demographic factors and religiosity dimensions as individual difference predictors of explicit and implicit person-based anti-gay attitudes. Finally, in Chapter 10, I will present research in which I use the contextual variation paradigm to elicit a method-based contextual religious prime, again through the manipulation of distracter stimuli to create a religious social category that is salient. Following this, Chapter 11 concludes the thesis by drawing together all the evidence presented and discussing the advantages and limitations of this new methodology.

Chapter 8 – Literature Review: Religion and Religiosity

*The role of religion is paradoxical. It makes prejudice and it unmakes prejudice. . . .
The sublimity of religious ideals is offset by the horrors of persecution in
the name of these same ideals.*
- Gordon Allport (1954, p.413)

8.1. Introduction

The contribution of religion to social psychological phenomena is complex, with a large body of research demonstrating that its specific influence on social attitudes and behaviours range from the positive (i.e., increased charitable behaviours; Hernandez & Preston, 2010) to the very negative (e.g., the secretariat divide in Ireland; Muldoon, 2004). For this reason, researchers who have debated the potential for religion to result in either positive (e.g., increasing intergroup tolerance; Hunsberger, 1995) or negative (e.g., increasing intergroup hostility; Hunsberger & Jackson, 2005) contributions to societal attitudes have been frustrated. Even for a given topic (e.g., prejudice), there is a range of findings. The literature that is relevant to social attitudes, and specifically anti-gay attitudes, will be reviewed in this chapter. However, the definition and issue of measuring religiosity will first be discussed.

8.2 Measuring Religion vs. Religiosity

The measurement of religiosity, or how to best measure an individual's religion and religious beliefs has plagued psychological research (Allport, 1954; Anderson, 2015; Saroglou, 2009). Researchers have often adopted the simplistic categorical measure of religious affiliation, used as an independent variable, assessed by asking people which

religious category they identify with (e.g., Christian, Muslim, Jewish, Atheist). This is problematic because even the use of these labels is not always consistent. For example, an individual who was “raised Catholic” but has no further contact with religion, another who attends church several times a week, and another who attends services only at Christmas and Easter may report that they are Catholic. What is clear from this example is that there is likely to be a very different impact of religion in each of their lives. Consequently, the effect of religiosity measured this way is very likely to be inconsistent with no clear relationship with any subsequent construct. For this reason, recent contributions to this topic suggest that religiosity measured as the frequency or intensity of how the individual uses religion in the daily lives might be a more useful variable (Ahrold & Meston, 2010; Saroglou, 2009; Whitley, 2009). Returning to the example, using measures of religiosity (usually continuous) allows for a different and arguably more meaningful factor for consideration in social psychology.

The distinction between religion or religious affiliation and religiosity was defined by early researchers of the psychology of religion (e.g., Allport, 1954; Allport & Ross, 1967) who recognized that the degree to which people are involved in that religion is more important than the religion with which an individual affiliates (Ahrold & Meston, 2010; Saroglou, 2009; Whitley, 2009). Further factors were identified to distinguish between not just intensity of religious engagement, but also between types of beliefs. For example, Religious Fundamentalism (RF) is a factor which is characterised by a tendency to perceive religious teachings as unchanging and unfaultable; this religiosity dimension has been found to positively correlate with general prejudice (Altemeyer & Hunsberger, 1992; Batson, Schoenrade, & Ventis, 1993; Duck & Hunsberger, 1999; Hunsberger, 1996;

Hunsberger & Jackson, 2005; Laythe, Finkel, Bringle, & Kirkpatrick, 2002; Rowatt & Franklin, 2004; Rowatt, Franklin, & Cotton, 2005; Rowatt et al., 2009) and also with the specific case of anti-gay attitudes (e.g., Ahrold & Meston, 2010; Anderson & Koc, 2015; Fulton, Gorsuch, & Maynard, 1999; Laythe, Finkel, & Kirkpatrick, 2001; Whitley, 2009).

Allport and Ross (1967) conceptualised religiosity differently. Specifically, they proposed two religious orientations. Intrinsic orientation is a personal endorsement of religious faith and use of religion, and has been found to be generally unrelated to prejudice (Allport & Ross, 1967; Altemeyer & Hunsberger, 1992), but has been found to be correlated with anti-gay attitudes (Herek, 1987; McFarland, 1989). In contrast, extrinsic orientation is conceptualised as a utilitarian approach to religion, and has been found to be generally correlated with all forms of prejudice (Allport & Ross, 1967; Altemeyer & Hunsberger, 1992; Kirkpatrick, 1993) but not with anti-gay attitudes (Ford, Brignall, VanValey, & Macaluso, 2009; Whitley, 2009). These findings suggest extrinsically oriented individuals who are not motivated by religious doctrine may, consequently, have no reason to feel prejudice towards gay people. However, this may only hold for some religions. For example, Anderson and Koc (2015) found that extrinsic religiosity predicted explicit anti-gay attitudes in Muslims, but that intrinsic religiosity did not. We suggested that, consistent with the arguments of Ford and his colleagues (2009), overarching societal conditions of patriarchy and prevailing anti-gay attitudes in Turkey might result in anti-gay attitudes among extrinsically oriented individuals being bolstered, rather than attenuated.

A form of religiosity that is frequently found to be unrelated to prejudice is Quest (Batson & Schoenrade, 1991a, 1991b). Questing individuals tend to view religion as a means for searching for meaning in their lives, and incorporate religious doubting into their

identity (Batson, 1976). Mak and Tsang (2008) explored the treatment of a sexually promiscuous lesbian target compared to a sexually promiscuous straight target as a function of the participant's levels of religiosity. They found no difference in the treatment of the target (i.e., a confederate) by individuals who were high in a Questing orientation. However, they did find that intrinsically oriented individuals were less likely to help the lesbian confederate compared to the straight confederate.

8.3 A causal relationship between religion and prejudice?

Allport (1954) summarised the paradoxical potential for religion to lead to pro- and anti-social attitudes in his classic observation that it is the role of religion to both “make prejudice and unmake prejudice” (p.413). Since then, this relationship has been widely debated with conflicting empirical data (Hall, Matz, & Wood, 2010; Whitley, 2009).

When considering the complex role of religion in prejudice research, it can be useful to explore the basis for religion-derived beliefs. For example, examination of the Christian bible reveals two contradicting messages for how a Christian individual should treat others. One message leads to pro-social attitudes and behaviours. For example, the biblical proclamations such as “love one another” promotes tolerance and altruism (Jesus, John. 13:34, World English Bible). This is also consistent with other biblical passages (e.g., “Love your enemies and bless those who curse you”; Jesus, Matt. 5:44, World English Bible) but stand in direct contrast to messages that seem to advocate anti-social attitudes and behaviours towards certain groups. For example, “Thou shalt not lie with mankind, as with womankind: it is an abomination” (on gay men; Leviticus. 18:22, King James Version) or “Let the woman learn in silence with all subjection. But I suffer not a woman to

teach, nor to usurp authority over the man, but to be in silence” (on women; 1st Timothy 2:11-5). These latter passages may lead to prejudiced attitudes that seems to be supported and condoned by the contemporary Christian religion, which manifest as condemnation of homosexuality and a patriarchal exclusivity in some Christian denominations (e.g., Roman Catholicism).

If an individual holds a dogmatic doctrine as central to their beliefs, then there is room to understand at a logical level why religious fundamentalists may discriminate against others whose behaviours violate their own beliefs (McFarland, 1989). This paradox exists in most religions of the world with some variation in how harshly the doctrine condemns homosexuality, arguably depending on translations (Ashford, 2013). In summary, religious doctrine can send mixed messages about how subscribers to their religion are supposed to treat out-group members.

In the specific case of attitudes toward gay men and lesbians, religion and religious beliefs are associated with anti-gay attitudes (Barton, 2010; Hooghe, Claes, Harell, Quintelier, & Dejaeghere, 2010; Rowatt et al., 2006; Toulouse, 2002; Tsang & Rowatt, 2007; Whitley, 2009). One argument for this is that gay men and lesbians have a lifestyle that is inconsistent with the teachings of most of the major religions of the world (Pereira et al., 2009; Whitley, 2009), with the exception of Buddhism (Detenber et al., 2007; although Buddhists have reported beliefs in the controllability of homosexual orientations, see Vilaythong et al., 2010). For these reasons, religious affiliation with most major religions, and the religiosity factors of RF and an intrinsic orientation has often been found to be important predictors of explicit anti-gay attitudes. This has been well documented in Christian samples (e.g., Finlay & Walther, 2003; Haslam & Levy, 2006; Herek, 1987;

Herek & Capitano, 1996; Hunsberger & Jackson, 2005; Larsen et al., 1980; McFarland, 1989; Toulouse, 2002). For example, Finlay and Walther (2003) explored the relationship between anti-gay attitudes and religious affiliation. They found that Protestants and Catholics reported more explicit anti-gay attitudes than non-Christians and those who identified as non-affiliated. This result is consistent throughout the literature (Herek, 1987; Hunsberger & Jackson, 2005; Toulouse, 2002).

The relationship between religiosity and implicit anti-gay attitudes has received only limited attention, but is consistent with the findings for religiosity and explicit attitudes. For example, Rowatt and colleagues (2006) explored the relationship between implicit anti-gay attitudes and religiosity among Protestant students and found that the religiosity measure of Christian orthodoxy was correlated with a homosexuality-IAT, as well as explicit anti-gay attitudes and scales measuring right-wing authoritarianism and impression management.

More recently, Vilaythong et al. (2010) explored whether the effects of priming religious messages of compassion would influence Christians' and Buddhists' implicit attitudes toward homosexuality. Participants evaluated five "golden rule" religious messages (e.g., "do unto others as you would have them do to you", Jesus, Luke 6:31) attributed to either Buddha or Jesus. Results showed that after reading a Buddha-attributed golden rule message, Christian participants exhibited more explicitly negative attitudes toward homosexuals than did Buddhist participants who read a Jesus-attributed golden rule message. The authors interpreted their results as indicating that messages of compassion elicited attitudes of prejudice if the message is from an out-group source. It is noteworthy

that no differences in implicit attitudes were found between religious prime conditions for either Christians or Buddhists (Vilaythong et al., 2010).

Traditional Islamic scholars state that Islam also condemns homosexuality based on doctrinal interpretations (Jamal, 2001; Siraj, 2009). More specifically, these scholars claim that Islamic doctrine views homosexuality as deviant, sinful, and as a revolt against God (Abu-Saud, 1990; Yip, 2004, 2008), which leaves no possibility for simultaneous identifications as gay and Muslim (Duran, 1993). Although, there have been attempts for alternative interpretations of the Qur'an by more contemporary scholars which affords inclusivity of gay individuals (Hekma, 2002; Jamal, 2001; Kugle, 2003), the majority of Muslim communities do not endorse these interpretations. Arguably, we can conclude that Islam also prescribes anti-gay attitudes.

To date, there are only a few empirical studies of anti-gay attitudes with Muslim samples in the literature. These studies suggest that explicit anti-gay attitudes are prevalent and particularly negative (Anderson & Koc, 2015; Duyan & Duyan, 2005; Duyan, Gelbal, & Duyan, 2013; Güney, Kargı, & Çorbacı-Oruç, 2004; with the notable exception of occasional positive attitudes toward lesbians, Gelbal & Duyan 2006). Further, there are even fewer studies exploring implicit anti-gay attitudes, and these are mixed, with one finding no difference in implicit anti-gay attitudes between Muslim and non-Muslim students in Germany (Klocke, 2014), while a second found that, using a community sample from Turkey, implicit anti-gay attitudes were much more negative for Muslims than Atheists (Anderson & Koc, 2015). Furthermore, there appears to be little concern for controlling the explicit expression of these attitudes.

Explicit anti-gay attitudes of Muslims have repeatedly been consistently found to be predicted by participant and target gender, strength of religious affiliation, and interpersonal contact with gay people (Duyan & Duyan, 2005; Gelbal & Duyan, 2006; Sakalli, 2002a, 2002b, 2003). Findings for gender revealed that female Muslims reported more anti-gay attitudes toward lesbian targets than gay male targets, while male Muslims reported equally strong anti-gay attitudes toward both gay male and lesbian targets (Oksal, 2008). Consistent with previous religiosity-anti-gay findings, Muslims who reported stronger affiliation with their religion also reported higher levels of anti-gay attitudes (Gelbal & Duyan, 2006). Also consistent with previous research, interpersonal contact between heterosexual and gay Muslims was found to predict lower levels of explicit anti-gay attitudes of these heterosexual Muslims (Sakalli, 2002b; 2002c); this effect did not extend to implicit anti-gay attitudes (Anderson & Koç, 2015, Study 2).

Islam appears to have a particularly strong association with anti-gay attitudes, relative to other religions. A study by Hooghe and colleagues (2010) explored the effect of different religious affiliation (i.e., Muslim, Jewish, Catholic, Protestant, Orthodox, and other Christian denominations) on tolerance of homosexuality (i.e., support for gay rights) in samples from Belgium and Canada. They found that scores were least tolerant from the Islamic participants. Similarly, an inter-faith poll by Jaspal and Siraj (2011) found that intolerance was also low from Muslim participants who lived in the United Kingdom. In contrast to public acceptance of homosexuality (58%), none of the British Muslim participants agreed that homosexuality was morally acceptable. It is also noteworthy that one third of the French Muslim respondents reported no intolerance of homosexuality.

8.4 Concluding Remarks

As demonstrated by this brief review, the simplistic conceptualisation of religion as religious affiliation is problematic. In contrast, the use of religiosity as measured by factors such as RF, intrinsic and extrinsic orientations and Quest, important effects can be observed contribution to understandings of the religion-prejudice relationship (for a review, see Anderson, 2015). An interesting extension of this research is the effect of specific religious teachings, as demonstrated by religious message priming effects on anti-gay prejudice is only just beginning, as is the relationship between religious factors (e.g., affiliation, religiosity, messages) and implicit anti-gay prejudice. In fact, there is much work to be done, especially to extend the small literature on religion and implicit anti-gay prejudice to include implicit person-based anti-gay attitudes.

The following two chapters undertake the first step. First, I will explore the relationship between religion and the person-based approach to implicit anti-gay attitudes. In doing so, this research will provide further evidence for the person-based approach as well as a demonstration of its applicability. The next chapter in this section will explore demographic (including religious affiliation) and religiosity measures as predictors of explicit and implicit person-based anti-gay attitudes. Taken together, these findings will provide evidence for the relationship between individual differences, religion, religiosity and implicit person-based anti-gay attitudes. These findings will also contribute to the argument for the inclusion of religiosity factors in place of simple religious affiliation. The final empirical chapter of this thesis will present a study which extends the person-based approach to implicit anti-gay attitudes to include a contextual variation religious prime. As discussed previously (Chapters 4, 5, and 6), the person-based approach

relies on the contextual variation of social category salience through the manipulation of distracter stimuli. Thus, this study uses religious distracters that are the same-gender as the gay target to produce the sexual orientation salience as well as a religious prime (i.e., in blocks where the targets are lesbians, the distracter stimuli are nuns) and to explore effects of religious contextual priming on subsequent implicit person-based anti-gay attitudes. In combination, these empirical chapters provide groundwork for future exploration of the application of implicit person-based anti-gay attitudes and their relationship with religiosity.

Chapter 9 – Study 4: Predictors of Implicit person-based Gay Attitudes

A person once asked me if I approved of homosexuality. I replied with: “Tell me: when God looks at a gay person does he endorse the existence of the person with love, or reject and condemn this person?” We must always consider the person.

- Pope Francis (2014)

Title

Religious Fundamentalism Predicts Explicit, But Not Implicit Anti-Gay Attitudes.

Abstract

The current study explores the contribution of demographic and religiosity factors in predicting explicit and implicit anti-gay attitudes. An Australian community sample comprising 75 male and 74 female participants completed measures of religiosity, and of explicit and implicit (person-based) anti-gay attitudes. Religious fundamentalism, but not religious affiliation, was shown to be a strong positive predictor of explicit anti-gay attitudes toward both gay men and lesbians. Unexpectedly, neither demographic nor religiosity factors significantly predicted implicit anti-gay attitudes. After showing that RF is central to the relationship between religion and explicit anti-gay attitudes, I suggest these findings are evidence that, for religious individuals, explicit anti-gay attitudes reflect doctrinal proscription. Explanations of the absence of significant relationships between implicit anti-gay attitudes, demographics, and religiosity are discussed.

9.1.1 Background

While there is a well-established literature on predictors of explicit anti-gay attitudes (Baron & Banaji, 2006; Dolinski, 2010; Dovidio & Gaertner, 1991; Finlay & Walther, 2003; Frost & Meyer, 2009; Whitley, 2009; for a recent review, see Herek, 2013) there is limited research on the predictors or correlates of implicit anti-gay attitudes. Previous research has found that, as is the case with explicit anti-gay attitudes, certain social groups tend to demonstrate more implicit anti-gay attitudes than others. Namely, men compared to women (e.g., Banse et al., 2001; Nosek et al., 2005), the religious compared to the non-religious (e.g., Rowatt et al., 2009; Tsang & Rowatt, 2007), and heterosexual people compared to gay people, tend to demonstrate higher levels of implicit anti-gay attitudes (Cullen & Barnes-Holmes, 2008). These findings are entirely consistent with those for explicit antigay attitudes (see Chapter 3). This suggests that explicit and implicit anti-gay bias may be more similar than some other prejudices (e.g., explicit vs. implicit racism) which are both predicted by and predictive of very different factors (DeCoster et al., 2006; Nosek, 2007; Nosek & Smyth, 2007; Payne, Burkley, & Stokes, 2008; Rohner & Björklund, 2006; Rudman, 2011).

9.1.2 The Relationship between Religion and Anti-Gay Attitudes

Research studying the relationship between religion and social attitudes has operationalised religion either as self-identified religious affiliation, or as individual difference factors that reflect (e.g., differences in the kinds of beliefs and behaviours associated with religion; Ahrold & Meston, 2010; Saroglou, 2009). As already discussed (see Chapter 8), the relationship between explicit anti-gay attitudes and religion is well established, with negative attitudes being consistently higher for self-identified members of

all major religions compared to those who do not self-identify as religious (e.g., Finlay & Walther, 2003), including Christianity (e.g., Whitley, 2009), Islam (e.g., Anderson & Koc, 2015; Duyan & Duyan, 2005), and Judaism (e.g., Dejowski, 1992), but not Buddhism (Hunsberger, 1996). In contrast, there is limited research on the role of religiosity in implicit anti-gay attitudes (e.g., Rowatt et al., 2009; Tsang & Rowatt, 2007)

Rowatt et al. (2006) found that levels of religious fundamentalism (i.e., a religiosity dimension concerned with religious meaning that is drawn directly from doctrine in unchangeable is nature; Altemeyer & Hunsberger, 1992) correlated strongly with both explicit and implicit anti-gay attitudes. Tsang and Rowatt (2007) found that an intrinsic religious orientation (i.e., religious based motivations Allport & Ross, 1967) uniquely predicts implicit anti-gay attitudes, even though it has not previously been found to predict attitudes toward other targets of prejudice. These studies provided important groundwork in this area of research; however, there is empirical work yet to be completed in this field.

9.1.3 The Current Study

Based on the key findings that religious fundamentalism (e.g., Rowatt et al., 2006) and intrinsic religious (e.g., Tsang & Rowatt, 2007) are important predictors of IAT measured implicit anti-gay attitudes, this study will include both as predictors of implicit person-based anti-gay attitudes. In addition, I will ask people to provide their self-identified religious affiliation. In doing so, this study will allow consideration of the ongoing controversy about the relationship between religious beliefs and religiosity as predictors of anti-gay attitudes and will also contribute to the literature exploring the relationship between these factors and implicit anti-gay attitudes.

Importantly, this study will use the person-based approach to measuring implicit anti-gay attitudes, whereas the existing literature has reported findings based on category-based approaches (i.e., stimuli comprising pictures of same-sex couples and gay-relevant symbols). This is arguably a multi-faceted and over-inclusive version of homosexuality, and is therefore problematic. For example, it might capture attitudes towards gay people, but it might also encompass attitudes towards sexual behaviours, same-sex marriage, political activism, and displays of public affections.

There is no previous research on which to build hypotheses that are specific to the person-based approach, so predictions for this study are built on existing research that provides evidence of constructs that predict explicit and implicit category-based anti-gay attitudes. The hypotheses for the current study are as follows:

Hypothesis 1: Consistent with previous findings, I expect low levels of explicit anti-gay attitudes and moderate implicit anti-gay attitudes.

Hypothesis 2: Based on existing literature, I expect gender (e.g., Dolinski, 2010), sexual orientation (e.g., Allen & Oleson, 1999), age (e.g., Whitley, 2009), and religious affiliation (e.g., Lewis & Gossett, 2008) to be predictors of anti-gay attitudes.

Hypothesis 3: I also expect religiosity dimensions to be predictors of anti-gay attitudes. Specifically, I expect religious fundamentalism (Rowatt et al., 2006) and an intrinsic religious orientation (Tsang & Rowatt, 2007) to predict negative explicit and implicit anti-gay attitudes.

9.2 Method

9.2.1 Participants

The sample comprised 73 males ($M_{\text{age}} = 20.76$ years, $SD_{\text{age}} = 14.33$ years; 29 heterosexual) and 74 females ($M_{\text{age}} = 18.19$ years, $SD_{\text{age}} = 10.78$ years; 48 identified as heterosexual) who were all volunteers from a community sample. Twenty-seven participants failed to disclose demographic details (15.52%). Seventy of the participants identified as Christians (male = 36) and 72 participants identified as non-religious (i.e., Atheist or Agnostic, male = 36). Only 2 participants identified as Jewish and were excluded from analyses.

9.2.2 Measures

9.2.2.1 *Explicit measures.*

The Religious Fundamentalism Scale (RF; Altemeyer & Hunsberger, 1992) comprises 20 items about individual beliefs that the fundamental truth about humanity and deity is clearly contained in one set of unchanging religious teachings (e.g., “Whenever science and sacred scripture conflict, science must be wrong.”). Participants are asked to endorse statements on a scale ranging from -4 (*strongly disagree*) to +4 (*strongly agree*). After reverse scoring appropriate items, an average score is calculated. Higher scores indicate higher levels of fundamentalist religious beliefs ($\alpha = .93$).

The Quest Scale (Batson & Schoenrade, 1991a) comprises 12 items about an individual’s tendency to pursue meaning in life through religious doubts (e.g., “My life experiences have led me to rethink my religious convictions.”). Participants are asked to endorse statements on a scale ranging from 1 (*strongly disagree*) to 9 (*strongly agree*).

After reverse scoring appropriate items, an average score is calculated. Higher scores indicate a higher level of religious questing ($\alpha = .78$).

The Religious Orientation Scale (ROS; Allport & Ross, 1967) comprises two subscales that distinguish the practice of religion as a self-contained goal (i.e., intrinsic, 9-items; e.g., “My religious beliefs are really what lie behind my whole approach to life.”; $\alpha = .91$) from the religious rituals (i.e., extrinsic, 12-items; e.g., “I pray chiefly because I have been taught to pray.”; $\alpha = .78$). Participants are asked to endorse statements on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An average score is calculated for each subscale, and higher scores indicate a stronger respective religious orientation.

The Attitudes Toward Lesbians and Gay Men Scale (ATLG; Herek, 1984a) comprises 10 items measuring explicit attitudes toward lesbians (ATL; e.g., “Lesbians just can’t fit into our society”; $\alpha = .93$) and 10 items measuring explicit attitudes toward gay men (ATG; e.g., “Male homosexuals should not be allowed to teach school.”; ATG, $\alpha = .94$). Participants are asked to endorse statements on a scale ranging from 1 (*strongly disagree*) to 9 (*strongly agree*). An average score was calculated for each subscale, with higher scores indicating more negative explicit anti-gay attitudes.

9.2.2.2 Implicit measure.

The Go/No Go Association Task (GNAT; Nosek & Banaji, 2001) is a computerised speeded classification task that measures implicit associations between a target category and a target attribute. The current study used a 4-block GNAT, which assessed implicit associations between target categories (GAY MALE and LESBIAN) and target attributes (GOOD and BAD). Each block used distracters that were heterosexual and same-gender as

the targets (i.e., only sexual orientation salient blocks were administered). For example, in blocks where gay males were the target category, straight males were the distracter category. Target and distracter stimuli, and administration protocol, were the same used as used in Studies 1 – 3 (see Chapter 5 for a full description). For the current sample, the GNAT demonstrated acceptable reliabilities ($M_{\text{RaSSH}} = .78$, $SD_{\text{RaSSH}} = .11$; following protocol suggested by Williams & Kaufmann, 2012).

9.2.3 Procedure

Participants were recruited by an online advertisement. After giving informed consent, participants were directed to the website that hosted the study. Participants completed the online battery, which involved providing demographic details, responding to the religiosity and explicit anti-gay attitudes measures in a randomised sequence, and finally completing the 4-block GNAT. Participants were thanked for their time and provided with debriefing information.

9.3 Results

9.3.1 Descriptive statistics

The ATL, ATG, and RF scales were positively skewed. Natural Log transformations were applied to the ATL and ATG scales and a square root transformation was applied to the RF scale which corrected problems with normality. Statistical analyses were performed on transformed data, but non-transformed means and standard deviations are reported for ease of interpretation. Descriptive statistics and correlation coefficients are presented in Table 9. The sample reported relatively low levels of religiosity and explicit anti-gay attitudes. Although the sample demonstrated relatively neutral implicit attitudes

Table 9

Summary of Descriptive Statistics and Correlations for Religiosity Scales and Explicit Attitudes Toward Gay Men and Lesbians.

	Mean	SD	Correlations										
			1	2	3	4	5	6	7	age	gender	religion	sexuality
<i>Religiosity Scales</i>													
1. RF	3.41	1.58	-							.10	-.01	.47*	.31**
2. Intrinsic	2.68	1.00	.69**	-						.26*	.03	.43*	.23*
3. Extrinsic	2.72	0.59	.03	.19*	-					.09	.23*	.05	.02
4. Quest	5.33	1.34	-.01	.07	.016	-				.19	-.19	.06	.13
<i>Explicit attitudes</i>													
5. ATL	2.36	1.53	.69**	.42**	.01	-.02	-			-.21	-.06	.28**	.28*
6. ATG	2.34	1.72	.73**	.43**	-.10	-.06	.83**	-		-.07	-.18*	.31**	.32**
<i>Implicit attitudes</i>													
7. Lesbian	-0.10	1.12	-.11	-.07	.04	.04	-.10	-.10		-.18	-.07	-.08	-.04
8. Gay Male	0.21	0.97	-.15	-.13	-.15	.17*	-.04	-.11	.03	-.03	.01	-.05	.01

Note: * $p < .05$, ** $p < .001$; RF = Religious Fundamentalism; ATL = Attitudes Towards Lesbians; ATG = Attitudes Towards Gay Men; positive correlations indicate the following point-biserial correlations: religion = Christian affiliation; sexual orientation = heterosexual orientation; gender = male. Higher implicit attitude scores represent positive implicit attitudes; higher explicit scores represent negative explicit attitudes.

toward both gay men and lesbians, attitudes ranged from hostile (gay men $d' = -2.91$, lesbians $d' = -3.62$) to positive (gay men $d' = 2.91$, lesbians $d' = 2.16$). Correlations were found between explicit negative attitudes toward gay men and lesbians, and both RF and intrinsic religiosity dimensions. Point-biserial correlations existed between explicit negative attitudes toward gay men and lesbians, and religious affiliation and sexual orientation (i.e., were associated with being Christian and/or heterosexual).

9.3.2 Regression analyses

We conducted two hierarchical multiple regression analyses (MRA) in order to estimate the proportion of variance in explicit and implicit attitudes towards gay male targets, and then lesbian targets, that can be accounted for by attitude-relevant demographic factors and religiosity dimensions. For each regression, Step 1 included demographic variables (i.e., age, gender, sexual orientation, religious affiliation), and Step 2 included religiosity measures. Prior to interpreting results, data was screened for assumption violations. One case in the quest scale was treated as an outlier ($z = -3.09$, replaced with $M - 2xSD$; Tabachnick & Fidell, 2007) .

9.3.2.1 Predicting explicit anti-gay attitudes

Table 10 presents the results of the regression analyses conducted for prediction of explicit attitudes toward gay men (left) and lesbians (right). For the case of attitudes towards gay men, demographic factors accounted for a significant 34.80% of the variance in explicit attitudes, $F(4, 60) = 8.02, p < .001$. On the second step, religiosity factors were added to the regression equation, accounting for an additional 27.70% of the variance $\Delta F(4, 56) = 10.38, p < .001$. In combination, predictor variables accounted for 57.20% (adjusted

R^2) variance in reported attitudes towards gay men, $F(8, 64) = 11.71, p < .001$. This was a large effect (Cohen's $f^2 = 1.67$)²¹.

For the case of attitudes towards lesbians (right portion of Table 10), demographic factors accounted for a significant 29.20% of the variance in explicit attitudes, $F(4,60)=6.19, p<.001$. Addition of religiosity factors to the model, accounted for an additional 26.10% of the variance $\Delta F(4,56) = 8.16, p < .001$. In combination, predictor variables accounted for 55.30% (adjusted R^2) variance in reported attitudes towards lesbians, $F(8,56) = 8.62, p < .001$. This was also a large effect (Cohen's $f^2 = 1.24$).

Inspection of the regression coefficients and squared semi-partial correlations shows the same pattern of predicting variables existed for attitudes towards both gay men and lesbians. In Step 1 of the regression, demographic variables of gender, religious affiliation, and sexual orientation predicted explicit attitudes. Specifically, being male, Christian, and/or heterosexual predicted negative explicit anti-gay attitudes. In the final step of the model, gender and age (and sexual orientation for predicting attitudes toward gay men only) remained significant predictors. Interestingly, with the inclusion of religiosity measures, religious affiliation ceased to be a significant predictor of explicit anti-gay attitudes towards both genders. However, religious fundamentalism was a strong and positive predictor of explicit negative attitudes, uniquely accounting for 15.92% of the variance in explicit anti-gay attitudes towards gay men, and 16.48% of the variance in reported anti-gay attitudes towards lesbians. No other religiosity measures were significant predictors in the model.

²¹ Effect size for multiple regressions in this paper were based on the effects for the overall final model (i.e., calculated from the observed R^2 after the inclusion of the final step of the MRA), and were calculated using software by Soper (2015) based on the work of Cohen (1988) .

Table 10

Unstandardized (B) and Standardised (β) Regression Coefficients, and Semi-Partial Correlations for Each Predictor in Hierarchical Regression Models Predicting Explicit Anti-Gay Attitudes with Attitude-Relevant Demographic Factors and Religiosity Dimensions.

	ATG				ATL			
	<i>B</i>	<i>SE B</i>	β	sr^2	<i>B</i>	<i>SE B</i>	β	sr^2
Step 1								
Gender	1.28	0.40	0.38**	.11	0.33	0.14	0.30**	.07
Age	-0.06	0.02	-0.30**	.08	-0.02	0.01	-0.35**	.10
Religious affiliation	1.20	0.37	0.36**	.12	0.39	.013	0.35**	.12
Sexual orientation	1.57	0.39	0.48**	.18	0.41	0.13	0.37**	.11
Step 2								
Gender	1.02	0.32	.30*	.06	0.27	0.12	0.24*	.04
Age	-0.06	0.02	-.30*	.07	-0.03	0.01	-0.36**	.10
Religious affiliation	0.11	0.32	.03	<0.01	0.07	.012	0.06	<0.01
Sexual orientation	0.78	0.32	.23*	.04	0.19	0.12	0.17	.01
RF	.52	0.11	.58**	.30	0.18	0.04	0.60**	.16
Intrinsic	.23	0.19	.14	.02	<0.01	0.07	0.01	<0.01
Extrinsic	.04	0.24	.01	<0.01	0.10	0.09	0.10	.01
Quest	-.07	0.10	-.05	.01	0.01	0.04	0.02	<0.01

Note: * $p < .05$; ** $p < .001$; significant findings are presented in boldface font. RF = religious fundamentalism. Dummy coded variables: Gender (0 = female, 1 = male); Religion (0 = non-religious, 1 = Christian); sexual orientation (0 = gay, 1 = straight). Constants for explicit attitudes towards gay men: Step 1 = -2.42; Step 2 = -3.64; Constants for explicit attitudes towards lesbians: Step 1 = 1.83; Step 2 = 1.02.

9.3.2.2 Predicting implicit anti-gay attitudes

Table 11 presents the results of the regression analyses conducted for prediction of implicit attitudes toward gay men (left) and lesbians (right). For the case of attitudes towards gay men, demographic factors accounted for a non-significant 3.4% of the variance ($p = .72$). Religiosity factors were then added to the regression equation, accounting for an additional non-significant 8.30% of ($p = .27$). In combination, predictor variables accounted for only a non-significant 11.70% (adjusted R^2) variance in implicit attitudes towards gay men, ($p = .50$; Cohen's $f^2 = 0.13$).

In the case of the model predicting implicit attitudes towards lesbians (right portion of Table 11), demographic factors accounted for a non-significant 1.70% of the variance ($p = .90$). Religiosity factors were added to the regression equation, accounting for an additional non-significant 0.01% of ($\Delta, p = .971$). In combination, predictor variables accounted for only a non-significant 2.60% (adjusted) variance in demonstrated attitudes towards lesbians, ($p = .92$; Cohen's $f^2 = .03$).

9.4 Discussion

The present study explored demographic factors (e.g., age, gender, and religious affiliation) and individual differences in religiosity as predictors of explicit and implicit anti-gay attitudes. Consistent with previous research, a significant proportion of variance in explicit anti-gay attitudes toward gay men and lesbians was predicted by demographic and religious affiliation factors. This was the case despite the fact that the sample showed relatively low levels of explicit anti-gay attitudes, and that participants were not blind to the aim of the study before agreeing to participate.

Table 11

Unstandardized (B) and Standardised (β) Regression Coefficients, and Semi-Partial Correlations for Each Predictor in a Hierarchical Regression Model Predicting Implicit Anti-Gay Attitudes with Attitude-Relevant Demographic Factors and Religiosity Dimensions.

	Implicit attitudes toward gay men				Implicit attitudes toward lesbians			
	<i>B</i>	<i>SE B</i>	β	<i>sr</i> ²	<i>B</i>	<i>SE B</i>	β	<i>sr</i> ²
Step 1								
Gender	0.09	0.28	0.04	<0.01	-0.23	0.32	-0.11	<0.01
Age	-0.02	0.02	-0.19	0.03	<0.01	0.02	0.02	<0.01
Affiliation	-0.01	0.26	-0.01	<0.01	-0.18	0.29	-0.08	<0.01
Sexual orientation	0.04	0.27	0.02	<0.01	-0.17	0.31	-0.08	<0.01
Step 2								
Gender	0.08	0.29	0.04	<0.01	-0.20	0.35	-0.09	<0.01
Age	-0.03	0.02	-0.21	0.04	<0.01	0.02	0.02	<0.01
Affiliation	0.20	0.29	0.10	<0.01	-0.13	0.35	-0.06	<0.01
Sexual orientation	0.22	0.29	0.11	<0.01	-0.15	0.34	-0.07	<0.01
RF	-0.12	0.10	-0.23	0.02	-0.03	0.12	-0.06	<0.01
Intrinsic	-0.01	0.18	-0.01	<0.01	0.01	0.21	0.01	<0.01
Extrinsic	-0.12	0.22	-0.08	<0.01	0.01	0.26	0.01	<0.01
Quest	0.15	0.10	0.20	0.06	-0.08	0.12	-0.09	<0.01

Note: * $p < .05$; ** $p < .01$; *** $p < .001$; RF = religious fundamentalism; Affiliation = religious affiliation. Dummy coded variables: Gender (0=female, 1=male); Religion (0=non-religious, 1=Christian); sexual orientation (0=gay, 1=straight). Constants for implicit attitudes towards gay men: Step 1 =0.60, Step 2 =0.62; Constants for implicit attitudes towards lesbians: Step 1 =0.41; Step 2 =0.44.

The first step of the regression model explored the role of demographic variables as predictors of explicit anti-gay attitudes. As predicted in my second hypothesis, all demographic variables (i.e., age, gender, religious affiliation, and sexual orientation) were significant predictors, consistent with the existing literature (e.g., Dolinski, 2010; Jellison et al., 2004; Whitley, 2009). Interestingly, when religiosity factors were included in the second step of this model, religious affiliation ceased to be a significant predictor, supporting the proposal that religiosity is more important in the explicit prejudice-religion relationship than religious affiliation or alignments. Furthermore, RF was not only a strong predictor, but the *only* religiosity dimension that predicted these attitudes. This partially supports our third hypothesis, and is consistent with the findings of Rowatt and colleagues (2006) that suggested anti-gay attitudes were related to religious fundamentalism. However, the current findings failed to replicate Tsang and Rowatt's (2007) finding that intrinsic religious orientation was related to explicit anti-gay attitudes, or those of the meta-analysis that anti-gay attitudes are related to all religiosity dimensions except Quest (Whitley, 2009).

Somewhat unexpectedly, neither demographic factors nor religiosity dimensions significantly predicted implicit anti-gay attitudes. Thus, no support was found for our second and third hypotheses with regards to implicit anti-gay attitudes. Furthermore, measures of explicit and implicit were found to be statistically unrelated. This lack of correlation is consistent with previous research, which has found no significant relationship between implicit and explicit attitudes to the same attitude object (see Gawronski et al., 2006; Nosek, 2007; Nosek & Smyth, 2007).

9.4.1 Explaining the Link between Religion and Anti-Gay Attitudes

Explicit negative judgements of specific others can be proscribed by religion (e.g., bible passages such as “Thou shalt not lie with mankind, as with womankind: it is an abomination”; Leviticus. 18:22, King James Version) or may occur as a result of the symbolic threat that out-groups pose when they are perceived to violate a religions’ value system (e.g., Duck & Hunsberger, 1999; Herek, 1987). Both of these explanations can account for prejudice toward gay men and lesbians (e.g., Jonathan, 2008). Thus, for those who abide by religious teachings, negative attitudes towards homosexuality are permissible and even encouraged by various religious teachings. For this reason religious individuals may believe anti-gay attitudes might not only be permitted, but expected.

The processes pertaining to prejudice have been discussed in terms of having automatic and controlled components (e.g., Devine, 1989; Devine & Monteith, 1999). The automatic processes can be defined as non-conscious activations of associations that have been embedded within the individual, while the controlled component requires the individual's directed and active attention. Controlled processes are easily accessible to conscious awareness, require increased cognitive resources, and can be altered with intent. Thus, our findings that religious affiliation, and then RF in place of religious affiliation, does not predict implicit anti-gay attitudes may be interpreted as evidence that explicit anti-gay attitudes are rational and premeditated based on doctrinal proscription. Specifically, religious individuals might be adopting anti-gay attitudes in order to align with the teachings of the religion they subscribe to.

The final consideration point for discussion pertains to the use of a person-based representation of homosexuality. We have argued that previous research into implicit anti-gay attitudes (using a variety of category-based stimuli to represent homosexuality) might also be measuring attitudes toward related constructs, such as attitudes toward same-sex marriage, same-sex behaviours. These related constructs go directly against religious teachings. However, the person-based method of representation is argued to elicit responses to a nuanced version of anti-gay attitudes, namely, attitudes toward a gay or lesbian person rather than toward the amorphous category of homosexual. Importantly, being a gay person in itself does not necessarily violate religious teachings. As such, the absence of a relationship between implicit person-based anti-gay attitudes and religion could be driven by notions of “loving the sinner, hating the sin” (e.g., Mak & Tsang, 2008). If the attitudes being measured are toward a gay or lesbian person (who is being represented as an individual), then they would not elicit antipathy that is reserved for value-violating behaviours. Thus, neither religious affiliation nor religiosity measures should be related to person-based anti-gay attitudes.

9.4.2 Limitations and Future Directions

The findings of this study may be limited by sampling issues, and the motivations behind the participants’ self-selection to be involved with the study. Specifically, the sample is not particularly well-understood; demographic questions such as education level, political orientation, and levels of previous contact with gay men and lesbians were not asked, as they did not directly relate to the religion-relevant hypotheses. Moreover, participation was voluntary and participants were not blind to the aim of the study before agreeing to participate. As such, the findings of this study are likely to be under-reporting

anti-gay attitudes that would exist in the general population. However, the attenuated nature of the anti-gay attitudes in this sample has no direct implication for the interpretation of the results. A second limitation is that I only measured the anti-gay attitudes of Christians. In order to see if the mechanisms driving these attitudes are unique to Christianity, or exist with all religions, the current study should be replicated with participants from other religions.

The major limitation of this study is that the findings presented cannot be compared to existing research, because a different measure was being used. As such, the null findings could be a result of the sample (as discussed above), or it could be driven by the different measure (person-based vs. category-based approaches), or even the apparatus used (GNAT vs IAT). As such, a crucial next step in this line of research is to collect implicit category based anti-gay attitudes and the predictor variables from the same sample and make comparisons. Even more ideally would be to collect person-based and category-based attitudes in a within-subjects design, at which point more solid conclusions can be drawn.

9.4.3 Conclusions

Anti-gay attitudes have changed rapidly. It has been only 41 years since the declassification of ‘homosexuality’ as a mental disorder (Mendelson, 2003). Since then, there is some evidence that these attitudes are improving (see Herek & McLemore, 2013), but there is still unequivocal evidence that both gay men and lesbians still face substantial prejudice and discrimination (e.g., Herek, 2007; Herek & McLemore, 2013). This study explored the role of demographic factors and religiosity dimensions as predictors of explicit (i.e., consciously accessible) and implicit (i.e., consciously inaccessible) person-based anti-

gay attitudes. Consistent with the existing literature, the sample reported limited explicit anti-gay attitudes, and these were predicted as a function of participant age, gender, religious affiliation, and sexual orientation. However, the inclusion of religiosity measures meant that religious affiliation ceased being a significant predictor, suggesting that religiosity is a better predictor of anti-gay attitudes than religious affiliation. Conversely, neither demographic variables nor religiosity dimensions predicted implicit anti-gay attitudes, a finding which might be specific to person-based attitudes.

The findings of the current study contribute to the literature in several important ways. I am providing evidence that RF is central to the religion-explicit anti-gay attitudes relationship, and suggest that fundamentalist religious thinking reflects a doctrine-derived motivation to respond in a prejudiced fashion towards gay people. In addition, I am interpreting these findings as evidence for a dual construct model of prejudice (e.g., (Devine, 1989; Nosek & Smyth, 2007; Wilson et al., 2000)), and suggesting that explicit and implicit anti-gay attitudes share a target, but that the attitudes are distinct.

While the findings of this study suggest that religion is central to explicit anti-gay attitudes, they also suggest that this is not the case for implicit person-based anti-gay attitudes. Given that religion has often been discussed (anecdotally and empirically) as driving anti-gay attitudes, these findings are informative and provide a positive direction for designing interventions for prejudice and discrimination against gay people (for a literature on humanising effects, see Haslam, 2006; Haslam & Bain, 2007; Haslam & Loughnan, 2014). A better understanding of the cognitive processes behind anti-gay attitudes is clearly needed, and research that explores predictors of such prejudices would

inform future research in addressing and changing these discriminatory attitudes and behaviours.

Chapter 10 –Study 5: Religious Priming and Person-Based Attitudes

Some people say the only cure for prejudice is more religion; some say the only cure is to abolish religion.

- Gordon Allport (1954, p.413)

Title

Religious contextual priming increases positive attitudes toward gay men and women for Atheists, but not Christians.

Abstract

Religious priming is a method that activates mental representations of religion, which has the potential to influence subsequent cognitions and behaviours. Most research using religious priming has activated representations of Christian religion in Christian individuals. While some research has used inter-faith priming research has yet to consider the effects of religious priming on Atheists. The current research explored the effect of religious priming on Christian's and Atheist's attitudes toward gay men and lesbians. A sample of 73 university students ($M_{\text{age}} = 22.93$ years, $SD_{\text{age}} = 8.07$) completed measures of explicit and implicit anti-gay attitudes. Both explicit and implicit attitudes were found to be relatively positive. The use of religious contextual primes during the measurement of implicit attitudes elicited an unexpected increase in positive implicit attitudes toward gay male and lesbian targets from Atheist, but not Christian participants. These findings are interpreted as preliminary evidence that the religious priming has unexpected effects beyond those who subscribe to that religion.

10.1 Background

10.1.1 Religious priming

The effects of religious priming on the cognitions and behaviours of religious individuals is the basis for a substantial and interestingly inconsistent literature (e.g., Carpenter & Marshall, 2009; Gervais & Norenzayan, 2012; Johnson, Rowatt, & LaBouff, 2010; Shariff & Norenzayan, 2007). For example, Christian participants who were exposed to subliminally presented religious symbols or images demonstrated increased accessibility of religion-relevant prosocial constructs and behaviours such as honesty (Randolph-Seng & Nielsen, 2007), generosity (Shariff & Norenzayan, 2007), donation intentions (Pichon, Boccato, & Saroglou, 2007), as well as decreased hostility (Rothschild, Abdollahi, & Pyszczynski, 2009) and were less likely to give into temptation (Fishbach, Friedman, & Kruglanski, 2003; for a recent meta-analysis of religious priming with a focus on prosociality, see Shariff, Willard, Andersen, & Norenzayan, 2015). However, religious priming has also been found to lead to increases in the accessibility of negative constructs such as prejudice toward African-Americans (Johnson et al., 2010), gay men and lesbians (Ramsay, Pang, Shen, & Rowatt, 2013), and religious out-groups (Johnson, Rowatt, & LaBouff, 2012), as well as increasing anti-social behaviours such as aggression towards an ostensible partner (Bushman, Ridge, Das, Key, & Busath, 2007). These conflicting results suggest there is a complex relationship between religion and positive and negative outcomes.

Most religious priming research has used Christian religious primes, in which participants have been primed after either engaging in a sentence unscramble task, or through mindset priming (i.e., reflecting on a passage or vignette). Some of this research

has shown that these primes affects all participants, regardless of their religious affiliation (e.g., Ahmed & Salas, 2011; Johnson et al., 2010; Shariff & Norenzayan, 2007; Toburen & Meier, 2010). For example, LaBouff, Rowatt, Johnson, and Finkle (2012) explored out-group attitudes of individuals who were either in the presence of a religious or a non-religious building. They found that the religious situational prime (i.e., in the presence of a religious building) produced more conservative opinions, as well as prejudiced attitudes towards *all* non-Christian groups, regardless of the religious affiliation or personal belief in God of the participants. This research demonstrated an instance where a Christian religious prime affected all participants.

Some studies have also examined religious priming beyond Christianity (e.g., Ramsay et al., 2013; Vilaythong et al., 2010; Weisbuch-Remington, Mendes, Seery, & Blascovich, 2005). For example, Ramsay et al. (2013) recently explored religious value violation in a sample of Christians and Buddhists. Specifically, during a lexical decision task they primed participants with own-religion relevant words (e.g., Christian words: *sermon, church, Jesus*; Buddhist words: *Buddha, enlightenment, temple*) or neutral words, and found that both Christians and Buddhists responded in the same way, namely, with an increase in anti-gay attitudes relative to the control condition. Given that Christianity prescribes anti-gay attitudes, while Buddhism does not, these results suggest that religious priming effects may simply elicit an out-group bias response rather than reflecting religion-specific teachings.

10.1.2 Inter-religion priming

Recently, religious priming research has begun to explore the effects of priming members of one religion with religious representations from a different religion. For example, Clobert and Saroglou (2013) recently explored prosociality and implicit prejudice in a sample of Christians who had been subjected to supraliminal prime from either Islam or Buddhism. They found that participants who were primed with Buddhism displayed increased prosocial intentions and decreased implicit prejudice towards an ethnic out-group. However, the decrease in implicit prejudice was only found among participants who highly valued universalism (measured using the eight-items from the Schwartz [1992] Value Survey). No effects were found when Islamic concepts as primes.

Vilaythong et al. (2010) also explored the effects of religious primes from an out-group religion explicit and implicit anti-gay attitudes and perceived controllability of being gay. They primed Christians and Buddhists with variants of the Golden Rule (e.g., the Christian variant is “Love thy neighbour as thyself”; Leviticus 19:18), and found that Christian participants who were primed with the Golden Rule that had been attributed to Buddha (rather than Jesus, or a neutral prime) reported increased explicit anti-gay attitudes and perceptions that being gay is a choice. The prime did not affect implicit attitudes. In opposition to the findings of Ramsay et al. (2013), they found no effects for Buddhist participants. These findings demonstrate that, at least in certain populations, religious priming effects can also be elicited from primes from religious out-group leaders.

Some research suggests that religious priming tends to amplify the strength of people’s existing response tendencies, rather than changing the direction of the attitude, or

attenuating its strength. For example, Saroglou, Corneille, and Van Cappellen (2009) explored the effect of religious priming on the relationship between religion and submission. Participants were exposed to a religious or neutral prime (e.g., religious prime: *submission, acceptance, obedience*; neutral prime [matched for negative valence]: *conformity, dependant, dominated, influenced*), and were then given the opportunity to take revenge against a hypothetical individual who had criticised them. The religious prime increased religious-submission and conformity only in participants who had already reported high levels of personal submission (an individual differences characteristic of submissiveness). Similarly, Shariff and Norenzayan (2007) primed concepts of God using the scrambled-sentence paradigm during an anonymous version of the dictator game (see Hoffman, McCabe, Shachat, & Smith, 1994) and found an overall increase in prosocial behaviours (as measured by less selfish amounts of money left for the anonymous receiver relative to the control condition). Moreover, this effect was more pronounced among participants with self-reported belief in God.

10.1.4 Challenges to the field

Much of the religious priming literature has observed changes to responses of explicit (i.e., consciously accessible) measures or behavioural intentions following presentation of a prime (Bargh, 1994; Bargh & Chartrand, 1998; Bargh & Ferguson, 2000; Klauer & Musch, 2003). However, this research has yet to adequately establish if these effects extend to implicit (i.e., non-consciously accessible) cognitions. A single study has reported a null effect of a sentence-unscramble religious prime on implicit attitudes. However, given the well-established tendency of religious people to demonstrate high levels of social desirability (Trimble, 1997), it would be beneficial to further explore the

effects of religious priming on measures of automatic associations (see Nosek et al., 2005). Therefore, further exploration of religious priming and the different effects of priming on explicit and implicit cognitions are needed.

There has been a little research exploring the effects of religious priming on Atheists and that which has been undertaken has been undertaken reveals a difficulty identifying and classifying this group. Specifically, individuals who self-identify as non-religious and individuals who self-identify as Atheists have been merged into a single category of ‘non-religious’. For example, Inzlicht and Tullett (2010) defined Atheists as individuals who scored two standard deviations below the sample mean on the belief-in-God scale. However, this meant that some individuals who were being categorised as ‘Atheists’ had an average score in the belief-in-God scale that was still above the scale’s midpoint. Using this classification protocol means that in a particularly religious sample, individuals who are still religious, but less religious than others, would be classified as Atheist.

Evidence of the problematic nature of classifying religious affiliation in this way was reported by Shariff and Norenzayan (2007; Study 1) found that a religious prime affected people who did not identify with any religion in the same way as it affected Christians (i.e., implicit priming of God concepts increased charitable behaviour). However, in their second study, they asked participants to identify as a non-believer or specifically as an Atheist. With the inclusion of an ‘Atheist’ option (instead of non-religious), the religious prime did not affect charitable behaviour in the Atheist group.

With the exception of the aforementioned two, the effects of religious priming on Atheists has yet to be considered in the literature. Atheists are a unique category because they not only do not believe in a God, but they actively endorse the belief that no God exists (Zuckerman, 2007). This may mean religious primes are of relevance to this group because the primes might result in a contrast effect (compared to Agnostics who might not be affected by the prime at all). Thus, study into the effects of religious priming on this category of individuals (who actively disengage from the primed construct) is warranted.

10.1.5 Overview of research and hypotheses

The current study explores the effects of religious priming on attitudes towards gay men and lesbians. To do this, the present study uses (a) a methodology-based contextual prime to measure priming effects on implicit attitudes, and (b) a sample of self-identified Christians and Atheists. This study will add to the growing literature on religious priming effects, and specifically to the scant literature on effects of religious priming on implicit attitudes. Furthermore, it will allow a replication of the implicit contextual variation findings from Studies 1 – 4, and also explore the potential for the implicit contextual variation technique (Mitchell et al., 2003) to induce religious priming effects. More specifically, in this study each participant will respond to three blocks with gay male targets and another three blocks with lesbian targets, and I will vary the distracter stimuli in each block. In one condition, there will opposite gender distracters (i.e. making the gender of the targets salient), in another same gender distracters (i.e. making the sexual orientation of the targets salient), and in the remaining blocks, same gender religious characters will be used, (i.e. making religion salient through contextual priming). I make the following predictions:

- 1) *Explicit anti-gay attitudes*: I expect explicit attitudes to be more anti-gay from Christians than from Atheists. Given that the explicit expression of anti-gay bias sometimes violates social norms, and in alignment with dual-process models of social cognitions (Wilson et al., 2000), we do not expect explicit attitudes to be correlated with implicit attitudes (see Dovidio et al., 2008).
- 2) *Implicit gender-based attitudes*: I expect that when their gender (and not their sexual orientation) is made salient, lesbian targets will elicit more positive implicit attitudes than gay male targets (i.e., the “women are wonderful” effect, Rudman & Goodwin, 2004, p. 508; see also Rudman & Kilianski, 2000)
- 3) *Implicit sexual orientation attitudes*: in line with previous findings (Chapters 5, 6, & 9), I expect a reverse pattern of results when sexual orientation (and not gender) is made salient. Specifically, I expect lesbian targets to elicit implicit attitudes that are more negative when their sexual orientation is salient than when their gender is salient. Conversely, I expect gay male targets to elicit implicit attitudes that are more positive when their sexual orientation is salient than when their gender is salient.
- 4) *Implicit anti-gay attitudes*
 - a. *Christians*: given that anti-gay attitudes are prescribed for Christians (Finlay & Walther, 2003; Herek, 2010), I expect that a religious prime would activate an anti-gay response tendency for Christian respondents (e.g., Ramsay et al., 2013). Thus, when the distracter targets in the implicit measure are of a religious nature (nuns and priests), I expect to find more anti-gay implicit attitudes from Christians toward both gay

male and lesbian targets in the priming condition compared to implicit anti-gay attitudes when religion is not primed, and implicit gender attitudes.

- b. *Atheists*: given the exploratory nature of a manipulation that primes Atheists with religion, we present two alternative hypotheses. First, if religious priming affects religious and non-religious participants in the same manner (Ahmed & Salas, 2011; Johnson et al., 2010; Toburen & Meier, 2010), I expect that Atheists, like Christians, would demonstrate more anti-gay implicit attitudes in the religious priming condition than in the other conditions. Alternatively, given that Atheists do not subscribe to the value system that is presumably being activated, we could also expect no effect of a religious prime (i.e., observation of the same associations for gay male or lesbian targets presented in in the priming condition as the sexual orientation-salient condition).

10.2 Method

10.2.1 Participants

The final sample consisted of 73 undergraduate students from an Australian university ($M_{\text{age}} = 22.93$ years, $SD_{\text{age}} = 8.07$ years; 53 females) who participated for course credit. Forty-seven (65.40%) of the participants identified as Christian, and the remainder identified as Atheist. An additional 21 students had participated in the study but were excluded from analysis; nine were excluded for low accuracy (below chance) on the

implicit measure²², 10 for self-identifying as non-heterosexual (four bisexual females, three lesbians, three gay men)²³, and two because of their religious affiliation (one Jew, one Muslim).

10.2.2 Materials

10.2.2.1 *Explicit measures*

The Religious Fundamentalism scale (RF; Altemeyer & Hunsberger, 1992) explores levels of fundamental belief about religious teaching and the unchangeable nature of doctrine and religious practices. The RF scale comprises 20 items (e.g., “God has given mankind a complete, unfailing guide to happiness and salvation, which must be totally followed”) that are endorsed on a nine-point scale ranging from -4 (*strongly disagree*) to 4 (*strongly agree*). After reverse-scoring appropriate items, the scale is adjusted so that average scores can range from 1 to 9. Higher scores indicate more fundamental beliefs. The RF scale yielded a high level of reliability for the current sample ($\alpha = .91$).

The Religious Orientation Scale (ROS; Allport & Ross, 1967) comprises nine items that measure levels of intrinsic orientation (e.g., “It is important for me to spend periods of time in private religious thought and meditation.”) and 12 items measuring extrinsic orientation (e.g., “The church is most important as a place to formulate good social relationships.”). Intrinsic (i.e., instrumental) and extrinsic (i.e., utilitarian) religious

²² These participants also responded to explicit measures with a consistent responding style (e.g., all item responses were the same), suggesting they were not participating correctly. As such, the participants were excluded from all analyses, not just those involving the implicit measure.

²³ Including non-heterosexual participants did not change the significance of the results; exclusion was based on the logic of reducing sexual orientation-based in-group effects or internalised implicit anti-gay attitudes, both of which are separate empirical questions.

orientations distinguish motivations arising from religious tradition and from self-contained goals (i.e., social ends, personal coping), respectively. Responses range from 1 (*strongly disagree*) to 5 (*strongly agree*). An average score is computed for each scale, with higher scores indicating higher levels of the relevant orientation. Both subscales yielded high levels of reliability for the current sample ($\alpha_{\text{intrinsic}} = .82$; $\alpha_{\text{extrinsic}} = .90$).

The Attitudes Toward Lesbians and Gay Men Scale (ATLG; Herek, 1984a) measures explicit endorsement of positive and negative statements about gay men and lesbians. The scale comprises 10 statements about lesbians (ATL; e.g., “Female homosexuality is an inferior form of sexuality.”) and statement about gay men (ATG; e.g., “Male homosexuals should *not* be allowed to teach school.”), and responses range from 1 (*strongly disagree*) to 5 (*strongly agree*). After reverse-scoring appropriate items, an average score is computed for each subscale, with higher scores representing anti-gay attitudes. Each subscale yielded high levels of reliability for this sample (ATL $\alpha = .83$; ATG $\alpha = .86$).

10.2.2.2 Implicit measure

Implicit attitudes were assessed by strength of associations between gay male and lesbian female (famous) faces with positive and negative words respectively using the person-based Go/No-Go Association Task (GNAT; Nosek & Banaji, 2001) as described in Chapter 4. Participants completed a 12-block GNAT (blocks randomised) that measured implicit attitudes toward recognisable gay men and lesbians who were presented in the condition of gender-salient (distracter of opposite gender), sexual orientation-salient (distracter of different sexual orientation, but same gender), or with a contextual religious prime (distracter of a religious individual; for design see Table 10, p.153). Prior to each

block, participants were presented with reminders of the complete set of target stimuli (and distracters), to attenuate learning curves associated with stimuli non-familiarity. For the current sample, the GNAT demonstrated acceptable reliabilities ($M_{\text{RaSSH}} = .73$, $SD_{\text{RaSSH}} = .08$; following protocol suggested by Williams & Kaufmann, 2012, see table 10).

Attribute stimuli were the same two lists of words (eight positive words and eight negative words) used in Studies 1 - 4 (also see appendix A1). Target category stimuli were face pictures of famous gay men (e.g., Sean Hayes) and lesbians (e.g., Ellen DeGeneres), as necessitated for the person-based method of implicit measurement, also as used in Studies 1 - 4. Distracter stimuli were face pictures of heterosexual men (e.g., Justin Timberlake) and heterosexual women (e.g., Kate Winslet) for the gender and sexual orientation primes, and priests or nuns for the religious prime (see Table 10). I selected faces of religious individuals rather than religious iconography to allow for a socially relevant prime as would be suggested by social comparison theory (Festinger, 1954).

10.2.3 Design

This study used repeated measures factors of *target* (2: gay male, lesbian female), and the between subjects factor of participant *religious affiliation* (2: Christian, Atheist). Additionally, the implicit measure used a repeated measures manipulation of *contextual prime block* (3: gender, sexual orientation, religion).

10.2.4 Procedure

The study was advertised to psychology undergraduate students on the University's research participation system. After being informed of the purpose and method of the study, students agreeing to participate were directed to a webpage hosted at

(<http://www.millisecond.com/>). After providing demographic information (i.e., age, gender, religious affiliation, and sexual orientation), students first responded to the religiosity measures (items randomised within scales, and scales randomised), followed by the explicit attitudes measure of attitudes towards gay men and lesbians (items randomised). Participants then completed the 12-block (randomised) GNAT, before being thanked and debriefed.

10.3 Results

10.3.1 Explicit Measures

All measures were explored for normality. The measures of anti-gay explicit attitudes were strongly positively skewed, and this skew was corrected with a logarithmic transformation. Analyses are conducted on transformed data. Non-transformed descriptive data for the explicit measures are presented in Table 12. Scores on the explicit anti-gay measures were low, but unsurprisingly were slightly more negative from Christian respondents.

10.3.2 Religiosity

Independent sample t-tests were used to compare Christian and Atheist groups on religiosity measures. Christian participants responded with significantly higher average scores on all measures of religiosity than Atheist participants. Overall, the sample reported relatively low levels of religiosity (see Table 12).

Table 12

Descriptive, Inferential and Correlation Statistics for Explicit Measures.

Measures	Christian	Atheist	Correlations					
	<i>M (SD)</i>	<i>M (SD)</i>	<i>Cohen's d</i>	1	2	3	4	5
<i>Religiosity Measures</i>								
1. Religious Fundamentalism	3.86 (1.40)	2.80 (1.17)	0.81*	-	.65**	.17	.48**	.46*
2. Intrinsic orientation	2.99 (0.82)	2.10 (0.90)	1.03**	.55*	-	.40*	.33*	.23
3. Extrinsic orientation	3.12 (.052)	2.56 (.077)	0.85**	.52*	.83**	-	.04	.24
<i>Explicit Anti-gay attitudes</i>								
4. Lesbians	2.49 (1.38)	2.04 (1.12)	0.36	.55*	.43*	.49*	-	.75**
5. Gay men	2.48 (1.27)	2.30 (1.68)	0.12	.51*	.32	.47*	.61**	-

Note: Correlation coefficients presented in boldface are significant, * $p < .01$, ** $p < .001$; Pearson correlations reported above the diagonal are responses from Atheists ($N=26$), those below the diagonal are from Christians ($N = 47$). Significant Cohen's d values indicate significant differences between Christian and Atheist group responses on the variable (between-groups t -test); Analyses were conducted on transformed data, but non-transformed data has been reported for ease of interpretation.

10.3.3 Explicit attitudes

To explore differences in self-reported attitudes, a mixed-design factorial ANOVA was used to analyse ALTG scores as a function of the target's gender (2: gay male, lesbian female) and the participant's religion (2: Christian, Atheist)²⁴. Christians reported more anti-gay attitudes than Atheists, and attitudes were more anti-gay toward gay men than toward lesbians. Neither of these main effects reached significance ($p > .31$). The interaction between the two variables was not significant, $F(1, 70) = 1.07, p = .31, \eta_p^2 = .02$.

10.3.4 Implicit attitudes

The signal detection theory parameters were calculated as an index of sensitivity for each block (i.e., d' value; Green & Swets, 1966), consistent with protocols suggested by the authors of the GNAT (Nosek & Banaji, 2001). Average d' scores for gay male and lesbian targets and associations with the target attribute (i.e., GOOD or BAD) are presented in Table 10. Subsequent descriptive data and inferential statistics refer to the implicit attitude score (calculated by subtracting the d' value of each target's association with negative words from the d' value of its associations with positive words within each block, see full description in Chapter 5). Thus, a positive attitude score represents an overall positive implicit automatic association for the target-attribute pairing. Overall, the sample demonstrated relatively low levels of implicit anti-gay attitudes. Lesbian targets elicited positive implicit attitudes in all contexts, and gay male targets elicited positive

²⁴ Due to unequal number of male and female participants, and a relatively limited sample size, effects of participant's gender could not be analysed.

implicit attitudes in the context of sexual orientation and religion, but negative implicit attitudes in the context of their gender see table 13).

To explore implicit attitudes as a function of implicit contextual variation for each group, these values were analysed using a three-way mixed factorial ANOVA, with the between-subject factor of *participant's religion* (2: Christian, Atheist) and the within-subject factors of *target* (2: gay male, lesbian female) and *contextual salience* (3: gender, sexual orientation, religion). Analysis of the data revealed a main effect of *target* $F(1, 66) = 12.92, p < .001, \eta_p^2 = .16$. On average, gay male targets elicited more negative attitudes than lesbian targets, however, this was complicated by an interaction with the contextual salience of the target factor $F(2, 65) = 6.45, p = .003, \eta_p^2 = .17$. A simple effects analysis of implicit attitudes toward lesbian targets revealed that lesbian targets presented in the context of their sexual orientation elicit significantly more implicit anti-gay attitudes than when the same targets are presented in the context of their gender ($p = .01$), with no differences between the other contextual manipulation conditions ($p > .31$). Conversely, simple effects analysis of implicit attitudes toward gay men revealed that gay male targets presented in the context of their gender elicit significantly more implicit anti-gay attitudes than when the same targets are presented in the context of their sexual orientation ($p = .03$) or in a religious context ($p = .01$). Further, in this sample, the gender context led to significantly more negative implicit attitudes towards gay males than towards lesbians $t(71) = 5.72, p < .001$. However, these differences were not significant in the remaining conditions (i.e., sexual orientation or religion; p 's $< .21$; see Figure 6).

Table 13

GNAT Block Stimuli, Mean d' , Standard Error, and Reliabilities

Contextual prime block	Target category (pictures)	Distracter category (pictures)	Target attribute valence (words)	M (SE)	RaSSH
Gender	Gay male	Heterosexual female	Positive	2.41 (0.09)	.76
	Gay male	Heterosexual female	Negative	2.81 (0.10)	.70
	Lesbian female	Heterosexual male	Positive	2.46 (0.11)	.66
	Lesbian female	Heterosexual male	Negative	2.23 (0.10)	.70
Sexual Orientation	Gay male	Heterosexual male	Positive	1.94 (0.10)	.67
	Gay male	Heterosexual male	Negative	1.74 (0.08)	.96
	Lesbian female	Heterosexual female	Positive	1.92 (0.93)	.73
	Lesbian female	Heterosexual female	Negative	2.01 (0.10)	.77
Religion	Gay male	Priest	Positive	2.77 (0.11)	.60
	Gay male	Priest	Negative	2.64 (0.10)	.76
	Lesbian female	Nun	Positive	2.65 (0.10)	.73
	Lesbian female	Nun	Negative	2.41 (0.11)	.73

Note: RaSSH reliability scores are calculated using the protocol suggested by Williams and Kaufmann (2013); target category and distracter stimuli are pictures of faces presented in a 10cm x 10cm frame.

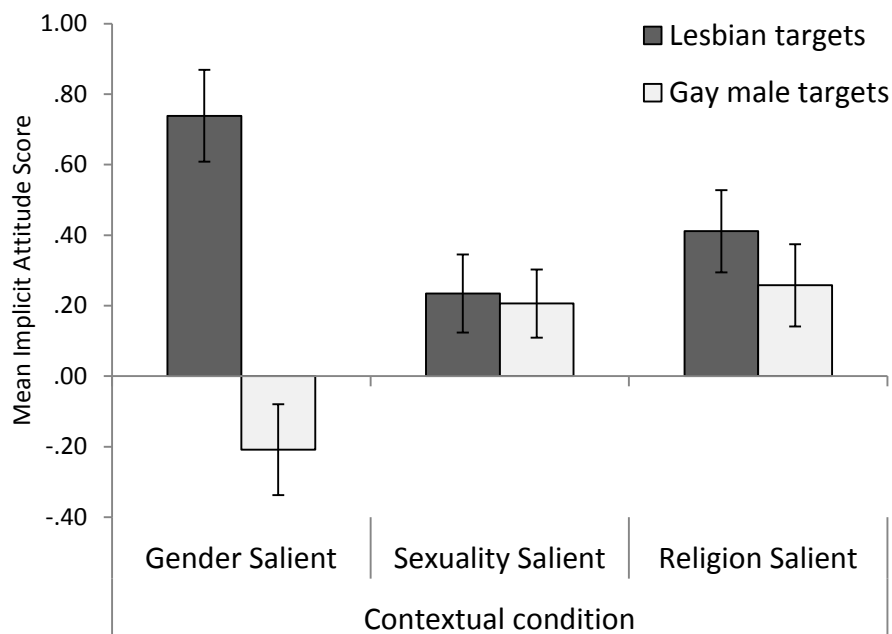


Figure 6. Mean (and standard error) implicit anti-gay attitudes as a function of contextual variation.

No main effects of contextual variation ($p = .32$), or of participant religion ($p = .40$) were found. However, there was an interaction between these variables $F(2, 65) = 6.45$, $p = .003$, $\eta_p^2 = .17$ (see Figure 7)²⁵. This interaction was driven by Atheist participants $F(2, 23) = 5.25$, $p = .01$, $\eta_p^2 = .31$. Post-hoc tests revealed that Atheists demonstrated significantly more positive implicit attitudes when targets were presented with the religious contextual prime than when presented in either the context of gender ($p = .006$) or in the context of sexual orientation ($p = .05$). Interestingly, there were no differences for Christian participants as a function of context ($p = .81$).

²⁵ This finding did not involve an interaction with the target's gender. As such, I averaged the implicit attitudes towards gay men and towards lesbian women, and conducted the analysis on a hybrid-gay target variable.

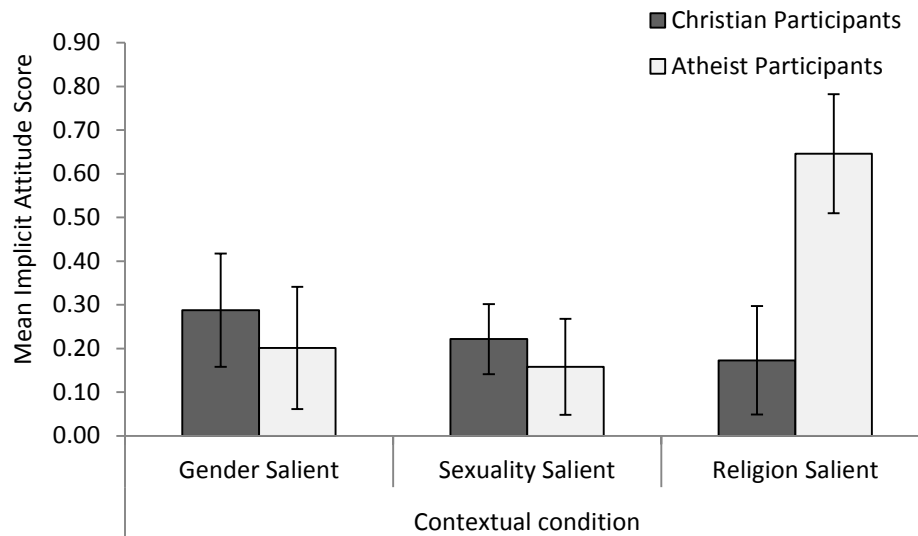


Figure 7. Mean (and standard error) implicit anti-gay attitudes (i.e., to gay men and lesbians) as a function of contextual variation and participant religious affiliation.

Finally, independent sample *t*-tests revealed that implicit anti-gay attitudes in a religious context were significantly more positive from Atheists than from Christians $t(45.36) = -2.08, p = .04$; differences in the gender and sexual orientation contexts did not reach significance (p 's $> .428$). No higher order interaction existed ($p = .30$).

10.3.5 Explicit-implicit correlations

Bivariate correlation analysis revealed that few correlations existed between implicit measures. For Christians, implicit attitudes towards gay men were related to implicit attitudes towards lesbians when both were elicited in the context of religion ($r = .38, p = .01$). For Atheists, implicit attitudes towards lesbians elicited in the context of

gender and the context of religion were related ($r = .57, p = .02$). No other implicit measures were related (all p 's $> .19$). Implicit attitudes did not correlate with religiosity measures (all p 's $> .119$).

Some relationships existed between explicit and implicit attitudes. Explicit attitudes toward gay men were related to implicit attitudes differently for Christians and Atheists as a function of the target's context. Specifically, in the context of sexual orientation, negative explicit attitudes and negative implicit attitudes towards gay men were related for Christians ($r = .40, p = .009$), but not for Atheists ($p = .35$). The reverse pattern existed when presented in the context of gender; attitudes were related for Atheists ($r = .46, p = .04$), but not for Christians ($p = .77$). Explicit attitudes towards lesbians were not related to implicit attitudes (all p 's $> .16$).

10.4 Discussion

The existing religious priming literature has yet to explore the effects of religious priming on Atheists. The present study used contextual prime to elicit implicit attitudes towards gay men and lesbians during gender and sexual orientation salient conditions, and in a religious prime condition, with a sample of Christians and Atheists. We also measured explicit attitudes and relevant measures of religiosity.

10.4.1 Explicit attitudes

Christians in this sample reported higher levels of religiosity than Atheists, and as predicted by our first hypothesis, also expressed higher levels of explicit anti-gay attitudes. Gay men and lesbians are often considered to be value-violators by many religious traditions, including Christianity (Herek, 1987). This explains our results, and matches the

existing evidence that religious individuals express explicit anti-gay attitudes more than non-religious individuals (Finlay & Walther, 2003; Whitley, 2009). Christian participants also reported more explicit anti-gay attitudes toward gay men than toward lesbians, which replicates the vast majority of existing research (e.g., Herek, 2000b, 2002; Kite & Whitley, 1996). Various explanations for this robust finding have been proposed, from the eroticisation of lesbians in popular culture (Louderback & Whitley, 1997) through to differing manifestations of sexual orientation-based threat from gay men and lesbians (Herek, 2000b; Herek & Capitano, 1996).

10.4.2 Implicit attitudes

Implicit attitudes towards gay and lesbian targets in this sample were relatively positive, supporting our second and third hypotheses, the GNAT blocks in which gender and sexual orientation were salient replicated the findings Chapters 4, 5, and 9. Specifically, when gender was made salient, lesbian targets elicited positive implicit attitudes and gay men elicited negative implicit attitudes (which also align with the findings of Rudman & Goodwin, 2004). However, when the same targets were presented in the context of their sexual orientation (i.e., with a distracter of the same gender, and thus no gender comparison is available), the pattern of results revealed more negative attitudes towards lesbian targets. These findings add to the limited body of literature providing evidence of implicit contextual variation (Mitchell et al., 2003). Further, these results also provide support for implicit inversion theory, which suggests that gay targets are perceived as being more stereotypically similar to their heterosexual opposite-gender counterparts than heterosexual same-gender counterparts (Kite & Deaux, 1987).

The fourth and fifth hypotheses were not supported. The implicit attitudes of Christians towards gay people (i.e., gay men *and* lesbians) did not vary in the context of a religious prime, contrary to our fourth prediction. This would align with the work of Mak and Tsang (2008) who experimentally separated the “sinner from the sin” (p.379). Specifically, they found that higher levels of (intrinsic) religiosity led to more negative attitudes toward a promiscuous lesbian than toward a celibate lesbian. In the case of interpreting our findings, it could be that (for Christians) religious priming elicits no response to an individual (who happens to be gay) but would elicit implicit anti-gay attitudes from homosexual people as a group, as many of the related constructs (e.g., gay sex, gay marriage) violate religious belief systems. More specifically, person-based attitudes might reflect attitudes towards the sinner (i.e., no evidence of promiscuity), while category-based attitudes might reflect attitudes towards the sin (i.e., gay behaviours).

The most parsimonious account of the finding that the implicit attitudes of Christians did not vary after the religious prime might be that person-based representations of gay men and women are less value-violating than category-based version of this construct (as discussed previously, see Chapter 9). A second explanation could list in the relatively positive attitudes in the sample as a whole, as seen in low levels of both explicit and implicit attitudes. That is, it is possible that religious primes only influence Christian participants with more negative baseline anti-gay attitudes. Conversely, religion might be a value system that is perpetually activated in Christian participants, which would explain the null priming effect (i.e., religious ceiling effects; in this sample, religion is always primed). A final explanation could be that the sample reported low levels of religiosity, and

perhaps the prime might have had an effect if the Christian part of the sample had been more religious.

Unexpectedly, the implicit attitudes of Atheists toward gay people become dramatically more positive in the context of a religious prime. This is inconsistent with the hypotheses that either (a) priming would affect religious and non-religious participants in the same manner (Ahmed & Salas, 2011; Johnson et al., 2010; Toburen & Meier, 2010), or (b) we would expect no effect of a religious prime given that Atheists do not subscribe to the religious value system that is presumably being activated. These results also stand out from the majority of the religious priming literature (e.g., Pichon et al., 2007; Vilaythong et al., 2010) in that it seems to have produced a contrast rather than an assimilation effect which has been observed with other primed constructs (Dijksterhuis et al., 1998).

Evidence for this account is found in the finding that an incompatible meaning system (i.e., priming religious beliefs) caused an aversive reaction in Atheists (see Inzlicht & Tullett, 2010 for evidence of neurological responses associated with defensive reactions after religious priming). As such, contextual religious priming activates the value system that Atheists reject, and then, these Atheists meet the expected priming response (e.g., religion says homosexuality is a sin) with a defensive reaction would result in a reserved response to the expected response from Christians (i.e., positive implicit attitudes).

An explanation of contrast effect observed for Atheist may be that religious priming might indirectly activate associated religious value systems, such as RF (Ramsay et al., 2013). Johnson and colleagues (2010) have suggested that religious primes might activate related constructs such as conservatism, traditionalism, or right-wing authoritarianism rather than

religion. In this case, our findings can be interpreted as Atheist's reactance to religious primes rather than the activation of religious concepts. However, this interpretation requires the demonstration of the same reactance effect to straight targets, or targets belonging to other social categories. Finally, a less likely explanation is that the religious prime highlights religion-based group membership. Atheists, like gay people, are out-group members to Christian participants. As such, the increase in implicit attitudes in Atheist respondents could be a demonstration of a surrogate in-group bias.

10.4.3 Explicit-Implicit Correlations

Implicit and explicit attitudes were largely unrelated; in the case of lesbians, attitudes were not related at all, and in the case of gay men there were two significant correlations. These were in the sexual orientation salient block from Christian (but not Atheist) participants, and the gender-salient block for Atheist (but not Christian) participants. I prefer to interpret the lack of correlations in this study as support for dual models of attitudes (e.g., Wilson et al., 2000) which argue that explicit and implicit attitudes are related but distinct attitude representations of the same attitude-object, or that the deviant results between the two measures are due to method specific variance (Nosek & Smyth, 2007). An alternative theoretical stance (i.e., single-construct models; Fazio, 2007; Fazio & Towles-Schwen, 1999) might suggest that this is evidence of socially desirable responding in response to the explicit measure; a secondary process might have been applied to explicit attitudes, which might be evidence that religion is being used to justify homophobic attitudes via a moralistic argument (as argued in Chapter 9).

10.4.4 Limitations

This study is not without limitations. Perhaps the most prominent is the lack of experimental blocks with straight targets, which would demonstrate if the reactance effect observed for Atheists participants extends to all attitudes, or is specific to religious violating (or at least to gay) targets. Second, all picture stimuli used to represent gay and straight targets were faces of famous people. In contrast, the religious prime stimuli were faces of non-famous people. This means that, for religious prime blocks, there is a significant difference in stimuli that includes fame, as well as the intended difference in (likely) sexual orientation.

10.4.5 Conclusions

Research into the complicated relationship between prejudice and religion has been extended to include the effects of religious priming on these social attitudes. This study is one of few to explore the effects of religious priming on anti-gay attitudes, and, to our knowledge, is the first to study the effects of priming religious concepts on self-identifying Atheists.

I used the person-based approach to measuring implicit anti-gay attitudes. I explored the explicit and implicit attitudes of Christian and Atheist student participants, and found that attitudes were predictably moderate to positive within this sample with implicit gender and sexual-orientation attitudes replicating previous findings (see Studies 1-4). The use of a religious contextual prime during the measurement of implicit attitudes elicited an unexpected pattern of findings. Due to the religious nature of the belief system being activated, I predicted that religious priming would affect the subsequent attitudes of

Christians; however, the prime did not affect these participants, rather, I found that this prime resulted in an increase of positive implicit gay attitudes.

The findings of the current study extend our knowledge of religious priming effects in several important ways. Importantly, it provides evidence that the effects of religious priming extend not only to religious out-group members, and those with low levels of religiosity, but even to those who adamantly do not subscribe to the belief system. This suggests that religion and religious concepts (or at least related concepts) are pervasive components for consideration in social cognition research. The findings of this study suggest that religious primes can elicit prosocial implicit (person-based) attitudes towards gay individuals, which may have important implications for intervening with negative attitudes. However, before such a strong conclusion can be drawn, this effect will need to be replicated and demonstrated that it is different for gay targets compared to straight targets. Finally, this study validates the use of method-based priming in implicit methodologies, and adds to the scant body of evidence supporting the contextual variation of implicit attitudes.

Many religious teachings have been understood to sanction negative attitudes towards gay men and lesbians, and this prescription has led to a hostile relationship between religious groups and the gay community. The current findings suggest that individuation (i.e., emphasising personhood, rather than social category membership; e.g., Gawronski, Ehrenberg, Banse, Zukova, & Klauer, 2003) may provide a means for reducing prejudice experienced by gay men and lesbians (also see Harris & Fiske, 2006; Wheeler & Fiske, 2005). Conversely, focussing on the potential for religion to have prosocial outcomes may reduce hostility towards religious groups. If both of these are achieved, the

potential for positive intergroup contact (Allport, 1954) should be enhanced and allow for a general improvement for intergroup relations between these groups (Herek, 1996b; Herek & Capitano, 1996; Pettigrew & Tropp, 2006; Smith et al., 2009; Techakesari et al., 2015).

Chapter 11 – General Discussion and Conclusion

11.1 Introduction and Overview

At the beginning of this thesis, I argued that an alternative method for measuring implicit attitudes to gay men and lesbians was necessary to address several important issues pertaining to the construct being measured (e.g., the nebulous social category “gay” vs. the more specific “gay people”). I acknowledged that previous researchers had used category-based stimuli to overcome issues associated with representation of this social category (e.g., gay people are not clearly identifiable from physical features, see Freeman et al., 2010). Furthermore, I suggested that the category-based stimuli used might measure attitudes towards gay people but is also likely to elicit attitudes to related issues such as attitudes toward same-sex sexual behaviours, public displays of affection, same-sex marriage, political activism, and gay marriage. Arguably these are important issues, but it is not always the intention of research to assess this broad range of issues, and I have argued that the interpretation of implicit attitudes as measured using these stimuli may not accurately reflect anti-gay attitudes experienced by gay people.

As a solution to my critique of the typical approach to the measurement of implicit anti-gay attitudes, I presented the person-based approach. This measure builds on seminal work of Mitchell and colleagues’ (2003) demonstration of contextual variation, which varies the salience of the social categories by using contrasting categories. This procedure has been thoroughly described in previous sections of this thesis (see Chapter 4). As a brief recap, contextual variation allows sexual orientation to be made salient by using (for

example) gay men as targets and straight men as distracters (i.e., the factor that allows to discriminate between targets and distracters is the factor of interest). I argued that with the use of this contextual variation, the “person-based” implicit attitudes toward gay people could be measured to the same (gay) targets as a function of either their gender, or their sexual orientation. Furthermore, these person-based attitudes towards gay targets on the basis of their sexual orientation could be compared to category-based representations (e.g. same-sex cake toppers). The studies that comprise this dissertation were designed to address the objectives:

5. *Can contextual variation be used to make the gender or sexual orientation of a target salient, which would facilitate assessment of person-based implicit gender attitudes and implicit sexual orientation attitudes toward the same target?*
6. *Does this person-based approach measure implicit anti-gay attitudes that are different to those measured using typical stimuli?*
7. *What individual difference factors predict person-based implicit anti-gay attitudes?*
8. *Can contextual variation be used to prime a relevant attitudinal context that differentially affects person-based implicit anti-gay attitudes?*

In this chapter, I will first review the evidence that I have presented for the person-based approach (i.e., Chapters 5, 6, 9, & 10) as it relates to the overall objectives presented above. I will then discuss the general advantages and limitations of the person-based

approach, and how they relate to the existing literature, before closing this chapter with the final remarks of the dissertation.

11.2 Reviewing the Person-Based Approach

11.2.1 Evidence for the person-based approach

In Studies 1 and 2, gender based attitudes towards straight targets replicated extant findings in the literature. That is, stronger implicit associations were demonstrated between straight female targets and positive attributes, and between straight male targets and negative attributes (or females implicitly evaluated as positive, and males implicitly evaluated as negative; Rudman & Goodwin, 2004). In Studies 1, 2, and 5, this pattern of results was also found for gay male and lesbian targets when gender was the salient social category (i.e., when the distracter stimuli were the opposite gender to the targets, eliciting a gender comparison). This demonstrates that implicit person-based gender attitudes do not vary as a function of the sexual orientation of the target.

The evidence for implicit person-based attitudes towards sexual orientation, and support for the contextual variation as a method for assessing these, was demonstrated across all five studies. Specifically, when the sexual orientation was salient (i.e., when the distracter stimuli were the same gender as the targets, removing the gender comparison), the pattern of results was both strongly attenuated and reversed compared to the gender-based attitudes towards the same target (i.e., implicit associations were generally stronger between GAY MEN+GOOD, and between LESBIANS+BAD). To reiterate, this reversal in the pattern of results occurred *only* as a function of the contextual variation, and this pattern of implicit person-based attitudes towards gay targets was consistently replicated across

five studies. Thus, in answering the question posed by the first objective of the thesis, contextual variation can indeed be used to make either the gender or sexual orientation of a target salient. Furthermore, implicit attitudes as a function of these distinct social categories can be measured independently using the same targets.

The findings that revealed the person-based approach elicits positive implicit attitudes towards gay men and negative implicit attitudes toward lesbians were in stark contrast to the existing literature which used category-based stimuli (e.g., Banse et al., 2001; Breen & Karpinski, 2013; Steffens, 2005). It should be noted that these findings tended to report moderate to strong implicit negative attitudes toward gay people. However, in light of this inconsistency, further work was needed to establish the validity of the person-based approach. Specifically, the question of how person-based attitudes differ from typically measured attitudes remained unanswered. Thus, in Study 3 I presented the evidence from a within-subjects experiment in which I directly compared attitudes measured via typical approaches (i.e., using category-based stimuli) and the person-based approach in Study 3.

The comparison of the person-based and the typical approach to the measurement of implicit anti-gay attitudes replicated previous results (i.e., both from Studies 1 and 2, and from published research). First, lesbians were implicitly evaluated positively compared to gay men when category-based stimuli were used, and the opposite was the case when person-based stimuli were used for the same participants. Thus, the pattern of results for gay men and lesbians is completely reversed when the different approaches are used, suggesting that the attitudes being measured when using each of the two approaches are indeed qualitatively different. Nonetheless, these findings speak to the second major aim of

the thesis, showing that the evidence suggests that the person-based approach does measure implicit anti-gay attitudes that are different from those elicited by typically used stimuli.

11.2.2 Use of the person-based approach

After having demonstrated that person-based attitudes are indeed different to category-based attitudes, I wanted to demonstrate the use of the person-based approach in the context of other research that often uses implicit attitudes in answering broader questions. Thus, I explored the relationship between religion and implicit person-based anti-gay attitudes in Studies 4 and 5.

First I showed that implicit person-based attitudes could not be predicted by expected variables in a sample where large amounts of variance in explicit attitudes were accounted for by demographic variables and higher levels of religious fundamentalism. Again, this finding (regarding implicit attitudes) is inconsistent with most of the literature (e.g., Rowatt et al., 2005; Mak & Tsang, 2008). However, I have recent work that reveals the same pattern of (null) results in a sample of Muslims and Atheists²⁶. Specifically, when using category-based stimuli in a GNAT, large amounts of variance in explicit attitudes towards gay men and women could be accounted for by demographic variables, but neither demographic variables, ideological factors, nor contact predicted implicit attitudes; Anderson & Koc, 2015). In combination, this suggests that the predictors of implicit attitudes are indeed different to those of explicit attitudes, supporting claims that explicit and implicit attitudes are indeed distinct (Gawronski & Bodenhausen, 2006). More work is

²⁶ Although on a related topic, this research is not presented in this dissertation because it does not evidence the person-based approach to measuring implicit anti-gay attitudes.

needed to discover variables that are related to implicit anti-gay attitudes generally, and person-based attitudes specifically.

Finally, in Study 5 I demonstrated that the person-based approach could be used to elicit religious priming effects, also by using implicit contextual variation techniques (Mitchell et al., 2003). When using religious faces that were the same gender as the targets (see Chapter 10), I found that the implicit attitudes of Christians did not vary while the implicit attitudes of Atheists, somewhat unexpectedly, became significantly more positive. My preferred explanation of the contrast effect observed for Atheist participants in response to the religious prime is that they demonstrated an aversive reaction to the combination of religious and gay stimuli leading to a strong positive implicit response to gay targets. This occurs because, priming an incompatible meaning system (i.e., religious beliefs in Atheists), causes a defensive reaction which would result in a reserved response to the expected response from Christians (i.e., thus resulting in positive implicit attitudes; see also Inzlicht & Tullett, 2010; for a discussion on alternative explanations, see Chapter 10).

The person-based approach produced several unexpected findings relating to religion. For example, religious affiliation and religious fundamentalism did not predict implicit person-based attitudes, and religious priming did not affect the attitudes of Christians. The most parsimonious explanation of these null effects may be the “sinner vs. the sin” account. In the context of the current findings, a distinction between the sinner and the sin might mean that a person-based measure of anti-gay attitudes reflects the evaluations of gay individuals who do not necessarily violate religious norms [no evidence of non-celibacy] and, consequently are not implicitly penalised. In contrast, category-based

representation is more likely to evoke the violation of the religious norms (e.g., same-sex sexual behaviour, gay marriage; Mak & Tsang, 2008).

In response to the third major aim of the thesis, the findings revealed that neither demographic nor religiosity factors predict person-based implicit gay attitudes, and in response to the fourth major aim of the thesis, the evidence suggests that the person-based approach can also be used to create a method-based contextual prime (at least in the domain of religion). In combination this suggests that our existing understanding of the relationship between religiosity and category-based implicit anti-gay attitudes does not extend to the relationship between religiosity and person-based implicit attitudes.

11.3 Limitations and future research

Studies 1, 2, and 3 demonstrated strong evidence for the person-based approach as an important and meaningful measure of implicit attitudes to gay men and lesbians. The measure revealed good to excellent internal reliability, which was consistently demonstrated across all five studies. Although the third and fourth empirical chapters further contributed to the evidence for the person-based approach and demonstrated preliminary examples for its application to the relationship between religion and anti-gay attitudes, the findings presented raised some important questions.

One major limitation of the third empirical chapter (i.e., Chapter 9) was that the evidence revealed neither demographic nor religiosity factors predicted person-based implicit anti-gay attitudes. It is important to note that these results were obtained in a sample of people with a relatively restricted range of attitudes, whose attitudes were fairly positive. It is possible that demographic and religiosity factors may predict anti-gay

attitudes in a sample of people representing a wider range of attitudes that includes the more extreme end of the spectrum. Second, this study did not exhaustively explore other individual difference factors, which might predict such attitudes. The research question I posed was whether demographic or religiosity factors predicted anti-gay attitudes, which the findings presented suggest only occurs for explicit attitudes. While this is not a limitation in itself, it does leave the question of what individual difference factors might predict person-based implicit attitudes unanswered. For example, right-wing authoritarianism (i.e., a individual difference factor that posits a preference for traditionalism and obedience to authority; Altemeyer, 1991) is a construct that has been shown to co-vary with religious fundamentalism (Hunsberger, 1995; Jonathan, 2008). Therefore, religion-specific individual difference factors might not correlate with negative attitudes towards gay people (i.e., person-based attitudes), while constructs that are not religion-specific might (see Johnson et al., 2010). This is important for future research.

In relation to the fourth empirical chapter (i.e., Chapter 10), the unexpected finding that Atheists demonstrated an aversive reaction to the religious prime needs further exploration. For example, one would expect that Atheists would respond the same way to primes of other religions that prescribe anti-gay attitudes as to the Christian religious prime in this thesis. Thus, distracter stimuli that are (same-gender as target) picture of religious teachers of Islam, Hindu, or Judaism should elicit the same effect. The method-based contextual prime should also be explored between religions (i.e., the experiment in Chapter 10 conducted in a non-Christian [but religiously affiliated] sample). Finally, this method-based contextual prime has the potential to be applied to other domains; this also is beyond the scope of this thesis.

11. 4 Synthesis with the Existing Literature

11.4.1 Explicit anti-gay attitudes

Across the five empirical studies, the explicit measures revealed explicit attitudes that were mostly consistent, if a little positive, compared to the extant literature on anti-gay attitudes. All of the samples reported relatively low levels of explicit anti-gay attitudes (consistent with notions that either anti-gay attitudes are genuinely decreasing, or norms towards this social category prohibit their explicit public endorsement Herek & McLemore, 2013; see also Pereira et al., 2009). The existing literature (e.g., Herek, 1984a; Herek & Capitanio, 1999) has found consistent differences as a function of the target gender which were partially replicated in Chapters 5 and 6, with the participants reporting attitudes that were less negative (but not significantly) towards lesbians than gay men. Across the thesis, no significant differences existed as a function of the target's gender. This could be explained by a floor effect (i.e., all reported attitudes were positive). It is impossible to determine whether the observed attitudes correspond to genuinely positive attitudes or are the result of self-presentation concerns.

Participant differences reported in this thesis also replicated the existing literature. Specifically, in Chapter 5 (Experiment 2) and Chapter 9 male participants reported more anti-gay attitudes than female participants (e.g., Herek, 2002; Herek & Capitanio, 1999). Further, an interaction with the target gender was observed in Chapter 5, Experiment 2, such that straight men reported more anti-gay attitudes towards gay men than towards lesbians. In these samples, straight participants also reported more anti-gay attitudes towards gay men and lesbians than gay participants (Banse et al., 2001; Cullen & Barnes-

Holmes, 2008). Finally, in Chapters 9 and 10, Christian participants reported more anti-gay attitudes than non-Christians (as per Finlay & Walther, 2003).

11.4.2 Implicit anti-gay attitudes

As the person-based approach was introduced in this thesis as a new method, there are no existing findings against which to compare person-based implicit attitude results. However, across all five experiments presented in this thesis ($N_{\text{total}}=432$) the same pattern of results was observed. In Study 3 I demonstrated that typical approaches to measuring attitudes (i.e., category-based) matched the findings presented in the existing literature. Given these findings, it can be concluded that this thesis provides converging validity for the person-based approach, rather than evidence of a failure to replicate existing findings.

Other interesting results from the thesis, which also replicated the existing literature, included the finding that implicit attitudes demonstrated by male participants (regardless of sexual orientation) towards all targets were less extreme than the attitudes observed for female participants (discussed by Carpenter & Banaji, 2000, as cited in Mitchell et al., 2003). This might reflect genuinely less extreme attitudes, or it could be an issue of gendered task performance (e.g., males performed better on all blocks resulting in a smaller mean difference scores). Second, there was evidence of an in-group bias for women, matching the work of Rudman and Goodwin (2004), however, the present findings extend this work to reveal that the automatic female in-group bias extends to sexual orientation for lesbian, but not straight, women. More specifically, lesbian participants demonstrated an in-group bias (i.e. more positive attitudes) towards both lesbian and straight female targets,

whereas straight female participants demonstrated the in-group bias for straight female targets only.

Interestingly, the data presented within this dissertation contained a distinct lack of group-based differences that might have been expected based on the literature on attitudes towards gay men and lesbian women. For example, based on the existing literature, Study 2 predicted more negative attitudes from straight participants than gay participants (e.g., Herek & McLemore, 2013) and Study 5 predicted more negative attitudes from Atheist participants than from Christian participants. In fact, these predictions were supported by the explicit attitudes data presented here. However, this was not the case with the implicit attitudes data. It is worth noting these group-based differences have been found mostly in studies that report explicit attitudes (e.g., for a meta-analysis see Whitely, 2009). Indeed, the limited literature on implicit attitudes towards gay men and lesbians has reported mixed results about group-based differences (see Cullen & Barnes-Holmes, 2008) and of course beyond the data presented here, there is no person-based data available for comparison. Thus, while the lack of group-based differences could be considered to be an indication of a lack of known-group validity, it could equally be the case that such differences do not occur at the group level (at least for these groups) in the particular case of implicit attitudes.

11.4.3 Correlations between implicit and explicit attitudes

Previous research has found little evidence for stable or predictable correlations between explicit and implicit measures (Nosek, 2007; Nosek & Smyth, 2007). This was also the case in the studies in this thesis, with the large majority of explicit-implicit correlations being non-significant. Theoretically, this can be due to a variety of reasons,

including methodological (i.e., [non-]shared characteristics of the measures) or cognitive (i.e., memory retrieval issues, lack of introspection to implicit constructs, motivational bias' pertaining to explicit constructs) accounts, or a non-existent relationship between the constructs (see Hofmann et al., 2005). In line with dual-attitude models, in this thesis, I interpreted this as evidence as providing support for Gawronski and Bodenhausen's (2006) proposal that explicit attitudes and implicit attitudes are related but, nonetheless, distinct attitude representations of the same attitude-object.

Although my preferred explanation for the observed lack of correlation between implicit and explicit attitudes towards gay men or lesbians is that these two attitudes are distinct but may be related (Nosek, 2007), there are several explanations of this null effect that are worth discussing. Hoffman and colleagues (2005) suggested five theoretical factors that cause low correlations between explicit and implicit measures. First, socially desirable response styles would lead to attenuation of reported (i.e., explicit) negativity, but does not affect implicit negativity (based on the assumption that implicit cognitions are beyond conscious control and thus not available for conscious distortion). Moreover, this only affects participants who are motivated to control their negativity which means can affect the relationship between measures for a sample (e.g., Fazio & Olson, 2003; Wilson et al., 2000). Second (and third), there are cognitive factors that might explain the lack of correlations. For example, Rudman (2004) has suggested that for correlations to exist, individuals would not only have to be willing to report negative attitudes, they would also need to be able to access them; in some circumstances, individuals may not be capable of introspecting on implicitly accessed representations. Similarly, (third) there might be cognitive factors that could influence the retrieval of relevant information from memory.

Given that implicit attitudes can be defined as associations stored in long-term memory (Eagly & Chaiken, 2007; Dasgupta & Greenwald, 2001), issues with accessing memory would also limit the potential for correlations between these constructs. Fourth, there might be issues related to procedural factors with either the explicit or the implicit measure. For example, the presentation order of critical blocks can influence outcomes of the implicit measure (e.g., IAT effects are impacted by the order of presentation of compatible and incompatible blocks; Greenwald & Nosek, 2001), and thus also correlations with explicit measures. At a more micro level, randomised presentation of trials in the implicit measure has the potential to mistake individual-level differences in the order of trials with individual-level differences in attitudes towards the assessed representation (Gawronski, 2002). And fifth, in agreement with my preferred explanation as well as dual-theory models, the observed lack of correlation between implicit and explicit attitudes could be due to the constructs simply being distinct from one another.

- Research has demonstrated that the lack of correlations between explicit and implicit measures typically reflects important and meaningful factors (e.g., social desirability, method specific variance) rather than evidence for the validity of implicit measures. Nonetheless, such a finding is important, suggesting that the seemingly common attitude-object is the target of different explicit and implicit attitudes. Taken together with research demonstrating the important contribution of implicit attitudes in predicting behaviour both in isolation, and incrementally beyond the predictive validity of explicit measures, (Asendorpf, Banse, & Mücke, 2002; Dovidio et al., 1997; Gawronski et al., 2003) it is essential to assess both if we are to understand important real-world issues such as the prejudice and discrimination faced by gay men and lesbians.

11.5 General Limitations

11.5.1 Accounting for contact

One limitation that is common to all experiments presented in this thesis, is that the variability of previous contact that participants had with gay and lesbian people was not measured, and thus I have not accounted for effects of the contact hypothesis (e.g., Allport, 1954). Certain demographic features of individuals within the sample (i.e., straight, religious, male) may be systematically related to having less (or poorer quality) social contact with a gay or lesbian person. Similarly, other demographic groups might be more likely to have friends or family members who disclose their same-sex orientation to them (Kaufmann, Williams, Hosking, Anderson, & Pedder, 2015). In reality, certain demographic features of the sample might encourage any gay people that they encounter to keep their sexual orientation invisible (Herek, 1996a; Herek & Capitanio, 1996; S. J. Smith et al., 2009; Techakesari et al., 2015). For example, if a gay person believes that disclosing their sexual orientation to Christians will attract negative attitudes, it is logical that they will avoid disclosing their sexual orientation to a Christian individual. If this is the case, then Christian individuals would be less likely to meet (openly) gay people, which would limit the potential for their negative attitudes to become changed via contact, and thus a disclosure-attitudes relationship cycle may be born.

11.5.2 Gay People vs. gay behaviour

The present study did not directly measure differences between negative attitudes toward gay people and negative attitudes toward same-sex sexual behaviour. For example, in the case of religious participants, the general construct of anti-gay attitudes may be driven by perceptions that gay behaviour is a direct violation of the doctrinal proclamation

that “thou shalt not lie with mankind, as with womankind: [because] it is an abomination” (Leviticus 18:22, King James Version). This proclamation does not extend to celibate individuals who are gay. Thus, the potential to violate religious belief systems through same-sex sexual behaviour is not possible with the person-based approach which presents the face of a single gay individual. As discussed earlier, Mak and Tsang (2008) have conceptualized this as ‘loving the sinner’, but ‘hating the sin’ (p. 379). Thus, it could be that, for Christians, having a salient religious identity, or effects of religious priming, could elicit acceptance of a gay person but not of gay people as a group in a religious sample.

11.5.3 Sample selection bias

As is often the case with anti-gay attitudes research, the current study may lack generalizability as a result of the fact that the sample was self-selected, mostly female, and highly educated compared to the general public. Specifically, most samples in this thesis comprised females and some were comprised solely of students. Both of these groups have previously been found to have more politically liberal and egalitarian attitudes toward gay men and lesbians (e.g., Steffens, 2005). Consequently, it is possible that both the explicit and implicit attitudes reported in this thesis were less negative than may have been found in other, more representative samples (e.g., less educated sample, or higher proportion of male). However, this has no direct implication for the interpretation of the results, given that these concerns are not relevant to the observed dissociation between implicit attitudes in category-based and in person-based approaches.

11.5.4 Sample size

The size of the samples vary across the five studies, and at times this might lead the analyses conducted within this thesis to be underpowered. Largely, the analyses used were within-subjects, and thus did not require large samples. However in other cases, such as in Chapter 6, there were multiple between-subject variables. I determined sample sizes in this thesis by matching existing work in the field. For example, I based the sample size in Chapter 6 on the seminal work on implicit attitudes towards homosexuality (Banse et al., 2001), in which the researchers also used a research design with four participant cells and 24 participants per cell. Regardless of the potentially problematic sample sizes, the effects sizes were large. However, the potential confound of the smaller sample sizes are worthy of mention here.

11.6 Advantages of the Person-Based Approach

The methodology presented in this thesis has several advantages compared to traditional approaches used to measure implicit anti-gay attitudes. Specifically, using an individual's face to represent the category gay, or more specifically gay men or lesbians, more closely aligns with the methods used to represent gender and ethnicity in implicit methodologies. It also removes confounds associated with presenting couples as stimuli rather than an individual face. This method also ensures that the target is presented in a context that makes their sexual orientation salient. The resulting attitudes toward a sexual orientation-salient target are qualitatively different to the attitudes that are elicited by the same stimulus when their gender is salient. In this way, the person-based approach ensures that sexual orientation is the only social category being evaluated when measuring implicit anti-gay attitudes.

Although there are some disadvantages to the use of well-known faces as stimuli (see Chapter 7 for full discussion), the method is efficient (i.e. no learning phase is necessary), and the pattern of results has been replicated across 5 experiments in this thesis ($N_{\text{total}}=432$) and across a range of samples, including student and community samples, gay and straight samples, and religious and non-religious samples. This suggests this method of representation is reliable. Thus, a real advantage of this approach lies in the construct being measured; researchers interested in the measurement and application of attitudes specifically towards gay individuals now have an alternative choice to the previous category-based methods of representation.

11.7 Conclusions

The aims of this thesis were to present the person-based approach to measuring implicit ant-gay attitudes. Consistent with this aim, I provided a comprehensive review of the literature to date, and presented evidence for its ability to measure attitudes towards gay individuals. Across five experiments, I have presented evidence that the person-based approach elicits gay attitudes that are: (a) different from gender-salient person-based attitudes, and (b) different from category-based attitudes. I have replicated the same pattern of person-based results and presented reliability statistics in each study, suggesting that the person-based methodology is reliable. I have also presented initial evidence of the validity of this method, by demonstrating a divergent relationship from typical methods of representation.

Future research should focus on further establishing the validity of the person-based approach, and on addressing the concerns of using well-known faces. This thesis also adds to the limited body of literature providing evidence of implicit contextual variation

(Mitchell et al., 2003), and provides support for implicit inversion theory, which suggests that gay targets are perceived as being more stereotypically similar to their opposite-gender straight counterparts than same-gender straight counterparts (Kite & Deaux, 1987). Finally, the results of this study also provide strong evidence for a dual process theoretical model of implicit attitudes

Beyond providing evidence of the person-based approach, the findings of this thesis suggest that levels of anti-gay attitudes in Australia are relatively low (at least explicit attitudes, demonstrations of implicit anti-gay attitudes are somewhat more negative). I do not interpret the overall findings of this thesis as evidence that there is no prejudice against gay people. However, I found evidence for category-based implicit antigay attitudes (i.e., anti-gay attitudes that are more negative towards gay men than lesbians), consistent with previous research, but no such findings when implicit attitudes were measured towards gay men and lesbians. However, I do note that lesbians are significantly less implicitly associated with positive than women evaluated on the basis of their gender.

It is important to highlight that the person-based approach produces gender-based results for gay targets that replicate those of straight targets (i.e. positive attitudes towards females and negative attitudes towards males). The hypotheses pertaining to person-based gender attitudes (i.e., attitudes towards gay targets when their gender is salient) were derived from the existing literature and were supported by the findings presented in the dissertation. This suggests that the person-based approach to gender attitudes replicates other implicit gender-based attitudes. Yet the findings pertaining to person-based sexual orientation attitudes do not match hypothesis that were derived from the existing literature. It could be argued that the lack of corroborative findings is actually indicative of a lack of

validity for the person-based approach. Whilst acknowledging this as a possibility, it is still worth considering that the general pattern of results (i.e., the reversal in valence of attitudes towards the same targets as a function of the contextual variation manipulation) was replicated across 5 studies. This suggests that, indeed, person-based attitudes are (a) different to gender based-attitudes, (b) different to attitudes elicited by typically used stimuli, and (c) are not predicted by demographic or ideological variables that predict explicit and (sometime) implicit category-based attitudes toward gay people. I contend that the construct of implicit gay attitudes is multi-faceted, and thus person-based and category-based methodologies elicit responses that are related to (but independent from) each other, thus explaining the lack of corroborative findings. More specifically, it appears that both category-based and person-based attitudes toward ‘homosexuality’ (i.e., towards the category of gay, or towards gay people, respectively) tap onto different components of the same construct.

In closing, the findings of these experiments highlight the importance of stimuli selection. The existing research into implicit gay attitudes has been measuring a very specific version of implicit gay attitudes, and one that is seemingly different to those measured in this thesis. Thus, the person-based approach has been presented as a viable alternative to existing methods of representation, allowing researchers to assess implicit attitudes toward gay people rather than gay concepts, which might make this method more applicable for researchers who are interested in person-based prejudice.

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Appendices

Appendix A Experiment Materials

Appendix A – 1 Implicit stimuli.

Appendix A - 1.1 Visual stimuli.

Appendix A – 1.1(i) Heterosexual female stimuli.



Appendix A – 1.1(ii) Heterosexual male stimuli



Appendix A – 1.1(iii) lesbian stimuli.



Appendix A – 1.1(iv) gay male stimuli.



Appendix A – 1.1(v) Typically used stimuli to represent heterosexuality.



Appendix A – 1.1(v) Typically used stimuli to represent lesbians.



Appendix A – 1.1(v) Typically used stimuli to represent male homosexuality.



Appendix A – 1.1(v) Religious female faces (used for contextual priming).



Appendix A – 1.1(v) Religious male faces (used for contextual priming).



Appendix A - 1.2 Word stimuli.

Appendix A – 1.2(i) Positive valence word stimuli.

ACE

EXCELLENT

GOOD

GREAT

LIKE

LOVE

JOYFUL

POSITIVE

Appendix A – 1.2(ii) Negative valence word stimuli.

AWFUL

BAD

CRUEL

DISLIKE

HATE

NEGATIVE

UGLY

WRONG

Appendix A – 2 Explicit Scales.

Appendix A - 2.1 Anti-gay bias scale(s).

Appendix A – 2.1(i) Attitudes Toward Lesbians and Gay Men (ATLG; Herek, 1984a).

1. Lesbians just can't fit into our society.
2. A woman's' homosexuality should *not* be a cause for job discrimination in any situation.*
3. Female homosexuality is detrimental to society because it breaks down the natural divisions between the sexes.
4. State laws regulating private, consenting lesbian behaviour should be loosened.*
5. Female homosexuality is a sin.
6. The growing number of lesbians indicates a decline in American morals.
7. Female homosexuality in itself is no problem, but what society makes of it can be a problem.*
8. Female homosexuality is a threat to many of our basic social institutions.
9. Female homosexuality is an inferior form of sexuality.
10. Lesbians are sick.
11. Male homosexual couples should be allowed to adopt children the same as heterosexual couples.*
12. I think male homosexuals are disgusting.
13. Male homosexuals should *not* be allowed to teach school.
14. Male homosexuality is a perversion.
15. Just as in other species, male homosexuality is a natural expression of sexuality in human men.*
16. If a man has homosexual feelings, he should do everything he can to overcome them.
17. I would *not* be too upset if I learned that my son were a homosexual.*
18. Homosexual behaviour between two men is just plain wrong.
19. The idea of male homosexual marriages seems ridiculous.
20. Male homosexuality is merely a different kind of lifestyle that should *not* be condemned.*

Notes: Scale items for Attitudes Toward Lesbians and Gay Men (ATLG) scale items 1 through 10 comprise the ATL subscale; Scoring is reversed for starred (*) items.

Appendix A – 2.1(ii) Index of Homophobia (IHP; Hudson & Ricketts, 1980).

1. I would feel comfortable working with a gay man.
2. I would enjoy attending social functions at which gay men or lesbians were present.
3. I would feel uncomfortable if I found out that my neighbour or flatmate were gay.
4. If a member of my sex made a sexual advance towards me I would feel angry.
5. I would feel uncomfortable knowing that I was attractive to members of my own sex.
6. I would be uncomfortable in a gay bar.
7. I would feel comfortable if a member of my own sex made an advance towards me.
8. I would be comfortable if I found myself attracted to a member of my own sex.
9. I would feel disappointed if I learned that my child was homosexual.
10. I would feel nervous or out of place in a group of homosexuals.
11. I would feel comfortable knowing that my clergymen (i.e., religious leader) was homosexual.
12. I would be upset if my brother or sister told me they were homosexual
13. I would feel that I had failed as a parent if I learned that my child was gay.
14. If I saw two men holding hands in public I would feel awkward.
15. If a member of my sex made an advance towards me I would be offended.
16. I would feel comfortable if I learned that my daughter's female teacher was a lesbian.
17. I would feel uncomfortable if I learned that my spouse or partner was attracted to members of his or her own sex.
18. I would be at ease talking to a homosexual at a party.
19. I would be uncomfortable if I learned that my boss was homosexual.
20. It would not bother me to walk through a predominantly gay section of town.
21. It would disturb me to learn that my doctor was homosexual.
22. I would feel uncomfortable if my best friend (of the same sex as me) told me they were homosexual.
23. If a member of my sex made an advance towards me I would feel flattered.
24. I would feel uncomfortable knowing that my male son's teacher was gay.
25. I would feel comfortable working closely with a female homosexual.

Notes: Responses are measured by the participants' level of endorsement on a 9-point scale; Scoring is reversed for items 3, 4, 6, 9, 10, 12, 13, 14, 15, 17, 19, 21, 24.

Appendix A - 2.2 Religiosity Scales.

Appendix A-2.2(i) Religious Orientation Scale (ROS; Allport & Ross, 1967).

Extrinsic (sub)scale

1. Although I believe in my religion, I feel there are many more important things in my life.
2. It doesn't matter so much what I believe so long as I lead a moral life.
3. The primary purpose of prayer is to gain relief and protection.
4. The church is most important as a place to formulate good social relationships.
5. What religion offers me most is comfort when sorrows and misfortune strike.
6. I pray chiefly because I have been taught to pray.
7. Although I am a religious person I refuse to let religious considerations influence my everyday affairs.
8. A primary reason for my interest in religion is that my church is a congenial social activity.
9. Occasionally I feel it necessary to compromise my religious beliefs in order to protect my social and economic well-being.
10. One reason for my being a church member is that such membership helps to establish a person in the community.
11. The purpose of prayer is to secure a happy and peaceful life.
12. Religion helps to keep my life balanced and steady in exactly the same way as my citizenship, friendships. And other memberships do.

Intrinsic (sub)scale

1. It is important for me to spend periods of time in private religious thought and meditation.
2. If not prevented by unavoidable circumstances, I attend church.
3. I try hard to carry my religion over into all my other dealings in life.
4. The prayers I say when I am alone carry as much meaning and personal emotion as those said by me during services.
5. Quite often I have been keenly aware of the presence of God or the Devine Being.
6. I read literature about my faith (or church).
7. If I were to join a church group I would prefer to join a Bible study group rather than a social fellowship.
8. My religious beliefs are really what lie behind my whole approach to life.
9. Religion is especially important to me because it answers many questions about the meaning of life.

Notes: Responses are measured by the participants' level of endorsement on a 5-point likert scale; the ordering of all 20 items should be scrambled.

Appendix A-2.2(ii) Quest Scale (Batson & Schoenrade, 1991).

1. As I grow and change, I expect my religion also to grow and change.
2. I am constantly questioning my religious beliefs.
3. I might be said that I value my religious doubts and uncertainties
4. I was not very interested in religion until i began to ask questions about the meaning and purpose of my life.
5. For me, doubting is an important part of what it means to be religious
6. (-) I do not expect my religious convictions to change in the next few years
7. (-) I find religious doubts upsetting
8. I have been driven to ask religious questions out of growing awareness of the tensions in my world and in my relation to my world.
9. My life experiences have led me to rethink my religious convictions
10. There are many religious issues on which my views are still changing
11. God wasn't very important to me until I began to ask questions about the meaning of my own life.
12. Questions are far more central to my religious experience than are answers.

Notes :(-) indicates reverse scoring; responses are measured by the participants' level of endorsement on a 9-point scale.

Appendix A-2.2(iii) Religious Fundamentalism Scale (RF; Altemeyer & Hunsberger, 1992).

1. God has given mankind a complete, unfailing guide to happiness and salvation, which must be totally followed.
2. *All* of the religions in the world have flaws and wrong teachings.*
3. Of all the people on this earth, one group has a special relationship with God because it believes the most in his revealed truths and tries the hardest to follow his laws.
4. The long-established traditions in religion show the best way to honour and serve God, and should never be compromised.
5. Religion must admit all its past failings and adapt to modern life if it is to benefit humanity.*
6. When you get right down to it, there are only two kinds of people in the world: the Righteous, who will be rewarded by God and the rest, who will not.
7. Different religions and philosophies have different versions of the truth and may be equally right in their own way.*
8. The basic cause of evil in the world is Satan, who is still constantly and ferociously fighting against God.
9. It is more important to be a good person than to believe in God and the right religion.*
10. No one religion is especially close to God, nor does God favour any particular group of believers.*
11. God will punish most severely those who abandon his true religion.
12. No single book of religious writings contains all the important truths about life*
13. It is silly to think people can be divided into “the Good” and “the Evil”.
Everyone does some good, and some bad, things.*
14. God’s true followers must remember that he requires them to *constantly* fight Satan and Satan’s allies on this earth.
15. Parents should encourage their children to study all religions without bias, and then make up their own minds about what to believe.
16. There *is* a religion on this earth that teaches, without error, God’s truth.
17. “Satan” is just the name people give to their own bad impulses. There really is *no such thing* as a diabolical “Prince of Darkness” who tempts us.*
18. Whenever science and sacred scripture conflict, science must be wrong.
19. There is *no* body of teachings, or set of scriptures, which is completely without error.*
20. To lead the best, most meaningful life, one must belong to the one, true religion.

Notes: Responses are measured by the participants' level of endorsement on a 9-point scale;

* = con-trait item.

Appendix B Participant Recruitment and Informed Consent

Appendix B – 1 Information Letter (Chapter 5 and 9).

TITLE OF PROJECT: Exploring attitudes to homosexuality: The role of attitude-relevant factors and context effects

STAFF SUPERVISOR: Leah Kaufmann

STUDENT RESEARCHERS: Joel Anderson

COURSE: Doctorate of Philosophy

SCHOOL OF PSYCHOLOGY

Australian Catholic University
Limited
ABN 15 050 192 660
Melbourne Campus (St
Patrick's)
115 Victoria Parade, Fitzroy,
Vic. 3065
Locked Bag 4115 Fitzroy MCD
VIC 3065
Telephone 03 9953 3106
Facsimile 03 9953 3205
www.acu.edu.au

Dear Participant,

You are invited to take part in a research project to explore the role of 'religiosity' on implicit and explicit social attitudes to homosexuality. This project is being undertaken for the thesis component of a Doctorate of Philosophy.

Participation in this project will involve completing several questionnaires designed to assess your religious beliefs and your attitudes to homosexuality. These measures include. In addition, you will complete an implicit measure called the "Go/ No Go Association Task" of GNAT which has been designed to assess another aspect of your attitudes to homosexuality. Participations will take approximately 50 minutes.

The current study involves no foreseeable risks of harm or discomfort for participants beyond the inconvenience of time taken to participate.

Participation in this project is completely voluntary and there is no way that your responses can be used to identify you. You are free to withdraw from this study at any stage, including the withdrawal of any unprocessed data. At the conclusion of your participation you will be asked if you would agree to have your data included in the sample to be analysed. If you agree, your data will be processed and cannot be withdrawn after this.

Your participation and results will remain confidential subject to legal limits. No identifying information will be collected as part of your results. All data and will be stored in secure files in the School of Psychology for a period of five years from the date of any publication, at which time they will be destroyed. Findings will be reported as group

results only and no individual will be identified in any publications resulting from this work.

Most people find participating in studies interesting, however, if any part of this participation causes you concern Dr Bill Johnson II, a lecturer in the School of Psychology, is available to discuss any issues arising from your participation. He can be contacted on 9953 3117.

Any questions regarding this project should be directed to the Principal Investigator:

Leah Kaufmann
 9953 3015
 School of Psychology
 115 Victoria Parade, Fitzroy VIC 3065.....

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

In the event that you have any complaint or concern about the way you have been treated during the study, or if you have any query that the Investigator or Supervisor and Student Researcher has (have) not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee care of the nearest branch of the Research Services Office.

VIC: Chair, HREC
 C/- Research Services
 Australian Catholic University
 Melbourne Campus
 Locked Bag 4115
 FITZROY VIC 3065
 Tel: 03 9953 3158
 Fax: 03 9953 3315

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Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

If you agree to participate in this project, you should click on the link below.

Leah Kaufmann
 Principal Investigator

Joel Anderson
 Student Researcher

Appendix B Participant Recruitment and Informed Consent

Appendix B – 2 Information Letter (Chapter 6 and 10).

TITLE OF PROJECT: Comparing Typical and
Person-Based Implicit
Attitudes

STAFF SUPERVISOR: Leah Kaufmann

STUDENT RESEARCHERS: Joel Anderson

COURSE: Doctorate of Philosophy

SCHOOL OF PSYCHOLOGY

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ABN 15 050 192 660
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Vic. 3065
Locked Bag 4115 Fitzroy MCD
VIC 3065
Telephone 03 9953 3106
Facsimile 03 9953 3205
www.acu.edu.au

Dear Participant,

You are invited to take part in a research project to explore implicit and explicit social attitudes to homosexuality. This project is being undertaken for the thesis component of a Doctorate of Philosophy.

Participation in this project will involve completing several questionnaires designed to assess your attitudes to homosexuality. In addition, you will complete an implicit measure called the “Go/ No Go Association Task” of GNAT which has been designed to assess another aspect of your attitudes to homosexuality. Participations will take approximately 30 minutes.

The current study involves no foreseeable risks of harm or discomfort for participants beyond the inconvenience of time taken to participate.

Participation in this project is completely voluntary and there is no way that your responses can be used to identify you. You are free to withdraw from this study at any stage, including the withdrawal of any unprocessed data. At the conclusion of your participation you will be asked if you would agree to have your data included in the sample to be analysed. If you agree, your data will be processed and cannot be withdrawn after this.

Your participation and results will remain confidential subject to legal limits. No identifying information will be collected as part of your results. All data and will be stored in secure files in the School of Psychology for a period of five years from the date of any publication, at which time they will be destroyed. Findings will be reported as group

results only and no individual will be identified in any publications resulting from this work.

Most people find participating in studies interesting, however, if any part of this participation causes you concern Dr Helen Aucote, a lecturer in the School of Psychology, is available to discuss any issues arising from your participation. She can be contacted on 9953 3013.

Any questions regarding this project should be directed to the Principal Investigator:

Leah Kaufmann
 9953 3015
 School of Psychology
 115 Victoria Parade, Fitzroy VIC 3065

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

In the event that you have any complaint or concern about the way you have been treated during the study, or if you have any query that the Investigator or Supervisor and Student Researcher has (have) not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee care of the nearest branch of the Research Services Office.

VIC: Chair, HREC
 C/- Research Services
 Australian Catholic University
 Melbourne Campus
 Locked Bag 4115
 FITZROY VIC 3065
 Tel: 03 9953 3158
 Fax: 03 9953 3315

Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

If you agree to participate in this project, you should click on the link below.

Leah Kaufmann
 Principal Investigator

Joel Anderson
 Student Researcher

Appendix C Human Research Ethics Committee

Appendix C – 1 Letters of Approval

Appendix C – 1.1 Committee Approval Form (Chapters 5 & 6).



Human Research Ethics Committee

Committee Approval Form

Principal Investigator/Supervisor: Leah KAUFMANN Melbourne Campus

Co-Investigators: Melbourne Campus

Student Researcher: Mr Joel Anderson Melbourne Campus

Ethics approval has been granted for the following project:

Exploring attitudes to homosexuality: The role of attitude-relevant factors and context effects

for the period: 04.08.10 - 30.04.11

Human Research Ethics Committee (HREC) Register Number: V2010 33

The following standard conditions as stipulated in the *National Statement on Ethical Conduct in Research Involving Humans* (2007) apply:

- (i) that Principal Investigators / Supervisors provide, on the form supplied by the Human Research Ethics Committee, annual reports on matters such as:
 - security of records
 - compliance with approved consent procedures and documentation
 - compliance with special conditions, and
- (ii) that researchers report to the HREC immediately any matter that might affect the ethical acceptability of the protocol, such as:
 - proposed changes to the protocol
 - unforeseen circumstances or events
 - adverse effects on participants

The HREC will conduct an audit each year of all projects deemed to be of more than low risk. There will also be random audits of a sample of projects considered to be of negligible risk and low risk on all campuses each year.

Within one month of the conclusion of the project, researchers are required to complete a *Final Report Form* and submit it to the local Research Services Officer.

If the project continues for more than one year, researchers are required to complete an *Annual Progress Report Form* and submit it to the local Research Services Officer within one month of the anniversary date of the ethics approval.

Signed:

Date: 04.08.2010

(Research Services Officer, Melbourne Campus)

Appendix C – 1.2 Committee Approval Form (Chapters 9 & 10).



Human Research Ethics Committee

Committee Approval Form

Principal Investigator/Supervisor: Leah KAUFMANN Melbourne Campus
 Co-Investigators: Melbourne Campus
 Student Researcher: Mr Joel Anderson Melbourne Campus

Ethics approval has been granted for the following project:
 Exploring attitudes to homosexuality: The role of attitude-relevant factors and context effects
 for the period: 04.08.10 - 30.04.11
 Human Research Ethics Committee (HREC) Register Number: V2010 33

The following standard conditions as stipulated in the *National Statement on Ethical Conduct in Research Involving Humans* (2007) apply:

- (i) that Principal Investigators / Supervisors provide, on the form supplied by the Human Research Ethics Committee, annual reports on matters such as:
 - security of records
 - compliance with approved consent procedures and documentation
 - compliance with special conditions, and
- (ii) that researchers report to the HREC immediately any matter that might affect the ethical acceptability of the protocol, such as:
 - proposed changes to the protocol
 - unforeseen circumstances or events
 - adverse effects on participants

The HREC will conduct an audit each year of all projects deemed to be of more than low risk. There will also be random audits of a sample of projects considered to be of negligible risk and low risk on all campuses each year.

Within one month of the conclusion of the project, researchers are required to complete a *Final Report Form* and submit it to the local Research Services Officer.

If the project continues for more than one year, researchers are required to complete an *Annual Progress Report Form* and submit it to the local Research Services Officer within one month of the anniversary date of the ethics approval.

Signed:  Date:04.08.2010.....

Appendix C – 2 Modifications to existing protocols

Appendix C – 2.1 Modifications to existing protocols (Chapters 6).



Human Research Ethics Committee

APPLICATION FOR APPROVAL TO MODIFY A RESEARCH PROJECT WITH HUMAN PARTICIPANTS

1.	This form is available upon request via Email res.ethics@acu.edu.au or on the Internet at: http://www.acu.edu.au/research . All questions must be answered fully. If a question does not apply, indicate N/A.	
2.	It is a requirement of the <i>National Statement on Ethical Conduct in Human Research</i> (2007) that any changes to a research protocol which involves contact with human participants or access to their records or files must be subject to review and approval by a Human Research Ethics Committee.	
3.	The completed form should be signed and dated then lodged with the local Research Services Officer:	
	VICTORIA Research Services Australian Catholic University Melbourne Campus Locked Bag 4115 FITZROY VIC 3065 Tel: 03 9953 3150 Fax: 03 9953 3315	NEW SOUTH WALES, ACT AND QUEENSLAND Research Services Australian Catholic University Brisbane Campus PO Box 456 VIRGINIA QLD 4014 Tel: 07 3623 7429 Fax: 07 3623 7328
4.	The application will normally be processed within 20 working days.	
NO modification to the protocol is permissible before written approval from the HREC has been received.		
1.	HREC Register No.: 2012 123V	
2.	Approval End Date: <input type="text"/>	
3.	Principal Investigator/Supervisor: Leah Kaufmann	
4.	Student Researcher (if applicable): Joel Anderson	
5.	Project Title: Exploring attitudes to homosexuality: The role of attitude-relevant factors and context effects	
6.	Proposed Modifications to the Project <i>NOTE: Such modifications may include changes to: the aims, procedures or direction of the project; the sources or manner of recruitment of participants; the number or age of participants; the questionnaire, survey instruments, Information Letter(s) to Participants, Consent Forms, or adding student researcher details.</i>	
1.	State what the proposed modification is: The proposed effects the stimuli used for the implicit measurement of sexual orientation. The original stimuli comprised of famous male gay and lesbian individuals. We found that the attitudes demonstrated by the participant differed as a function of the gender of the target. To progress this study, we would like to replicate the findings using stimuli that are representative of the category of homosexual rather than attitudes towards individual homosexual people.	

<p>2. State what was originally approved:</p> <p>Original stimuli comprised famous gay male and female faces (i.e., individuals who were known for both their celebrity status, and also for their sexual orientation).</p>		
<p>8. Reasons for the Modification(s)</p> <p>The original stimuli elicited results that were contrasting based on the gender of the faces being presented. Changing the stimuli will allow a comparison of attitudes towards the 'homosexual' as a category, rather than homosexual individuals. This aligns with recent work in the field (e.g., Saragioti, 2012).</p>		
<p>9. Certification by Principal Investigator (or Supervisor) and Student Researcher</p> <p>I/We certify that the information provided above is an accurate and full account of the modification proposed to the protocols for this research project. I/We understand that the proposed modification is not to be introduced until the written approval of the Human Research Ethics Committee has been received.</p>		
<p>Name (block letters)</p> <p>Leah Kaufmann Principal Investigator / Supervisor</p> <p>Joel Anderson Student Researcher</p>	<p>Signature</p> <p><i>[Signature]</i></p> <p><i>[Signature]</i></p>	<p>Date</p> <p>7/2/2013</p> <p>7/2/2013</p>

<p>APPROVAL BY CHAIR / PANEL CHAIR OF HREC</p> <p><input type="checkbox"/> Modification Approved.</p> <p><input type="checkbox"/> The application needs to be referred to the next HREC meeting.</p> <p><input type="checkbox"/> I approve the modification of the Research Project as described by the applicant subject to the following conditions:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Signed: _____ Date: _____</p>	
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<p align="center">Privacy Statement</p> <p>Australian Catholic University is committed to ensuring the privacy of all information it collects. Personal information supplied to the University will only be used for administrative and educational purposes of the institution. Personal information collected by the University will only be disclosed to third parties with the written consent of the person concerned, unless otherwise prescribed by law. For further information, please see the University's Statement on Privacy http://www.acu.edu.au/privacy_policy.cfm</p>
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Appendix C – 2 Modifications to existing protocols

Appendix C – 2.2 Modifications to existing protocols (Chapters 10).



Human Research Ethics Committee

APPLICATION FOR APPROVAL TO MODIFY A RESEARCH PROJECT WITH HUMAN PARTICIPANTS

1. This form is available upon request via Email res.ethics@acu.edu.au or on the Internet at: <http://www.acu.edu.au/research>. All questions must be answered fully. If a question does not apply, indicate N/A.
2. It is a requirement of the *National Statement on Ethical Conduct in Human Research* (2007) that any changes to a research protocol which involves contact with human participants or access to their records or files must be subject to review and approval by a Human Research Ethics Committee.
3. The completed form should be signed and dated then lodged with the local Research Services Officer:

VICTORIA Research Services Australian Catholic University Melbourne Campus Locked Bag 4115 FITZROY VIC 3065 Tel: 03 9953 3150 Fax: 03 9953 3315	NEW SOUTH WALES, ACT AND QUEENSLAND Research Services Australian Catholic University Brisbane Campus PO Box 456 VIRGINIA QLD 4014 Tel: 07 3623 7429 Fax: 07 3623 7328
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4. The application will normally be processed within 20 working days.

NO modification to the protocol is permissible before written approval from the HREC has been received.

1. HREC Register No.: 2012 123V
2. Approval End Date: 31 . DEC . 2013
3. Principal Investigator/Supervisor: Leah Kaufmann
4. Student Researcher (if applicable): Joel Anderson
5. Project Title: Exploring attitudes to homosexuality: The role of attitude-relevant factors and context effects
6. Proposed Modifications to the Project

NOTE: Such modifications may include changes to: the aims, procedures or direction of the project; the sources or manner of recruitment of participants; the number or age of participants; the questionnaire, survey instruments, Information Letter(s) to Participants, Consent Forms, or adding student researcher details.

 1. State what the proposed modification is:

We previously explored associations between GOOD and BAD target words (such as JOYFUL or YUCKY, respectively) and gay and straight men and women, as an implicit measure of attitudes towards gender and sexuality. To progress this study, we would like to replicate the findings and extend them to see if attitudes towards gay and straight men are moderated by associations of traditional masculinity (e.g., DOMINANT) and if attitudes towards gay and straight women correspond with associations of traditional femininity (e.g., NURTURING). The modification proposes changing the stimuli and collecting more data. Specifically, under

the proposed changes participants will either complete an 8-block Go-No/Go Association Task (GNAT: Nosek & Banaji, 2003; GAY MAN/GOOD; GAY MAN/BAD; STRAIGHT MAN/GOOD; STRAIGHT MAN/BAD; GAY MAN/MASCULINE; GAY MAN/FEMININE; STRAIGHT MAN/MASCULINE; STRAIGHT MAN/FEMININE) or a similar 8-block GNAT but using female stimuli).

2. State what was originally approved:

Original stimuli comprised famous gay and straight male and female faces (i.e., individuals who were known for both their celebrity status, and also for their sexual orientation). This will not change. The original proposal approved measuring the associations between these faces and target valences (i.e., GOOD and BAD target words (such as JOYFUL or YUCKY, respectively).

8. Reasons for the Modification(s)

The original stimuli elicited patterns of results that were reversed when the sexual orientation of the face presented was made salient. Specifically, when their gender was salient, patterns of associations were the same for gay and straight men, however when their sexuality was salient, the pattern was reversed and matched that of straight females. The same trend existed for lesbian faces. Changing the associated words from valence words (i.e., GOOD or BAD) to concepts of traditional masculinity or femininity will allow an exploration of 'gender inversion' theory and gender belief systems (e.g., Kite, 1987) in an Australian context, and to see if these associations are the real factor driving attitudes towards sexuality.

9. Certification by Principal Investigator (or Supervisor) and Student Researcher

I/We certify that the information provided above is an accurate and full account of the modification proposed to the protocols for this research project. I/We understand that the proposed modification is not to be introduced until the written approval of the Human Research Ethics Committee has been received.

Name (block letters)

Signature

Date

Leah Kaufmann
Principal Investigator / Supervisor



5/8/2013

Joel Anderson
Student Researcher



05.08.2013

APPROVAL BY CHAIR / PANEL CHAIR OF HREC

- ☐ Modification Approved.
- ☐ The application needs to be referred to the next HREC meeting.
- ☐ I approve the modification of the Research Project as described by the applicant subject to the following conditions:

Signed: _____ Date: _____

