Exploring the impact of outgroup membership discoveries on individual outcomes and intergroup relations

by

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ABSTRACT

Group memberships represent important components of identity, with people holding membership in various groups and categories. The groups that one belongs to are known as ingroups, and the groups that one does not belong to are known as outgroups. Movement between groups can occur, such that an individual becomes a member of a former outgroup. In some cases, this movement between groups can represent a sudden discovery for the self and/or others, especially when one becomes a member of an ambiguous, concealable, or otherwise not readily visible group. The effects of this type of movement, however, are poorly documented. The purpose of this dissertation is to investigate these outgroup membership discoveries, examining the individual intrapsychic, interpersonal, and potential intergroup effects of both self- and other-outgroup membership discoveries. Specifically, discoveries of homosexuality were examined in three studies. In Study 1, hypothetical reactions to self- and other-homosexuality discovery were assessed; in Study 2, the effects of discovering self-homosexuality (*vs.* self-heterosexuality) were experimentally examined; and in Study 3, the effects of discovering another's homosexuality earlier relative to later in a developing friendship were experimentally examined. Study 1 revealed that, upon a discovery of self-homosexuality, participants expected negative emotions and a more negative change in feelings toward the self. Upon a discovery of a friend's homosexuality, participants expected a more negative change in feelings toward the friend, but more a positive change in feelings toward homosexuals. For both hypothetical self- and friend-homosexuality discoveries, more negative expected emotions predicted more negative expected change in feelings toward the target individual (the self or friend), which in turn predicted more negative expected change in feelings toward homosexuals as a group.

Further, for self-homosexuality discovery, the association between negative expected emotions and negative expected change in feelings toward the self was stronger among those higher in authoritarianism.

Study 2 revealed that, upon discovering one's own homosexuality (*vs.* heterosexuality), heterosexual participants experienced more negative emotions, more fear of discrimination, and more negative self-evaluations. The effect of the homosexuality discovery manipulation on negative self-evaluations was mediated by fear of discrimination. Further, those higher in authoritarianism or pre-test prejudice toward homosexuals demonstrated more negative emotions following the manipulation. Study 3 revealed that upon discovering an interaction partner's homosexuality earlier (*vs.* later) participants reported a more positive contact experience, a closer bond with the partner, and more positive attitudes toward the partner. Earlier (*vs.* later) discovery predicted more positive contact experience, which in turn predicted a closer bond with the partner. Closer bond with the partner subsequently predicted more positive evaluations of the partner. Interestingly, the association between bond with partner and more positive attitudes toward the partner was stronger among those higher in authoritarianism or pre-test prejudice toward homosexuals. Overall, results suggest that self-homosexuality discovery results in negative outcomes, whereas discovering another's homosexuality can result in positive outcomes, especially when homosexuality is discovered earlier (*vs.* later). Implications of these findings for both actual outgroup membership discoveries and social psychological research are discussed.

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CHAPTER 1: GENERAL INTRODUCTION

People hold memberships in various social groups and categories, with the term "ingroup" denoting a group that one personally belongs to, and the term "outgroup" representing other groups. Although most group memberships are stable or at least appear to be stable, personal movement between social groups can occur (see Tajfel & Turner, 1986), whereby one becomes a member of a former outgroup. The most commonly researched type of movement between social groups is movement based on choice (e.g., see Jetten, Iyer, Tsivrikos, & Young, 2008; Farrington & Robinson, 1999). In some cases however, an individual may not necessarily move purposefully into a former outgroup, but instead discover his/her membership in the group when he/she was not aware of it previously (e.g., a woman identifying as White learns that her father was Aboriginal, placing her in a new racial group). Or, an individual may reveal to others his/her membership in a group that had been previously concealed, making it appear to others as though he/she moved into a former outgroup (e.g., an American man thought to be Christian reveals to his friends that he is Muslim, placing him [to others] in a new religious group). These scenarios often involve group memberships that are ambiguous, concealable, or otherwise not readily visible, and can represent sudden discoveries for others or even the self. As such, these discoveries may impact emotions and evaluations of the individual and/or the group. But little is known empirically about these processes. The general goal of this dissertation is to examine these "outgroup membership discoveries." I examine the individual intrapsychic, interpersonal, and potential intergroup effects of both self- and other-outgroup membership discoveries.

A "self" outgroup membership discovery involves an individual learning that he/she belongs to group that they were not previously aware of. The potential to uncover a previously unrecognized group membership in this way is becoming increasingly possible with the advent of the internet. For example, internet self-tests (e.g., projectimplicit.com, allthetests.com) can suggest one's membership in a previously unknown group (e.g., racists, feminists, homosexuals). Ancestry websites (e.g., ancestry.com) can be even more revealing, allowing users to examine their family trees and/or provide DNA samples to test ancestral background, potentially uncovering membership in a previously unknown ethnic group. These popular websites make self-outgroup membership discoveries more possible than ever before. Little is known however, about how people react to these new group memberships. Such discoveries have the potential to seriously impact evaluations of the self and/or the group, especially when one discovers their membership in a disliked or socially stigmatized group. In the current dissertation, I examine emotional reactions and evaluations (of both the self and the group) following self-outgroup membership discoveries.

An "other" outgroup membership discovery involves an individual learning that someone he/she knows (e.g., a friend) belongs to a group that the individual was not previously aware of. The potential to discover another's membership in a concealable or non-visible group has long been possible. However, in the current digital world, where intimate relationships are often formed online (Antheunis, Valkenburg, & Peter, 2007; Valkenburg & Peter, 2009), group memberships can be concealed indefinitely, and even membership in visible and non-concealable groups may be unknown until well into a relationship. Little is known however, about how people react to learning of another's outgroup membership. Like self-outgroup membership discoveries, other-outgroup membership discoveries may seriously impact evaluations of the individual whose outgroup membership is discovered and/or the group, especially when another's membership in a disliked or socially stigmatized group is discovered. In the current dissertation, I examine emotional reactions and evaluations (of both the individual and the group) following other-outgroup membership discoveries.

Theoretical background

The examination of outgroup membership discoveries is novel to the field. However, there are several well-known social psychological theories that are relevant to the topic. These theories and their relevance to outgroup membership discoveries are reviewed below.

Social Identity Theory: Social mobility

Social identity theory (SIT, Tajfel & Turner, 1979) is one of the most widely used and referenced theories in social psychology. According to SIT, social identity, an important aspect of the self-image, is garnered from the social groups one belongs to. These groups can generate positive or negative social identity (with positive social identity preferred), depending on social comparison (Tajfel & Turner, 1986). That is, individuals evaluate a group they belong to (an ingroup, e.g., French Canadians) relative to an appropriate comparison group (an outgroup, e.g., English Canadians). If upon social comparison the ingroup is not perceived as positively distinct, social identity will be relatively negative, and individuals may strive to enhance social identity (Tajfel & Turner, 1986). There are several possible means by which to enhance social identity, the prevailing strategy known as *social mobility*. Social mobility involves leaving one's ingroup and becoming a member of another group (a former outgroup). A large body of research has confirmed social mobility as a common social identity enhancement strategy (e.g., Ellemers, van Knippenberg, De Vries, & Wilke, 1988; Ellemers et al., 1993; Farrington & Robinson, 1999; Jackson, Sullivan, Harnish, & Hodge, 1996; Jetten et al., 2008; Verkuyten & Reijerse, 2008; Wright et al., 1990).

According to SIT, whether one engages in social mobility is commonly influenced by three socio-structural factors: group status stability, group status legitimacy, and group boundary permeability (Tajfel & Turner, 1979, 1986). Status stability concerns whether group positions are perceived as changeable. Status legitimacy concerns the extent to which group positions in society are considered fair or unfair. Boundary permeability concerns the ease with which movement across groups occurs. When the status of the ingroup is perceived as stable and legitimate, and group boundaries are perceived as permeable, social mobility attempts are likely (Verkuyten & Reijerse, 2008). That is, when one perceives that a group's status will not change (due to it being stable and legitimate) and that it is possible to move into another group (due to boundaries being permeable), one may engage in social mobility as a social identity enhancement strategy.

Arguably, boundary permeability is the most critical of these factors. In order to attempt movement into a group, that group's boundaries must be perceived as permeable. The more permeable that group boundaries are perceived, the more social mobility is preferred over other social identity enhancement strategies (e.g., see Mummendey, Klink, Mielke, Wenzel, & Blanz, 1999). Although Tajfel and Turner (1979) conceptualized boundary permeability as dichotomous (either permeable or impermeable), a state between completely open and completely closed groups has also been investigated: tokenism. This is when group boundaries are highly restricted, but not wholly impermeable (Taylor & McKirnan, 1984; Wright & Taylor, 1999). In an investigation where participants were placed into a low-status group with permeable but heavily restricted boundaries (i.e., only 2% of group members could change groups), participants attempted social mobility to the same degree that they did when group boundaries were completely open or only somewhat restricted (Wright et al., 1990). Thus, so long as group boundaries are perceived as even slightly permeable, social mobility is perceived as viable (see also Boen & Vanbeselaere, 2000; Lalonde & Silverman, 1994).

Although social mobility represents a means to enhance positive social identity, it also comes with potentially negative implications. With social mobility comes the adjustment to life as a member of a new group, as well as reactions from others (both ingroup [i.e., former outgroup] and outgroup [i.e., former ingroup] members), both of which can be negative for the individual engaging in social mobility. For example, when individuals view their backgrounds (e.g., their former group membership) as incompatible with the group they have joined, the social mobility experience is likely to be difficult. Such beliefs may lead to poor adjustment to the new group. When examining university attendance as a social mobility strategy, individuals with low socio-economic status (SES) were less prepared for university as a result of viewing university attendance as less compatible with their backgrounds (Jetten et al., 2008). Additionally, low SES individuals identified less with their new group, university students, as a function of viewing their new group membership as incompatible with their backgrounds. In addition to adjustment problems resulting from incompatibility beliefs, social mobility disconnects the individual from her former ingroup. Although social mobility is likely in the individual's best interest, the resulting distance placed between the self and the previous ingroup (which may include friends and family members) may be emotionally distressing (see Jetten et al., 2008).

In addition to personal adjustment, individuals must also cope with the social implications of social mobility. After an individual engages in social mobility, others (both ingroup and outgroup members) will form evaluations of the individual. Tajfel and Turner (1986) suggested that individuals who leave one group in favour of another are evaluated negatively by the former ingroup. Social mobility may be viewed as a "betrayal." This is consistent with the notion that group disloyalty is generally viewed unfavourably (see Branscombe, Wann, Noel, & Coleman, 1993; Levine & Moreland, 2002). Being evaluated negatively by the ingroup, even when one is no longer a member of the ingroup, can be emotionally distressing. In addition to negative evaluations from the former ingroup, following successful social mobility, members of the group the individual has newly joined may view the individual negatively. Individuals entering a new group through social mobility may "pass themselves off as something they are not" (Jetten et al., 2008, p.877) as an attempt to fit into the new group and avoid being viewed negatively. For example, upon successful social mobility, individuals may deny ties to the previous ingroup. This "dishonest" behaviour holds the potential to backfire, leading members of the new group to view the individual negatively. Like negative evaluations from ingroup members, this too is likely to be very emotionally distressing. Even more distressing is the experience of negativity and/ or rejection from *both* the previous and the new ingroup (e.g. see Postmes & Branscombe, 2002). Thus, engaging in social mobility can be a very negative experience, despite improving positive social identity.

Outgroup membership discoveries can be conceptualized as unique forms of social mobility. Whereas in SIT social mobility involves the motivated movement from one social group to another, self-outgroup membership discovery as it is examined currently represents a more unintentional or unexpected type of social mobility. By definition, a self-outgroup membership discovery involves discovering group membership that one was previously unaware of. Thus, it is not purposeful social mobility that is typically considered under the SIT framework. Other-outgroup membership discovery on the other hand, *could* represent intentional social mobility (as per SIT). One may discover another's membership in a group that he moved into as a means to improve positive social identity. Or, other-outgroup membership discovery could represent a more unintentional type of social mobility; this will vary by situation. My current interest is not in the intentions behind these new group memberships, but rather the individual and intergroup effects of discovering these new group memberships. Regardless, outgroup membership discoveries and social mobility share conceptual overlap, both involving movement into a former outgroup.

Like social mobility, outgroup membership discoveries will only occur in the context of groups with permeable boundaries. Individuals will not discover their own or another's membership in a group with impermeable boundaries, by definition. Additionally, the effects of outgroup membership discoveries may be similar to the effects of social mobility. Like social mobility, discovering one's own outgroup membership could lead to positive social identity, depending on the new group membership status. Additionally, discovering one's own outgroup membership could lead to a difficult adjustment and hence negative emotions, consistent with challenges that can accompany social mobility (Jetten et al., 2008). Discovering one's own group membership could also lead to fears, anxieties, and negative emotions associated with concerns over others' (i.e., former or new group members) reactions to one's new group membership (Postmes & Branscombe, 2002; Tajfel & Turner, 1986). Similarly, when discovering another's outgroup membership, especially when the other previously belonged to (or was assumed to belong to) one's ingroup, one might respond to the individual negatively, as erstwhile group members often do when an individual engages in social mobility (Tajfel &Turner, 1986). Thus, the literature on social mobility provides some insight into the possible effects of outgroup membership discoveries. Of course, whether these effects emerge remains unknown, given that outgroup membership discoveries represent a unique and unexamined psychological phenomenon.

Social identity theory: Imposter/ black sheep effects

Also relevant to outgroup membership discovery is literature on the "black sheep effect" and on group "imposters," literatures also based in social identity theory (Tajfel & Turner, 1979). The black sheep effect describes the tendency for ingroup members to evaluate deviant members of their group more negatively than normative members of their group (Marques, Yzerbyt, & Leyens, 1988; Marques & Yzerbyt, 1988). For example, unlikeable ingroup members are evaluated more negatively than likeable ingroup members, ingroup members not conforming to a group norm are evaluated more negatively than ingroup members conforming to a group norm (Marques et al., 1988), and ingroup members who perform poorly are evaluated more negatively than ingroup members who perform well (Marques & Yzerbyt, 1988). These deviant ingroup members are also evaluated more negatively than equally deviant outgroup members (Marques et al., 1988; Marques & Yzerbyt, 1988). Black sheep are often judged with extreme harshness, as a means for ingroup members to maintain their own positive social identity (Marques, Abrams, & Serido, 2001).

Imposters represent a specific type of ingroup deviants. Specifically, imposters claim to be a member of a group to which they do not actually belong. Imposters are typically derogated by members of the group they claim to be a part of, especially those highly identified with the group (see Jetten, Summerville, Hornsey, & Mewse, 2005; Hornsey & Jetten, 2003; Warner, Hornsey, & Jetten, 2007). For example, vegetarians showed negative affect toward an apparent vegetarian who actually ate meat (see also Jetten et al., 2005), and homosexuals evaluated an apparent heterosexual, who was actually homosexual (i.e., a closeted homosexual), more negatively than an "authentic" homosexual (Warner et al., 2007). This is explained in terms of SIT, whereby imposters are rejected because they threaten the valued social identity of ingroup members (Hornsey & Jetten, 2003).

Upon suddenly becoming an outgroup member, as per the current investigation of outgroup membership discoveries, one may be viewed as a black sheep or imposter by others or even the self. When an individual learns of her own outgroup membership (self-outgroup membership discovery), she may begin to feel like an inauthentic ingroup member or a deviant within the group. This may lead to negative affect and/or negative evaluations of the self, consistent with the black sheep effect (e.g., Marques et al., 1988) and research on ingroup imposters (e.g., Jetten et al., 2005), but specific to one's own (rather than others') reactions toward the self. Further, upon learning of one's own outgroup membership, one may worry about the potential for negative reactions from others (e.g., friends, family) due to being viewed as a black sheep or imposter. Likewise, when another's outgroup membership is discovered, she may be viewed by ingroup members (i.e., members of her apparent former group) as very deviant, and potentially perceived as having falsely portrayed herself as a loyal ingroup member. As such, consistent with the black sheep and imposter literatures (Jetten et al., 2005; Marques et al., 1988), there is strong potential for an individual to be viewed negatively by the self and/or others when his/her outgroup membership is discovered.

Intergroup contact

Although the SIT-relevant literature largely suggests negative effects following outgroup membership discoveries, positive effects are possible given that outgroup membership discoveries also relate to a well-known prejudice reduction strategy: intergroup contact. Intergroup contact involves interaction between members of different groups (i.e., an ingroup member and an outgroup member). It is well established that intergroup contact stimulates positive attitudes toward the outgroup member and reduces prejudice toward the outgroup as a whole (Pettigrew & Tropp, 2006; see also Hodson & Hewstone, 2013). Positive intergroup contact tends to induce positive emotions and feelings of closeness with the outgroup member (Wright, Aron, & Tropp, 2002; Wright, Brody, & Aron, 2005). This positive affect promotes positive attitudes toward the outgroup member. Feeling close with and evaluating the outgroup member stimulates positive evaluations of the outgroup in general (e.g., Brody, 2003; Hodson, Harry, & Mitchell, 2009; Reis & Wheeler, 1991). According to intergroup contact theory (Brown & Hewstone, 2005; Pettigrew, 1998), positive attitudes toward the outgroup member are generalized to the outgroup as a whole. Thus, intergroup contact produces positive intergroup outcomes.

The closer one is with an outgroup member, the greater the positive impact on attitudes toward the outgroup individual and the outgroup generally, with intergroup friendships being especially beneficial (e.g., see Davies, Tropp, Aron, Pettigrew & Wright, 2011). In the case of discovering self-outgroup membership, one theoretically becomes as “close” to an outgroup member as possible: one essentially becomes an outgroup member. Potentially, this ultimate level of closeness with an outgroup member could produce positive evaluations of the self and the outgroup generally, especially given that individuals prefer to evaluate their groups positively (Tajfel & Turner, 1979). Upon a self-outgroup membership discovery the new group membership may become positively integrated into the self (see Smith & Henry, 1996), promoting positive evaluations of the group. Self-outgroup membership discovery could also lead to an increase in actual (positive) contact with the outgroup, given that one essentially joins that group, and people generally prefer intra (*vs.* inter) group contact (e.g., Clack, Dixon, & Tredoux, 2005; Dixon & Durrheim, 2003). Although comparable to intergroup contact, self-outgroup membership discovery does not represent intergroup contact, but is a distinct phenomenon. As such, positive contact-like effects are possible following self-outgroup membership discovery, but not certain.

Other-outgroup membership discoveries, on the other hand, relate much more closely to intergroup contact theory. An outgroup membership discovery essentially creates an intergroup contact situation. For example, when a heterosexual woman learns that her best friend is actually homosexual, the friendship suddenly becomes a cross-group friendship. Given that other-outgroup membership discoveries typically occur in the context of already established relationships, the individual whose outgroup membership is discovered is presumably viewed positively by the "discoverer" (assuming a degree of relationship closeness). Positivity toward the individual could be generalized toward the outgroup as a whole, consistent with intergroup contact theory (Brown & Hewstone, 2005; Pettigrew, 1998). A caveat is in order, however, given the uniqueness of the other-outgroup membership discovery situation. Because a relationship exists between the (new) outgroup member and the person discovering his/her outgroup membership, the person making the discovery may experience negative emotions and social hurt from feeling that this information was concealed from them (Leary & Springer, 2001; MacDonald & Leary, 2005). This negativity may be translated into negative attitudes toward the new outgroup member and/or the outgroup as a whole, at least temporarily. Regardless, the sudden involvement in an intergroup relationship has the potential to produce positive outcomes congruent with intergroup contact theory.

At its core, the examination of group membership discoveries concerns whether or not group category salience is beneficial to promoting favourable attitudes. Interestingly, within intergroup contact theory there is some disagreement over the degree to which group memberships should be salient during intergroup contact. According to the personalization approach to intergroup contact (Brewer & Miller 1984, 1988; Miller, 2002), group memberships should be minimized during intergroup contact. Instead, the personalization approach favours the emphasis on individuals, so that contact can be more intimate and personalized, producing positive evaluations of the outgroup member as a *person* (rather than an outgroup member) and hence the outgroup generally. The mutual differentiation model of intergroup contact (Brown & Hewstone, 2005; Hewstone & Brown, 1986) contrastingly advocates emphasis on group membership early in the relationship. According to this approach, emphasizing group memberships is likely to induce positive attitudes toward the outgroup member as a member of the outgroup, attitudes which are more likely to be generalized toward the outgroup as a whole.

These competing theoretical perspectives cannot be tested with respect to self-outgroup membership discoveries, given that the outgroup member is the self. Prior to self-outgroup membership discovery, there is no intergroup "relationship." Upon self-outgroup membership discovery, outgroup membership necessarily becomes salient. When it comes to other-outgroup membership discovery on the other hand, the relationship *is* typically intergroup from the beginning, but the intergroup nature of the relationship is not necessarily known. Critically, the outgroup member often controls when the intergroup nature of the relationship is discovered by the ingroup member. Only upon other-outgroup membership discovery do group memberships become salient in the relationship. Thus, examining the timing of other-outgroup membership discovery would allow for comparison between the personalization and mutual differentiation approaches to intergroup relations. Individual and group evaluations may vary depending on the point at which group membership becomes salient in the relationship. The personalization and mutual differentiation approaches to intergroup contact are revisited in Study 3, where timing (earlier *vs.* later in a developing friendship) of other-outgroup membership discovery is examined. Overall, in addition to SIT (in particular as it relates to social mobility and black sheep/imposter effects), intergroup contact theory is relevant to discoveries of outgroup membership.

Discoveries of Homosexuality

In the current examination of outgroup membership discoveries, I focus on discoveries of *homosexuality*[1]. Homosexuality is a unique type of group membership, given that it is not necessarily clear and visible. An individual's membership in this group can be unclear to others or even to the self, with many not recognizing their homosexuality until late adolescence or adulthood (Herdt, 1989), and not revealing it to others until relationships are long established (Herek & Capitanio, 1996). "Homosexual" not only represents a highly "discoverable" group membership, but one with relatively permeable boundaries (i.e., movement into the group is viewed as possible, given that presumed heterosexuals routinely move into it), making it ideal for examining in a lab context. Moreover, prejudice toward homosexuals remains relatively acceptable and openly tolerated in most cultures. Prevailing societal norms prefer heterosexuality (see MacInnis & Hodson, 2012), and almost daily, reports of anti-homosexual prejudice surface in the popular media (e.g., see Harrison, 2012; Timmons & Gill, 2011). Homosexuals are stigmatized targets of negative attitudes, hate crimes, and violence (Herek, 2009). Thus, examining whether attitudes toward homosexual individuals and homosexuals as a group are relatively positive or negative upon homosexuality discoveries will add not only to literature on the movement between social groups, but also to the literature on attitudes toward homosexuals. I specifically examine discoveries of "self-as-homosexual" and "other-as-homosexual."

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[1] The terms homosexuality/ homosexuals are used throughout the dissertation instead of "gay men and lesbians". When homosexuality is referred to, gay men and lesbians could be used interchangeably. The term homosexuality is used, however, given that in many places sexual orientation is discussed generally, across sexes.

The process of recognizing one's homosexuality and revealing it to others is labelled "coming out" (Herek & Garnets, 2007). A pivotal step in the coming out process is coming out to one's self (Rosario, Hunter, Maguen, Gwadz, & Smith, 2001), which involves explicitly (but typically, privately) acknowledging one's membership in the group, homosexuals. In many cases the homosexual individual will have previously assumed or considered the self to be heterosexual, given that most people are assumed to be heterosexual by default (Everly, Shih, & Ho, 2012); therefore, coming out to the self can represent a discovery of self-as-homosexual. Researchers have recognized that coming out to the self can be emotionally distressing (Rosario et al., 2001) and can lead to "internalized homophobia", that is, self-loathing and negativity toward the self upon acknowledging one's homosexuality (Herek, Cogan, Gillis, & Glunt, 1997). Internalized homophobia can even involve hostile attitudes toward homosexuals as a group (e.g., Ross & Rosser, 1997). On the more positive side, however, other researchers note that recognizing one's homosexuality can stimulate self-esteem (Cohen & Savin-Williams, 1996) and a sense of an authentic self (deMonteflores & Shultz, 1978). Of course, in these natural contexts discovering self-as-homosexual is a gradual process, and individuals may adjust more positively as time goes by. I will focus on immediate reactions to sudden discoveries of self-as-homosexual in both a hypothetical and lab-based context. Given that discovering self-as-homosexual categorizes the self into a socially stigmatized group that routinely faces discrimination (Herek, 2009), discovering self-as-homosexual in the current context is likely to produce negative outcomes, although the potential for positive outcomes is also recognized.

The coming out process has also been examined from the perspective of outsiders, that is, the person or people learning that an individual is homosexual. Most people, as noted above, are assumed to be heterosexual (Everly et al., 2012). As such, when an individual comes out, other people experience an other-as-homosexual discovery. Researchers have demonstrated that learning of another's homosexuality can create personal discomfort, avoidance (King, Reilly, & Hebl, 2008), or anxiety about future interactions with the homosexual individual (see Monin & Miller, 2001). On the other hand however, learning of another's homosexuality can create motivation to learn more about homosexuality (Evans & Brodio, 1999) or more positive evaluations of homosexuals as a group, given that having a homosexual friend is associated with more positive attitudes toward homosexuals (Herek & Capitanio, 1996; Hodson et al., 2009). Thus, other-as-homosexual discoveries can produce negative or positive outcomes. I will examine immediate reactions to other-as-homosexual discoveries in both a hypothetical and lab context, recognizing that both negative and positive outcomes are possible. Of course, outcomes may depend on contextual factors such as timing of the discovery, as some researchers have posited (Kaufman & Libby, 2012; King et al., 2008). This possibility will be returned to in Study 3.

Overarching Model

As noted, in the current dissertation I examine the effects of both self-as-homosexual and other-as-homosexual discoveries. Critically, I am most interested in how these discoveries impact evaluations of both the individual (i.e., the "newly" homosexual person) and the group (i.e., homosexuals generally). I also examine variables that may impact these evaluative variables, namely affective reactions (e.g., positive/negative emotions, feelings of closeness) or social concerns (e.g., fear of discrimination). Drawing from the literature on social mobility, black sheep/ imposter effects, and intergroup contact, as well as the literature on coming out, I have formulated a general overarching expected pattern of relations. A conceptual model illustrating this pattern is depicted in Figure 1.1a, whereby homosexuality discovery predicts affective/social reactions[2] (path a) which in turn predict evaluations of the target individual and group as a whole (path b). Homosexuality discovery is also expected to predict evaluations of the target individual and group as a whole (path c), but this association is expected to be reduced after controlling for negative affective/social reactions (path c'). Generally, it is expected that more positive (or negative) affective/social reactions following a homosexuality discovery will predict more positive (or negative) evaluations of both the individual and the group (path b). The association between affective/social reactions and evaluations is consistent with intergroup contact theory (see Pettigrew, 1998). It is well-established that positive affect in particular predicts positive evaluations of an outgroup member, and affect is widely recognized as a mediator of contact effects (Wright et al., 2005; see Hodson, Hewstone, & Swart, 2013, Table 2). Affective/ social reactions are similarly expected to play a meditational role in the current model. Also consistent with intergroup contact theory (see Brown & Hewstone, 2005; Pettigrew, 1998; Wright et al., 2005), it is possible that a modified version of the model depicted in Figure 1.1a will be supported, whereby more positive (or negative) group evaluations are predicted by more positive (or negative) individual evaluations, representing a generalization pattern. A more

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[2] Throughout the dissertation, the term “negative social reactions” refers to concerns with negative reactions from others.

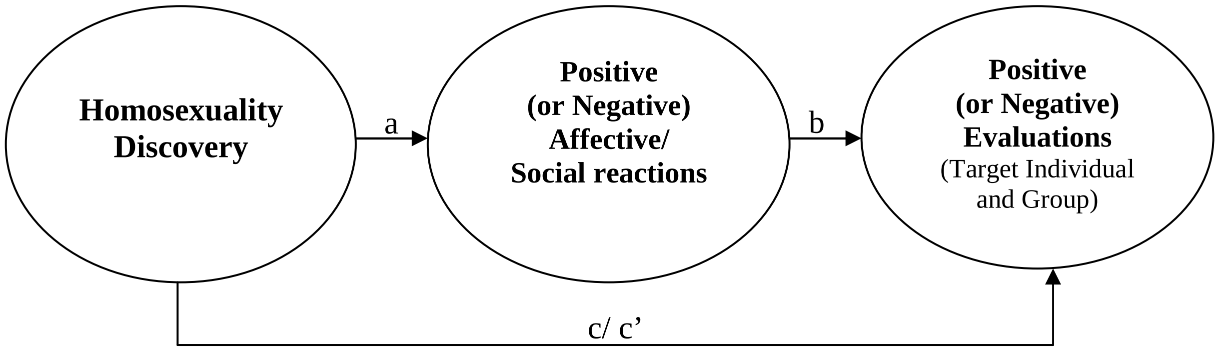

Figure 1.1a. General overarching model.

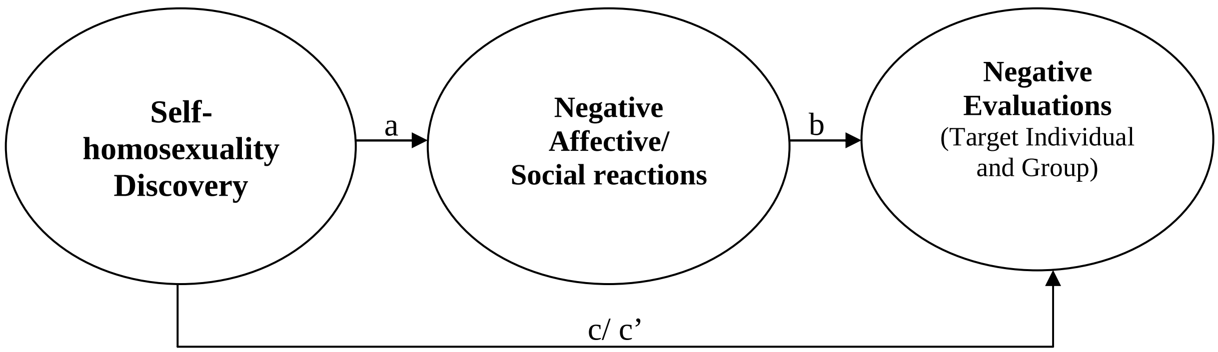

Figure 1.1b. General expected pattern for self-homosexuality discovery.

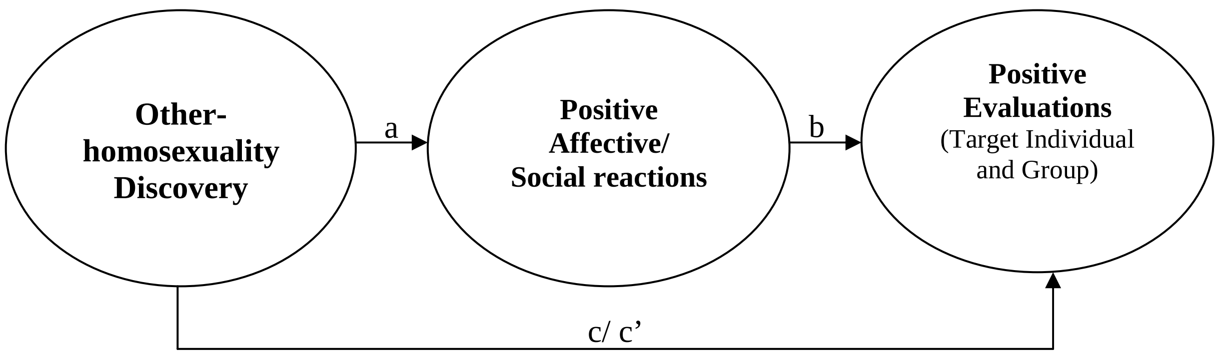

Figure 1.1c. General expected pattern for other-homosexuality discovery. Note that effects are expected to be stronger when other homosexuality is discovered earlier (*vs.* later).

conservative model is predicted, however, given the novelty of the examination. It is unknown whether this generalization pattern will emerge.

Also unknown at this point is whether homosexuality discoveries will induce relatively positive or negative affective/social reactions (i.e., the valence of path a in Figure 1.1a is unclear). This is expected to vary based on target of homosexuality discovery (i.e., self *vs.* other). Whereas both positive and negative affective/ social reactions are possible following both self-as-homosexual and other-as-homosexual discoveries, I expect self-as-homosexual discovery to induce negative affective/ social reactions and other-as-homosexual discovery to induce positive affective/ social reactions, especially when other homosexuality is discovered earlier (*vs.* later). That is, self-as-homosexual discovery is expected to induce negative affective/ social reactions, and in turn negative evaluations of the self as well as homosexuals (see Figure 1.1b), given that one will suddenly find the self placed in a socially stigmatized group. Other-as-homosexual discovery (which in the current context involves a friend or potential friend as the "other') on the other hand is expected to induce positive affective/ social reactions, and in turn positive evaluations of the other as well as homosexuals (see Figure 1.1c), given that this type of discovery will be less personally threatening and more closely resemble intergroup contact situations (which tend to promote positive outcomes on average).

The expected pattern for self-as-homosexual discovery is consistent with findings that (a) emotional distress (Jetten et al., 2008) and negative reactions from others that individuals may be concerned about (Postmes & Branscombe, 2002; Tajfel & Turner, 1986) occur upon entering a new group; (b) individuals entering new groups may be evaluated negatively as black sheep/imposters (Jetten et al., 2005; Marques et al., 1988), potentially even by the self; and (c) that individuals recognizing their homosexuality experience emotional distress and negativity toward the self (Herek et al., 1997; Rosario et al., 2001). The expected pattern for other-as-homosexual is consistent with findings that (a) positive contact with an outgroup member can induce positive affect (Wright, Aron, & Tropp, 2002; Wright, Brody, & Aron, 2005); (b) positive affect can promote positive attitudes toward an outgroup member and an outgroup in general (Brody, 2003; Hodson et al., 2009; Reis & Wheeler, 1991; Wright et al., 2005); and (c) having a homosexual friend is associated with more positive attitudes toward homosexuals (Herek & Capitanio, 1996; Hodson et al., 2009; see also Davies et al., 2011; Davies, Wright, Aron, & Comeau, 2013).

Of course, Figure 1.1a represents a general expected pattern of relations. I conduct three studies examining outgroup membership discovery, but these studies vary in purpose and method. However, in all studies affective reactions and evaluations of the outgroup target individual and the outgroup as a whole are assessed. Thus, at least part of the overall pattern can be tested in all studies, with the complete pattern (including other variables) tested in two out of three studies (i.e., Studies 2 & 3).

In addition to testing this mediation model, several exploratory moderators of each of the model paths are tested: pre-existing prejudice toward homosexuals, right-wing authoritarianism (RWA), and participant sex. Those higher (*vs.* lower) in pre-existing prejudice toward homosexuals could have more negative affective/ social reactions or evaluations following self- or other-homosexuality discovery. Additionally, the association between negative affective/ social reactions and evaluations could be stronger for those higher (*vs.* lower) in pre-existing prejudice toward homosexuals. RWA is a construct representing conventionality, submission to authority, and aggression toward norm violators (Altemeyer, 1996) that generally predicts heightened prejudice toward homosexuals (see Haddock & Zanna, 1998; Stones, 2006; Whitley, 1999). As such, the same moderation pattern forwarded for pre-existing prejudice toward homosexuals may occur for RWA. Similarly, men (*vs.* women) may report more negative reactions/ evaluations or show a stronger association between negative affective/social reactions and evaluations given that men (*vs.* women) tend to be more negative toward homosexuals/ homosexuality (Kite & Whitley, 1996). It should be noted however that these moderation analyses are secondary, and largely exploratory.

Overview of Studies

I conducted three studies to examine the effects of homosexual outgroup membership discoveries. First, in Study 1, I examined hypothetical reactions to self- and other-homosexuality discovery. Outgroup membership discovery is a relatively novel research topic; not only are the actual effects of outgroup membership discoveries unknown, the *expected* effects are unknown as well. As a preliminary investigation, I was interested in examining how heterosexuals *expected* to react upon discovering their own or a friend's membership in the group homosexuals. In Study 1, heterosexual participants considered two hypothetical scenarios, one involving a discovery of the self-as-homosexual, and one involving a discovery of a friend-as-homosexual. Participants reported their expected emotions and feelings in response to each hypothetical discovery. Study 1 is reported in Chapter 2.

Next, I conducted Study 2, an experimental study examining the effects of discovering self-as-homosexual. Heterosexual participants were provided false feedback on an implicit test of sexual attraction, implying either their homosexuality (experimental condition) or heterosexuality (control condition). Affective, social, and evaluative reactions were compared between the experimental and control groups, to examine the effects of discovering the self-as-homosexual. Of course, this is not the typical process by which individuals discover their homosexuality in natural settings. In this first examination of self-as-homosexual discovery, the experimental control of a lab context was desired, which limited ecological validity. Thus, I examined self-as-homosexual discovery as a simulation exercise. Simulation exercises are employed in a wide variety of domains (see Taylor, Pham, Rivkin, & Armor, 1998), including intergroup domains. In the intergroup domain specifically, some simulation exercises produce positive effects (e.g., imagining contact with an outgroup member; Crisp & Turner, 2012, 2013), and others produce negative effects (e.g., taking on an outgroup member's perspective during an intergroup interaction; Vorauer, 2013; Vorauer & Sasaki, 2009). In Study 2, I temporarily simulated heterosexuals' membership in the group homosexuals and gauged their corresponding reactions in order to examine the effects of discovering self-as-homosexual. Study 2 is reported in Chapter 3.

Finally I conducted Study 3, where I examined the effects of discovering other-as-homosexual. Critically, as noted above, the effects of other-as-homosexual discoveries may vary as a function of timing of discovery. As such, in Study 3 I focused on comparing the effects of discovering another's homosexuality earlier relative to later in a developing friendship. Heterosexual participants engaged in a positive, closeness-inducing online interaction with an apparent partner. Such laboratory-based and controlled online intergroup interactions allow for tight experimental control while still providing an engaging interactive experience with the potential to induce positive intergroup effects (see White & Abu-Rayya, 2012). Heterosexual participants learned that their partner was homosexual either before or after the friendly interaction. Perceptions of the interaction, as well as affective and evaluative reactions were compared between the earlier and later discovery conditions. Thus, I examined the effects of earlier *vs.* later discovery of another's homosexual outgroup membership in the context of a potential online friendship. Study 3 is reported in Chapter 4.

In Chapter 5 of the dissertation I summarize, integrate, and discuss the results of all three studies[3]. I also discuss limitations, future directions, and contributions to the literature and field as whole.

[3] Note that Studies 2 and 3 (Chapters 3 and 4, respectively) are based on journal article submissions, and are therefore written as stand-alone papers.

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CHAPTER 2: STUDY 1

Outgroup membership discovery is an increasingly common, but rarely studied, experience. Prior to examining responses to experimentally manipulated outgroup membership discoveries (Studies 2 and 3), hypothetical reactions were assessed to determine how individuals *expect* that they would feel upon making outgroup membership discoveries. In Study 1, heterosexuals' self-reported responses to two hypothetical situations were assessed: one involving the discovery that the self is homosexual and one involving the discovery that another (in this case, a friend) is homosexual. Heterosexuals' expected emotional reactions, as well as their expected change in feelings toward the individual (self or friend) and the group (homosexuals) following these discoveries were examined. Additionally, the extent to which these expected emotional reactions and expected feeling changes were associated with right-wing authoritarianism (RWA), attitudes toward homosexuals, or sex was examined to determine whether those more prejudiced toward homosexuals would report more negative expectations. Finally, preliminary tests of the overarching model depicted in Figure 1.1a were conducted.

In terms of the hypothetical *self-as-homosexual discovery*, it was predicted that heterosexual participants would expect negative emotional reactions, and more negative feelings toward the self. These negative expectations were predicted given the widely held social stigma attached to homosexuality (Herek, 2004, 2008), as well as societal norms preferring heterosexuality and the documented tendency for those discovering their homosexuality to feel negatively toward the self (Herek, Cogan, Gillis, & Glunt, 1997). It was predicted that heterosexual participants would not expect their feelings toward homosexuals (the group as a whole) to change, given that discovering self-as-homosexual is about the self and likely to be more relevant to changes in self-feelings.

In terms of hypothetical *friend-as-homosexual discovery*, it was predicted that heterosexual participants would expect negative emotional reactions and more negative feelings toward the friend, but less negative feelings toward homosexuals. Notably, this departs somewhat from the pattern predicted in Chapter 1, where positive affect and evaluations were predicted upon making an other-as-homosexual discovery. However, Study 1 involves the unique *hypothetical* context of discovering a known friend's homosexuality, rather than discovering the homosexuality of a potential friend that one has a friendly interaction with (which could induce positive affective reactions, e.g., see Wright, Brody, & Aron, 2005), as per Study 3. As such, the potential for differences is recognized whereby the hypothetical discovery of a known friend's homosexuality (versus an actual discovery of a friendly interaction partner's homosexuality) might produce negative affect and negative feelings toward the friend. Expected negative emotional reactions and feelings toward the friend were predicted given the social stigma attached to homosexuality (Herek, 2004, 2008), as well as the possibility that participants would expect to experience hurt and social pain from not having this important information about their friend revealed sooner (Leary & Springer, 2000; MacDonald & Leary, 2005). Further, participants might expect to have negative feelings toward the friend consistent with discovering an individual's "imposter" status (see Jetten et al., 2005; Hornsey & Jetten, 2003; Warner et al., 2007). On the other hand, however, it was predicted that participants would expect more positive feelings toward homosexuals, given that in the hypothetical situation they would now have a homosexual friend, and it is well established that having an outgroup friend is associated with more positive feelings toward the outgroup (Davies et al., 2011).

It was predicted that those higher in RWA and those with more negative attitudes toward homosexuals would expect more negative emotions and feelings upon both self and friend hypothetical homosexuality discoveries. As noted in Chapter 1, RWA is a construct representing conventionality, submission to authority, and aggression toward norm violators (Altemeyer, 1996) that generally predicts heightened prejudice toward homosexuals (see Haddock & Zanna, 1998; Stones, 2006; Whitley, 1999). As such, it was predicted that those higher (*vs*. lower) in RWA would have more negative expectations about homosexuality discoveries. It was predicted that those higher (*vs*. lower) in prejudice toward homosexuals would similarly report more negative expectations. Finally, it was also expected that men would have more negative expectations about homosexuality discoveries than women, given that men tend to be higher in prejudice toward homosexuals than women (Kite & Whitley, 1996).

It was also possible in Study 1 to test part of the overarching model predicted in Chapter 1 (see Figure 1.1a). In Study 1 expected emotions and expected change in feelings toward the individual (self or friend) and the group (homosexuals) were examined for both self-as-homosexual and friend-as-homosexual discoveries. Affective reactions, as depicted in Figure 1.1a, can be represented by expected emotions, and evaluations, as depicted in Figure 1.1a, can be represented by the feeling-change variables. Feeling-changes toward individuals or groups, although affective, represent *target-specific* affective reactions rather than general overall affective reactions, as is the case with expected emotions. Feelings toward a target are widely recognized as core or even crucial components of evaluations of that target (e.g., Zajonc, 1980; Zanna & Rempel, 1988). Thus, although affective in nature, given that feelings represent a key component of target evaluations, feeling-change variables represented *target evaluations* in the tested models whereas overall general emotions represented *affective reactions*. Outgroup membership discoveries were not manipulated in Study 1, so the exogenous independent variable from the model in Figure 1.1a is missing. However, it was possible to test whether affect and evaluative variables were positively associated, as predicted by the overarching model. Further, it was also possible to test (for exploratory purposes) whether these associations were moderated by RWA, pre-existing attitudes toward homosexuals, or sex.

To summarize, the following hypotheses/ research questions were forwarded:

Hypothesis 1a: Heterosexuals will expect to react to a self-as-homosexual discovery with negative emotions.

Hypothesis 1b: Heterosexuals will expect to react to a self-as-homosexual discovery with more negative feelings toward the self.

Hypothesis 1c: Heterosexuals will not expect to react to a self-as-homosexual discovery with a change in feelings toward homosexuals (the group).

Hypothesis 2a: Heterosexuals will expect to react to a friend-as-homosexual discovery with negative emotions.

Hypothesis 2b: Heterosexuals will expect to react to a friend-as-homosexual discovery with more negative feelings toward the friend.

Hypothesis 2c: Heterosexuals will expect to react to a friend-as-homosexual discovery with more positive feelings toward homosexuals.

Hypothesis 3: RWA will be associated with more negative emotion and feeling expectations.

Hypothesis 4: Prejudice toward homosexuals will be associated with more negative emotion and feeling expectations.

Hypothesis 5: Participant sex will be associated with emotion and feeling expectations, such that men have more negative expectations than women.

Hypothesis 6: Consistent with the overarching model presented in Chapter 1 (specifically, path b, see Figure 1.1a), more negative self-as-homosexual emotion expectations will predict more negative expected change in feelings toward the self and more negative expected change in feelings toward homosexuals.

Hypothesis 7: Consistent with the overarching model presented in Chapter 1 (specifically, path b, see Figure 1.1a), more negative friend-as-homosexual emotion expectations will predict more negative expected change in feelings toward the self and more negative expected change in feelings toward homosexuals.

Research question 1: For exploratory purposes, it was examined whether any paths in tested models were moderated by RWA, pre-existing attitudes toward homosexuals, or sex.

Method

Participants

One hundred and nineteen students at a Canadian university participated for course participation or $5. Non-heterosexuals (1 homosexual, 3 bisexual, 4 “do not know” responders) were excluded given primary interest in heterosexual’s expected reactions to homosexuality discoveries. This left a sample of 111 (30 men, 80 women, 1 unspecified, M_{age} = 20.14, *SD* = 4.99).

Procedure

Participants completed paper and pencil surveys in small groups. Participants read that they would be asked to imagine hypothetical situations and gauge their expected reactions to these situations. The design was within-subjects, such that all participants imagined both the self- and friend-as-homosexual situations. Whether participants imagined the self- or friend-as-homosexual situation first was counterbalanced across participants, and order did not influence the results. After completing measures pertaining to both the self- and friend-as-homosexual situations, participants completed measures of RWA and attitudes toward homosexuals.

Self-as-homosexual hypothetical situation (see Appendix 2D). For the self-as-homosexual hypothetical situation participants read the following: “We are interested in your reactions to the following scenario regarding receiving information about yourself. You discover, based on genetic testing, that you have homosexual tendencies” and then responded to the following measures.

Expected emotions. Participants rated the degree to which they expected the discovery to be surprising, upsetting, exciting, anxiety provoking, worrisome, and happiness-inducing (1 = *not at all,* to 9 = *very much*). A principal components analyses (with exciting and happy reverse-scored) revealed a single negative emotion factor. These items were averaged (α = .81) such that higher scores indicated more negative expected emotions.

Expected change in feelings toward the self. Whether participants expected feelings toward the self to change was measured on a 9-point scale (1 = become *very negative*, 5 = *not change,* 9 = *become very positive*). After reversing for ease of interpretation, higher scores indicated expectations that feelings toward the self would become more negative.

Expected change in feelings toward homosexuals. Whether participants expected feelings toward homosexuals to change was tapped using the same 9-point anchors (1 = become *very negative*, 5 = *not change,* 9 = *become very positive*). After reversing, higher scores indicated expectations that feelings toward homosexuals would become worse.

Friend-as-homosexual hypothetical situation (see Appendix 2E). For the friend-as-homosexual hypothetical situation participants read the following: "Imagine a good friend. Imagine you discover that your friend is homosexual (when you previously thought he/she was heterosexual)" before responding to the following measures.

Expected emotions. As with the self-as-homosexual hypothetical situation, participants rated the degree to which they expected the discovery to be surprising, upsetting, exciting, anxiety provoking, worrisome, and happiness-inducing (1 = *not at all*, to 9 = *very much*). A principal components analyses (with exciting and happy reverse-scored) revealed a single negative emotion factor. These items were averaged (α = .78) such that higher scores indicated more negative expected emotions.

Expected change in feelings toward the friend. Whether participants expected feelings toward the friend to change was measured on a 9-point scale (1 = become *very negative*, 5 = *not change,* 9 = *become very positive*). After reversing for ease of interpretation, higher scores indicated expectations that feelings toward the friend would become worse.

Expected change in feelings toward homosexuals. Whether participants expected feelings toward homosexuals to change was tapped using the same 9-point anchors (1 = become *very negative*, 5 = *not change,* 9 = *become very positive*). After reversing, higher scores indicated expectations that feelings toward homosexuals would become more negative.

***RWA (see Appendix 2F)*[4].** The 12-item shortened RWA scale (Altemeyer, 1996) was employed on a 1 (*do not agree at all*) to 7 (*strongly agree*) scale. After reversing six items, the mean was computed, with higher scores indicating higher RWA (α = .80).

***Attitudes toward homosexuals (see Appendix 2G)*.** Herek's (1988) 10-item Attitudes Toward Lesbians and Gay men scale was modified to refer to homosexuals generally. A scale ranging from 1 (*strongly disagree*) to 9 (*strongly agree*) was employed. After reverse scoring four items, the mean was computed with higher scores on this scale indicating more negative attitudes (α = .91).

Demographics. Participants provided their age, sex, and sexual orientation (selecting either heterosexual, homosexual, bisexual, or don't know).

Results

Preliminary analyses

Preliminary analyses were conducted to examine missing data, normality, and outliers. Missing data were analyzed by examining frequency statistics for all variables. No missing data were observed on the single-item expected feeling change variables. For

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[4] Item 1 of the RWA scale specifically refers to homosexuality. When zero-order correlations between RWA and all other variables were computed without this item, no significant differences were revealed. Thus, this item remains in the scale for all analyses.

variables with multiple items, the mean of all items was employed to compute variables. No missing data were observed on final computed variables. However, with regard to specific items used to compute these variables, a small number of missing values were observed. One value each was missing from the following self-as-homosexual expected emotions: exciting, happiness-inducing, and worrisome. One value each was missing from the following friend-as-homosexual expected emotions: happiness-inducing and worrisome. Additionally, there were two values missing from RWA item 3, one value missing from RWA item 6, three values missing from attitudes toward homosexuals item 2, one value missing from attitudes toward homosexuals item 4, three values missing from attitudes toward homosexuals item 7, and one value missing from attitudes toward homosexuals item 10. No single participant was missing more than 80% of responses on any one scale. Thus, it was determined that variable scores were accurately obtained by computing the mean of the present items. Given the small amount of missing data, data imputations were not deemed necessary.

To investigate normality, skewness and kurtosis values were examined for each variable. Based on the criterion that skewness coefficients of > |2| indicate distributions deviating from normality, distributions for all of the variables can be considered normal with regard to skewness. Based on the criterion that kurtosis values coefficients of > |2| indicate distributions deviating from normality, 3 variables were not normal with regard to kurtosis: self-as-homosexual expected change in feelings toward homosexuals, friend-as-homosexual expected feeling change toward the friend, and friend-as-homosexual expected feeling change toward homosexuals. Kurtosis values for these variables ranged from 4.31 to 4.39. Visual examination of histograms for these variables revealed that these inflated kurtosis values were due to a large number of participants choosing item 5 “feelings would not change” on the scales. This minor violation of normality was not deemed problematic enough to warrant action.

To examine potential outliers, scores on each variable were converted to z-scores. Based on the criterion that z-scores > |3| are probable outliers, examination of z-score frequencies revealed outliers on several variables. There was one outlier on self-as-homosexual expected emotions, one outlier on self-as-homosexual expecting change in feeling toward the self, four outliers on self-as-homosexual expected change in feelings toward homosexuals, five outliers on friend-as-homosexual expected change in feelings toward the friend, and two outliers on friend-as-homosexual expected change in feelings toward homosexuals. All analyses were performed with and without these outliers, with no significant changes observed. Thus, outliers were not deemed to be problematic.

Self-as-homosexual discovery expectations

Table 2.1 displays means and standard deviations. As predicted (H1a, H1b), heterosexual participants expected negative emotions[5] and a more negative change in feelings toward the self upon a self-as-homosexual discovery, with these means differing significantly from the scale midpoint (5). Additionally, as per H1c, participants did not expect changes in feelings toward homosexuals upon a self-as-homosexual discovery.

[5] When separate scores were created for positive (i.e., mean of exciting and happiness-inducing) and negative emotions (i.e., mean of surprising, upsetting, anxiety-provoking, and worrisome), both means differed from the scale midpoint (positive emotions M = 2.23, SD = 1.25, t [109] = -23.19, p < .001; negative emotions M = 6.00, SD = 2.16, t [110] = 4.88, p < .001), with participants expecting lower positive emotions and higher negative emotions, relative to the scale midpoints. Positive and negative emotions were combined into one score for simplification purposes.

Friend-as-homosexual discovery expectations

Contrary to H2a, participants did not expect negative emotions[6] upon a friend-as-homosexual discovery; the mean for expected emotions did not differ from the scale midpoint. As predicted however (H2b, H2c), participants did expect to feel more negatively toward the friend (consistent with negativity upon learning that a friend's homosexuality was concealed), but more positively toward homosexuals, with these variables differing from scale midpoints in the predicted directions (see Table 2.1).

Table 2.1. Study 1 means and standard deviations.

Variable Type	Variable	*Mean*	*SD*
Self-as- homosexual	Expected negative emotions	6.57***	1.68
	Expected change in feelings toward self (higher = more negative)	5.90***	1.27
	Expected change in feelings toward homosexuals (higher = more negative)	4.91	1.17
Friend-as-homosexual	Expected negative emotions	5.07	1.53
	Expected change in feelings toward friend (higher = more negative)	5.31**	1.18
	Expected change in feelings toward homosexuals (higher = more negative)	4.63**	1.23
Prejudice-relevant	Right-wing authoritarianism	3.02***	.98
	Attitudes toward homosexuals	2.94***	1.78

Notes. $N = 111$. Means significantly different from scale midpoints are flagged, *$p < .05$, ** $p < .01$, *** $p < .001$. All variable ranges are 1-9 with the exception of RWA which is 1-7. Higher scores on emotion and feeling change variables reflect more negative emotions/ feelings.

Comparing self- and friend-as-homosexual discovery expectations

For exploratory purposes, it was examined whether means on expected negative

[6] When separate scores were created for positive (i.e., mean of exciting and happiness-inducing) and negative emotions (i.e., mean of surprising, upsetting, anxiety-provoking, and worrisome), both means differed from the scale midpoint (positive emotions $M = 3.55$, $SD = 1.81$, $t\,[110] = -8.45$, $p < .001$; negative emotions $M = 4.40$, SD = 1.86, $t\,[110] = -3.42$, $p < .001$), with participants expecting lower positive emotions and lower negative emotions, relative to the scale midpoints. Positive and negative emotions were combined into one score for simplification purposes.

emotional reactions, expected change in feelings toward the individual, and expected negative feelings toward homosexuals differed significantly between the self- and friend-homosexuality discovery situations. Interestingly, all three variables differed significantly between the self and friend-homosexuality discovery scenarios. That is, upon a self-(*vs.* friend-) as-homosexual discovery, participants expected more negative emotions (t [110] = 10.94, p < 001), a more negative change in feelings toward the individual, t [110] = 4.98, p < 001), and a more negative change in feelings toward homosexuals as a group (t [110] = 2.08, p = .040). Thus, participants expected more negative reactions to discovering their own homosexuality relative to discovering a friend's homosexuality.

Associations between expectations and prejudice-relevant correlates

Table 2.2 displays intercorrelations among variables. Supporting H3, RWA was associated with more negative expected emotions and changes in feelings toward the self for self-as-homosexual discovery, although there was no association between RWA and expected change in feelings toward homosexuals. RWA was also associated with more negative expected emotions, changes in feelings toward the friend, and changes in feelings toward homosexuals for friend-as-homosexual discovery. Supporting H4, negative attitudes toward homosexuals was associated with more negative expected emotions as well as more negative expected change in feelings toward the self and homosexuals for both self- and friend-as-homosexual discoveries. In partial support of H5, sex was associated with more negative expected change in feelings toward the self and homosexuals for self-as-homosexual discovery and more negative expected emotions as well as more negative expected change in feelings toward the self and homosexuals for friend-as-homosexual discoveries, with men having more negative expectations.

Table 2.2. Correlations among variables (Study 1)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
Self-as-homosexual									
1.Expected emotions		.59***	.27**	.61***	.40***	.22*	.47***	.46***	.09
2.Expected change in feelings toward self			.45***	.57***	.50***	.28**	.45***	.47***	.22*
3.Expected change in feelings toward homosexuals				.26**	.32**	.31**	.09	.19*	.25**
Friend-as-homosexual									
4.Expected emotions					.63***	.37***	.46***	.66***	.24*
5.Expected change in feelings toward friend						.53***	.41***	.61***	.34***
6.Expected change in feelings toward homosexuals							.22*	.36***	.24*
Prejudice-relevant correlates									
7. Right-wing authoritarianism								.53***	.04
8. Attitudes toward homosexuals									.34***
9. Sex (0 = woman, 1 = man)									

Notes. N = 111; *** p < .001, ** p < .01, * p < .05.

Preliminary model tests

A regression-based approach was employed to preliminarily test the overarching model presented in Chapter 1. Continuous variables were standardized for all regression analyses (Aiken & West, 1991). First, for the hypothetical self-as-homosexual discovery scenario two regressions were conducted: (1) expected change in feelings toward the self was regressed on expected emotions and (2) expected change in feelings toward homosexuals was regressed on expected emotions. In support of H6 and the overarching model whereby affective reactions predict evaluations (see Figure 1.1a, path b), both expected change in feelings toward the self and expected change in feelings toward homosexuals were predicted by expected emotions (see Table 2.3). This model is depicted visually in Figure 2.1a.

Two additional regressions were conducted to test the potential generalization pattern noted in Chapter 1, where individual evaluations generalize to group evaluations. Specifically, it was tested whether the relation between expected emotions and expected change in feelings toward homosexuals was mediated by expected change in feelings toward the self. The following regressions were conducted for the self-as-homosexual discovery scenario: (1) expected change in feelings toward homosexuals regressed on expected change in feeling toward the self, and (2) expected change in feelings toward homosexuals regressed on expected emotions on Step 1, and expected change in feelings toward the self on Step 2. As shown in Table 2.3, expected change in feelings toward the self significantly predicted expected change in feelings toward homosexuals. As noted above, expected emotions significantly predicted change in feelings toward homosexuals

Table 2.3. Study 1 model testing.

Self-as-homosexual		Criterion							
Step	Predictor	Expected change in feelings toward self				Expected change in feelings toward homosexuals			
		R^2	β	SE	*t*	R^2	β	SE	*t*
1	Expected emotions	.35	.59***	.08	7.58	.07	.27**	.09	2.91
1	Expected change in feelings toward self					.20	.45***	.09	5.23
1	Expected emotions					.07	.27**	.09	2.91
2	Expected emotions					.20	.01	.11	.08
	Expected change in feelings toward self						.44***	.11	4.16

Friend-as-homosexual		Criterion							
Step	Predictor	Expected change in feelings toward friend				Expected change in feelings toward homosexuals			
		R^2	β	SE	*t*	R^2	β	SE	*t*
1	Expected emotions	.40	.63***	.07	8.56	.14	.37***	.09	4.18
1	Expected change in feelings toward friend					.28	.53***	.08	6.58
1	Expected emotions					.14	.37***	.09	4.18
2	Expected emotions					.55	.06	.11	.54
	Expected change in feelings toward friend						.50***	.11	4.72

Notes. $N = 111$; *** $p < .001$, ** $p < .01$.

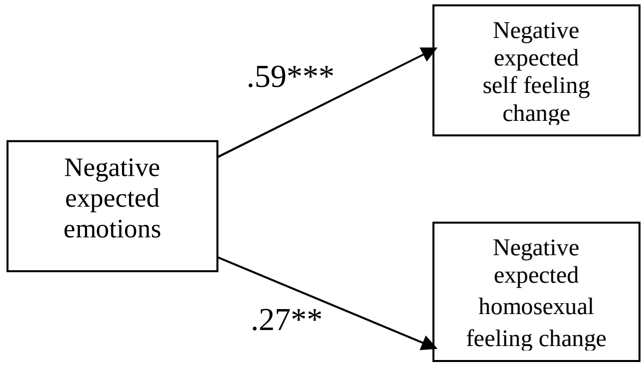

Figure 2.1a. Self-as-homosexual discovery expected emotions predicting change in feelings toward the self and change in feelings toward homosexuals. Standardized coefficients shown. *** $p < .001$, ** $p < .01$.

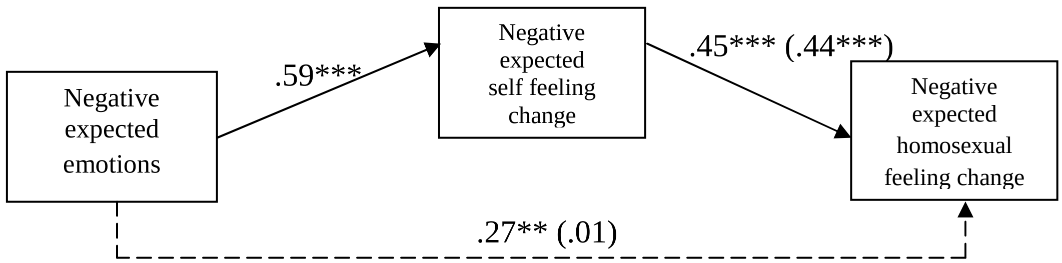

Figure 2.1b. Self-as-homosexual discovery expected emotions predicting change in feelings toward homosexuals through change in feelings toward the self. Standardized coefficients shown. *** $p < .001$, ** $p < .01$. Dashed line represents a path reduced to non-significance in the presence of the mediator. Parenthetical values represent relations after controlling for other predictors.

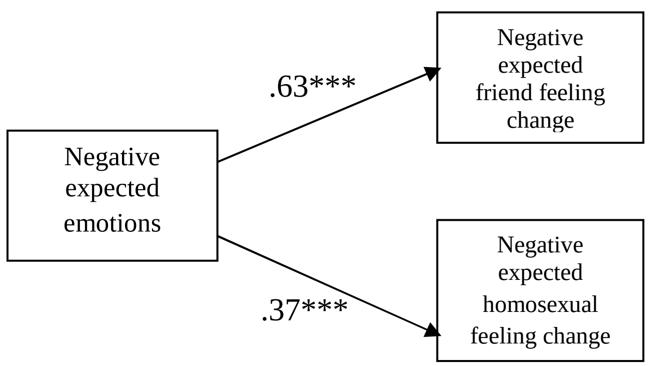

Figure 2.1c. Friend-as-homosexual discovery expected emotions predicting change in feelings toward the friend and change in feelings toward homosexuals. Standardized coefficients shown. *** $p < .001$, ** $p < .01$.

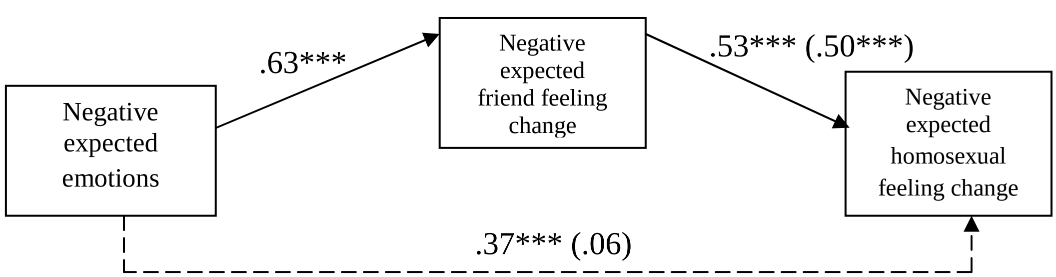

Figure 2.1d. Friend-as-homosexual discovery expected emotions predicting change in feelings toward homosexuals through change in feelings toward the friend. Standardized coefficients shown. *** $p < .001$, ** $p < .01$. Dashed line represents a path reduced to non-significance in the presence of the mediator. Parenthetical values represent relations after controlling for other predictors.

as well. When both expected emotions and expected change in feelings toward the self were included as predictors, only expected change in feelings toward the self remained a significant predictor (see Table 2.3). This represented full mediation, Sobel $z = 3.52$, $p < .001$, with expected emotions predicting expected change in feelings toward homosexuals through expected change in feelings toward the self. Thus, the generalization pattern consistent with intergroup contact theory (see Brown & Hewstone, 2005; Pettigrew, 1998; Wright et al., 2005) was supported. This model is depicted visually in Figure 2.1b.

Next, for the hypothetical friend-as-homosexual discovery scenario two regressions were conducted: (1) expected change in feelings toward the friend was regressed on expected emotions and (2) expected change in feelings toward homosexuals was regressed on expected emotions. In support of H7 and the overarching model whereby affective reactions predict evaluations (see Figure 1.1a), both expected change in feelings toward the friend and expected change in feelings toward homosexuals were predicted by expected emotions (see Table 2.3). This model is depicted visually in Figure 2.1c.

As with the self-as-homosexual scenario, additional regressions were conducted to test the potential generalization pattern noted in Chapter 1. Specifically, it was tested whether the relation between expected emotions and expected change in feelings toward homosexuals was mediated by expected change in feelings toward the friend. The following regressions were conducted: (1) expected change in feelings toward homosexuals was regressed on expected change in feelings toward the friend, and (2) expected change in homosexuals was regressed on expected emotions on Step 1, and expected change in feelings toward the friend on Step 2. As shown in Table 2.3, expected change in feelings toward the friend significantly predicted expected change in feelings toward homosexuals. As noted above, expected emotions significantly predicted change in feelings toward homosexuals as well. When both expected emotions and expected change in feelings toward the friend were included as predictors, only expected change in feelings toward the friend remained a significant predictor (see Table 2.3). This represented full mediation, Sobel $z = 4.06$, $p < .001$, with negative expected emotions predicting negative expected change in feelings toward homosexuals through negative expected change in feelings toward the friend. As with the self-as-homosexual scenario, the generalization pattern was also supported for the friend-as-homosexual scenario. This model is depicted visually in Figure 2.1d.

In order to examine whether this generalization process differed for the self- relative to friend-as-homosexual discovery scenario, 95% confidence intervals were computed for each model path. If the unstandardized path estimate for one discovery scenario (e.g., self-as-homosexual) falls within the confidence interval for the other discovery scenario (e.g., friend-as-homosexual), and *vice versa*, this suggests that these paths are parallel/equivalent regardless of discovery scenario (Cohen, Cohen, West, & Aiken, 2003). All path estimates for the self- and friend-as-homosexual discovery scenarios fell within each other's confidence intervals, with one exception. The zero-order path estimate (i.e., the estimate without the mediator included in the model) between negative expected emotions and negative expected change in feelings toward homosexuals for self-as-homosexual discovery fell outside of this path's confidence interval for friend-as-homosexual discovery and *vice versa*. Thus, in the self-as-homosexual discovery situation, the path between negative expected emotions and negative expected change in feelings toward homosexuals was smaller in magnitude, relative to the friend-as-homosexual discovery situation. Aside from this path, the model paths were equivalent, suggesting a similar conceptual generalization process for self- and friend-as-homosexuality discovery.

Next, I tested whether any of the paths in the models depicted in Figures 2.1a, b, c, or d were moderated by RWA, attitudes toward homosexuals, or sex. A regression based approach appropriate for continuous moderators (see Muller, Judd, & Yzerbyt, 2005) was employed. For each model path, the criterion was regressed on predictor variable(s) and the moderator (either RWA, attitudes toward homosexuals, or sex) on Step 1, and on a variable representing the interaction between the predictor(s) and the moderator on Step 2. For the self-as-homosexual discovery scenario, attitudes toward homosexuals or sex did not moderate any model paths. RWA was a significant moderator of the path between expected emotions and expected change in feelings toward the self (expected emotions by RWA interaction term $\beta = .15$, $t = 1.98$, $p = .05$). Simple slopes analysis (see Aiken & West, 1991) was conducted to explore this interaction. Simple slopes were examined 1 SD above, 1 SD below, and at the mean of RWA for lower (1 SD below the mean) and higher (1 SD above the mean) expected negative emotions. Figure 2.2 depicts the simple slopes plot. Slopes for low (1 SD below the mean), medium (mean), and high (1 SD above the mean) RWA were significantly different from 0 (ts[107] > 3.88, ps < .001). Thus, for all levels of RWA more negative expected emotions were associated with more negative expected changes in feelings toward the self, but this association was stronger for those higher (*vs*. lower) in RWA. For the friend-as-homosexual discovery scenario, none of the 3 potential moderators moderated any model

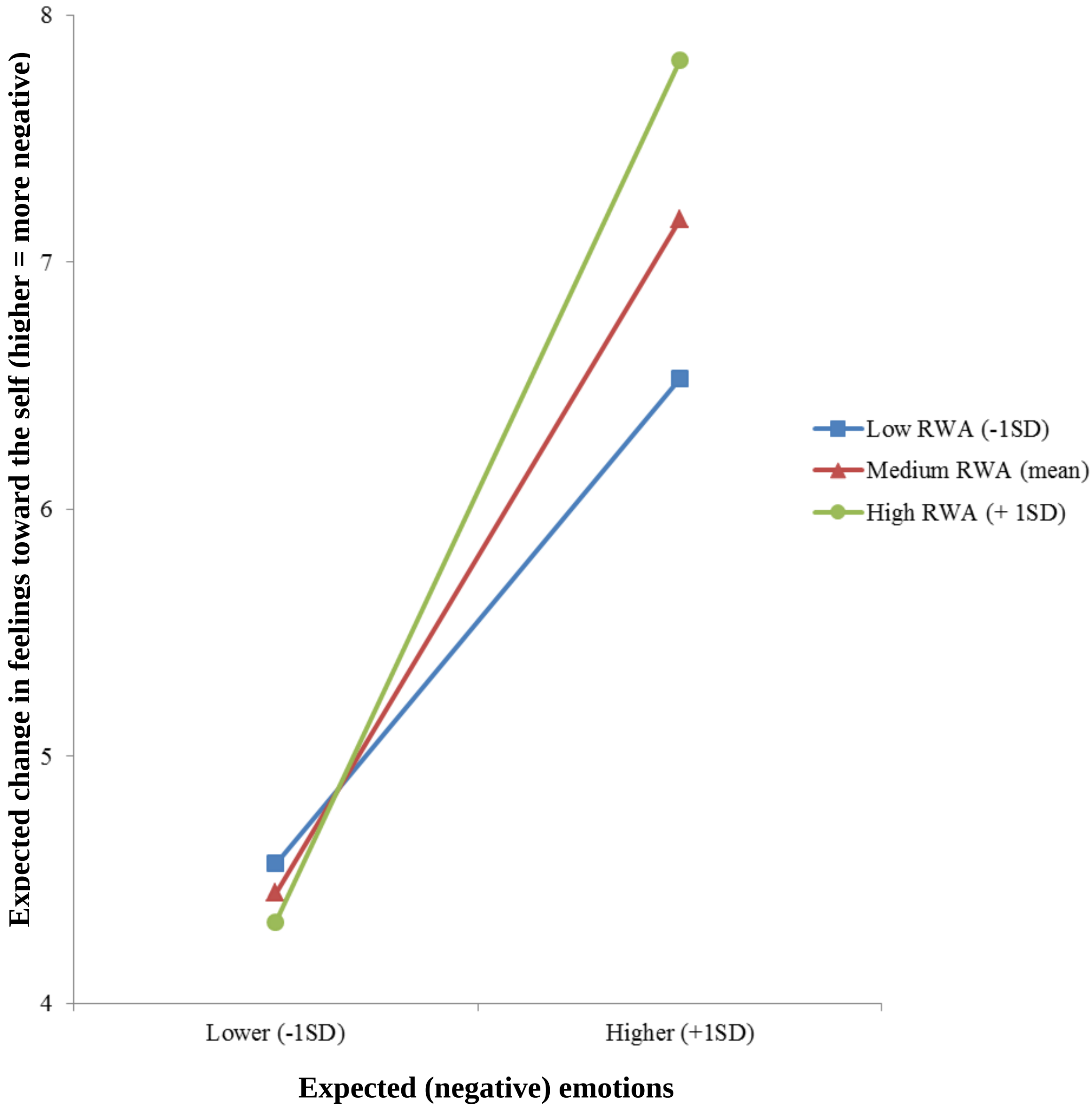

Figure 2.2. Simple slopes plot depicting the interaction between RWA and self-as-homosexual expected emotions on expected change in feelings toward the self.

paths. It should be noted however, that 24 interaction effects were tested, in total, across the three moderators (i.e., the potential moderation of four paths by three moderators [RWA, attitudes toward homosexuals, or sex] was tested for each of the two [i.e., self and friend] models). At an alpha level of .05, one interaction effect would be expected simply due to chance alone (i.e., .05 * 24 = 1.2). Thus, the one significantly moderated path observed could be due to chance. Overall, Study 1 provided preliminary support for the overarching model presented in Chapter 1.

Discussion

Study 1 served as a preliminary step in this investigation, providing insights into heterosexuals' self-reported expectations about discoveries of homosexuality. Results were largely consistent with predictions. Overall, upon a self-as-homosexual discovery participants expected to experience negative emotions and a more negative change in feelings toward the self, but expected their feelings toward homosexuals to be unaffected. Thus, heterosexuals expected that discovering self-homosexuality would be a negative experience. This is not surprising given the widely held social stigma toward homosexuals (Herek, 2004, 2008). It appears that participants expected that they would experience something akin to internalized homophobia (Herek et al., 1997) upon discovering the self-as-homosexual.

In terms of the friend-as-homosexual discovery situation, participants overall did not expect strong emotions (i.e., not significantly different from the scale midpoint), but expected a more negative change in feelings toward the friend, and a more positive change in feelings toward homosexuals. Because participants were asked to think of a friend who they were already close with, and who they thought of as a member of the ingroup (heterosexual), negativity toward the friend is not surprising. Under these circumstances, participants may have expected to feel devalued as a friend for not having learned this information earlier (Leary & Springer, 2000; MacDonald & Leary, 2005) and may have expected to target that negativity toward their friend. These circumstances could also create negativity consistent with identifying the friend as an "imposter" who had been posing as heterosexual (e.g., Warner et al., 2007). Expecting a more positive change in feelings toward homosexuals, however, is consistent with research on cross-group friendships, whereby simply having a friend belonging to an outgroup predicts more positive attitudes toward the outgroup in question (Davies et al., 2011). It is somewhat counter-intuitive that expected changes in feelings toward the friend were significantly more negative than the scale mid-point whereas expected changes in feelings toward homosexuals significantly more positive than the scale midpoint. However, participants gauged their immediate reactions upon the friend-as-homosexual discovery. Perhaps upon gauging change in feelings toward the friend after having time to adjust to the discovery, there would be no change in expected feelings toward the friend or more positive feelings, in line feelings toward homosexuals. On the other hand, it may be that, regardless of immediate or delayed reactions, participants simply have mixed feelings (i.e., negative toward the friend, but positive toward the group) upon a friend-as-homosexual discovery.

Study 1 also demonstrated, as predicted, that men (*vs.* women), those higher (*vs*. lower) in RWA, or those higher (*vs*. lower) in prejudice toward homosexuals, expected more negative reactions upon homosexuality discoveries. Further, Study 1 demonstrated preliminary support for the overarching model presented in Chapter 1. Consistent with the model, affective reactions (i.e., expected emotions) consistently predicted evaluations (i.e., expected change in feelings toward the individual/ homosexuals). Although evaluations would be ideally tapped by direct measures explicitly assessing attitudes toward targets (as they are in Studies 2 and 3), Study 1 allowed for preliminary tests of the expected overall pattern by focusing on expected change in feelings toward targets. Study 1 also demonstrated support of a generalization pattern congruent with intergroup contact theory (Brown & Hewstone, 2005; Pettigrew, 1998; Wright et al., 2005), whereby target individual (i.e., self or friend) evaluations consistently predicted group (i.e., homosexual) evaluations, and the association between emotions and group evaluations was fully mediated by individual evaluations. This conceptual process was equivalent across the two targets (i.e., self and friend), with the one exception that the zero-order path between negative expected emotions and negative expected change in feelings toward homosexuals was stronger for friend-as-homosexual discovery. Regardless, negative expected emotions consistently predicted expected negative change in feelings toward homosexuals through expected negative change in feelings toward the individual (self or friend).

Finally, RWA was a significant moderator of one model path in Study 1, such that the significant association between negative expected emotions and negative change in feelings toward the self was stronger to the extent that participants were higher in RWA. This demonstrates that effects of self-as-homosexual discovery may vary as a function of authoritarianism. RWA is therefore examined as a moderator of model paths in subsequent studies (as are participant sex and pre-existing attitudes toward homosexuals).

Limitations and subsequent studies

Expected and actual psychological reactions do not always correspond (Nisbett & Wilson, 1977; Wilson & Gilbert, 2005), especially in intergroup contexts (Kawakami, Dunn, Karmali & Dovidio, 2009; MacInnis & Hodson, 2012; Swim & Hyers, 1999). Although informative, therefore, the findings of Study 1 do not speak to *actual* reactions to outgroup membership discoveries. Studies 2 and 3 build upon Study 1, examining reactions to experimentally manipulated self (Study 2) or friend (Study 3) homosexuality discoveries.

Whereas in Study 1 participants gauged reactions to discovering self-homosexuality via a genetic test, in Study 2 participants react to discovering self-homosexuality via false-feedback on an implicit sexual attraction test. Discovering self-homosexuality from such a test represents a temporary simulation of outgroup experience, which could induce positive or negative reactions. Additionally, whereas in Study 1 participants gauged reactions to discovering a good friend's homosexuality, in Study 3, participants react to discovering the homosexuality of a friendly online interaction partner (i.e., a friend in the making). Further, unlike in Study 1 where hypothetical discoveries of friend-as-homosexual occurred after the friendship was well-established, in Study 3 timing of homosexuality discovery is manipulated. Participants learn of their interaction partner's homosexuality either before (earlier disclosure) or after (later disclosure) a closeness-inducing interaction, to determine whether discovery timing impacts reactions. Thus, whereas Study 1 provided interesting insight into expectations about homosexuality discoveries, in Studies 2 and 3 *actual* reactions to homosexuality discoveries are investigated to provide an in-depth understanding of homosexual outgroup membership discovery.

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CHAPTER 3

This section is based on the following article: MacInnis, C. C., & Hodson, G. (under review). Does experimentally "becoming" a stigmatized outgroup member generate negative or positive outcomes? *Journal of Community and Applied Social Psychology*.

See Appendix 3K (p. 177) for supplemental information/ analyses that may be of interest but could not be included in the journal submission due to space limitations.

Abstract

Intergroup mental simulations range from being relatively abstract to more concrete. Relatively concrete (*vs*. abstract) simulation exercises tend to produce negative or mixed personal and intergroup outcomes. We examine the personal and intergroup effects of a very concrete simulation exercise, "becoming" a stigmatized outgroup member. Specifically, we examined heterosexuals' reactions to fictitious feedback on implicit sexual attraction tests suggesting same-sex attraction, by implication categorizing the self in a stigmatized outgroup. Heterosexuals given same-sex (*vs.* opposite-sex) attraction feedback experienced significantly more negative emotions, increased fears of being discriminated against, and more negative self-evaluations; fear of discrimination by others fully explained the manipulation effect on negative self-attitudes. With this concrete simulation producing negative outcomes, caution is advised in applied settings where related simulations may be contemplated.

Does experimentally "becoming" a stigmatized outgroup member generate negative or positive outcomes?

Mental simulation exercises represent powerful intervention strategies in numerous psychological domains. Simulation exercises have proven successful in reducing alcohol consumption (Hagger, Lonsdale, & Chatzisarantis, 2011), improving performance in sports (Behncke, 2004) and student grades (Pham & Taylor, 1999). In the intergroup domain, simulation exercises such as imagined contact (e.g., Crisp & Turner, 2012) or intergroup perspective-taking (e.g., Batson et al., 1997) have proven effective in reducing prejudice and improving intergroup relations. Yet simulation effectiveness varies based on the type of simulation used (Taylor, Pham, Rivkin, & Armor, 1998). For instance, simulations ideally make the experience seem "real." But what about simulation experiences that move beyond *seeming* real, to ostensibly *being* real? Would an intense version of a simulation exercise produce positive or negative outcomes? We examine personal and intergroup effects of a very concrete simulation exercise, ostensibly "becoming" a stigmatized outgroup member.

Simulation-based bias interventions

Although no existing simulation exercises have participants "become" an outgroup member, several involve either imagining *contact with* an outgroup member, or taking on the *perspective of* an outgroup member, typically targeted at reducing prejudice. As an example of the former, researchers have extensively examined simulated intergroup contact as a prejudice reduction strategy (Crisp & Turner, 2009, 2012, 2013; Husnu & Crisp, 2010; Turner, Crisp, & Lambert, 2007; Vezzali, Capozza, Stathi, & Giovannini, 2012). Capitalizing on the well-established finding that cross-group contact can improve intergroup attitudes (Pettigrew & Tropp, 2006), Crisp and colleagues propose that simply *imagining* intergroup contact can do the same. In these simulations, participants imagine a positive interaction with an outgroup member. Relative to control simulations, imagined contact simulations result in improved outgroup evaluations, reduced intergroup anxiety (Turner et al., 2007), increased projection of positive traits onto the outgroup (Stathi & Crisp, 2008), and increased intentions to engage in future contact with the outgroup (Husnu & Crisp, 2010). Generally considered an effective "first-step" toward intergroup harmony (Crisp & Turner, 2013), imagined contact represents an effective simulation-based prejudice intervention, focusing on (imagined) *contact with* an outgroup.

Another simulation-based prejudice intervention approach focuses on imagining the *experiences of* outgroup members (Batson et al., 1997; Dovidio et al., 2004). Perspective-taking has been induced in multiple ways, seeking to improve outgroup attitudes. For example, Batson et al. (1997) had participants listen to interviews with target members of stigmatized groups, instructing participants to listen in a detached manner (i.e., control) or to imagine the target's feelings/experiences (i.e., perspective-taking). Perspective-taking (*vs.* detachment) promoted empathy toward the stigmatized target, which subsequently facilitated more positive attitudes toward the stigmatized group. In the same manner, Vescio, Sechrist, and Paolucci (2003) improved racial outgroup attitudes through increased empathy for the other. Using a related but distinct manipulation, Galinsky and Moskowitz (2000) asked participants to write an essay about an outgroup member as that outgroup member, writing as though walking in the outgroup member's shoes, describing a day-in-the-life of the outgroup member. This perspective-taking manipulation reduced stereotypic biases (Studies 1 and 2) and ingroup favoritism (Study 3). Therefore, as with imagined contact (simulating experiences *with* an outgroup), intergroup perspective-taking (simulating experiences *as* an outgroup) is a useful simulation-based means to improve outgroup attitudes.

This "experience-as-outgroup" technique can be ramped up and made increasingly realistic and concrete. Consider an engaging approach to perspective-taking adapted from Hillman and Martin's (2002) teaching exercise. Hodson, Choma, and Costello (2009) used this "Alien-nation" simulation exercise, whereby heterosexual students actively imagine living on an alien planet, to determine whether experiencing life as an outgroup member in a fictitious situation lessens real-world biases. Life for humans on this planet approximates several outcomes commonly experienced by homosexuals (participants' outgroup), although critically no reference to homosexuality is made. In addition to imagining this situation, students form groups to participate and discuss how this experience would make them feel, and what actions they might take. This simulation (*vs*. control) increased intergroup perspective-taking, which led to more positive attitudes toward homosexuals through more inclusive intergroup representations ("we are part of a common group") and heightened empathy. This engaging perspective-taking exercise invokes thoughts and feelings relevant to being a stigmatized (outgroup) member, successfully improving attitudes toward homosexuals.

But a caveat is in order: psychologically-engaging simulations can also exert negative effects. Consider an engaging simulation exercise investigating the effects of being embodied by an outgroup member in an immersive "virtual reality" environment (Groom, Bailenson, & Nass, 2009). In the immersive virtual environment, participants (most non-Black) were represented by White or Black avatars. Participants wore a head-mounted display, viewing their avatar in a virtual mirror. When participants moved, their avatar moved synchronously. Participants answered interview questions (e.g., job interview questions) as their avatar, while seeing themselves as their avatar. Participants with Black (*vs*. White) avatars demonstrated *more* implicit racial bias. Thus, representation as an outgroup in a realistic virtual-simulation backfired, generating more negative outgroup attitudes, presumably by activating outgroup stereotypes (Groom et al., 2009). Experiencing an outgroup's perspective in such a realistic manner can generate negative outcomes.

Tense intergroup situations can also generate undesirable outcomes. Vorauer and Sasaki (2009) found that focusing on the feelings and experiences of an outgroup member while anticipating an intergroup interaction increased outgroup empathy, which paradoxically blocked the typical prejudice-ameliorating effects of intergroup contact. Empathy triggered participants' concerns about being evaluated by their interaction partner, preventing positivity toward the outgroup member generalizing to others. This simulation also resulted in greater outgroup derogation among high-prejudice participants. Vorauer, Martens, and Sasaki (2009) found that focusing on an outgroup member's thoughts and feelings in an intergroup interaction backfired among those lower in prejudice, resulting in more negative treatment of outgroup members. Perspective-taking led to cognitive resource depletion, such that focusing on the outgroup's perspective interfered with low-prejudice individuals' desire for positive intergroup interaction. This perspective-taking exercise exerted a positive impact among highly prejudiced individuals, but only under limited conditions.

Consequently, Vorauer suggests that perspective-taking may be beneficial *only in the abstract* (Vorauer & Sasaki, 2009), with perspective-taking during actual intergroup contact detrimental (Vorauer , 2013; Vorauer, Martens, & Sasaki, 2009). That is, although abstractly imagining the perspective of an outgroup member may decrease prejudice (Batson et al., 1997; Dovidio et al., 2004; Galinsky & Moskowitz, 2000), doing so in more concrete and realistic intergroup situations may be less effective or even deteriorate relations. Thus, simulation-based prejudice interventions have the potential to backfire in realistic intergroup contexts.

Indeed, Jane Elliott's widely-known "blue-eyes/brown-eyes" simulation (Peters, 1987) has produced mixed outcomes. The original exercise, designed to simulate discrimination experiences, involved a teacher designating blue-eyed children as superior to brown-eyed children. Blue-eyed children (the dominant group) became condescending and negative toward brown-eyed children, who became submissive and timid. Byrnes and Kiger (1990) examined an abridged version among university students, who considered the simulation personally meaningful (but also experienced stress). In terms of intergroup outcomes, simulation (*vs*. control) participants condoned discrimination less, yet with no effects on two prejudice (i.e., attitude) measures. More recently Stewart, LaDuke, Bracht, Sweet, and Gamarel (2003) evaluated an extensive (i.e., day-long) "blue-eyes/brown-eyes" exercise. The simulation generated positive attitudes toward several outgroups, but generated negativity toward oneself (i.e., feeling angry upon noticing personal prejudices). Thus, this very realistic and engaging eye-colour-based simulation exercise produces both positive and negative outcomes.

Abstract versus concrete simulations

Borrowing Vorauer and colleagues' terminology, simulation-based prejudice interventions can range from being very abstract to being more concrete. Abstract simulations are purely imagined, relatively benign, and less involving (e.g., imagined contact or perspective-taking; see Batson et al., 1997; Dovidio et al., 2004; Galinsky & Moskowitz, 2000; Vescio et al., 2003). These types of simulations do not involve the actual experience of intergroup contact, or experience of life similar to outgroup life. Rather, they involve simply *thinking about* intergroup situations. In contrast, more concrete simulations are relatively more realistic, involved, and engaging. They involve actively considering one's own life as a stigmatized group member (e.g., "Alien-nation", Hodson et al., 2009), outgroup embodiment (e.g., Groom et al., 2009), perspective-taking prior to or during intergroup interaction (e.g., Vorauer & Sasaki, 2009; Vorauer et al., 2009), or experiencing discrimination as a disadvantaged group (e.g., blue-eyes/brown-eyes exercise). Figure 3.1 displays a conceptual figure depicting simulations in terms of their varying levels of abstraction. As noted in our literature review, more abstract simulations are typically effective in promoting positive emotions and attitudes toward outgroup members. In contrast, the more concrete simulations produce mixed or even negative results (see also Vorauer, 2013).

The present simulation exercise

We introduce and test a very concrete simulation exercise (right side of Figure 3.1). Rather than having participants imagine contact with, adopt perspective of, or undergo experiences similar to those experienced by an outgroup member, our simulation involves the participant learning that he/she *is* a stigmatized group member. Specifically,

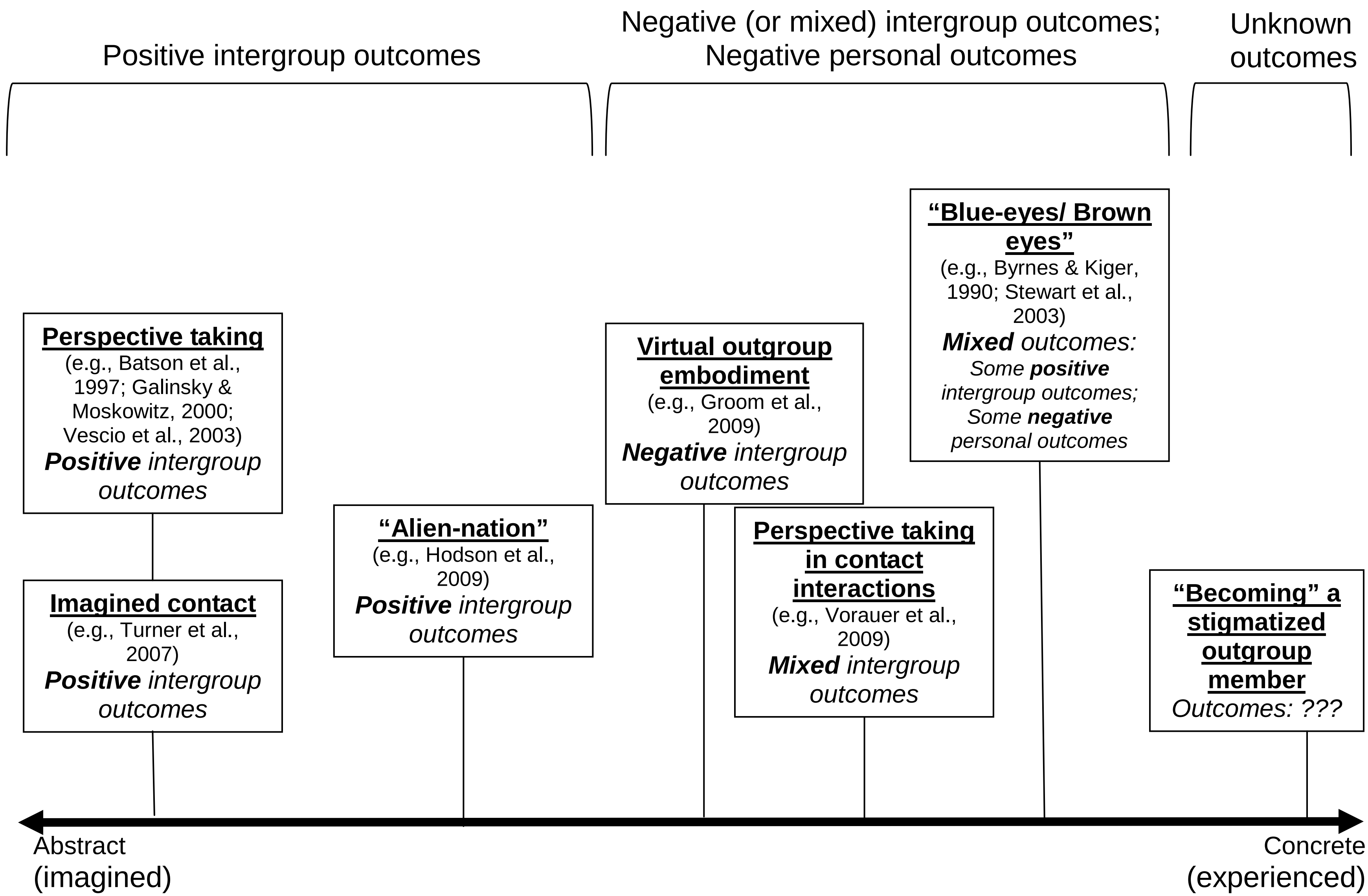

Figure 3.1. Simulation-based prejudice interventions at varying degrees of abstraction

our simulation involves discoveries of the *self-as-homosexual* among straight participants, having received fictitious feedback suggesting membership in a stigmatized outgroup (homosexuals). Our simulation is likely to be impactful given common curiosities about being homosexual among heterosexuals. Consider the prevalence of "Am I gay?" tests, checklists, and articles available on the internet (e.g., http://www.allthetests.com/quiz30/quiz/1325314403/Am-I-Gay). Consider also the prevalence of these themes in America's most popular TV shows, such as when the *Seinfeld* character George Costanza ponders whether he experienced sexual arousal during a massage from a male masseur (http://www.youtube.com/watch?v=IXvPqOGujXc), or when *Two and a Half Men* character Charlie wonders whether he could be gay "without knowing it" (http://www.imdb.com/title/tt1017622/).

Indeed, heterosexuals are susceptible to experimental feedback suggesting their homosexuality. Heterosexuals receiving information about societal support for homosexuality reported greater same-sex attraction (Preciado, Johnson, & Peplau, in press), essentially categorizing themselves into a stigmatized group. The personal and intergroup effects of becoming a stigmatized group member through experimental manipulation, however, are unknown. Would a realistic simulation of "becoming" a stigmatized outgroup member produce positive or negative outcomes? Whereas some simulation-based interventions produce very positive effects, others produce quite negative effects, with relatively abstract (*vs.* concrete) simulations promoting positive outcomes more consistently (see Figure 3.1). Employing an experimental paradigm, we are able to directly examine the causal impact of such self-as-outgroup categorization on self-evaluation and outgroup (homosexuals) evaluation.

In terms of self-attitudes, we expected our self-as-homosexual simulation to exert a negative impact. Our concrete simulation relates closely to the “blue-eyes/brown eyes” exercise (although our simulation manipulates group membership itself, rather than the stigma attached to group membership), which has consistently produced negative *self*-outcomes such as stress (Byrnes & Kiger, 2010) or self-anger (Stewart et al., 2003). We expected self-evaluations to be similarly negative. Indeed, in a unique real-life context where individuals suddenly become stigmatized group members (following diagnosis with a mental illness) negative self-evaluations ensued (Goldberg, 2012). We also examine two potential mechanisms of manipulation effects on self-evaluations: negative emotional reactions to the feedback (a personal reaction) and fear of discrimination by others (a social reaction). We predicted that the self-as-homosexual manipulation would produce negative emotions (see Byrnes & Kiger, 1990; Stewart et al., 2003), which would in turn predict negative self attitudes. Given that the prospect of revealing a concealed group membership can create fear of discrimination (Sánchez & Vilian, 2009), we expected that learning of stigmatized outgroup membership would induce fear of discrimination by others, predicted to facilitate negative self-evaluations. We pit these two potential mechanisms against one another, simultaneously examining whether personal or social concerns (or both) induce negative self-attitudes following the manipulation.

Potential intergroup outcomes are less predictable. Just as perspective-taking increases empathy toward outgroups which in turn improves intergroup attitudes (Batson et al., 1997), “becoming” an outgroup member might exert similar effects, given that participants actually experience outgroup categorization first-hand. Working against this potential, however, is evidence that relatively concrete, more realistic simulation exercises generate negative attitudes toward or treatment of an outgroup (e.g., Groom et al., 2009; Vorauer et al., 2009; Vorauer & Sasaki, 2009). We explored empathy and attitudes toward homosexuals, but given the mixed results of simulation-based prejudice interventions on intergroup outcome, we were open to both positive and negative outcomes (as per Kerr, 1998).

Method

Participants

Students at a Canadian university participated for course credit or $5. Non-heterosexual (*n* = 23) and suspicious participants (9% of the remaining sample) were excluded, leaving 194 participants (66 men, 128 women, M_{age} = 19.66, SD =2.10).

Procedure

Participants responded on computers in private booths. To provide feedback regarding personal implicit same- or opposite-sex attraction, a sexual preference implicit association test (SP-IAT; Snowden, Wichter, & Gray, 2008) was administered as a cover story. Participants categorized pictures as male or female, and words (e.g., arousing, repulsive) as sexually attractive or unattractive (see stimuli in Appendix 3E). Here, false feedback (based on random assignment) could indicate implicit attraction to men or women. After 20s (for ostensible results tabulation), men (women) in the *self-as-homosexual* (i.e., outgroup) condition read:

> "Sexual attraction varies along a continuum, and you have scored above average in same-sex attraction. In other words, according to the results of your preliminary measures (which included a highly sensitive measure of unconscious sexual

> preferences), it has been determined that you are strongly sexually attracted to males (females).”

Men (women) in the *self-as-heterosexual* (i.e., ingroup/control) condition read:

> “Sexual attraction varies along a continuum, and you have scored above average in opposite-sex attraction. In other words, according to the results of your preliminary measures (which included a highly sensitive measure of unconscious sexual preferences), it has been determined that you are strongly sexually attracted to females (males).”

Feedback was prominently presented mid-screen, and participants could continue after 10s. Participants were randomly assigned to condition, with 99 participants in the experimental (self-as-homosexual) condition, and 95 participants in the control (self-as-heterosexual) condition. As manipulation checks, participants reported whether the computer indicated that they were attracted to men or women on scales ranging from 1 (*not at all*) to 10 (*very much*). Participants then completed the following post-feedback measures.

Negative emotions (see Appendix 3F). Participants rated the degree to which the feedback received was surprising, upsetting, exciting, anxiety provoking, worrisome, happiness-inducing, threatening, pleasing, and satisfying (1 = *not at all,* to 9 = *very much*). After reversing exciting, happy, pleasing, and satisfying, averaged items represented negative emotions (α = .91).

Fear of discrimination (see Appendix 3G). Four items from Carvallo and Pelham’s (2006) perceptions of personal discrimination scale, and five adapted from Sjoberg, Walch, and Stanny’s (2006) Gender-Related Fears subscale of the Transgender

Adaptation/Integration Measure, were rated on 1 (*not at all*) to 7 (*very much*) scales. After reversing appropriate items, higher scores represent higher fear of discrimination (α = .92).

Attitudes toward the self (see Appendix 3H). A thermometer measure of current attitudes toward the self ranged from 1 (0-10°, *extremely unfavourable*) to 10 (91-100°, *extremely favourable*). After reversing for ease of interpretation, higher scores represent more negative attitudes.

Empathy toward homosexuals (see Appendix 3I). Participants rated feeling sympathetic, compassionate, soft-hearted, warm, tender towards, and moved by homosexuals on 7-point scales (Batson et al., 1997). Items were averaged with the mean representing empathy toward homosexuals (α = .95).

Attitudes toward homosexuals (see Appendix 3J). Five items from Herek's (1988) Attitudes Toward Gay Men (ATG) scale, and five from Herek's (1988) Attitudes Toward Lesbians (ATL) scale, were administered, ranging from 1 *(strongly disagree*) to 9 (*strongly agree*). After reverse-scoring, items were averaged, with higher scores representing more negative attitudes toward homosexuals (α = .90).

Debriefing (see Appendices 3C & 3D). Participants were probed for suspicion and debriefed. Debriefing procedures were extensive, given the potential for adverse reactions to the deception involved in the study. All participants were verbally debriefed by the experimenter one-on-one in a private room. Participants were verbally informed that scores on the sexual preference test had not actually been tabulated, and that the feedback they received was fictitious (see Appendix 3D, p.170). Participants were given the opportunity to ask questions, and also received a debriefing form with additional information (see Appendix 3C, p.169). It should be noted that no adverse reactions were observed.

Results

Manipulation Checks

Manipulation checks measuring the extent to which the computer indicated attraction to men (men in same-sex condition M = 7.48, SD = 2.80; men in opposite-sex condition M = 1.27, SD = .56; women in same-sex condition M = 2.28, SD = 1.79; women in opposite-sex condition M = 8.90, SD = .32) or women (men in same-sex condition M = 1.67, SD = 1.10; men in opposite-sex condition M = 8.79, SD = .67; women in same-sex condition M = 8.30, SD = 1.10; women in opposite-sex condition M = 1.34, SD = 1.16) differed between the two experimental conditions (ps <.001), as expected. The manipulation was therefore successful.

Effects of manipulation

As anticipated, participants in the experimental (self-as-homosexual) *versus* control (self-as-heterosexual) condition reported more negative emotions[7], greater fear of discrimination by others, and more negative self-attitudes. These represented moderate-to-large effects (see Table 3.1). Outgroup empathy and attitudes toward homosexuals were equivalent across conditions[8].

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[7] When separate scores were created for positive (i.e., mean of exciting, happy, pleasing, and satisfying) and negative emotions (i.e., mean of surprising, upsetting, anxiety provoking, worrisome, and threatening), both means differed significantly as a function of the manipulation (positive emotions self-as-homosexual condition M = 2.18, SD = 1.49, self-as-heterosexual condition M = 6.15, SD = 2.61, t [192] = -13.07, p < .001; negative emotions self-as-homosexual condition M = 4.77, SD = 2.12, self-as-heterosexual condition M = 1.50, SD = .89, t [192] = 13.83, p < .001). Participants reported less positive emotions in the self-as-homosexual (*vs.* self-as-heterosexual) condition and more negative emotions in the self-as-homosexual (*vs.* self-as-heterosexual) condition. Positive and negative emotions were combined into one score for simplification purposes.

[8] Results did not vary when attitudes toward gay men and attitudes toward lesbians were examined separately.

Table 3.1.

Effects of manipulation

Dependent Variable	Experimental (self-as-homosexual) Mean (SD)	Control (self-as-heterosexual) Mean (SD)	*t*	*d*
Negative emotions	6.12 (1.53)	2.54 (1.22)	17.95***	2.60
Fear of discrimination	2.64 (1.54)	1.28 (.48)	8.17***	1.35
Negative attitudes toward the self	3.01 (1.58)	2.56 (1.13)	2.23*	.33
Empathy toward homosexuals	4.14 (1.47)	4.53 (1.68)	-1.78	-.25
Negative attitudes toward homosexuals	2.98 (1.81)	2.85 (2.01)	.66	.07

Notes. N =194 (99 experimental, 95 control). *** $p < .001$, * $p \leq .05$.

Explaining negative effects on self-evaluations

We next tested a model to explain why the manipulation induced negative self-evaluations. Specifically, we tested whether the self-as-homosexual (*vs.* control) manipulation predicted negative self-evaluations through more negative emotions and greater fears of discrimination[9]. We considered sex as a potential moderator of model paths because (heterosexual) men are especially anti-gay (Kite & Whitley, 1996).The model was tested using AMOS 20.0, with manipulation feedback representing self-as-homosexual (+1) or self-as-heterosexual (0). Continuous variables were standardized (Aiken & West, 1991), and bootstrapping (*n* = 1000) was employed to estimate the significance of indirect effects (IE; Kline, 2011). All possible paths were initially included (i.e., *df* = 0), with non-significant paths subsequently dropped (Kline, 2011).

[9] See appendix 3K.6 (p.185) for tests of the model including all study variables (i.e., also including empathy and attitudes toward homosexuals).

The manipulation (*vs.* control) led to both more negative emotions and increased fear of discrimination. Fear of discrimination (but not negative emotions) in turn predicted more negative self-attitudes. That is, the manipulation indirectly predicted more negative self-attitudes through fear of personal discrimination as an outgroup member (IE β = .16, p = .001). The direct effect of the manipulation on self-evaluations was not significant (β = -.11, p = .337), demonstrating that fear of discrimination, a social concern, fully explains negative self-ratings. After dropping non-significant paths (Kline, 2011), the trimmed model (see Figure 3.2) demonstrated good fit: $\chi^2(2)$= 1.69, p = .429, χ^2/df = .85, CFI = 1.000, RMSEA = .000, SRMR = .016. Examining sex as a moderator of model paths using a regression-based approach (i.e., for each path, the criterion was regressed on predictor and sex on Step 1, and their interaction on Step 2) revealed no moderation by participant sex.

Discussion

Consistent with our observation that relatively concrete mental simulations have previously led to negative outcomes, experimentally "becoming" a stigmatized outgroup member produced negative outcomes for the self. Becoming a stigmatized outgroup member (relative to control) produced significantly more negative emotions, more fear of discrimination, and more negative self evaluations (Table 3.1). These results are consistent with the negative self-evaluations that can occur when one *actually* becomes a stigmatized group member in a non-experimental context (Goldberg, 2012). Expanding on this and other work (Byrnes & Kiger, 1990; Stewart et al., 2003), our investigation isolates a mechanism through which stigmatized group categorization produces self negativity: fear of discrimination by others. Therefore *social* concerns regarding the

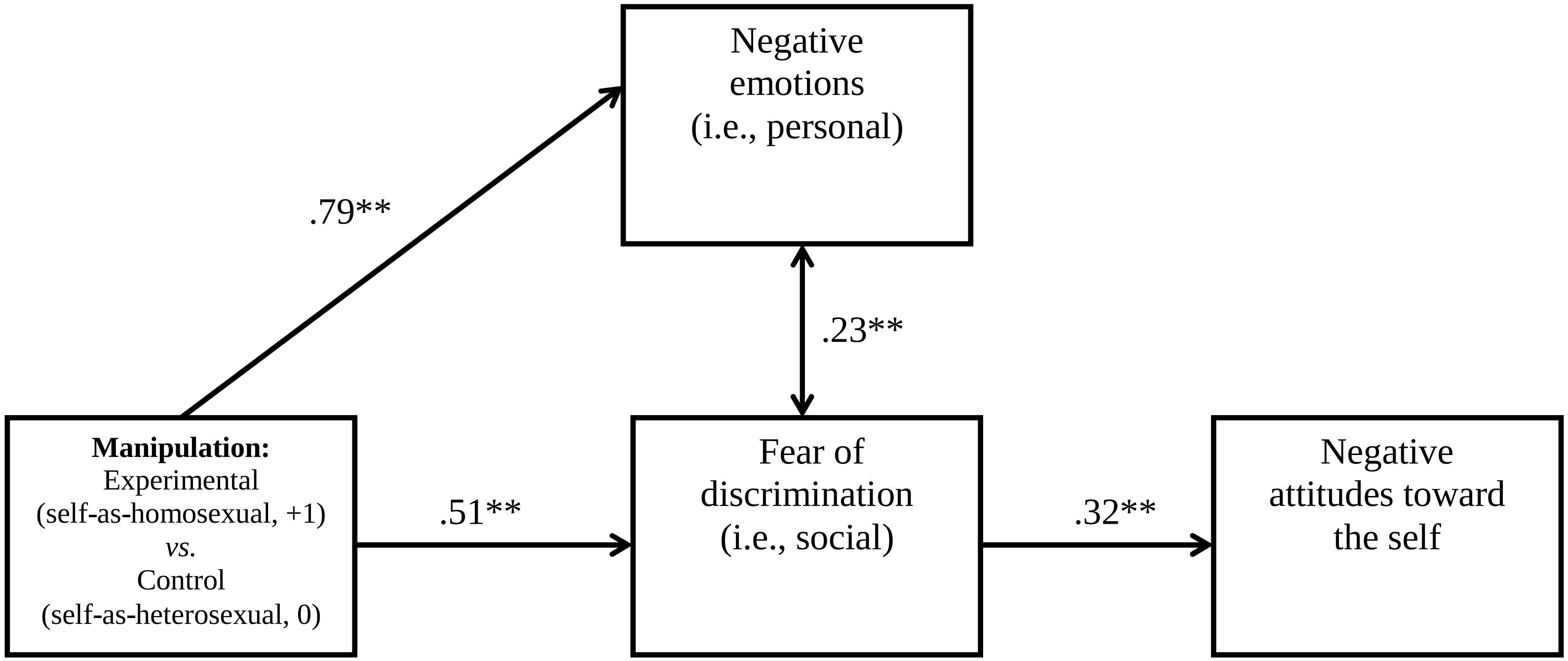

Figure 3.2. $N = 194$, ** $p < .01$. Paths represent standardized values.

attitudes and behaviors of others, rather than personal negative emotions, uniquely explain the heightened negative self-attitudes.

In contrast, the simulation did not directly affect attitudes toward the outgroup, consistent with Byrnes and Kiger (1990). To impact intergroup attitudes (and avoid negativity toward the self), simulation-based prejudice interventions should avoid being this concrete and imposing. Rather, intergroup simulations such as imagined contact (e.g., Turner et al., 2007), as well as relatively abstract (e.g., Batson et al., 1997) or only moderately concrete (e.g., "Alien-nation," Hodson et al., 2009) perspective-taking exercises, appear capable of promoting positive intergroup effects without generating negative self-outcomes.

Caveats for simulations in applied settings

Unlike abstract simulation-based prejudice interventions (Batson et al., 1997; Crisp & Turner, 2013; Galinsky & Moskowitz, 2000), our exercise did not impact intergroup attitudes. Our investigation contributes to a growing literature demonstrating null or negative effects of potential prejudice reduction strategies (Avery, Bird, Johnstone, Sullivan, & Thalhammar, 1992; Wolsko, Park, Wittenbrink, & Judd, 2000; Vorauer & Sasaki, 2010). Like the more concrete "blue-eyes/brown-eyes exercise", becoming a stigmatized outgroup member produced negative personal outcomes. Though the negative personal outcomes associated with the "blue-eyes/ brown eyes" exercise are offset by at least minimal positive intergroup outcomes, this was not true for the current simulation. It is important that these negative outcomes be documented to provide insights for practitioners and researchers in constructing and refining empirical approaches.

In our modern age, data are regularly collected on personal habits and preferences in ways that can reveal information surprising even to oneself (Duhigg, 2012). Feedback following the collection of personal data is thus becoming increasingly commonplace. Consider person-targeted advertising online. Caution is necessary, however, when such feedback concerns one's potential stigmatized group membership. Imagine a community setting where a teacher, business leader, or clinician attempts to promote positive intergroup attitudes by exposing students or clients to relatively real or concrete self-as-outgroup experiences. These well-meaning intentions are unlikely to affect intergroup attitudes, and may instead induce fears of discrimination and hence negative attitudes toward the self. Before transplanting such simulations to applied settings, additional research on means to circumvent or attenuate negative effects is needed.

Limitations and future directions

Our results are specific to heterosexuals "becoming" a member of the outgroup homosexuals. Given that other types of outgroup membership are similarly discoverable (e.g., ethnic group membership through DNA testing), experimentally examining the process of becoming a member of an ethnic outgroup would represent an interesting extension of our findings. Future research can also consider whether experimentally becoming an outgroup member for a longer time period might produce more positive effects; with time to adjust to the initial shock, negative reactions may subside.

Conclusion

Our strong and concrete self-*as*-outgroup mental simulation resulted in negative self-outcomes and did not impact intergroup attitudes. Consistent with Vorauer and Sasaki's (2009) suggestion that perspective-taking simulation exercises are more beneficial in the abstract, we urge strong caution against implementing concrete forms of outgroup simulation, particularly in applied settings such as schools, businesses, and military settings, where the social context may exacerbate fears of personal stigmatization. Fortunately, relatively more abstract and less threatening mental simulations, such as imagining outgroup contact (Crisp & Turner, 2013), or simulating experiences as an outgroup (Batson et al., 2007; Hodson, et al., 2009; Vescio et al., 2003), remain effective tools for prejudice interventions.

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CHAPTER 4

This section is based on the following article: MacInnis, C. C., & Hodson, G. (under review). Developing cross-group friendships online: The benefits of earlier (versus later) disclosure of stigmatized group membership. *Journal of Social and Personal Relationships.*

See Appendix 4Q (p. 211) for supplemental information/ analyses that may be of interest but could not be included in the journal article submission due to space limitations.

Abstract

With our social lives increasingly experienced online, it is critical to understand online friendship development. We are particularly interested in the implications of cross-group online friendships, particularly given that the cross-group nature of the relationship might not be initially known. We examined the outcomes of disclosing stigmatized group membership (i.e., homosexuality) early (*versus* late) in a developing online friendship. Heterosexuals (n = 214) engaged in a realistic but experimentally controlled closeness-inducing online interaction with an ostensible partner, learning of their homosexuality either before (i.e., early disclosure) or after (i.e., late disclosure) the interaction. Earlier (*vs.* later) disclosure of homosexuality led to a subjectively more positive contact experience, which predicted heightened bond with the partner, itself predicting more positive attitudes toward the partner. Outcomes were uninfluenced by pre-test biases and authoritarianism, suggesting the general benefits of disclosing homosexuality early (*vs.* late) during the formation of online friendships. Implications are considered.

Developing cross-group friendships online: The benefits of earlier (versus later) disclosure of stigmatized group membership

"That was one of the things that hurt me the most, that he was hiding something so much. Because I thought we had a pretty open relationship."

Individuals belonging to stigmatized groups can choose to conceal their group membership from others, especially if their stigmatized group membership is not readily visible. However, concealing stigmatized group membership until after a close bond has been formed can result in hurt feelings on the part of the receiver of the information, as evidenced by the above quote from the mother of a gay son who concealed his homosexuality from her (Zernicke, 2012). It is well-established that such social hurt can be painful to the excluded individual and damaging to the relationship (MacDonald, Kingsbury, & Shaw, 2005; MacDonald & Leary, 2005), potentially diminishing the interpersonal bond. Yet delaying such information could be beneficial, reducing the potential for the stigmatized individual to be viewed in terms of negative stereotypes about their group (Buck & Plant, 2011). As such, researchers have become interested in the *timing* of stigmatized group membership disclosure (e.g., Kaufman & Libby, 2012; King, Reilly, & Hebl, 2008). It is empirically unknown, however, whether in the context of an *online* cross-group interaction, earlier versus later disclosure of stigmatized group membership produces more positive relationship outcomes. With the prevalence of online relationships growing steadily, this question becomes increasingly pressing. We therefore examine the outcomes of disclosing stigmatized group membership earlier (*vs.* later) in an online friendship.

People spend a great deal of their lives “online”, and the global proportion of internet users continues to grow steadily (Internetworldstats.com, 2012). Much of our time spent online involves communicating with others using via email and instant messaging. In 2012, the number of worldwide email accounts was estimated at 3.3 billion, with the number of instant messaging accounts at 2.7 billion (Radicati Group Inc., 2012). Computer-mediated-communication (CMC) is therefore important, if not central, to modern social life. Even intimate relationships are formed through CMC (see Antheunis, Valkenburg, & Peter, 2007; Finkel, Eastwick, Karney, Reis, & Sprecher, 2012; Madden & Lenhart, 2006; McKenna, Green, & Gleason, 2002; Parks & Floyd, 1995). The relative anonymity afforded allows for conscious decisions about whether to present one’s “true” self or identity, and offers a comfortable context for disclosing personal information (Bargh & McKenna, 2004). As such, CMC can foster even more intimate relationships than can face-to-face communication (Antheunis et al., 2007; Valkenburg & Peter, 2009), making it an excellent means to forge friendships. Recognizing this, many people join internet newsgroups or social networks with the express purpose of establishing friendships (see Ridings & Gefen, 2004; Pew Research Center, 2011), and members of these virtual communities report having made close and lasting friendships online (McKenna et al., 2002).

Although members of stigmatized groups often join online communities devoted to their group for support and group identification (Bargh & McKenna, 2004), little is empirically known about online friendship formations that cross group boundaries. Yet the internet represents a unique and expanding context for stigmatized group members to develop *cross*-group friendships (i.e., between stigmatized and non-stigmatized group members), which are beneficial to both parties, promoting positive intergroup relations (e.g., Davies et al., 2011; Page-Gould, Mendoza-Denton, & Tropp, 2008). Such cross-group friendships can develop especially smoothly via CMC given that the stigmatized individual can choose to selectively present information about him/herself (Ellison, Heino, & Gibbs, 2006; McKenna et al., 2002) or even hide information altogether (see Utz, 2005), including stigmatized group membership itself. In particular, stigmatized group members may conceal their group membership from online friends, particularly in the early stages of friendship development. Alternatively, they may disclose group membership up front in this relatively “safe” virtual environment. Yet the empirical effects of disclosure timing during online cross-group friendship development are currently unknown. Although self-disclosure in general tends to promote positive outcomes in cross-group relationships (Ensari & Miller, 2002; Turner, Hewstone, & Voci, 2007), the potential for this unique type of self-disclosure (i.e., the disclosure of stigmatized *group membership*) to promote positive outcomes may depend on disclosure timing. We directly examine the effects of early *versus* late disclosure of homosexuality on friendship outcomes in a CMC setting.

Online cross-group friendships

Cross-group friendships, including those between homosexuals and heterosexuals (e.g., Herek & Capitanio, 1996; Hodson, Harry, & Mitchell, 2009; Vonofakou, Hewstone, & Voci, 2007), represent powerful forms of intergroup contact, especially effective in reducing prejudice and promoting intergroup harmony (see Davies, Wright, Aron, & Comeau, 2013). Unfortunately, cross-group friendships are less common and more likely to dissolve than within-group friendships (Aboud, Mendelson, & Purdy, 2003; Rude & Herda, 2010; Schneider, Dixon, & Udvari, 2007). Cross-group friendships between homosexuals and heterosexuals may be at an especially high risk of failure given that the disclosure of the homosexual friend's stigmatized group membership may come as unwelcome news. By default people are presumed to be heterosexual (Everly, Shih, & Ho, 2012), given that the vast majority (i.e., > 95%) identify as heterosexual (e.g., Bogaert, 2004; Laumann, Gagnon, Michael, & Michaels, 1994). This assumption may be even more likely in online (*vs.* face-to-face) contexts, where stigmatized group membership from other cues (e.g., facial features, see Tabak & Zayas, 2012; body motion, see Johnson, Gill, Reichman, & Tassinary, 2007) would be less detectable. Thus, although the internet may represent fertile ground for cultivating cross-group friendships between homosexuals and heterosexuals, the *timing* of the disclosure of stigmatized group membership may be critical. Given the interpersonal and intergroup benefits of cross-group friendship (e.g., Davies et al., 2011), generating more positive attitudes toward the stigmatized group member represents a desired outcome. It is crucial to understand, therefore, the factors leading to positive cross-group friendship outcomes in this context.

Positive contact between cross-group interactants is likely to promote such positive friendship outcomes. Online friendships typically involve multiple online interactions between two individuals. If the intergroup contact is perceived to be positive and of high quality, positive affective reactions (e.g., feeling at ease, close with the friend) are probable outcomes. These positive affective reactions may in turn influence positive evaluations of the stigmatized friend or even the group. In support of these ideas, Wright and colleagues demonstrate that positive cross-group interactions produce positive affective reactions such as reduced anxiety and increased bonding and feelings of closeness (Wright, Aron, & Tropp, 2002; Wright, Brody, & Aron, 2005). Positive affective reactions have been implicated as a key means to promote positive attitudes toward members of outgroups (Pettigrew, 1998; Wright et al., 2005). In particular, feeling close with an interaction partner is strongly tied to positive evaluations of that person (Aron & Aron, 1996; Aron, Aron, & Norman, 2001), and feeling close with a cross-group friend positively impacts outgroup evaluations (Brody, 2003; Hodson et al., 2009; Reis & Wheeler, 1991). Thus, positively evaluating cross-group contact experience is likely to lead to positive affective reactions, in turn facilitating positive evaluations of the cross-group friend (or their group).

Timing of stigmatized group membership disclosure

In the context of online friendships between homosexuals and heterosexuals, the timing of homosexuality disclosure is arguably critical. Timing of disclosure is likely to influence perceptions of the contact experience (i.e., whether the contact experience is perceived relatively positively *vs.* negatively) and thus affect emotional reactions and friend/group evaluations. To date, however, it is empirically unclear whether earlier (i.e., upfront) or later (i.e., after contact) disclosure produces more positive friendship outcomes. On the one hand, the personalization approach to intergroup contact (Brewer & Miller 1984, 1988; Miller, 2002) suggests benefits of late disclosure. From this theoretical perspective, group memberships should be deemphasized during intergroup contact, to promote more personalized intimate interactions, and hence more positive evaluations of the outgroup member *as a person* and the outgroup generally. King, Reilly, and Hebl (2008) found that heterosexuals expressed more positive attitudes toward a hypothetical co-worker when the co-worker's homosexuality was disclosed after a period of time rather than immediately, reasoning that earlier disclosure creates discomfort for heterosexuals. Similarly, Kaufman and Libby (2012, Study 5) found that revealing a character in a narrative as homosexual later (*vs.* earlier) facilitated the assumption of the character's perspective, less stereotyping of the character, and more positive evaluations of homosexuals. Finally, heterosexual men listening to a recorded interview of a man (with whom they would allegedly interact) responded less negatively to the interaction prospect when the target's homosexuality was revealed later (*vs*. earlier), because early disclosure resulted in more stereotypical impressions (Buck & Plant, 2011).

These studies of stigmatized membership disclosure suggest that later (*vs*. earlier) disclosure is beneficial. These studies, however, have examined reactions toward hypothetical co-workers, fictional characters, or anticipated interaction partners, not reactions to cross-group interaction *in situ.* Nor have past studies considered online cross-group friendships. In the context of actual relationship formation, there may be substantial downsides to later disclosure. Contemporary theoretical intergroup approaches suggest that earlier (*vs.* later) disclosure of stigmatized group membership is beneficial. In contrast to personalization approaches to intergroup contact, Hewstone and Brown's (1986) mutual differentiation model emphasizes that salient group memberships are critical features in creating positive outcomes in cross-group interactions (see also Brown and Hewstone, 2005). Specifically, emphasizing group membership *upfront* results in more positive evaluations of the interaction partner as an outgroup member. Accordingly, earlier disclosure of homosexuality may produce positive intergroup outcomes. A recent investigation by Everly and colleagues (2012) supports this potential. Specifically, those learning that their interaction partner is gay prior to engaging in math (Study 1) or hand-eye-coordination tasks (Study 2) demonstrated better task performance. Building on these findings, we propose that earlier (*vs.* later) disclosure of homosexuality will similarly result in more positive *friendship outcomes* (such as bonding and liking) in online settings.

Moreover, early disclosure largely sidesteps the social pain that might otherwise be experienced when feeling less valued as a friend (i.e., not valued enough to disclose earlier) (Leary & Springer, 2000; MacDonald & Leary, 2005). Early disclosure also decreases the prospect that one's partner be viewed as an "imposter." Homosexuals failing to disclose their homosexuality early will be assumed to be heterosexual (given population baselines), and being exposed as an imposter risks derogation by others (see Jetten, Summerville, Hornsey, & Mewse, 2005; Hornsey & Jetten, 2003; Warner, Hornsey, & Jetten, 2007). Early disclosure of sexual orientation, therefore, may circumvent negative reactions toward learning of outgroup membership well into the relationship. In the context of cross-group online friendships, early disclosure of stigmatized group membership may be particularly ideal, given that trust is particularly relevant to online friendships (Bargh & McKenna, 2004), where parties may be sensitive to perceived deception or failed disclosure.

The present experiment

In the current study heterosexuals engaged in an online instant-messaging interaction, based on established methods to induce interpersonal closeness and liking, with an ostensible (sex-matched) homosexual partner. The partner's discussion points were uniform across participants, providing strong experimental control. We manipulated whether the partner's homosexuality was disclosed before (early) or after (late) the interaction, and then measured perceptions of the contact experience, affective reactions (bond/closeness with partner, positive emotions), and evaluations (of partner and homosexuals). Figure 4.1 displays our conceptual model. Consistent with the mutual intergroup differentiation model (Brown & Hewstone, 2005), and findings that performance outcomes benefit from learning of a partner's homosexuality (Everly et al., 2012), we expected earlier (*vs.* later) outgroup membership disclosure to generate more positive contact experiences, which would in turn lead to greater bonding and positive affective reactions that facilitate positive evaluations of the target. This follows the call by Everly et al. (2012) following their performance-enhancing early-disclosure findings to consider whether homosexuality "self-disclosure might also lead to greater *partner liking*" (p. 409; emphasis added). Given the novelty of the question, we also explored whether the magnitude of any model paths varied as a function of prejudice toward homosexuals, right-wing authoritarianism (RWA, a predictor of negative attitudes toward homosexuals, see Haddock & Zanna, 1998), and openness to experience (given our focus on discovering new and potentially unexpected information). We also consider participant sex as a moderator because men are typically more negative toward homosexuals than are women (Kite & Whitley, 1996), and because Buck and Plant (2011) found that timing of homosexuality disclosure effects were specific to men.

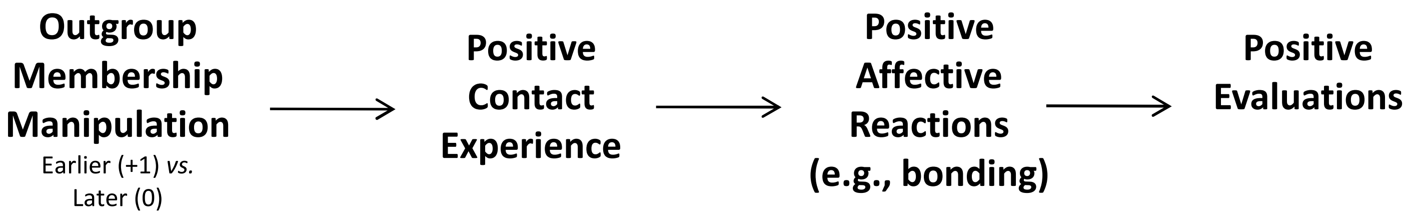

Figure 4.1. Hypothesized pattern of relations.

Method

Participants

Two-hundred and sixty-two heterosexual students at a Canadian university (Brock University, St. Catharines, Ontario) participated for course credit or $5. Those incorrectly identifying their interaction partner's sexual orientation (n = 17) were excluded, as were those indicating suspicion about the cover story (n = 31; a proportion similar to comparable studies, see Buck & Plant, 2011). The final sample contained 214 participants (109 men, 105 women, M_{age} = 20.16, SD =3.42).

Procedure overview

Up to six participants simultaneously participated on computers in private booths. The study involved a pre-interaction phase, a computer interaction phase (where participants ostensibly interacted with another study participant via instant messaging), and a post-interaction phase. Those in the early discovery condition learned of their partner's homosexuality immediately following the pre-interaction phase but *before* the interaction phase. Those in the late discovery condition learned of their partner's homosexuality immediately *after* the interaction phase. Participants were randomly assigned to condition, with 109 in the earlier discovery condition, and 105 in the later discovery condition.

Pre-interaction phase

"Typical student" demographics (see Appendix 4E). Participants first viewed factual demographic information about typical students at the university, allegedly to provide an idea of the type of person they might interact with. This information included the proportion of male and female students at the university, as well as the most common age, nationality, ethnic background, and the most common sexual orientation (heterosexual).

Personal profile information (see Appendix 4F). Next, participants submitted personal information (age, sex, ethnicity, sexual orientation, major, year of study, favorite course taken so far, along with favorite food, movie, television show, and pastime) for their own online profile, which participants were informed could be exchanged with their interaction partner either before or after the interaction, depending on condition.

RWA (see Appendix 4G). Participants then completed Zakrisson's (2005) 15-item RWA scale. Based on Altemeyer's (1996) scale, this authoritarianism scale measures conventionality, submission to authorities, and aggression toward norm violators with less extreme wording and no reference to specific groups. Items were measured on scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Ratings were averaged such that higher scores indicated higher RWA ($\alpha = .78$).

Openness to experience (see Appendix 4H). Participants completed the 10-item openness to experience subscale of the HEXACO Personality Inventory Revised (Ashton & Lee, 2009). Participants indicated the extent to which the items were self-descriptive (e.g., "I'm interested in learning about the history and politics of other countries") on scales ranging from 1 (*strongly disagree*) to 10 (*strongly agree*). Ratings were averaged such that higher scores indicated higher openness ($\alpha = .78$).

Attitudes toward homosexuals (see Appendix 4I). Participants completed thermometer measures of attitudes toward gay men and attitudes toward lesbians (as well as other groups not relevant to the present study), which ranged from 1 (0-10°, *extremely* *unfavorable*) to 10 (91-100°, *extremely favorable*). These items (r = .73) were averaged to represent favorable attitudes toward homosexuals.

Interaction Phase

The interaction was an online adaptation of the Relationship Closeness Induction Task (RCIT, Sedikides, Campbell, Reeder, & Elliot, 1999). This task involves two individuals asking and answering a structured set of 26 questions (based on Aron, Melinat, Aron, Vallone, & Bator, 1997). The RCIT has been demonstrated to induce interpersonal closeness between strangers over a relatively short testing period, making it ideal for our purposes. In the current study, the RCIT was computer-simulated, with participants answering questions for ostensible exchange with their partner via instant messaging. In reality, partner responses were entirely pre-determined and consistent across participants, designed to represent a typical undergraduate student. As such, some partner responses included common grammatical/spelling errors or slang terms (see full responses in Appendix 4J).

Questions were presented sequentially on the computer screen, with both parties ostensibly typing responses simultaneously (in reality, only participants responded). Responses were then “exchanged,” such that participants viewed their alleged partner’s responses. This process continued until all 26 questions were answered and 26 partner responses were read. To aid the cover story, partner responses did not always appear immediately, but sometimes followed a delay (consistent across participants) to account for typing longer responses. After reading the partner’s final response, participants received a computer message that the interaction was complete.

Timing of discovery manipulation. Immediately following the pre-interaction phase, and immediately prior to the interaction, participants in the *early discovery condition* received the following message:

> Prior to interacting with your partner, you will be able to view his [her] online profile. Try to remember as much information about your partner as you can (you will be asked to recall it later). Press continue to be taken to your partner's profile.

Participants then viewed the ostensible profile of a sex-matched partner. Except for sexual orientation, this information represented an average student, revealing the following information in this order: Age: *19 years* old, Sex: (*matched participant sex*), Year of Study: *1*, Major: *undeclared*, Sexual Orientation: *homosexual*, Favorite course taken so far: *1st year psychology*, Favorite food: *pizza*, Favorite movie: *I can't think of a favorite but I mostly like comedies*, Favorite television show: *The Office*. Partner profiles remained on the screen for at least 1 minute before participants moved on to the interaction (see Everly et al., 2012 for related partner demographic disclosure).

Immediately following the interaction phase participants in the *late discovery condition* received the following message:

> Now that you have interacted with your partner, you will be able to view his [her] online profile. Try to remember as much information about your partner as you can (you will be asked to recall it later). Press continue to be taken to your partner's profile.

These participants viewed the same ostensible partner profile as those in the early disclosure condition, for at least 1 minute. Immediately afterwards, participants in the late discovery condition completed the post-interaction phase.

Post-interaction phase

Following the interaction, all participants completed the following measures.

Manipulation check (see Appendix 4K). Participants recalled their partner's sexual orientation as a manipulation check (those responding incorrectly were excluded from the main analyses). To mask the purpose, participants were also asked to first recall their partner's age and finally to recall their favorite television show.

Interaction (i.e., contact) experience (see Appendix 4L). Participants rated the extent to which the interaction with their partner was (a) pleasant, (b) cooperative, (c) superficial and insincere (based on Voci & Hewstone, 2003), (d) awkward and (e) comfortable, on scales ranging from 1 (*not at all*) to 7 (*very much*). After reverse scoring items (c) and (d), higher scores represent a more positive contact experience (α = .66[10]).

Affective reactions.

Bond with partner (see Appendix 4M). Aron, Aron, and Smollan's (1992) widely-used (e.g., Hodson et al., 2009; Page-Gould et al., 2008; Vonofakou et al., 2007) Inclusion of Others in Self scale (IOS) was adapted to tap closeness with the partner. Participants were shown a series of seven diagrams depicting different degrees of overlap between the self and the partner, and were instructed to choose the diagram best representing the relationship between the self and partner, with higher scores representing greater bond (i.e., self-other overlap) with the partner.

Positive emotions (see Appendix 4N). Participants rated the degree to which their partner's sexual orientation was surprising, upsetting, exciting, anxiety-provoking,

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[10] The key hypothesized model was also tested correcting for measurement error of all variables (see Kline, 2011); all paths involving contact experience (i.e., between manipulation and positive contact experience, as well as between positive contact experience and bond with partner, and attitudes toward partner) remained significant and were larger in magnitude.

worrisome, happiness-inducing, threatening, pleasing, and satisfying (1 = *not at all*, to 9 = *very much*). To increase internal consistency, "surprising" was later dropped. After reversing the negative items, the averaged items reflected positive emotions (α = .76).

Evaluations.

Attitudes toward partner (see Appendix 4O). A thermometer measure of current attitudes toward the partner ranged from 1 (0-10°, *extremely unfavorable*) to 10 (91-100°, *extremely favorable*). Higher scores represent more positive attitudes.

Attitudes toward homosexuals (see Appendix 4P). Five items from Herek's (1988) Attitudes Toward Gay Men (ATG) scale, and five items from Herek's (1988) Attitudes Toward Lesbians (ATL) scale, were administered, ranging from 1 *(strongly disagree*) to 9 (*strongly agree*). After reverse-scoring, items were averaged such that higher scores represent more positive attitudes toward homosexuals (α = .89).

Results

Effects of manipulation

As expected, participants in the earlier (*vs.* later) disclosure condition reported significantly more positive contact experience (M = 6.06, SD = .72 vs. M = 5.81, SD = .91, respectively), $t(212)$ = 2.18, p = .030, d = .30. Those in the earlier (*vs.* later) disclosure condition also reported a significantly closer bond (IOS) with their contact partner (M = 3.36, SD = 1.61 vs. M = 2.94, SD = 1.41, respectively), $t(212)$ = 2.05, p = .042, d = .28). Additionally, those in the earlier (*vs.* later) disclosure condition reported significantly more positive attitudes toward the partner (M = 8.27, SD = 1.24 vs. M = 7.89, SD = 1.52, respectively), $t(212)$ = 2.18, p = .047, d = .27). Positive emotions (M =

5.66, *SD* = 1.03 vs. *M* = 5.59, *SD* = 1.06)[11] and attitudes toward homosexuals (*M* = 7.53, *SD* = 1.41 vs. *M* = 7.52, *SD* = 1.64) were equivalent across earlier and later disclosure conditions, respectively, *t*s < 1, ns.

Testing the proposed model

We predicted that earlier (*vs.* later) disclosure would exert a positive effect on contact experience, with positive contact experience positively predicting affective reactions (bond with partner and positive emotions), which would facilitate favorable evaluations (toward the stigmatized partner and homosexuals) (see Figure 4.1). As a parsimonious test of this overall proposed pattern, our formal model test includes only those variables that differed significantly (see previous section) as a function of the timing of disclosure manipulation (i.e., positive contact experience, bond with the partner, and attitudes toward the partner)[12]. Specifically, we tested a model whereby the earlier (*vs.* later) disclosure manipulation predicted positive contact experience, with positive contact experience predicting positive attitudes toward the partner through heightened bond with the partner, in keeping with intergroup contact literature.

The model was tested using AMOS 19.0. The manipulation was represented by a categorical code (+1 = early disclosure; 0 = late disclosure). Continuous variables were standardized (see Aiken & West, 1991), and bootstrapping (*n* = 1000) was employed to estimate the significance of indirect effects (Kline, 2011). All possible paths were initially included (i.e., *df* = 0), with non-significant paths subsequently dropped (Kline,

[11] When separate scores were created for positive (i.e., mean of exciting, happy, pleasing, and satisfying) and negative emotions (i.e., mean of upsetting, anxiety provoking, worrisome, and threatening), neither mean differed significantly as a function of the manipulation (*t*s < |.48|, *p*s ≥ .632), consistent with the results obtained when examining the combined emotions variable.
[12] See appendix 4Q.6 (p.214) for tests of the model including all study variables (i.e., also including positive emotions and attitudes toward homosexuals).

2011). All expected paths were statistically significant (one additional path between positive contact experience and positive attitudes toward the partner was also significant, $\beta = .34$, $p < .001$). Discovering partner homosexuality earlier (*vs.* later) predicted more positive perceptions of the contact experience. Positive contact experience perceptions in turn positively predicted both increased bond with the partner and more positive attitudes toward the partner, and increased bond with one's partner predicted more positive attitudes toward the partner.

Table 4.1 displays effects decomposition. Notably, the indirect effects of the manipulation on both bond with partner and attitudes toward partner were significant (*p*s < .02); there was no direct effect, meaning that the proposed mediators fully explained the impact of timing disclosure on partner bond and partner evaluation. The effect of the manipulation on heightened bond with the partner was entirely accounted for by subjective sense of a positive contact experience, and the effect of the manipulation on positive attitudes toward the partner was entirely accounted for by perceptions of a positive contact experience and heightened bond with the partner. The trimmed model (see Figure 4.2), dropping non-significant paths, demonstrated good fit: $\chi^2(2) = 2.44$, p = .296, $\chi^2/df = 1.21$, CFI = .996, RMSEA = .032, SRMR = .036 (see Kline, 2011).

Testing potential moderators

We next tested whether any paths were moderated by RWA, openness to experience, pre-test prejudice toward homosexuals, or participant sex, using a regression-based approach appropriate for continuous moderators (see Muller, Judd, & Yzerbyt, 2005). For each path in the model, the criterion was regressed on the predictor variable

Table 4.1

Model effects decomposed (fully saturated model, df = 0)

Effects	Sample Overall Total	Sample Overall Direct	Sample Overall Indirect
1. Manipulation → Positive contact experience	.15*	.15*	--
2. Manipulation → Bond with partner	.14*	.09	.05*
3. Manipulation → Positive attitudes toward partner	.14*	.04	.10**
4. Positive contact experience → Bond with partner	.32***	.32***	--
5. Positive contact experience → Positive attitudes toward partner	.45***	.34***	.11**
6. Bond with partner → Positive attitudes toward partner	.34***	.34***	--

Notes. N = 214 (109 early disclosure condition, 105 late disclosure condition). *** p < .001, ** p < .01, * $p \leq .05$

and the moderator (either RWA, openness to experience, prejudice toward homosexuals, or sex) on Step 1, and on the interaction between the predictor and the moderator on Step 2. Only one path (between bond with the partner and attitudes toward the partner) was moderated by RWA (β = .17, p = .004) or by pre-existing prejudice toward homosexuals (β = -.15, p = .007), such that the path magnitude was stronger for those higher (*vs.* lower) in RWA or pre-existing prejudice[13]. Therefore, increasing feelings of closeness or bonding with the partner is therefore especially beneficial among those predisposed to disliking the stigmatized group. Of note, the earlier (*vs.* later) disclosure manipulation resulted in more positive outcomes (i.e., positive contact experiences, greater bonding with the partner, more positive partner evaluation) *across* participants, regardless of individual differences in RWA, openness to experience, prejudice toward homosexuals, or sex.

[13] Results were the same whether testing moderation of saturated or trimmed model. Moderation results should be interpreted with caution however, given that over 30 interaction effects were tested in total, increasing the possibility of obtaining at least two significant moderation effects simply by chance.

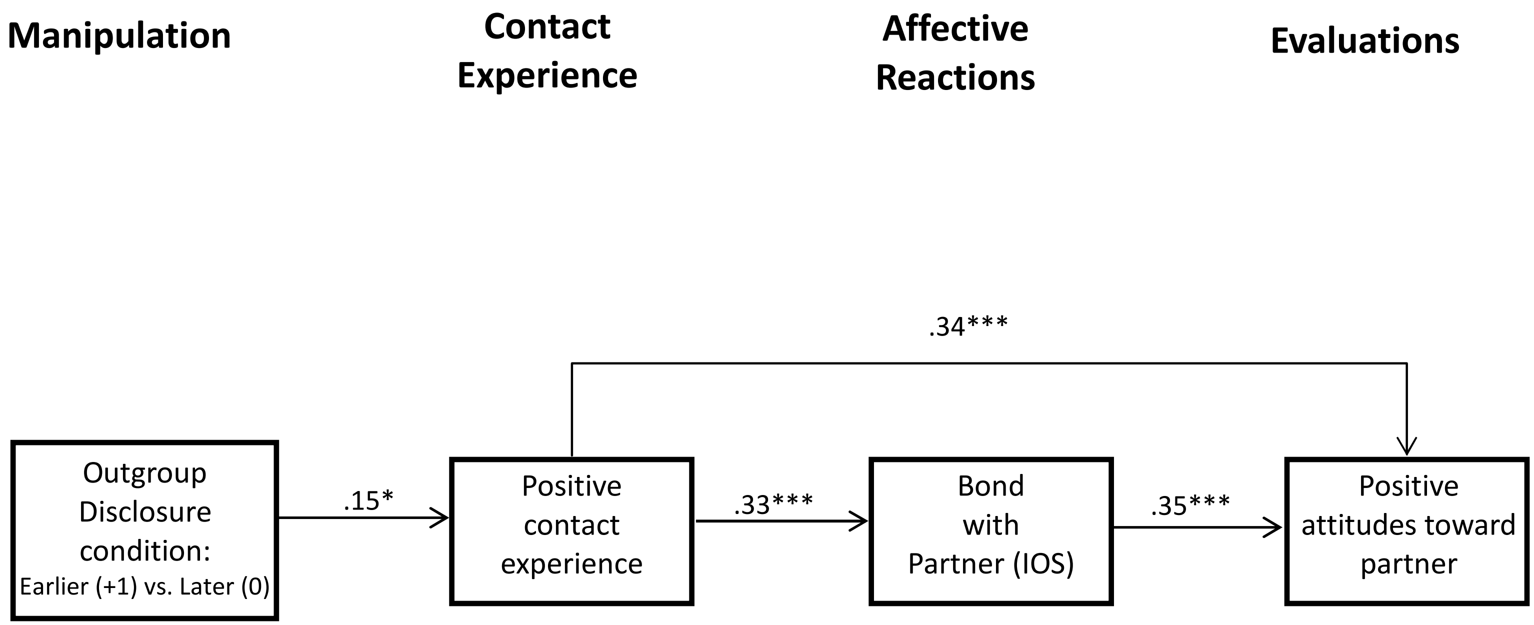

Figure 4.2. N = 214 (109 early disclosure condition, 105 late disclosure condition). Paths represent standardized values. *** $p < .001$, * $p = .029$. IOS = inclusion of other in self

Discussion

In the current investigation on the development of online cross-group friendships, earlier (*vs.* later) disclosure of homosexuality led to more positive friendship outcomes. The impact of the disclosure manipulation on positive contact experience represented a small-to-moderate but reliable effect size (d = .30, p = .030; see Cohen, 1988); those exposed to earlier disclosure reported contact experiences that were one-third of a standard deviation more positive than those exposed to later disclosure. This relation is compelling considering that the *only* difference between conditions concerned the timing of homosexuality disclosure, and that this effect was not moderated by theoretically-relevant individual differences, including pre-test prejudice toward homosexuals or RWA. These positive contact experience perceptions predicted increased bond with, and evaluations of, the ostensible homosexual partner. The effect of the timing of disclosure manipulation on evaluations of the partner was fully mediated by contact experience perceptions and by bond with the partner, with the manipulation exerting a significant indirect effect on evaluations of the partner (as well as bond with the partner). These findings are consistent with intergroup contact theories emphasizing the importance of salient outgroup membership (Brown & Hewstone, 2005; Hewstone & Brown, 1986), and findings that learning of a partner's homosexuality prior to performance can be beneficial (Everly et al., 2002).

With much of the existing evidence on the outcomes of disclosing homosexuality being correlational, hypothetical, or anecdotal (e.g., Beeler & Diprova, 1999; Griffith & Hebl, 2002; Kaufman & Libby, 2012; King et al., 2008), our experimental findings represent a unique contribution to the literature. We employed a "live" and realistic cross-group interaction analogous to popular online instant messaging programs. Given ever-growing rates of internet use and CMC in particular, the methods employed have a great deal of mundane realism. As an added benefit, our use of pre-programmed partner responses ensured tight experimental control, allowing us to isolate timing as the sole factor impacting the outcomes, ruling out other potential confounds.

Our results are consistent with the mutual differentiation approach to intergroup contact (Brown & Hewstone, 2005; Hewstone & Brown, 1986), with outcomes being more positive when homosexual group membership was immediately salient rather than revealed later in the relationship formation. Our findings are also consistent with those demonstrating that people react negatively to “imposters” (see Jetten et al., 2005; Hornsey & Jetten, 2003, Warner et al., 2007). Earlier (*vs.* later) homosexuality disclosure presumably minimizes the hurt that can be experienced by those feeling undervalued as friends (MacDonald & Leary, 2005) when intimate information (such as stigmatized outgroup membership) is concealed from them. Finally, our findings complement and extend evidence that learning of partner’s homosexuality upfront increases cognitive and physical performance (Everly et al., 2012), demonstrating positive friendship-relevant outcomes following earlier (vs. later) disclosure. Everly et al.’s (2012) speculation that homosexuality disclosure may induce partner liking proved accurate, with benefits particularly noticed for earlier disclosure. Our results diverge from Buck and Plant (2011), who observed more positive responses by heterosexual men toward a gay anticipated interaction partner when the partner’s homosexuality was disclosed later (*vs.* earlier), as well as from studies finding positive reactions to hypothetical individuals upon later (*vs.* earlier) disclosure (Kaufman & Libby, 2012, Study 5; King et al., 2008).

Our investigation differed substantially from these past approaches, involving not only an active participation in a cross-group interaction, but one set in in an online context. Although later disclosure may be beneficial when simply reading or hearing about another person, when an actual social relationship is being formed though an interaction between group members, earlier (*vs.* later) disclosure results in more positive relationship outcomes.

Our findings provide the first known evidence that, when forming cross-group friendships online, homosexuals may benefit from disclosing their homosexuality earlier (*vs.* later) in the friendship-development process. Even in a single friendship-forming interaction, heterosexuals responded less positively to the interaction and their allegedly gay partner when homosexuality was disclosed at a later point. These effects would presumably be even larger in the context of well-established relationships. The observed beneficial effects of disclosing of homosexuality prior to intimacy-building interactions may be useful to prejudice-reduction intervention planning. Considering the strong emotional distress homosexuals typically experience at the prospect of disclosing their homosexuality (Bohan, 1996; Cain, 1991; Ellis & Riggle, 1996; Franke & Leary, 1991; Kronenberger, 1991; Wells & Kline, 1987), these findings have practical value for homosexuals grappling with disclosure decisions.

One limitation is that our results pertain to the disclosure of homosexuality in an online context; disclosing other group memberships online, or disclosing homosexuality in a more traditional face-to-face friendship, may produce different outcomes. Future research can examine these possibilities, and consider whether engaging in multiple online interactions over a longer period of time, with the partners getting to know one another even more intimately, enhances the positive benefits of earlier (*vs.* later) disclosure.

The study is also limited by the absence of a control group, which was excluded for pragmatic reasons. Ideally, both earlier and later discovery control groups would have been included, where partner profiles would have instead revealed the partner's heterosexuality or no sexual orientation information. Given the sample size required to achieve appropriate statistical power, the time and resources required to run the study, as well as primary interest in examining the effects of discovering another's homosexuality earlier versus later, control groups were not included. In light of this limitation, one alternative explanation is that the positive results in the earlier (*vs.* later) discovery condition were not due to learning of the partner's sexual orientation earlier (*vs.* later), but instead simply due to having more information about the partner earlier (*vs.* later). The positive relationship between self-disclosure and positive outcomes in cross-group relationships is well-established (Ensari & Miller, 2002; Turner et al., 2007), and it may be that the earlier personal information (i.e., *any* personal information) about another is learned, the more positive the outcomes. Future research will be necessary to confirm this, however.

Conclusion

With our social lives increasingly carried out online (Internetworldstats.com, 2012; Radicati Group Inc., 2012), intergroup contact is no longer restricted to face-to-face encounters. Although the internet represents fertile ground for cultivating cross-group friendships between homosexuals and heterosexuals, the timing of group-membership disclosure matters. Our experimental examination of internet relationship formation reveals that disclosing homosexuality upfront produces more positive friendship outcomes than when homosexuality is revealed following initial intergroup contact.

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CHAPTER 5: GENERAL DISCUSSION

People regularly move between social groups and categories, and the effects of such social movements are well-documented (e.g., Amiot, de la Sablonnière, Terry, & Smith, 2007; Ellemers, 1993; Jetten, Iyer, Tsivrikos, & Young, 2008). Most often, these movements are intentional (e.g., an individual from a low SES [socio-economic status] background becomes a university student as a means to enhance positive social identity, see Jetten et al., 2008) or foreseen (e.g., an employee becomes a member of a higher status organization due to a merger, see Amiot, Terry, & Callan, 2007). It is also possible however, for social movement to be unintentional and/or unexpected. Indeed, one could discover membership in an outgroup when the individual in question (the self or other) was previously assumed to be an ingroup member. The potential to make such a discovery is increasingly possible in the current digital age (e.g., through internet self-tests, ancestry websites, or forming relationships online).

In this dissertation I reported three empirical studies examining the effects of this form of social movement, termed *outgroup membership discovery*, focusing specifically on discoveries of homosexuality. I first conducted a preliminary investigation of hypothetical reactions to self and other homosexuality discoveries (Study 1), followed by highly controlled experimental investigations of actual experiential reactions to self (Study 2) and other (Study 3) homosexuality discoveries. These studies provided insight into the individual and intergroup effects of homosexuality discoveries by demonstrating the affective/social reactions, individual (self or other) evaluations, and group evaluations that people report upon self-as-homosexual or other-as-homosexual discoveries (see Table 5.1 for a summary of major dissertation results). In the current Chapter, I review

Table 5.1

Summary of major dissertation results

	Study 1		Study 2	Study 3
	Self-as-homosexual	Other-as-homosexual	Self-as-homosexual	Other-as-homosexual
Manipulation	No manipulation, assessed hypothetical reactions	No manipulation, assessed hypothetical reactions	Fictitious feedback on a sexual attraction test noting self-as-homosexual (outgroup condition) or self-as-heterosexual (ingroup condition)	Learned of interaction partner's homosexuality either before (earlier discovery condition) or after (later discovery condition) an interaction
Effects on affective/ social reactions	Expected emotions were negative relative to scale midpoint	Expected emotions did not significant differ from scale midpoint	More negative emotions and more fear of discrimination in self-as-homosexual (*vs.* self-as-heterosexual) condition	Closer bond with partner in earlier (*vs.* later) discovery condition. Emotions were equivalent across conditions
Effects on contact experience	n/a	n/a	n/a	More positive contact experience in earlier *vs.* later discovery condition
Effects on evaluations of individual	Negative relative to scale midpoint (i.e., expected feelings toward self to become more negative)	Negative relative to scale midpoint (i.e., expected feelings toward friend become more negative)	More negative evaluations of the self in self-as-homosexual (*vs.* self-as-heterosexual) condition	More positive evaluations of partner in earlier (*vs.* later) discovery condition
Effects on evaluations of group (homosexuals)	Not significantly different from scale midpoint (i.e., no change in feelings expected)	Positive relative to scale midpoint (i.e., expected feelings to become more positive)	Evaluations of homosexuals and empathy toward homosexuals were equivalent across conditions	Evaluations of homosexuals were equivalent across conditions
Support for overarching model (Figure 1.1a)	Yes, support for path b: affective reactions predict evaluations	Yes, support for path b: affective reactions predict evaluations	Yes: self-as-homosexual (*vs.* self-as-heterosexual) discovery predicted more negative affective reactions (negative emotions and fear of discrimination) and fear of discrimination in turn predicted more negative self-attitudes	Yes: earlier (*vs.* later) other-as-homosexual predicted more positive affective reactions (bond with partner, itself predicted by positive contact experience), which in turn predicted more positive evaluations of the partner.
Generalization from individual to group evaluations	Yes	Yes	Untested in main study given no effects of manipulation on group evaluations. However, supplemental analyses in Appendix 3K.6 do not support a generalization pattern.	Untested in main study given no effects of manipulation on group evaluations. However, supplemental analyses in Appendix 4Q.6 suggest yes. Although group evaluations unaffected by manipulation, individual evaluations generalize to group evaluations.
Moderation of model paths	Yes: RWA moderated (i.e., strengthened) the path between negative emotions and negative change in feelings toward the self	No	Yes: RWA and pre-manipulation prejudice toward homosexuals moderated (i.e., strengthened) the path between the manipulation and negative emotions	Yes: RWA and pre-manipulation prejudice toward homosexuals moderated(i.e., strengthened) the path between bond with partner and positive attitudes toward partner

these results, integrating as well as comparing studies. Additionally, I discuss limitations, future research directions, and implications of the research overall.

Examining the Effects of Homosexuality Discoveries: Results Overview

Below, I discuss the results of the dissertation, focusing on effects pertaining to affective/social reactions, individual evaluations, and group evaluations. I then discuss the models predicting evaluations that were supported in each study.

Effects on affective/social reactions

Not surprisingly, affective/social reactions were impacted by homosexuality discoveries, with affective/social reactions to self-as-homosexual discoveries being especially strong. Both expected and actual affective/ social reactions to self-as-homosexual discovery were negative. In Study 1, heterosexual participants reported expecting more negative emotions upon a self-as-homosexual discovery. In Study 2, heterosexual participants indeed reported more negative emotions upon discovering self-as-homosexual, and also reported heightened fear of discrimination (relative to discovering self-as-heterosexual), with the latter mediating the relation between the manipulation and negative evaluations of the self. Participants both expected (Study 1) and experienced (Study 2) negative affect upon discovering self-as-homosexual. Although Study 1 and Study 2 were comprised of entirely different samples, the expectations of Study 1 participants regarding negative affect were realized in Study 2. Additionally, in Study 2 participants had concerns about negative social consequences (i.e., fear of discrimination) upon discovering self-as-homosexual.

Negative emotions upon self-as-homosexual discoveries are consistent with evidence demonstrating that individuals entering a new group (e.g., Jetten et al., 2008) and individuals discovering their homosexuality (Herek, Cogan, Gillis, & Glunt, 1997;

Rosario, Hunter, Maguen, Gwadz, & Smith, 2001) experience negative affect. A self-as-homosexual discovery was expected to (and did) produce negative affective reactions similar to those experienced by individuals engaging in social mobility or beginning to acknowledge their own homosexuality. These negative emotion effects are also in line with work showing that negative affective reactions (e.g., feeling irritated) can occur upon learning that a self-professed ingroup member is merely posing as an ingroup member yet is actually an outgroup member (e.g., Hornsey & Jetten, 2003). The current results demonstrate that negative affect is also experienced (and expected to be experienced) when *one's own* outgroup membership is discovered. In addition to negative emotions, Study 2 participants were concerned about negative social consequences due to their new outgroup membership. This was demonstrated by their heightened fear of discrimination. In light of the documented tendency for people to react negatively upon suddenly learning of another's outgroup membership (e.g., Jetten, Summerville, Hornsey, & Mewse, 2005; Marques, Yzerbyt, & Leyens 1988; Postmes & Branscombe, 2002; Tajfel & Turner, 1986), these social concerns were likely warranted. Clearly, suddenly learning of one's own homosexual outgroup membership induces negative affective/social reactions.

For other-as-homosexual discoveries, affective reactions were not as decidedly negative. In Study 1, inconsistent with predictions, participants did not expect negative emotions upon discovering a friend's homosexuality. The mean on expected emotions did not differ significantly from the scale midpoint, suggesting that, overall participants did not expect strong emotional reactions (in a negative or a positive direction) upon discovering a friend's homosexuality. Similarly, in Study 3, emotions did not vary as a function of discovery condition. However, consistent with the work of Wright and colleagues showing that positive contact with an outgroup member can induce positive affect (Wright, Aron, & Tropp, 2002; Wright, Brody, & Aron, 2005), as well as the mutual differentiation approach to intergroup contact which encourages emphasizing group memberships early in a relationship (Brown & Hewstone, 2005; Hewstone & Brown, 1986), participants in Study 3 reported a more positive contact experience and in turn greater feelings of closeness with their partner in the earlier (*vs.* later) discovery condition. Although participants did not expect (Study 1) altered emotions upon an other-as-homosexual discovery, or experience (Study 3) more positive or negative emotions upon discovering another's homosexuality earlier (*vs.* later), participants in Study 3 nonetheless experienced heightened bond with their partner upon learning of the partner's homosexuality earlier (*vs.* later). *Thus, affective/social reactions were consistently negative for* self-*as-homosexual discovery, but were either neutral or positive for* other-*as-homosexual discovery.*

Effects on evaluations of the target individual

As with affective/social reactions, evaluations of the target individual upon a self-as-homosexual discovery (i.e., the self) were negative. In Study 1, participants expected a change in feelings toward the self whereby feelings would become more negative. In Study 2, participants indeed reported more negative attitudes toward the self in the self-as-homosexual (*vs.* self-as-heterosexual) condition. Again, although they represented different samples, the evaluations of Study 2 participants were consistent with the evaluations expected by Study 1 participants. These negative evaluations are consistent with the tendency for individuals recognizing their homosexuality to experience negativity toward the self (Herek et al., 1997). Further, upon a self-as-homosexual discovery, participants might have expected to feel (Study 1) or actually felt (Study 2) like an imposter or black sheep and derogated the self as individuals typically derogate others who are viewed as imposters/ black sheep (Jetten et al., 2005; Marques et al., 1988). Overall, discovering one's membership in this socially stigmatized group (Herek, 2009), induced (both expected and actual) negative evaluations of the self.

For other-as-homosexual discovery, evaluations of the target individual (i.e., the friend or interaction partner) were negative in Study 1 (when discovering a known friend's homosexuality), but positive in Study 3 (when discovering an unknown but friendly interaction partner's homosexuality earlier *vs.* later in the relationship). In Study 1, participants expected a change in feelings toward the friend whereby feelings would become more negative. In Study 3, participants reported positive attitudes toward the partner in both conditions (see Table Q.1, p. 214), and more positive attitudes toward the partner when the partner's homosexuality was discovered earlier (*vs.* later). Study 1 results are consistent with the expected experience of social pain from learning that the friend's homosexuality had been hidden (Leary & Springer, 2000; MacDonald & Leary, 2005). Participants likely expected to direct this negativity toward the friend. The positive attitudes toward the partner observed in Study 3 are consistent with intergroup contact theory (e.g., Pettigrew, 1998; Wright et al., 2005), specifically, the mutual differentiation approach to intergroup contact (Brown & Hewstone, 2005; Hewstone & Brown, 1986), which suggests that positive attitudes toward the outgroup member (and in turn, the group as a whole) are more likely when group memberships are emphasized upfront. Indeed, when outgroup membership was salient earlier (*vs.* later) in the relationship, attitudes toward the outgroup individual were more positive. Thus, other-as-homosexual discoveries *can* promote positive evaluations of the individual, particularly when the individual's homosexuality is discovered earlier rather than later.

Effects on evaluations of the group (homosexuals)

Although the potential existed for self-as-homosexual discoveries to impact evaluations of homosexuals as a group, Study 1 participants did not expect a significant change in feelings toward homosexuals as a group upon a self-as-homosexual discovery. Similarly, in Study 2, attitudes toward homosexuals were unaffected by the self-as-homosexual manipulation, with no differences in attitudes toward homosexuals between conditions. Further, empathy toward homosexuals also did not differ between conditions in Study 2. Again, for self-as-homosexual discoveries, expected (Study 1) and actual (Study 2) evaluations were equivalent. *Self-as-homosexual discoveries did not significantly impact expected or actual evaluations of homosexuals as a group*. A self-as-homosexual discovery is highly self-relevant, with the self being suddenly placed in a highly stigmatized group (Herek, 2009). Perhaps upon this intense discovery participants became "stuck" on evaluations of the self and implications for the self, expecting (Study 1) and experiencing (Study 2) a much stronger impact on self-evaluations than evaluations of the group as a whole.

For other-as-homosexual discoveries on the other hand, an impact on evaluations of the group as whole was more probable, given conceptual parallels between other-as-homosexual discovery and intergroup contact. In Study 1, participants indeed expected feelings toward homosexuals to become more positive upon a friend-as-homosexual discovery. This is consistent with the well-established finding that having a homosexual friend is associated with more positive attitudes toward homosexuals (e.g., Herek & Capitanio, 1996; Hodson, Harry, & Mitchell, 2009). In Study 3, however, attitudes toward homosexuals did not differ significantly between the early and late discovery conditions. Although the timing of discovery manipulation impacted evaluations of the *individual* (i.e., the interaction partner) in a manner consistent with the mutual differentiation approach to intergroup contact (Brown & Hewstone, 2005; Hewstone & Brown, 1986), it did not impact evaluations of the group as a whole. Evaluations of the interaction partner, however, were linked to evaluations of homosexuals, supporting a generalization pattern. In order to directly impact evaluations of homosexuals as a group, a stronger manipulation (e.g., a longer time interval between earlier and later disclosure, or deeper and more intimate self-disclosure during the interaction), an other-as-heterosexual comparison group, or longitudinal study may be necessary.

Testing models explaining discovery effects on evaluations

In each investigation (i.e., hypothetical self-as-homosexual [Study 1], hypothetical other-as-homosexual [Study 1], actual self-as-homosexual [Study 2], and actual other-as-homosexual [Study 3]), a model was tested to explain individual and group evaluations. These models were based on the overarching model presented in Chapter 1 (see Figure 1.1a), with specific model variables varying among studies. It was expected generally that more positive (or negative) affective/social reactions following a homosexuality discovery would predict more positive (or negative) evaluations of both the individual and the group. For the experimental studies specifically, it was predicted that the self-as-homosexual (*vs*. self-as-heterosexual) manipulation would predict negative affective/social reactions and in turn negative evaluations (Study 2), and that early (*vs*. late) other-as-homosexual discovery would predict more positive affective reactions and in turn more positive evaluations (Study 3). Results of these model tests are discussed below, noting consistencies and inconsistencies between studies.

In Study 1, support for path b in Figure 1.1a was found for both self- and other-as-homosexual discoveries, whereby more negative expected emotions predicted more negative expected evaluations of the individual and the group (see Figures 2.1a & 2.1c). Additionally, support for a generalization model consistent with intergroup contact theory (Brown & Hewstone, 2005; Pettigrew, 1998) was found, whereby expected emotional reactions predicted expected change in feelings toward the individual, which in turn predicted expected change in feelings toward the group. This was the case for both self- and other-as-homosexual discoveries (see Figures 2.1b & 2.1d). That is, more negative emotions predicted more negative expected changes in feelings toward homosexuals through negative expected changes in feelings toward the self (for self-as-homosexual discovery) or the friend (for other-as-homosexual discovery).

In Studies 2 and 3, a parsimonious approach was adopted, whereby only variables differing significantly as a function of experimental condition were included in tested models. In Study 2, the overarching model presented in Figure 1.1a was supported: the self-as-homosexual (*vs.* self as heterosexual) condition predicted more negative affective/ social reactions (negative emotions and fear of discrimination). However, only fear of discrimination subsequently predicted negative evaluations of the self (see Figure 3.2). This is inconsistent with Study 1, where negative emotions predicted more negative evaluations, but in Study 1 fear of discrimination was not assessed. By testing two mediators in Study 2, one relevant to personal concerns (negative emotions) and one relevant to social concerns (fear of discrimination), Study 2 demonstrated that fear of discrimination explains negative evaluations of the self over and above negative emotions. That is, *social* concerns (i.e., fear of discrimination) fully account for the negative self-evaluations that occur upon a self-as-homosexual discovery. Additionally, evaluations of homosexuals were not included in the model as in Study 1, and thus tests of a generalization model were not reported in the main study, given that group evaluations did not vary between the self-as-homosexual and self-as-heterosexual conditions.

When a generalization pattern was tested in supplemental analyses (see Appendix 3K.6), results were largely inconsistent with Study 1. Negative emotions predicted less empathy toward homosexuals, as expected, but negative attitudes toward the self predicted more empathy toward homosexuals and *less* negative attitudes toward homosexuals. Thus, the generalization pattern was supported only when examining expected rather than actual self-as-homosexual discovery. Upon actual homosexual discovery, negative self-attitudes were translated into positivity toward the outgroup (as discussed further below).

In Study 3, the overarching model presented in Figure 1.1a was also supported. It was predicted that this type of homosexuality discovery (i.e., discovery of a friendly interaction partner's homosexuality) would induce positive affective reactions and in turn evaluations, and that these effects would be stronger when homosexuality was discovered earlier (*vs.* later). Indeed, earlier (*vs.* later) homosexuality discovery predicted more positive affective reactions (bond with partner, itself predicted by positive contact experience), which in turn predicted more positive evaluations of the partner (see Figure 4.2). As in Study 2, evaluations of homosexuals were not included in the main study model, and tests of a generalization model were not reported, given that evaluations of homosexuals did not vary between the early and late discovery conditions.

Supplemental analyses, however (see Appendix 4Q.6), revealed support for a generalization pattern, such that positive attitudes toward the friend predicted positive attitudes toward homosexuals. This is consistent with Study 1. Notably, in support of the overarching model presented in Chapter 1 (see Figure 1.1a), the experimental manipulations in Studies 2 and 3 predicted affective reactions (with the Study 2 manipulation predicting more negative affect and the Study 3 manipulation predicting more positive affect). Moreover, across all investigations, affective reactions positively predicted evaluations (e.g., more negative [positive] evaluations predicted more negative [positive] evaluations)[14].

In addition to testing these models, in all investigations I examined whether any model paths were moderated by RWA, pre-existing attitudes toward homosexuals, or sex (see Appendix 3K.5 for Study 2 moderation tests). In Study 2, I also examined whether model paths differed as a function of scores on the SP-IAT (sexual preference implicit association test), and in Study 3 I tested openness to experience as an additional moderator. Sex did not moderate any model paths in Study 1, 2, or 3. The SP-IAT also did not moderate any model paths in Study 2, and openness to experience did not moderate any model paths in Study 3. That is, effects held across these individual differences. RWA moderated one path in the self-as-homosexual model in Study 1, and both RWA and pre-existing attitudes toward homosexuals moderated one model path

[14] An exception to this pattern was revealed in Study 3 supplemental analyses (see Appendix 4Q.6) whereby feelings of closeness with the partner counter-intuitively predicted less positive attitudes toward homosexuals. This negative association was present but non-significant at the zero-order level (see Table Q.2). It became significant upon inclusion in the model, suggesting that it may represent a statistical artifact or a sign of “inconsistent” mediation or suppression (see MacKinnon, Krull, & Lockswood, 2000).

each of Studies 2 and 3. Specifically, RWA moderated the path between negative emotions and expected change in feelings toward the self, such that the association between negative emotions and more negative expected changes in feelings toward the self was stronger for those higher (*vs*. lower) in RWA (in Study 1). In Study 2, the path between the manipulation and negative emotions was moderated by both RWA and pre-existing attitudes toward homosexuals, such that emotions were more negative to the extent that participants were higher (*vs*. lower) in RWA or pre-existing prejudice toward homosexuals. Finally, in Study 3 the path between bond with the partner and attitudes toward the partner was moderated by both RWA and pre-existing attitudes toward homosexuals, whereby the path magnitude was stronger for those higher (*vs*. lower) in RWA or pre-existing prejudice toward homosexuals.

Thus, it appears that those higher in RWA and those higher in pre-existing prejudice toward homosexuals are particularly sensitive to affective reactions (either emotions or partner bond) following homosexuality discoveries. In Studies 1 and 2 those more prone to prejudice toward homosexuals demonstrated a stronger relation between negative affect and negative evaluations, or a stronger negative affective reaction to the manipulation, respectively, representing negative and largely intuitive effects. That is, in terms of these associations, people more prone to prejudice toward homosexuals demonstrated more negative effects. Specifically, those more (*vs.* less) prone to prejudice toward homosexuals translate their negative affect into negative evaluations even more so (Study 1), and experience even more negative affect upon a self-as-homosexual discovery (Study 2). This suggests that efforts to minimize negative affective reactions to outgroup membership discoveries, especially among those especially prone to prejudice, would be beneficial. In Study 3 on the other hand, the positive impact of bond with the partner on attitudes toward the partner was even stronger (i.e., even more positive) for those higher in RWA or pre-existing prejudice toward homosexuals. Consistent with the effects of Studies 1 and 2, this suggests that less negative (and more positive) affect upon an outgroup membership discovery is ideal, especially among those prone to prejudice. Specifically, Study 3 demonstrates that inducing greater bonding with an outgroup member is especially beneficial to attitudes toward the outgroup member for prejudice-prone individuals.

Others have likewise found that increased bond with an outgroup member explains the positive effect of intergroup contact on reduced prejudice among those higher in RWA (see Hodson et al., 2009). Although proneness to prejudice toward homosexuals strengthened a negative effect in Studies 1 and 2, it strengthened a positive effect in Study 3, presenting interesting implications for prejudice reduction strategies. As elaborated below, future prejudice interventions targeted at those high in RWA anti-outgroup prejudice may benefit from actively minimizing discovery-based negative affective reactions and promoting positive affective reactions (especially bonding with an outgroup member). Of course, caution is advised when interpreting these moderation results, given that multiple interaction effects were tested in each study, which increases the probability of obtaining significant moderation by chance.

Hypothetical *vs*. Experimental findings

As noted above, consistencies and inconsistencies were observed between the hypothetical (Study 1) and experimental (Studies 2 & 3) studies. For self-as-homosexual discoveries, results between the hypothetical and experiential studies (i.e., Study 1 &

Study 2) were highly congruent in terms of affective reactions, evaluations of the individual, and evaluations of the group. In both studies, affective reactions and evaluations of the self were negative following a (hypothetical or experiential) self-homosexual discovery, but evaluations of the group were unaffected. Discrepancies were observed, however, between the models supported in Studies 1 and 2.

In Study 1, negative expected emotions predicted negative expected change in feelings toward the self and negative expected change in feelings toward homosexuals. In Study 2, however, negative emotions did not predict negative attitudes toward the self or homosexuals. Although in Study 2 attitudes toward homosexuals were not included in the tested model (given that attitudes did not differ as a function of the manipulation), several potential explanations exist for the lack of relationship between negative emotions and negative self-evaluations. In Study 2, a second proximal predictor of negative evaluations was included, fear of discrimination, to pit emotions and fear of discrimination against one another as potential explanations of negative evaluations. With fear of discrimination in the model, negative emotions did not significantly predict attitudes toward the self. This suggests that social concerns (i.e., fear of discrimination) impact negative evaluations of the self upon a self-as-homosexual discovery over and above personal concerns (i.e., negative emotions). Additionally, supplemental analyses (see Appendix 3K.6) revealed that negative emotions indeed exerted a negative intergroup effect in Study 2, predicting less empathy toward homosexuals.

It is possible that the positive association between negative emotions and negative self-evaluations observed in Study 1 is specific to expectations only, and that upon actual self-as-homosexual discovery as per Study 2, negative emotions simply do not predict actual attitudes toward the self. It is widely known that expected and actual psychological reactions do not necessarily correspond (Nisbett & Wilson, 1977; Wilson & Gilbert, 2005), and, importantly, participants in Studies 1 and 2 did not overlap. Further, different evaluation variables were assessed in Study 1 relative to Study 2 (i.e., assessment of expected change in feelings toward the self *vs.* thermometer measure of attitudes toward the self, respectively). Despite these discrepancies, the results of Studies 1 and 2 were quite similar.

For other-as-homosexual discoveries, results varied more considerably between the hypothetical and experimental studies (i.e., Study 1 & Study 3). This is not surprising, given that Study 1 examined hypothetical reactions to discovering a known friend's homosexuality, whereas Study 3 specifically examined reactions to an earlier (*vs.* later) discovery of an interaction partner's homosexuality. As such, Studies 1 and 3 are less comparable than Studies 1 and 2. One interesting way to compare Study 1 and Study 3, however, is to consider that in Study 1 the other-as-homosexual discovery was "late" by definition. That is, participants imagined learning of their friend's homosexuality *after* the friendship was already established. This corresponds to the later discovery condition of Study 3, where participants learned of their interaction partner's homosexuality after a closeness-inducing interaction (rather than earlier discovery, which occurred before any interaction had taken place).

When considered this way, Study 1 and 3 results correspond to some degree. For example, in Study 1, participants did not expect the other-as-homosexual discovery to impact their emotions, and in Study 3 emotions did not differ between the later and earlier discovery conditions. More interestingly, Study 1 participants expected feelings toward their friend to become more negative; in Study 3 those in the later (*vs.* earlier) discovery condition indeed evaluated their partner more negatively. Additionally, in Study 1 negative affective reactions predicted negative evaluations and in Study 3 later (*vs.* earlier) homosexuality discovery predicted more negative affective reactions (less bond with the partner, predicted by a less positive contact experience) which in turn predicted more negative evaluations of the partner. Contrastingly, however, Study 1 participants expected the discovery of their friend's homosexuality to make their feelings toward homosexuals more positive, whereas no impact of the manipulation on evaluations toward homosexuals was observed in Study 3. Although these similarities and differences are interesting to consider, Studies 1 and 3 ultimately examined different research questions, and of course, the caveats noted above with regard to self-as-homosexual discovery also apply. That is, expected and actual reactions do not always correspond (Nisbett & Wilson, 1977; Wilson & Gilbert, 2005), Study 1 and Study 3 participants represented different samples, and different evaluation (and affective reaction) variables were assessed in Studies 1 and 3.

Overall, hypothetical and actual reactions to self-as-homosexual discoveries were negative. Hypothetical reactions to other-as-homosexual discoveries on the other hand were mixed, with negative evaluations of the individual but positive evaluations of the group as a whole expected. Finally, actual reactions to other-as-homosexual discoveries were positive when the discovery was made earlier (*vs.* later) in the relationship.

Individual *vs.* Group evaluations

Four investigations of homosexuality discovery are reported in this dissertation: 1) hypothetical self-as-homosexual discovery, 2) hypothetical other-as-homosexual discovery, 3) actual self-as-homosexual discovery, and 4) actual other-as-homosexual discovery. An interesting pattern emerged across three of these four investigations (with hypothetical friend-as-homosexual investigation as the exception): homosexuality discoveries impacted evaluations of the *individual* (i.e., the self or friend/ potential friend), but not evaluations of the group as a whole. In Study 1, participants did not expect a self-as-homosexual discovery to change their feelings toward homosexuals. In Study 2, attitudes toward homosexuals did not differ between the self-as-homosexual and self-as-heterosexual conditions. In Study 3, attitudes toward homosexuals did not differ between the earlier and later other-as-homosexual discovery conditions. Thus, in terms of evaluations, the effects of homosexuality discoveries are, for the most part, "individuated." Homosexuality discoveries consistently impact evaluations of the homosexual individual, without consistent costs or benefits at the intergroup level. Despite this lack of direct effects, variables *impacted by* homosexuality discovery nonetheless consistently produced downstream effects on intergroup variables.

Of course, as noted in above, the previous literature suggests that homosexuality discoveries could directly impact group evaluations, but this potential was not borne out. It may be that self-as-homosexual discoveries indeed do not impact group evaluations, but that other-as-homosexual discoveries *do* (as expected by Study 1 participants), although only when compared to other-as-heterosexual discoveries. In my experimental investigation of other-as-homosexual discovery this comparison was not examined, in favour of examining timing of discovery. I speculate that this is the case, especially when a bond is formed with the individual whose homosexuality is discovered, consistent with research on intergroup contact and intergroup friendship (e.g., Davies, Tropp, Aron, Pettigrew & Wright, 2011; Pettigrew, 1998; Wright et al., 2005).

Indeed, evaluations of the individual were positively linked with evaluations of the group in Study 3, supporting a generalization pattern (see Appendix 4Q.6), and this association was equivalent across the earlier and later discovery conditions. Thus, upon an other-as-homosexual discovery, individuals generalized (both expected [Study 1] and actual [Study 2]) evaluations of the homosexual individual to the group as a whole. It is likely therefore that discovering another's homosexuality (*vs.* heterosexuality) would impact attitudes toward homosexuals (through evaluations of the homosexual individual). Additional methodological changes might also produce direct effects on evaluations of homosexuals, such as deeper disclosure during the interaction (e.g., disclosure relevant to sexual orientation), or multiple measures of attitudes at different time points (i.e., a longitudinal study). Future research can assess these possibilities.

As for self-as-homosexual discoveries, upon such a sudden and very personal discovery, one may become heavily focused on the self, and evaluations of the individual may therefore fail to generalize to evaluations of the group. Indeed, supplemental analyses (see Appendix 3K.6) revealed that Study 2 participants' negative attitudes toward the self were contrastingly associated with more positivity toward homosexuals. This suggests that participants experienced a first-hand glimpse into stigmatized outgroup life (i.e., fearing discrimination, feeling negatively toward the self [consistent with experiences described by Herek et al., 1997]). As such, participants did not generalize negative self-attitudes to the group as a whole, but instead translated this negativity into increased understanding of and positivity toward the group (i.e., increased empathy and positive attitudes toward homosexuals). Future research can further explore this pattern. Regardless, in terms of evaluations directly impacted by homosexuality discoveries, the results of the current research almost exclusively pertained to individual rather than intergroup evaluations.

Additional Considerations and Reflections

Overall, the current work demonstrates that self-as-homosexual discoveries exert negative outcomes, yet that other-as-homosexual discoveries can exert positive outcomes, especially when the discovery occurs earlier rather than later. Homosexuals represent a highly stigmatized group (Herek, 2009), and the current results can be considered in terms of concerns about concealing stigmatized group membership. When an individual conceals stigmatized group membership, the individual may experience a variety of negative outcomes (e.g., see Pachankis, 2007). For example, concealing (*vs.* not concealing) an eating disorder can lead to increased intrusive thoughts (Smart & Wegner, 1999), and concealing having had an abortion can lead to psychological distress (Major & Gramzow, 1999). In an example particularly relevant to the current work, women instructed to conceal (*vs.* reveal) a role-played lesbian identity demonstrated more paranoid thoughts and negative metaperceptions about how they were viewed by an interaction partner (Santuzzi & Ruscher, 2002). Concealing stigmas as per these examples can lead to an especially salient distinction between one's "public self" and one's "private self." It may be this compartmentalization of the self that induces negative outcomes. Indeed, a heightened distinction between one's public and private selves has been associated with social stress and depressive symptoms (Sedlovskaya et al., 2013).

In addition to these negative self-outcomes, concealing a stigmatized group membership can also generate negative outcomes for others. For example, an individual concealing a stigma may avoid interacting with others, or interactions may become awkward (see Pachankis, 2007), representing negative consequences for both the stigmatized individual and the non-stigmatized others. Further, as noted in Chapter 4, those learning of an interaction partner's homosexuality after (*vs.* before) a cognitive or sensory-motor task (i.e., those who had their partner's sexual orientation concealed from them) demonstrated poorer task performance (Everly, Shih, & Ho, 2012). Thus, a concealed stigmatized group membership can negatively impact both the concealer as well as those from which the group membership is concealed.

Relating to the current work, upon self-as-homosexual discovery, concerns about the prospect of concealing this stigmatized identity may have induced negative outcomes (e.g., negative affective reactions; negative self-evaluations). That is, these results may demonstrate yet additional negative consequences of (the prospect of) concealing a stigmatized group membership. Similarly, when participants experienced the other-as-homosexual discovery after (*vs.* before) a closeness-inducing interaction (i.e., later relative to earlier), they may have felt that this stigmatized identity was initially concealed from them. Concerns about having this stigma concealed may have induced more negative outcomes (e.g., less bonding with the partner), again demonstrating negative implications of concealing a stigmatized group membership. Future research can examine whether concerns related to concealing stigma indeed play a role in reactions to homosexuality discoveries. Regardless, work on concealing stigma is highly relevant to the current research.

The current research also relates to self-expansion theory, whereby people are purported to be motivated to expand the self to include resources, identities, and perspectives that will enhance their self-efficacy and personal value (Aron, Norman, & Aron, 1998). One means by which to do this is to include other people into the self. The inclusion of another person in the self can provide resources, identities, and/or perspectives that facilitate self-efficacy. This theory has been extended to the intergroup domain, such that including certain groups or group members in the self can represent a means of self-expansion (Wright, Aron, & Tropp, 2002). Indeed, research has demonstrated that group memberships can and do become integrated into the self (see Smith & Henry, 1996). By including an outgroup member or a new group membership into the self, one acquires divergent resources and perspectives that they do not normally have access to, allowing for substantial self-expansion. Relating to the current work, self-as-homosexual discovery is relevant to including an outgroup in the self, and other-as-homosexual discovery is relevant to including an outgroup member in the self.

On the surface, including a new group into the self through self-as-homosexual discovery could represent a positive experience, providing ample self-expansion opportunity by adding a new identity, new experiences, and new resources. Self-expansion, however, often goes hand in hand with self-loss (see Wright et al., 2005). Because homosexuals represent a low-status and stigmatized group relative to heterosexuals, integration of this group into the self would also result in substantial self-loss (e.g., the loss of previous [heterosexual] identity, the potential loss of relationships, and/or the potential experience of discrimination). Thus, at the prospect of integrating this group into the self, self-expansion benefits would likely be weighed against self-losses (see Wright et al., 2005). The current results suggest that participants focused heavily on these self-losses, demonstrating negative affective/ social reactions and negative self-evaluations upon a self-as-homosexual discovery. Other-as-homosexual discoveries, on the other hand, involve the potential to integrate a homosexual group *member* (rather than homosexuals as a group) into the self. In this case, self-expansion benefits could outweigh self-losses. Integrating a homosexual individual into the self through other-as-homosexual discovery, relative to integrating homosexuals as a group into the self through self-as-homosexual discovery, is a less threatening process and presumably involves less self-loss. As such, individuals may be more open to and less negative toward an other-as-homosexual as compared to a self-as-homosexual discovery. Although reactions to self- and other-homosexual discovery were not directly compared in the current work (aside from in Study 1), results are consistent with this premise. Outcomes for self-as-homosexual discovery were exclusively negative, whereas results were at least somewhat positive for other-as-homosexual discovery, with inclusion of a homosexual other into the self occurring to the greatest extent when the individual's homosexuality was discovered earlier (*vs.* later). Future research can examine the self-expansion and self-loss opportunities of homosexuality discoveries directly.

Limitations and Future Directions

The current investigation of outgroup membership discoveries represents an interesting contribution to the social psychological literature. However, like all investigations, this dissertation was limited in several respects. First, it is unknown whether the results of this work can be generalized to outgroup membership discoveries overall. I focused on discoveries of homosexuality, but other group memberships (e.g., ethnic group membership, religious group membership) and even other types of sexual orientation group memberships (e.g., asexuality) are similarly discoverable. Examinations of other outgroup membership discoveries would represent an interesting direction for future research. Second, I focused on immediate reactions to homosexuality discoveries. Future research would benefit from investigating whether reactions to homosexuality discoveries change over time. A longitudinal study of outgroup membership discovery would be ideal. It is possible that negative reactions to self-as-homosexual discovery may attenuate over time (e.g., after time to adjust to the discovery) and/or that negative reactions to a later (*vs.* earlier) discovery of other-homosexuality may also become less negative with time (e.g., time to consider the homosexual individual's perspective and reasons for delaying disclosure). Additionally, although the experimental studies allowed for tight experimental control, an examination of people's reactions to real-life discoveries of outgroup membership would represent an interesting extension of the research. Finally, like many psychology studies, the current research examined university students, who are relatively more liberal than non-students (Henry, 2008), and may therefore demonstrate relatively more positive reactions to homosexuality discoveries. On the other hand however, heterosexual university students have been shown to evaluate homosexuals more negatively than a community sample (MacInnis & Hodson, 2012). Regardless, it would be interesting to examine outgroup membership discovery in community samples and in the workplace.

Another avenue for future research would be to examine *why* self-as-homosexual discoveries induce (and are expected to induce) such strong negative affective/ social reactions (e.g., see effect sizes for negative emotions and fear of discrimination in Table

3.1). Recent research has determined that people with concealable stigmas often do not reveal their stigmas in public settings, which can have negative implications for the self (Sedlovskaya et al., 2013). Potentially, upon considering hypothetical membership (Study 1) or being placed (Study 2) in a highly stigmatized group, participants expected (Study 1) or experienced (Study 2) concerns about concealing this stigma, creating a wider distinction between their public and private selves. This distinction may have induced negative affect and social concerns (consistent with Sedlovskaya et al., 2013). Examining this distinction represents one of many interesting avenues for future research.

Implications

This dissertation has both practical implications and implications for the field of social psychology. In terms of the practical, the solely negative outcomes of self-as-homosexual discoveries (in Studies 1 & 2) suggest that caution is necessary when seeking self-relevant information that could potentially reveal outgroup membership. With the popularity of ancestry websites and internet self-tests on the rise, self-outgroup membership discoveries are becoming ever more easy and accessible. Although it is less likely that homosexuality would be discovered in this manner, it is possible (pending future research) that negative effects similar to those observed for self-as-homosexual discovery may occur upon discovering another type of self-outgroup membership. Despite seeming like a benign or even enjoyable activity, seeking self-relevant information could “backfire” creating negative affective/ social reactions and negative evaluations of the self. Another practical implication concerns revealing outgroup membership to others. Study 3 showed that bond with and evaluations of the homosexual partner were more positive when outgroup membership was revealed earlier in the relationship. This may have practical value for individuals considering revealing their homosexuality (or potentially, other outgroup memberships) to others.

The research reported in this dissertation also has implications for the field of social psychology, specifically, for literature on improving attitudes toward individuals and groups. First, as discussed in Chapter 3, the results of Study 2 add to evidence (e.g., Vorauer & Sasaki, 2009) suggesting that very concrete simulations of outgroup experiences do not improve intergroup attitudes, and actually exert negative effects on the self. “Becoming” an outgroup member by making a self-as-homosexual discovery and related concrete simulations intended to reduce prejudice are not necessarily beneficial and would be best avoided. The results of Study 3 have implications for the stimulation of positive attitudes toward individuals, demonstrating that when attempting to induce positive attitudes toward an outgroup member, revealing outgroup membership upfront (*vs.* later) will result in more positive attitudes. Additionally, although timing of disclosure did not impact intergroup attitudes, prejudice interventions might benefit from employing early disclosure of outgroup membership. The more positive attitudes toward the individual outgroup member produced by earlier (*vs.* later) outgroup membership discovery could in turn be generalized to the group as a whole (e.g., see Brown & Hewstone, 2005; Pettigrew, 1998), having positive intergroup effects. Future longitudinal studies might test this possibility.

In one final implication for prejudice reduction strategies, in Study 3 it was observed that the relation between bond with partner and positive attitudes toward partner was stronger for those higher (*vs*. lower) in RWA or pre-existing prejudice toward homosexuals. That is, bond with an outgroup member was translated into more positive attitudes toward the outgroup member even more strongly for prejudice-prone people than non-prejudice-prone people. It is beneficial to intergroup relations for prejudice reduction strategies (e.g., intergroup contact) to induce more positive outgroup attitudes among those especially prone to prejudice (see Hodson, Costello, & MacInnis, 2013). It would be advantageous, therefore, for future prejudice interventions to focus on the promotion of strong bonds between ingroup and outgroup members.

Conclusion

The present investigation provided valuable insight into how people expect to and actually react upon outgroup membership discoveries, specifically, discoveries of homosexuality. Overall, both hypothetical and actual *self*-as-homosexual discoveries produced negative outcomes, meaning that interventions based on this procedure ought to be avoided. Hypothetical other-as-homosexual discovery resulted in a mix of both negative and positive evaluative expectations, and actual other-as-homosexual discovery resulted in positive outcomes when homosexuality was discovered earlier relative to later. Although evaluations of the group as a whole were largely unaffected by the experimental manipulations, evaluations of the individual were consistently impacted across all studies. Clearly, homosexuality discoveries impact evaluations of the homosexual individual, having implications for both real-life outgroup membership discoveries and social psychological research.

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APPENDIX 2A: Study 1 ethics approval

DATE: February 19, 2009

FROM: Michelle McGinn, Chair Research Ethics Board (REB)

TO: Dr. Gordon HODSON, Psychology

Cara MacInnis

FILE: 08-215 HODSON/MACINNIS

Masters Thesis/Project

TITLE: Personality and Reactions to Group memberships

The Brock University Research Ethics Board has reviewed the above research proposal.

DECISION: ACCEPTED AS CLARIFIED

This project has received ethics clearance for the period of **February 19, 2009 to April 30, 2010** subject to full REB ratification at the Research Ethics Board's next scheduled meeting. The clearance period may be extended upon request. ***The study may now proceed.***

Please note that the Research Ethics Board (REB) requires that you adhere to the protocol as last reviewed and cleared by the REB. During the course of research no deviations from, or changes to, the protocol, recruitment, or consent form may be initiated without prior written clearance from the REB. The Board must provide clearance for any modifications before they can be implemented. If you wish to modify your research project, please refer to http://www.brocku.ca/researchservices/formsto complete the appropriate form Revision or Modification to an Ongoing Application.

Adverse or unexpected events must be reported to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants and the continuation of the protocol.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research protocols.

The Tri-Council Policy Statement requires that ongoing research be monitored. A Final Report is required for all projects upon completion of the project. Researchers with projects lasting more than one year are required to submit a Continuing Review Report annually. The Office of Research Services will contact you when this form *Continuing Review/FinalReport* is required.

Please quote your REB file number on all future correspondence.

MM/an

APPENDIX 2B: Study 1 consent form

Project Title: Personality and Reactions to Group memberships

Principal Investigator: Dr. Gordon Hodson, Brock University Associate Professor ghodson@brocku.ca; 905-688-5550 ext. 5127; Co-Investigator: Cara MacInnis, cm07jh@brocku.ca

- I understand that this study involves research, and that I am being invited to participate
- I understand that the purpose of this study is to examine attitudes, personality, and reactions toward information about group memberships (e.g., racial, social, economic groups).
- I understand that the expected duration of my participation in this study is approximately 50 minutes.
- I understand the procedures to be followed, which include reading and signing two copies of this consent form; 1 of which I will keep for my own records. Once I have signed the consent form I will be asked to complete a questionnaire package on a computer. Afterwards the researcher will provide me with a debriefing form explaining the general study purpose.
- I understand that this study can count as research participation in a psychology course. As a participant I will also gain experience concerning how research in social psychology is conducted.
- All information provided is anonymous; my name will not be included or, in any other way, associated with the data collected in the study. Furthermore, because the interest is in the average responses of the entire group of participants, I will not be identified individually in any way in written reports of this research
- I understand that only the Principal Investigator (Dr. Hodson) and the research assistant(s) collecting the data will have access to my data, and that all information will be stored securely in password protected computer files. Given the intentions of publishing the results, data will be kept until approximately 5-7 years from date, after which all data will be destroyed.
- I understand that any other person participating in this study in the same session as I am holds the same right to privacy as I do. Therefore I will ensure that I do not reveal to anyone the identity of others present during this session.
- I understand that the results of this study may be published in professional journals and presented at conferences. Feedback about this study will be available approximately 6 months from date.
- I understand that there is a risk that I may experience mild emotional distress during the study
- I understand that participation is voluntary; refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled and I may discontinue participation at any time; I understand that my data cannot be withdrawn after submission, but it remains anonymous. If I withdraw, I can still receive payment or course participation. Thus, I may withdraw at any point during the study, but once I have completed the study, my data cannot be withdrawn due its anonymous nature.
- I understand that some questions may make me feel uncomfortable and if I wish, I may decline to answer any questions or participate in any component of the study.

If you have any questions about this study or require further information, please contact the Principal Investigator using the contact information provided above. If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at (905) 688-5550 Ext. 3035, reb@brocku.ca.

This study has been reviewed and received ethics clearance through Brock University's Research Ethics Board (file # 08-215**)**

I ______________________________ (please print)

1. Have read and understood the relevant information regarding this research project
2. Understand that I may ask questions in the future
3. Indicate free consent to research participation by signing this research consent form

Participant's Signature: _________________ Date: _______________

Researcher's Signature: ________________ Date: ______________

Below complete EITHER Form A or Form B (in recognition that you will receive payment OR course participation).

FORM A. I am participating in this experiment for $5. This experiment will not count toward research participation hours in a psychology course.

________________________ ___________________________

Signature of participant Signature of experimenter

FORM B. I am participating in this experiment for research participation in a psychology course and will not receive monetary payment for this experiment.

________________________ ____________ ___________________________

Signature of participant course for participation Signature of experimenter

If you would like a copy of the results for this study (approximately 6 months from date) and/or would like to be informed of any publication of the results, please provide your email address below.

____

Please keep a copy of the consent form for your own record

APPENDIX 2C: Study 1 debriefing form

Project Title: Personality and Reactions to Group memberships

Principle Investigator: Dr. Gordon Hodson, Brock University Associate Professor
ghodson@brocku.ca; 905-688-5550ext.5127Co-Investigator: CaraMacInnis cm07jh@brocku.ca

The purpose of this research is to examine how people believe they would react to learning they either they personally or a close other belonged to a surprise group. For instance, how would you feel to discover that you have ancestors from Group X when you currently believe you belong to Group Y only. This is a pilot study, meaning that we are interested in designing a later study that will actually determine how people react to such information. We are also interested in examining the relationships among these reactions and a variety of other variables. In particular, we are interested in relations with ideological variables (e.g., authoritarianism), anxiety measures (e.g., intergroup anxiety; disgust sensitivity), attitudes toward a variety of social groups. There is little research regarding anticipated reactions to group memberships, and this study, along with future work, is likely to allow us to understand, why, when, and for whom discoveries regarding group memberships are positive, neutral, or negative.

It is important to remember that there is a range in beliefs and a variety of ways of viewing the world. For example, people have different political ideologies, or different religious beliefs. And all viewpoints deserve consideration and respect. Further, people fall on a continuum with regard to their feelings about outgroups and there is a wide range of feelings people can have toward outgroups. Where you fall on this range does not necessarily make you a good or bad person.

Because anonymity is very important to this study, we ask that you please do **not** discuss any part of this study with your friends, peers, or classmates who are likely to take part in the study. The study will be compromised if you discuss its procedures with potential participants. In psychological research, it is often very important that participants are unaware of the procedures and hypotheses of a study before they participate in it. We hope you have learned something about psychological research processes by taking part in this study. However, if you wish to discuss the study with people who have already participated in the study, or people who never will participate (e.g., parents, friends who do not attend Brock), that is acceptable.

If any part of the study has made you feel especially uncomfortable and you wish to seek help in dealing with your feelings, please note that the Student Development Center at Brock offers personal counselling services to students free of charge for any personal/ social concerns or difficulties students may have. To make an appointment with a counsellor, phone 905-684-6891. If you feel stressed for any reason following this study, please take advantage of the following useful websites:
http://www.stresslesscountry.com/; http://www.webmd.com/balance/stress-management/default.htm

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the Research Ethics Officer at Brock University at 905-688-5550, extension 3035. This project has been reviewed and received ethics clearance through the Office of Research Ethics Board, Brock University (File # 08-215).

Thank you for your time and support in participating in this study!

Dr. Hodson

If you have any questions or concerns please feel free to contact any of the researchers (see above).

APPENDIX 2D: Study 1 self-as-homosexual hypothetical situation measures

We are interested in your reactions to the following scenario regarding receiving information about YOURSELF.

You discover, based on genetic testing, that you have HOMOSEXUAL tendencies.

1. Expected emotions

	Not at all								Very much
(a.) How surprising would this information be?	1	2	3	4	5	6	7	8	9
(b.) How upsetting would this information be?	1	2	3	4	5	6	7	8	9
(c.) How exciting would this information be?	1	2	3	4	5	6	7	8	9
(d.) How anxiety provoking would this information be?	1	2	3	4	5	6	7	8	9
(e.) How worrisome would this information be?	1	2	3	4	5	6	7	8	9
(f.) How happy would this information make you?	1	2	3	4	5	6	7	8	9

2. *Expected change in feelings toward the self*

To what extent would you expect this to change your feelings toward yourself?
My feelings would:

1	2	3	4	5	6	7	8	9
Become very negative				Not change				Become very positive

3. *Expected change in feelings toward homosexuals*

To what extent would you expect this to change your feelings toward HOMOSEXUALS?
My feelings would:

1	2	3	4	5	6	7	8	9
Become very negative				Not change				Become very positive

APPENDIX 2E: Study 1 friend-as-homosexual hypothetical situation measures

We are interested in your reactions to the following scenario regarding receiving information ABOUT A FRIEND. *For all of the following questions, imagine a good FRIEND*

You discover YOUR FRIEND is HOMOSEXUAL (when you previously thought he/she was heterosexual)

1. Expected emotions

	Not at all								Very much
(a.) How surprising would this information be?	1	2	3	4	5	6	7	8	9
(b.) How upsetting would this information be?	1	2	3	4	5	6	7	8	9
(c.) How exciting would this information be?	1	2	3	4	5	6	7	8	9
(d.) How anxiety provoking would this information be?	1	2	3	4	5	6	7	8	9
(e.) How worrisome would this information be?	1	2	3	4	5	6	7	8	9
(f.) How happy would this information make you?	1	2	3	4	5	6	7	8	9

2. *Expected change in feelings toward the friend*
To what extent would you expect this to change your feelings toward your friend?
My feelings would:

1	2	3	4	5	6	7	8	9
Become very negative				Not change				Become very positive

3. *Expected change in feelings toward homosexuals*
To what extent would you expect this to change your feelings toward HOMOSEXUALS?
My feelings would:

1	2	3	4	5	6	7	8	9
Become very negative				Not change				Become very positive

APPENDIX 2F: Study 1 RWA scale

Please circle your response, using the scale below.

1	2	3	4	5	6	7
Strongly Disagree	**Moderately Disagree**	**Slightly Disagree**	**Neither Disagree Nor Agree**	**Slightly Agree**	**Moderately Agree**	**Strongly Agree**

1. Gays and lesbians are just as healthy and moral as anybody else.
1 2 3 4 5 6 7

2. Atheists and others who have rebelled against the established religions are no doubt every bit as good and virtuous as those who attend church regularly.
1 2 3 4 5 6 7

3. There are many radical, immoral people in our country today who are trying to ruin it for their godless purposes, whom the authorities should put out of action.
1 2 3 4 5 6 7

4. Our country will be destroyed someday if we do not smash the perversions eating away at our moral fibre and traditional beliefs.
1 2 3 4 5 6 7

5. The situation in our country is getting so serious, the strongest methods would be justified if they eliminated the troublemakers and got us back to our true path.
1 2 3 4 5 6 7

6. Everyone should have their own lifestyle, religious beliefs, and sexual preferences, even if it makes them different from everyone else.
1 2 3 4 5 6 7

7. People should pay less attention to the Bible and the other old traditional forms of religious guidance, and instead develop their own personal standards of what is moral and immoral.
1 2 3 4 5 6 7

8. The only way our country can get through the crisis ahead is to get back to our traditional values, put some tough leaders in power, and silence the troublemakers spreading bad ideas.
1 2 3 4 5 6 7

9. There is nothing wrong with premarital sexual intercourse.
1 2 3 4 5 6 7

10. What our country *really* needs, instead of more “civil rights” is a good, stiff dose of law and order.
1 2 3 4 5 6 7

11. Some of the best people in our country are those who are challenging our government, criticizing religion, and ignoring the “normal way” things are supposed to be done.
1 2 3 4 5 6 7

12. The facts on crime, sexual immorality, and the recent public disorders all show that we have to crack down harder on deviant groups and trouble-makers if we are going to save our moral standards and preserve law and order.
1 2 3 4 5 6 7

APPENDIX 2G: Study 1 Attitudes toward homosexuals scale

Please circle your response, using the scale below.

1 Strongly Disagree	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9 Strongly Agree**

1. Homosexuals just can't fit into our society

1 2 3 4 5 6 7 8 9

2. State laws regulating private, consenting homosexual behaviour should be loosened.

1 2 3 4 5 6 7 8 9

3. Homosexuality is a sin.

1 2 3 4 5 6 7 8 9

4. Homosexuality in itself is no problem, but what society makes of it can be a problem.

1 2 3 4 5 6 7 8 9

5. Homosexuals are sick.

1 2 3 4 5 6 7 8 9

6. I think homosexuals are disgusting.

1 2 3 4 5 6 7 8 9

7. Homosexuality is a perversion

1 2 3 4 5 6 7 8 9

8. Just as in other species, homosexuality is a natural expression of sexuality in humans.

1 2 3 4 5 6 7 8 9

9. Homosexual behaviour between two same sex individuals is just plain wrong.

1 2 3 4 5 6 7 8 9

10. Homosexuality is merely a different kind of lifestyle that should not be condemned.

1 2 3 4 5 6 7 8 9

APPENDIX 3A: Study 2 ethics approval

DATE: 12/7/2010
PRINCIPAL INVESTIGATOR: HODSON, Gordon - Psychology
FILE: 10-095 - HODSON
TYPE: Ph. D.
STUDENT: Cara MacInnis
SUPERVISOR: Gordon Hodson
TITLE: Sexual attraction and attitudes

ETHICS CLEARANCE GRANTED

Type of Clearance: NEW
Expiry Date: 12/31/2011

The Brock University Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri- Council Policy Statement. Clearance granted from **12/7/2010 to 12/31/2011**.

The Tri-Council Policy Statement requires that ongoing research be monitored by, at a minimum, an annual report. Should your project extend beyond the expiry date, you are required to submit a Renewal form before **12/31/2011**. Continued clearance is contingent on timely submission of reports.

To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics web page.
In addition, throughout your research, you must report promptly to the REB:
a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study; b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants; c) New information that may adversely affect the safety of the participants or the conduct of the study; d) Any changes in your source of funding or new funding to a previously unfunded project.

We wish you success with your research.
Approved:

Michelle McGinn, Chair
Research Ethics Board (REB)

APPENDIX 3B: Study 2 consent form

Project Title: Sexual Attraction and Attitudes
Principal Investigator: Dr. Gordon Hodson, Brock University Associate Professor ghodson@brocku.ca; 905-688-5550ext. 5127; Co-Investigator: Cara MacInnis, cm07jh@brocku.ca

- I understand that this study involves research, and that I am being invited to participate
- I understand that the purpose of this study is to examine sexual attraction, personality, feelings, and attitudes toward other groups (e.g., sexual orientation, social, economic groups).
- I understand that I will be exposed to images containing nudity that may be considered "erotic"
- I understand that I will be asked about my sexual behaviour
- I understand that the expected duration of my participation in this study is approximately 50 minutes.
- I understand the procedures to be followed, which include reading and signing two copies of this consent form; 1 of which I will keep for my own records. Once I have signed the consent form I will be asked to complete a questionnaire package on a computer. Afterwards the researcher will provide me with a debriefing form explaining the general study purpose.
- I understand that this study can count as research participation in a psychology course. As a participant I will also gain experience concerning how research in social psychology is conducted.
- All information provided is anonymous; my name will not be included or, in any other way, associated with the data collected in the study. Furthermore, because the interest is in the average responses of the entire group of participants, I will not be identified individually in any way in written reports of this research
- I understand that only the Principal Investigator (Dr. Hodson), PhD student (Cara MacInnis) and the research assistant(s) collecting the data will have access to my data, and that all information will be stored securely in password protected computer files. Given the intentions of publishing the results, data will be kept until approximately 5-7 years from date, after which all data will be destroyed.
- I understand that any other person participating in this study in the same session as I am holds the same right to privacy as I do. Therefore I will ensure that I do not reveal to anyone the identity of others present during this session.
- I understand that the results of this study may be published in professional journals and presented at conferences. Feedback about this study will be available approximately 6 months from date.
- I understand that there is a risk that I may experience emotional distress during the study
- I understand that participation is voluntary; refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled and I may discontinue participation at any time; I understand that my data cannot be withdrawn after submission, but it remains anonymous. If I withdraw, I can still receive payment or

course participation. Thus, I may withdraw at any point during the study, but once I have completed the study, my data cannot be withdrawn due its anonymous nature.

- I understand that some questions may make me feel uncomfortable and if I wish, I may decline to answer any questions or participate in any component of the study.

If you have any questions about this study or require further information, please contact the Principal Investigator using the contact information provided above. If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at (905) 688-5550 Ext. 3035, reb@brocku.ca.

This study has been reviewed and received ethics clearance through Brock University's Research Ethics Board (file # 10-095)

I ______________________________ (please print)

1. Have read and understood the relevant information regarding this research project
2. Understand that I may ask questions in the future
3. Indicate free consent to research participation by signing this research consent form

Participant's Signature: ________________________________ Date: ________

Researcher's Signature: ________________________________ Date: ________

Below complete EITHER Form A or Form B (in recognition that you will receive payment OR course participation).

FORM A. I am participating in this experiment for $5. This experiment will <u>not count</u> toward research participation hours in a psychology course.

________________________ ________________________

Signature of participant Signature of experimenter

FORM B. I am participating in this experiment for research participation in a psychology course and will <u>not receive monetary payment</u> for this experiment.

________________________ ____________ ________________________

Signature of participant course for participation Signature of experimenter

If you would like a copy of the results for this study (approximately 6 months from date) and/or would like to be informed of any publication of the results, please provide your email address below.

____

Please keep a copy of the consent form for your own record

APPENDIX 3C: Study 2 debriefing form

Project Title: Sexual Attraction and Attitudes
Principal Investigator: Dr. Gordon Hodson, Brock University Associate Professor ghodson@brocku.ca; 905-688-5550ext. 5127; Co-Investigator: Cara MacInnis, cm07jh@brocku.ca

The purpose of this research is to examine the following research questions: 1. How do people react to learning of their potential sexual preferences? 2. Do reactions to potential homosexuality influence attitudes toward the self? 3. Do reactions to potential homosexuality influence attitudes toward homosexuals? 4. Do certain people (e.g., those higher in authoritarianism) react more negatively to this information? This research is important as it will help us understand the effects of discovering one's sexual orientation, and especially how this discovery impacts attitudes toward the self and others. We are interested in whether attitudes differ based on individual differences such as authoritarianism.

Some participants received feedback about personal homosexuality, while others received feedback about personal heterosexuality. Though the primary interest of the study is reactions to personal homosexuality, data from participants receiving information about heterosexuality will be very important to us. It will allow us to have comparison groups.

A major interest in the study is attitudes towards sexual orientation ingroups (i.e., own group) and outgroups (i.e., other groups). It is important to remember that people fall on a continuum with regard to their feelings about outgroups and there is a wide range of feelings people can have toward outgroups. Where you fall on this range does not necessarily make you a good or bad person.

In the study you were told that the results of your preliminary data were analyzed, when in reality, they were not. Likewise, you should COMPLETELY DISREGARD THE FEEDBACK WE GAVE YOU; you received RANDOMLY ASSIGNED information that was NOT linked to your responses. We have no way of matching your identity with your data so we will never know your actual personal sexual preferences as a function of your name. We will be able to analyze your scores on the implicit (subtle) measure of sexual preference, BUT we have not done so yet, and we will not do this until the study has been completed. Even when we do analyze those responses, there is no way for us to match individual test results to individual participant names. The study is therefore completely anonymous. Moreover, we are interested in the average responses of the entire group, not specific individuals. We hope you understand that it was necessary to misinform participants at some points during the study to allow for natural reactions to a very important research question. This research program is particularly novel and very important to the field of social psychology. We thank you so much for being a part of it. It was deemed necessary to give you this fictitious information so we could study some very important research questions.

In the study you viewed nude photographs of men and women. Please note that the images you viewed (and the sexual material available in Canadian society) might be best described as "fantasy" material. Thus, they should not be viewed as reflecting the real or typical state of affairs. For example, some explicit sexual materials often portray women (and some men) as insatiable "playthings" ready and eager to serve any of the sexual interests of their many partners. However, as most people recognize, these portrayals typically do not reflect reality and should not be viewed as real. Further, it is important to note that some level of arousal to all sexual imagery, whether images of the same or opposite sex, is completely normal and commonly experienced.

Because anonymity is very important to this study, we ask that you please DO **NOT** DISCUSS any part of this study with your friends, peers, or classmates who are likely to take part in the study. The study will be compromised if you discuss its procedures with potential participants. In psychological research, it is often very important that participants are unaware of the procedures and hypotheses of a study before they participate in it. We hope you have learned something about psychological research processes by taking part in this study. However, if you wish to discuss the study with people who have already participated in the study, or people who never will participate (e.g., parents, friends who do not attend Brock), that is acceptable.

We hope you will learn something about intergroup relations from participating in this research. For further reading on the topics studied by this research, please see the bottom of this page.

If any part of the study has made you feel especially uncomfortable and you wish to seek help in dealing with your feelings, please note that the Student Development Center at Brock offers personal counselling services to students free of charge for any personal/ social concerns or difficulties students may have. To make an appointment with a counsellor, phone 905-688-5550, extension 4750. If you feel stressed for any reason following this study, please take advantage of the following useful websites: http://www.stresslesscountry.com/, http://www.webmd.com/balance/stress-management/default.htm

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the Research Ethics Officer at Brock University at 905-688-5550, extension 3035. This project has been reviewed and received ethics clearance through the Office of Research Ethics Board, Brock University (File # 10-095).

Thank you for your time and support in participating in this study! If you have any questions or concerns please feel free to contact any of the researchers (see above). Dr. Hodson

Further Resources

Related reading:

Herek, G. M., & Capitanio, J. P. (1996). “Some of my best friends”: Intergroup contact, concealable stigma, and heterosexuals’ attitudes toward gay men and lesbians. *Personality and Social Psychology Bulletin, 22*, 412-424.

Document regarding sexual orientation/ sexual identity questions:

http://www.pflagcanada.ca/pdfs/questioning.pdf

To learn more about sexual orientations and identities:

http://www.brocku.ca/human-rights/positive-space

APPENDIX 3D: Study 2 verbal debriefing script

Thank you for participating in the study. I want to let you know a few things about the study you just completed.

First of all, you were told that the results of your preliminary data were analyzed. In reality, responses have not yet been coded, and we currently have no way of knowing anyone's sexual preference. Eventually, when the study is completed and we analyze the data, we will be able to determine participant sexual preferences. BUT, we do not have this information at this time. Furthermore, even when we do have it, we will have no means to match this information with specific participant names; all data is truly anonymous. Therefore we have no way of knowing if the information concerning your sexuality was true. Rather, the feedback was randomly given to participants, and was NOT connected to their actual responses. We needed to give some participants potentially false information due to some very pressing research questions regarding emerging sexual orientation. There is a great need for research where participants are given this type of information, and because we were able to do this; this study is likely to be highly influential. Therefore, we thank you for your participation.

In the study, you viewed nude pictures of men and women. It is important to note that some level of sexual arousal typically occurs toward all sexual images, even sexual images of a non-preferred sexual partner. Thus, this arousal does not necessarily mean that a heterosexual person is gay or lesbian, or that a gay or lesbian person is heterosexual. Experienced arousal to any of the pictures we showed you is not cause for concern and is completely normal.

This study was about group differences. We are interested in people's perceptions of ingroups (the group that one belongs to) and outgroups (a group one does not belong to). For example, we could have compared perceptions of women and men, old and young, etc. In this case, we were interested in sexual orientation ingroups and outgroups. It is important to remember that people fall on a continuum with regard to their feelings about outgroups and there is a wide range of feelings people can have toward outgroups. Where you fall on this range does not necessarily make you a good or bad person.

We hope you understand that it was necessary to misinform participants at some points during the study to allow for natural reactions. This research was particularly novel, and very important to the field of social psychology. We thank you so much for being a part of it.

Because anonymity is very important to this study, we ask that you please do not discuss any part of this study with your friends, peers, or classmates who are likely to take part in the study. It is imperative you do not discuss the study with such people, for if you do your time will have been wasted. The study will be compromised if you discuss its procedures with potential participants. In psychological research, it is often very important that participants are unaware of the procedures and hypotheses of a study before they participate in it. We hope you have learned something about psychological research processes by taking part in this study. If you wish to discuss the study with people who have already participated in the study, or people who never will participate (e.g., parents, friends who do not attend Brock), that is acceptable.

If you feel uncomfortable following this study, the debriefing form will give you resources to deal with any potential stress you may have regarding the study.

This study is completely anonymous. Because of the way the computer has been programmed to save data, I don't even have a way to match data with specific participants. Moreover, the interest is in the average responses of the entire group of participants, not the responses of specific individuals.

I will give you this debriefing form which also provides more detail about the study, including the specific research questions to be examined. If you have any further questions please do not hesitate to use the contact information on this form. Again, we thank you for your time and participation.

Appendix 3E: SP-IAT stimuli

The pictures and words that used in the SP-IAT follow.

Pictures

Pictures are not shown here for copyright reasons, but can be obtained from the International Affective Picture System:

Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1997). *International affective picture system (IAPS): Affective ratings of pictures and instruction manual*. *Technical Report A-6*. Gainesville, FL: University of Florida.

Men:

IAPS 4460

IAPS 4500

IAPS 4534

IAPS 4550

IAPS 4561

Women:

IAPS 4141

IAPS 4142

IAPS 4210

IAPS 4232

IAPS 4240

Words

Sexually attractive words: arousing, erotic, attractive, sensual, exciting,

Sexually unattractive words: forbidding, repulsive, repelling, repugnant, and repellent

On the computer screen, the test looked something like this:

Male		**Female**
OR		**OR**
Sexually unattractive	**X**	**Sexually Attractive**

In the center where the “X” is located, a word or a picture would show up. Participants rapidly decided whether the item (picture or word) fit into the categories on the left, or categories on the right.

APPENDIX 3F: Study 2 negative emotions scale

	Not at all								**Very much**
(a.) How surprising is this information?	1	2	3	4	5	6	7	8	9
(b.) How upsetting is this information?	1	2	3	4	5	6	7	8	9
(c.) How exciting is this information?	1	2	3	4	5	6	7	8	9
(d.) How anxiety provoking is this information	1	2	3	4	5	6	7	8	9
(e.) How worrisome is this information?	1	2	3	4	5	6	7	8	9
(f.) How happy does this information make you?	1	2	3	4	5	6	7	8	9
(g.) How threatening is this information?	1	2	3	4	5	6	7	8	9
(h.) How pleasing is this information?	1	2	3	4	5	6	7	8	9
(i.) How satisfying is this information?	1	2	3	4	5	6	7	8	9

APPENDIX 3G: Study 2 fear of discrimination scale

In light of the information I received, I fear that prejudice against my sexual orientation group will affect me personally.

1	2	3	4	5	6	7
Not at all						**Very much**

In light of the information I received, I feel that because of discrimination, I will be deprived of opportunities normally available to me.

1	2	3	4	5	6	7
Not at all						**Very much**

In light of the information I received, I fear that I will personally experience discrimination.

1	2	3	4	5	6	7
Not at all						**Very much**

In light of the information I received, I fear that I will be treated unfairly because of my sexual orientation.

1	2	3	4	5	6	7
Not at all						**Very much**

In light of the information I just received, I fear abandonment if I tell others.

1	2	3	4	5	6	7
Not at all						**Very much**

In light of the information I received, I fear discrimination.

1	2	3	4	5	6	7
Not at all						**Very much**

I would fear loss of my job if my employer knew about the information I just received

1	2	3	4	5	6	7
Not at all						**Very much**

I am afraid to tell my family about the information I just received

1	2	3	4	5	6	7
Not at all						**Very much**

If I told my family about the information I just received, they would be accepting and supportive (R)

1	2	3	4	5	6	7
Not at all						**Very much**

APPENDIX 3H: Study 2 attitudes toward the self scale

The rating scale below resembles values on a **thermometer**. Lower values are used to indicate unfavourable attitudes (i.e., dislike yourself), and higher numbers are used to indicate favourable attitudes (i.e., liking of yourself).

Please indicate your CURRENT attitude toward YOURSELF by placing an "X" in the appropriate box.

Extremely unfavourable | Extremely favourable

0-10^o	11-20^o	21-30^o	31-40^o	41-50^o	51-60^o	61-70^o	71-80^o	81-90^o	91-100^0
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

APPENDIX 3I: Study 2 empathy toward homosexuals scale

1. To what extent do you feel sympathetic towards homosexuals?

1 2 3 4 5 6 7
Not at all **Very much**

2. To what extent do you feel compassionate towards homosexuals?

1 2 3 4 5 6 7
Not at all **Very much**

3. To what extent do you feel soft-hearted towards homosexuals?

1 2 3 4 5 6 7
Not at all **Very much**

4. To what extent do you feel warm towards homosexuals?

1 2 3 4 5 6 7
Not at all **Very much**

5. To what extent do you feel tender towards homosexuals?

1 2 3 4 5 6 7
Not at all **Very much**

6. To what extent do you feel moved by homosexuals?

1 2 3 4 5 6 7
Not at all **Very much**

APPENDIX 3J: Study 2 attitudes toward homosexuals scale

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

(1.) Male homosexual couples should be allowed to adopt children the same as heterosexual couples.
1 2 3 4 5 6 7 8 9

(2.) State laws regulating private, consenting lesbian behaviour should be loosened.
1 2 3 4 5 6 7 8 9

(3.) If a man has homosexual feelings, he should do everything he can to overcome them.
1 2 3 4 5 6 7 8 9

(4.) Female homosexuality in itself is no problem, but what society makes of it can be a problem.
1 2 3 4 5 6 7 8 9

(5.) The idea of male homosexual marriages seems ridiculous to me.
1 2 3 4 5 6 7 8 9

(6.) A woman's homosexuality should *not* be a cause for job discrimination in any situation.
1 2 3 4 5 6 7 8 9

(7.) Male homosexuality is a perversion
1 2 3 4 5 6 7 8 9

(8.) The growing number of lesbians indicates a decline in morals.
1 2 3 4 5 6 7 8 9

(9.) Homosexual behaviour between two men is just plain wrong.
1 2 3 4 5 6 7 8 9

(10.) Female homosexuality is an inferior form of sexuality.
1 2 3 4 5 6 7 8 9

APPENDIX 3K: Study 2 supplemental information/ analyses

Appendix 3K.1: Study 2 suspicious participants

All participants were asked if anything about the study made them suspicious (yes or no). Participants indicating "yes" were asked to elaborate in an open-ended space. All participants were assigned a suspicion code based on these open-ended responses and/or verbal statements made to the experimenter upon completion of the study. The suspicion code scale ranged from 0 to 4, whereby 0 = not suspicious, 1 = irrelevant suspicion (e.g., suspicious about elements of the study unrelated to the manipulation [sample response: "The white noise. Why was it needed?[15]"]), 2 = slightly suspicious (e.g., suspicious about the SP-IAT test, but not necessarily about the feedback [sample response: "The word association and pictures, I have a hard time believing that can determine attraction."]), 3 = moderately suspicious (e.g., questioning whether the feedback *may* be false [sample response: "I was wondering if the results from the computer task were true or if they were just given to see how I would react…"]), 4 = strongly suspicious (e.g., confidently stating that the feedback was false [sample response: "The feedback from the computer was not real."]).

After excluding non-heterosexual participants, 148 participants were assigned a suspicion code of 0, 19 participants were assigned a suspicion code of 1, 12 participants were assigned a suspicion code of 2, 15 participants were assigned a suspicion code of 3, and 20 participants were assigned a suspicion code of 4. Participants assigned a suspicion code of 4 (i.e., 9% of the sample) were excluded from the analyses.

[15] Note that participants wore headphones playing white noise to minimize distraction from other participants entering and leaving the room or speaking to the experimenter.

Appendix 3K.2: Study 2 preliminary analyses (missing data, normality, outliers)

Preliminary analyses were conducted to examine missing data, normality, and outliers. Missing data were analyzed by examining frequency statistics for all variables. No data were missing from the single-item attitudes toward the self variable or from any of the final computed multi-item variables. Specific items used to calculate each final variable were also examined for missing data revealing one value each missing from fear of discrimination items 5 and 9, two values missing from empathy toward homosexuals item 3, and one item each missing from attitudes toward homosexuals items 6, 7, and 10. No single participant was missing more than 1 item per scale, and very few participants were missing even a single scale item. It was determined that variable scores were accurately obtained by computing the mean of present items, and that no action was necessary regarding missing data.

Skewness and kurtosis values were examined for each variable to investigate normality. No skewness values were > |2| indicating that all variables were normal with regard to skewness. All variables were also normal with regard to kurtosis with one exception. The kurtosis value for attitudes toward the self was 3.50, indicating a departure from normality. Visual examination of the histogram for attitudes toward the self revealed a strong peak in the distribution whereby a large proportion of participants indicated positive attitudes toward the self. The inflated kurtosis value therefore was likely due to a high concentration of scores at 8 or 9 on the scale, with markedly fewer scores below 8 or above 9. Note that when skewness and kurtosis were examined within experimental condition, variables were normally distributed in the experimental condition but fear of discrimination and attitudes toward the self demonstrated minor departures from normality in the control condition (not surprisingly, given the non-threatening feedback participants in the control condition received).

To examine potential outliers, scores on each variable were converted to z-scores. Based on the criterion that z-scores > |3| are probable outliers, examination of z-score frequencies revealed three outliers on fear of discrimination, three outliers on attitudes toward the self, and one outlier on attitudes toward homosexuals. All analyses were performed with and without these outliers, with no significant changes in results observed. Thus, outliers were not deemed to be problematic.

Appendix 3K.3: Study 2 correlation matrix

Table K.1. Correlations among variables from Study 2

Variables	1.	2.	3.	4.	5.	6.
1. Condition dummy code (homo vs. hetero)	--					
2. Negative emotions	.79*	--				
3. Fear of discrimination	.51*	.52*	--			
4. Negative attitudes toward self	.16*	.22*	.32*	--		
5. Empathy toward homosexuals	.12	-.19*	-.09	.16*	--	
6. Negative attitudes toward homosexuals	.05	.09	.09	-.11	-.70*	--

Notes. N =194 (99 homosexual condition, 95 heterosexual condition). * p < .05.

Appendix 3K.4: Testing the model in Study 2 using a regression (*vs.* SEM) approach

The model in Figure 3.2 was also tested using a regression-based approach. Using standardized continuous variables (Aiken & West, 1991), the following regressions were conducted: (1) Negative emotions reactions was regressed on the coded categorical variable representing the manipulation (+1 = self-as-heterosexual, 0 = self-as-homosexual), (2) Fear of discrimination was regressed on the manipulation variable, (3) Negative attitudes toward the self was regressed on the manipulation variable, (4) Negative attitudes toward the self was regressed on negative emotions, (5) Negative attitudes toward the self was regressed on fear of discrimination, and (6) Negative attitudes toward the self was regressed on the manipulation variable on Step 1, and negative emotions and fear of discrimination on Step 2. Results of these analyses are displayed in Table K.2.

Consistent with the results reported in Chapter 3, the manipulation (*vs.* control) significantly predicted both more negative emotions and increased fear of discrimination. Additionally, both negative emotions and fear of discrimination significantly predicted negative attitudes toward the self. Upon simultaneously examining both negative emotions and fear of discrimination as mediators of the relation between the manipulation and negative attitudes toward the self, only fear of discrimination remained a significant predictor of negative attitudes toward the self, and the manipulation no longer significantly predicted negative attitudes toward the self (see Table K.2). A Sobel test revealed that the relation between the manipulation and negative attitudes toward the self was significantly reduced in the presence of fear of discrimination, Sobel $z = 3.67$, $p < .001$. Thus, consistent with the results reported in Chapter 3.2, a regression-based approach demonstrated that fear of discrimination fully explains the negative effect of the manipulation on attitudes toward the self.

Table K.2. Testing Study 2 model using a regression based approach

Step	Predictor	Negative emotions				Fear of discrimination				Negative attitudes toward the self			
		R^2	β	SE	*t*	R^2	β	SE	*t*	R^2	β	SE	*t*
1	Manipulation	.63	.79***	.09	17.95	.26	.51***	.12	8.17	.03	.16*	.14	2.23
1	Negative emotions									.05	.22**	.07	3.08
1	Fear of discrimination									.10	.32***	.07	4.63
1	Manipulation									.03	.16*	.14	2.23
2	Manipulation									.11	-.11	.23	-.95
	Negative emotions									.11	.15	.12	1.29
	Fear of discrimination									.11	.29***	.08	3.60

Note. *N* =194 (99 experimental, 95 control). *** $p < .001$, * $p < .05$.

Appendix 3K.5: Testing additional moderators of the model in Study 2

In addition to participant sex (as reported in Chapter 3), pre-manipulation attitudes toward homosexuals (measured using the same attitudes toward homosexuals scale employed in Study 3, see Appendix 4P) and pre-manipulation RWA (measured using the same RWA scale employed in Study 3, see Appendix 4G) were examined as potential moderators of model paths, given that relations may vary for those more prone to prejudice toward homosexuals. The SP-IAT was also examined as an exploratory moderator of model paths. A regression-based approach appropriate for continuous moderators (see Muller, Judd, & Yzerbyt, 2005) was employed. For each path in the model, the criterion was regressed on predictor variable(s) and the moderator (either attitudes toward homosexuals or RWA) on Step 1, and on a variable representing the interaction between the predictor(s) and the moderator on Step 2.

The SP-IAT did not moderate any model paths. One model path was moderated by RWA, the path between the manipulation and negative emotions (condition by RWA interaction term $\beta = .11$, $t = 2.55$, $p = .012$). Simple slopes analysis (see Aiken & West, 1991) was conducted to explore this interaction. Simple slopes were examined 1SD above, 1 SD below, and at the mean of RWA for both the experimental and control conditions. Figure K.1 depicts the interaction visually. Slopes for low (1 SD below mean), medium (mean), and high (1 SD above mean) RWA were significantly different from 0 (ts[190] > 11.14, ps < .001). Thus, participants at all levels of RWA had more negative emotional reactions in the experimental (self-as-homosexual) versus control (self-as-heterosexual) condition, an effect exaggerated among those higher (*vs*. lower) in RWA. The same path, the path between the manipulation and negative emotions

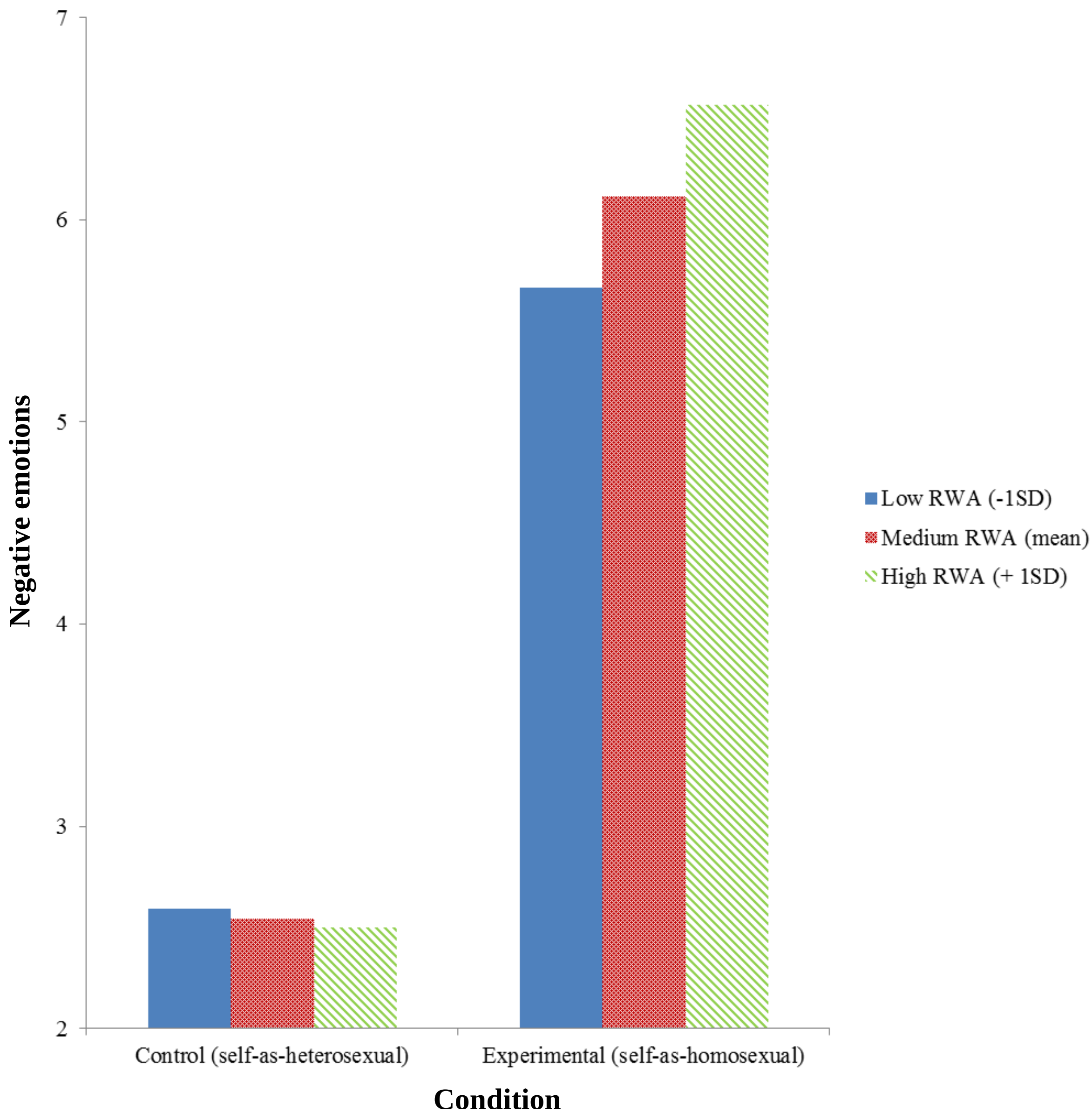


Figure K.1. Figure depicting the interaction between condition and RWA on negative emotions.

(condition by attitudes toward homosexuals interaction term $\beta = -.48$, $t = -3.11$, $p = .002$), was moderated by pre-manipulation attitudes toward homosexuals. Again, simple slopes analysis (see Aiken & West, 1991) was conducted to probe the interaction. Simple slopes were examined at 1SD above, 1SD below, and at the mean of attitudes toward homosexuals for both the experimental and control conditions. Figure K.2 depicts the interaction. All 3 slopes were significantly different from 0 (ts[190] > 10.53, ps < .001). Thus, regardless of pre-manipulation attitudes toward homosexuals, all participants had more negative emotions in the experimental versus control condition, an effect exaggerated among those with more negative (*vs.* positive) pre-manipulation attitudes toward homosexuals. No other model paths were moderated by RWA or pre-manipulation attitudes toward homosexuals. These results should be interpreted with caution however, given that 24 interaction effects were tested, in total, across the four moderators (i.e., the potential moderation of six paths by four moderators [sex, RWA, attitudes toward homosexuals, and the SP-IAT] was tested), increasing the probability of obtaining at least one significant interaction effect by chance.

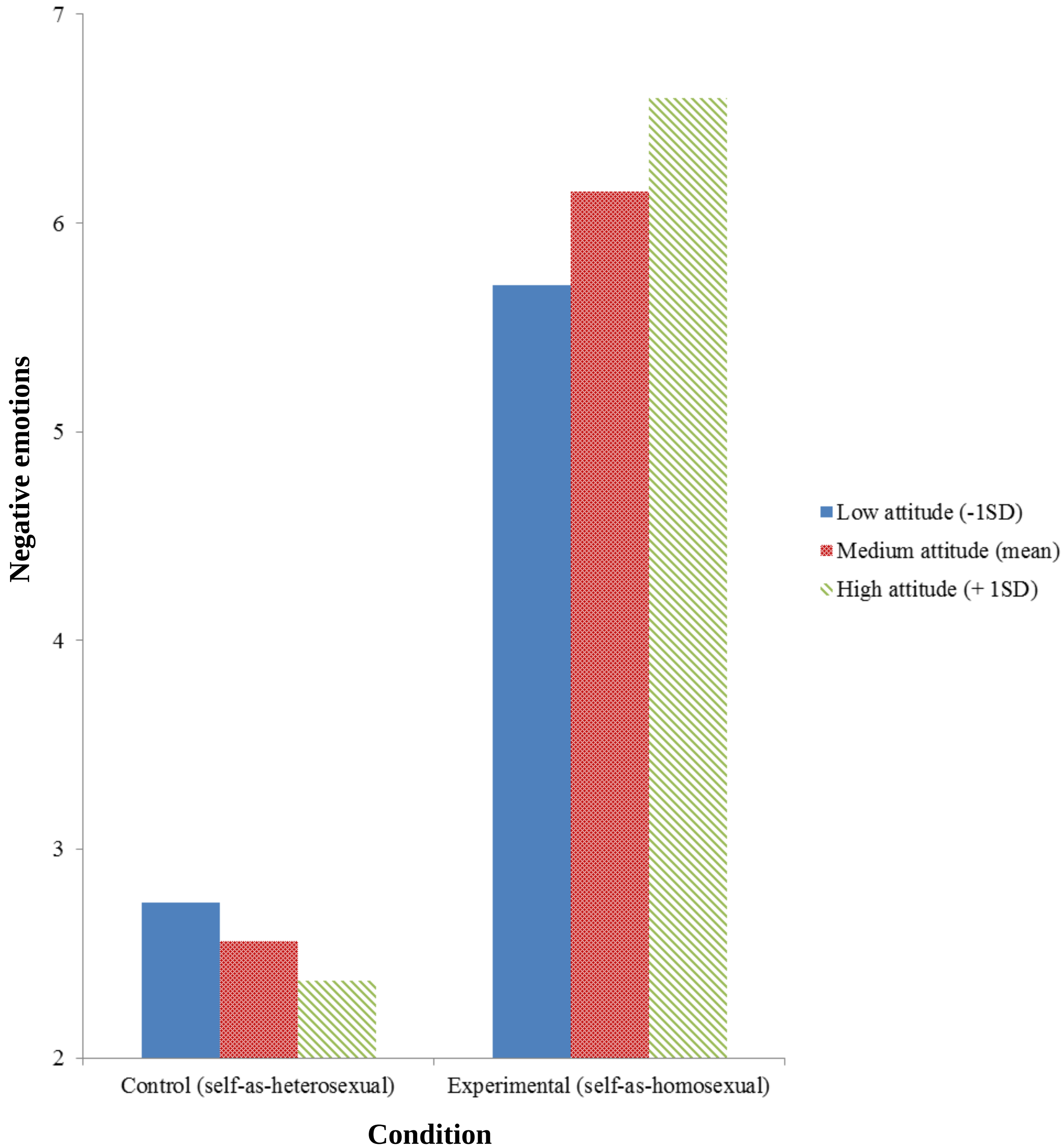


Figure K.2. Figure depicting the interaction between condition and attitudes toward homosexuals on negative emotions. Note that higher scores on attitudes toward homosexuals represent more negative attitudes.

Appendix 3K.6: Testing the Study 2 model including all variables examined

A parsimonious approach was adopted in Study 2 such that only variables differing as a function of the manipulation were included in the tested model. However, in order to fully test the pattern presented in the overarching model (Figure 1.1) as well as the generalization pattern described in Chapter 1, the Study 2 model was also tested including all variables examined, even those that did not differ as a function of the manipulation (i.e., also including empathy and attitudes toward homosexuals). Specifically, a model was tested whereby the self-as-homosexual (*vs.* control) manipulation predicted negative self-evaluations through more negative emotions and fears of discrimination, and negative self-evaluations predicted less empathy toward homosexuals and more negative attitudes toward homosexuals. The model was tested using AMOS 20.0, with manipulation feedback representing self-as-homosexual (+1) or self-as-heterosexual (0). Continuous variables were standardized (Aiken & West, 1991), and bootstrapping (n = 1000) was employed to estimate the significance of indirect effects (IE; Kline, 2011). All possible paths were initially included (i.e., df = 0), with non-significant paths subsequently dropped (Kline, 2011).

The manipulation (*vs.* control) led to both more negative emotions and increased fear of discrimination. Fear of discrimination (but not negative emotions) in turn predicted more negative self-attitudes, as discussed in Chapter 3. Additionally, negative emotions predicted less empathy toward homosexuals. More negative self-attitudes went on to predict both empathy toward homosexuals as well as attitudes toward homosexuals. Counter-intuitively however, more negative self-attitude predicted *more* empathy toward homosexuals and *less* negative attitudes toward homosexuals. Interestingly, the association between negative self-attitudes and empathy toward homosexuals was also present at the zero-order level. Future research can investigate this association.

Table K.3 displays effects decomposition. Notably, the indirect effect of the manipulation on empathy toward homosexuals was significant, with the self-as-homosexual manipulation indirectly predicting less empathy toward homosexuals. Also, fear of discrimination indirectly predicted increased empathy toward homosexuals and less negative attitudes toward homosexuals. It appears that experiencing fear of discrimination induced positivity toward the outgroup through negative attitudes toward the self. Overall, a combination of positive and negative intergroup effects was observed. After dropping non-significant paths (Kline, 2011), the path between negative self-attitudes and attitudes toward homosexuals also become non-significant (p = .116). Upon also dropping this path, the trimmed model (see Figure K.3) demonstrated good fit: $\chi^2(8)$= 9.28, p = .320, χ^2/df = 1.16, CFI = .997, RMSEA = .029, SRMR = .046.

Examining a generalization pattern. Testing the Study 2 model including all variables examined allowed for testing the generalization pattern first described in Chapter 1. As displayed in both Table and Figure K.3, model results do not follow a generalization pattern. More negative self-evaluations did not predict more negative group evaluations, but rather less negative evaluations of homosexuals and more empathy toward homosexuals. It appears that fearing discrimination, despite being an unpleasant experience, indirectly improved empathy through negative self-attitudes. In line with the proposed overarching model (see Figure 1.1a & Figure 1.1b) however, the manipulation indirectly predicted negative group evaluations (i.e., less empathy toward homosexuals). More negative affective reactions also predicted more negative group evaluations (i.e.,

Table K.3

Decomposing Study 2 model including all variables examined (fully saturated model, df = 0)

	Sample Overall		
Effects	Total	Direct	Indirect
1. Manipulation → negative emotions	.79***	.79***	--
2. Manipulation → fear of discrimination	.51***	.51***	--
3. Manipulation → negative attitudes toward the self	.16*	-.11	.27
4. Manipulation → empathy toward homosexuals	-.12	.09	-.21*
5. Manipulation → negative attitudes toward homosexuals	.05	-.11	.15
6. Negative emotions → negative attitudes toward the self	.15	.15	--
7. Negative emotions → empathy toward homosexuals	-.24*	-.27*	.03
8. Negative emotions → negative attitudes toward homosexuals	.13	.15	-.03
9. Fear of discrimination → negative attitudes toward the self	.29***	.29***	--
10. Fear of discrimination → empathy toward homosexuals	.01	-.06	.07**
11. Fear of discrimination → negative attitudes toward homosexuals	.06	.11	-.05*
12. Negative attitudes toward the self → empathy toward homosexuals	.22**	.22**	--
13. Negative attitudes toward the self → negative attitudes toward homosexuals	-.17*	-.17*	--

Notes. N =194 (99 experimental, 95 control). *** p < .001, ** p < .01, * p < .05. The manipulation was coded such that self-as-homosexual = +1; self-as-heterosexual = 0.

less empathy toward homosexuals). Thus, effects on intergroup variables were mixed. Importantly however, the manipulation produced negative outcomes overall (i.e., negative emotions, fear of discrimination, negative self-attitudes, and [indirectly], less empathy toward homosexuals).

One other means by which to examine the generalization pattern is to test whether the path(s) between individual and group evaluations varies as a function of the manipulation. For example, associations between individual and group evaluations may be stronger in the experimental (*vs.* control) condition. Thus, I examined whether any of

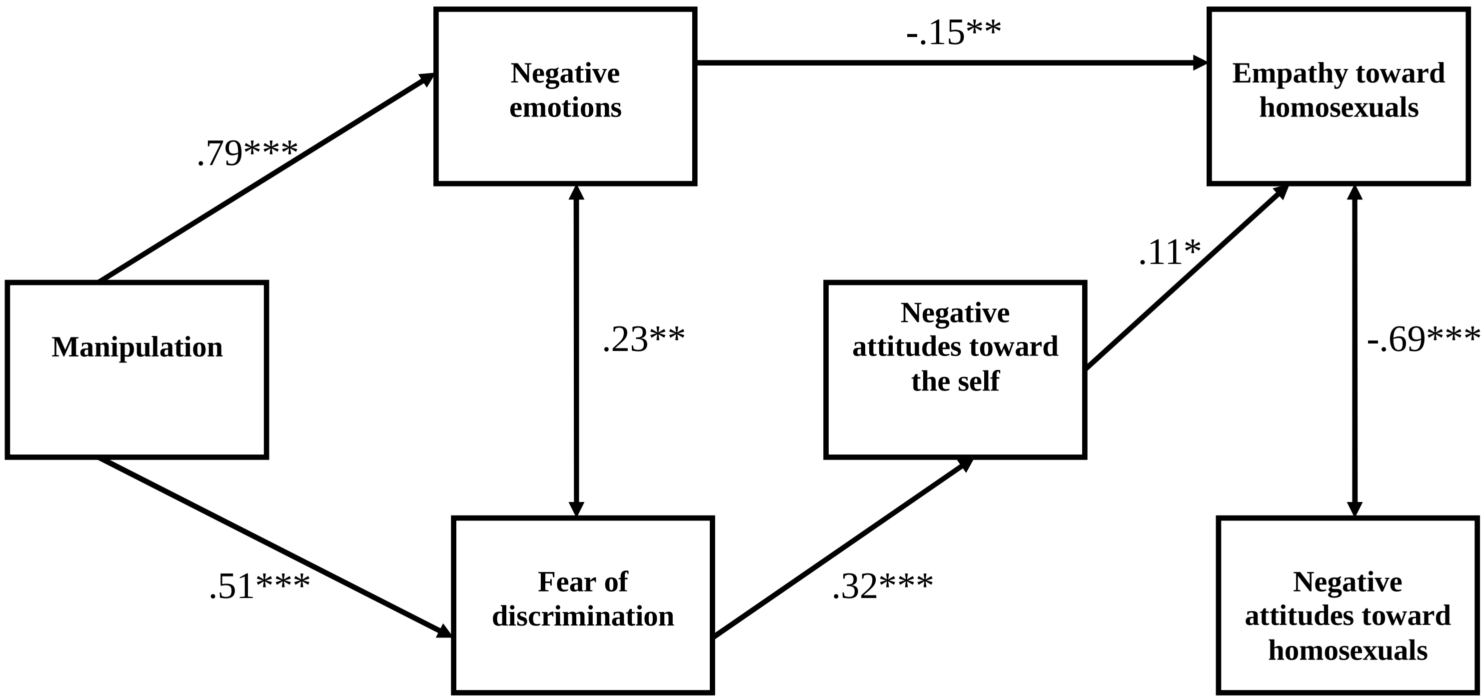


Figure K.3. Study 2 model including all variables examined (trimmed). N =194 (99 experimental, 95 control). *** $p <$ .001, ** $p < .01$, * $p < .05$. The manipulation was coded such that self-as-homosexual = +1; self-as-heterosexual = 0.

the paths in the model depicted in Figure K.3 (starting with emotional reactions and fear of discrimination as exogenous variables) differed between the two conditions (self-as-homosexual and self-as-heterosexual). Although the potential moderation of all paths was tested, examining whether the manipulation moderated paths between individual and group evaluations was of primary interest. For each path in the model, the criterion was regressed on predictor variable and the moderator (condition) on Step 1, and on the interaction between the predictor and condition on Step 2. None of these interactions were significant, demonstrating that these relations existed across participants, regardless of experimental condition.

Appendix 3K References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Newbury Park, CA: Sage Publications.

Kline, R.B. (2011). *Principles and practice of structural equation modeling* (3rd edition). New York: Guilford Press.

Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, 89, 852–863. doi: 10.1037/0022-3514.89.6.852

APPENDIX 4A: Study 3 ethics approval

DATE: 8/3/2011
PRINCIPAL INVESTIGATOR: HODSON, Gordon - Psychology
FILE: 11-008 - HODSON
TYPE: Ph. D.
STUDENT: Cara MacInnis
SUPERVISOR: Gordon Hodson
TITLE: Attitudes and Friendship Formation in Online Interactions

ETHICS CLEARANCE GRANTED

Type of Clearance: NEW
Expiry Date: 8/31/2012

The Brock University Social Sciences Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement. Clearance granted from 8/3/2011 to 8/31/2012.

The Tri-Council Policy Statement requires that ongoing research be monitored by, at a minimum, an annual report. Should your project extend beyond the expiry date, you are required to submit a Renewal form before 8/31/2012. Continued clearance is contingent on timely submission of reports.

To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics web page at http://www.brocku.ca/research/policies-and-forms/research-forms. In addition, throughout your research, you must report promptly to the REB: a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study; b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants; c) New information that may adversely affect the safety of the participants or the conduct of the study; d) Any changes in your source of funding or new funding to a previously unfunded project.

We wish you success with your research.

Approved:

Jan Frijters, Chair
Social Sciences Research Ethics Board

APPENDIX 4B: Study 3 consent form

Project Title: Attitudes and Friendship Formation in Online Interactions
Principal Investigator: Dr. Gordon Hodson, Brock University, Professor, ghodson@brocku.ca; 905-688-5550ext. 5127; Co-Investigator: Cara MacInnis, cm07jh@brocku.ca

- I understand that this study involves research, and that I am being invited to participate
- I understand that the purpose of this study is to examine closeness in online interactions, as well as personality, feelings, and attitudes toward social groups (e.g., social, sexual orientation, ethnic groups).
- I understand that the expected duration of my participation in this study is approximately 50 minutes.
- I understand the procedures to be followed, which include reading and signing two copies of this consent form; 1 of which I will keep for my own records. Once I have signed the consent form I will be asked to complete a questionnaire package on a computer. Afterwards the researcher will provide me with a debriefing form explaining the general study purpose.
- I understand that this study can count as research participation in a psychology course. As a participant I will also gain experience concerning how research in social psychology is conducted.
- All information provided is anonymous; my name will not be included or, in any other way, associated with the data collected in the study. Furthermore, because the interest is in the average responses of the entire group of participants, I will not be identified individually in any way in written reports of this research
- I understand that only the Principal Investigator (Dr. Hodson), PhD student (Cara MacInnis) and the research assistant(s) collecting the data will have access to my data, and that all information will be stored securely in password protected computer files. Given the intentions of publishing the results, data will be kept until approximately 5-7 years from date, after which all data will be destroyed.
- I understand that any other person participating in this study in the same session as I am holds the same right to privacy as I do. Therefore I will ensure that I do not reveal to anyone the identity of others present during this session.
- I understand that the results of this study may be published in professional journals and presented at conferences. Feedback about this study will be available approximately 6 months from the present date.
- I understand that there is a risk that I may experience some minimal emotional distress during the study, given that the study concerns getting to know another person
- I understand that participation is voluntary; refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled and I may discontinue participation at any time; I understand that my data cannot be withdrawn after submission, but it remains anonymous. If I withdraw, I can still receive payment or course participation. Thus, I may withdraw at any point during the study, but once I have completed the study, my data cannot be withdrawn due its anonymous nature.

- I understand that some questions may make me feel uncomfortable and if I wish, I may decline to answer any questions or participate in any component of the study.
- I understand that it is not possible for the researchers to provide feedback on individual results.

This study has been reviewed and received ethics clearance through Brock University's Research Ethics Board (file # 11-008)

I ______________________________ (please print)

1. Have read and understood the relevant information regarding this research project
2. Understand that I may ask questions in the future
3. Indicate free consent to research participation by signing this research consent form

Participant's Signature: ________________________________ Date: ____________

Researcher's Signature: ________________________________ Date: ____________

Below complete EITHER Form A or Form B (in recognition that you will receive payment OR course participation).

FORM A. I am participating in this experiment for $5. This experiment will <u>not count</u> toward research participation hours in a psychology course.

________________________ ________________________

Signature of participant Signature of experimenter

FORM B. I am participating in this experiment for research participation in a psychology course and will <u>not receive monetary payment</u> for this experiment.

________________________ ____________ ________________________

Signature of participant course for participation Signature of experimenter

If you would like a copy of the results for this study (approximately 6 months from date) and/or would like to be informed of any publication of the results, please provide your email address below.

____

Please keep a copy of the consent form for your own record

APPENDIX 4C: Study 3 debriefing form

Project Title: Attitudes and Friendship Formation in Online Interactions
Principal Investigator: Dr. Gordon Hodson, Brock University, Professor ghodson@brocku.ca; 905-688-5550ext. 5127; Co-Investigator: Cara MacInnis, PhD student, cm07jh@brocku.ca

The purpose of this research is to examine the following research questions: 1. How do people react to learning of another's sexual orientation? 2. Do reactions to an individual's sexual orientation influence attitudes toward the individual? 3. Do reactions to an individual's sexual orientation influence attitudes toward members of these groups? 4. Does the time point at which an individual's sexual orientation is discovered impact attitudes? 5. Do certain people (e.g., those higher in authoritarianism) react more negatively to such information? This research is important as it will help us understand the effects of discovering another's sexual orientation, and especially how this discovery impacts attitudes toward individuals and groups. We are interested in whether attitudes differ based on individual differences such as authoritarianism.

Some participants received feedback about an interaction partner's sexual orientation while others did not receive information about partner sexual orientation. Though the primary interest of the study is reactions to sexual orientation, data from participants receiving no information about sexual orientation will be very important to us. It will allow us to have much-needed comparison groups.

A major interest in the study is attitudes towards sexual orientation ingroups (i.e., own group) and outgroups (i.e., other groups). It is important to remember that people fall on a continuum with regard to their feelings about outgroups and there is a wide range of feelings people can have toward outgroups. Where you fall on this range does not necessarily make you a good or bad person. These are simply evaluations of social entities.

In the study you were informed that you were interacting with another study participant, but rather the computer was providing you with pre-determined responses. We hope you understand that it was necessary to use this procedure to allow for natural reactions to a very important research question. This research program is particularly novel and very important to the field of social psychology. We thank you so much for being a part of it. It was deemed necessary to give you this fictitious information so we could study some very important research questions.

Because anonymity is very important to this study, we ask that you please DO **NOT** DISCUSS any part of this study with your friends, peers, or classmates who are likely to take part in the study. The study will be compromised if you discuss its procedures with potential participants. In psychological research, it is often very important that participants are unaware of the procedures and hypotheses of a study before they participate in it. We hope you have learned something about psychological research processes by taking part in this study. However, if you wish to discuss the study with people who have already participated in the study, or people who never will participate (e.g., parents, friends who do not attend Brock), that is acceptable.

We hope you will learn something about intergroup relations from participating in this research. For further reading on the topics studied by this research, please see the bottom of this page.

If any part of the study has made you feel especially uncomfortable and you wish to seek help in dealing with your feelings, please note that the Student Development Center at Brock offers personal counselling services to students free of charge for any personal/ social concerns or difficulties students may have. To make an appointment with a counsellor, phone 905-688-5550, extension 4750. If you feel stressed for any reason following this study, please take advantage of the following useful websites: http://www.stresslesscountry.com/, http://www.webmd.com/balance/stress-management/default.htm

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the Research Ethics Officer at Brock University at 905-688-5550, extension 3035. This project has been reviewed and received ethics clearance through the Office of Research Ethics Board, Brock University (File # 10-095).

Thank you for your time and support in participating in this study! If you have any questions or concerns please feel free to contact any of the researchers (see above). Dr. Hodson

Further Resources

Related reading:

Herek, G. M., & Capitanio, J. P. (1996). "Some of my best friends": Intergroup contact, concealable stigma, and heterosexuals' attitudes toward gay men and lesbians. *Personality and Social Psychology Bulletin, 22*, 412-424.

To learn more about sexual orientations and identities:

http://www.brocku.ca/human-rights/positive-space

APPENDIX 4D: Study 3 verbal debriefing script

Thank you for participating in the study. I want to let you know a few things about the study you just completed.

First of all, you were told that you had an interaction with another participant in the study. In reality, the computer was providing you with pre-determined responses. Although we would have liked you to have been able to interact with another study participant, this was not feasible nor ideal for scientific purposes. This would not only be difficult practically, but would significantly reduce our experimental control, which is very important for understanding human behaviour. Thus, the only way to study the questions we are interested in was to have you engage in simulated interaction. There is a great need for this type of research in our field, and because we were able to do this; this study is likely to be highly influential. Therefore, we thank you for your participation.

We hope you understand that it was necessary to misinform participants at some points during the study to allow for natural reactions. This research was particularly novel, and very important to the field of social psychology. We thank you so much for being a part of it.

This study was about group differences. We are interested in people's perceptions of ingroups (the group that one belongs to) and outgroups (a group one does not belong to). For example, we could have compared perceptions of women and men, old and young, etc. In this case, we were interested in sexual orientation ingroups and outgroups. It is important to remember that people fall on a continuum with regard to their feelings about outgroups and there is a wide range of feelings people can have toward outgroups. Where you fall on this range does not necessarily make you a good or bad person; these are simply evaluations of others.

Because anonymity is very important to this study, we ask that you please do not discuss any part of this study with your friends, peers, or classmates who are likely to take part in the study. It is imperative you do not discuss the study with such people, for if you do your time will have been wasted. The study will be compromised if you discuss its procedures with potential participants. In psychological research, it is often very important that participants are unaware of the procedures and hypotheses of a study before they participate in it. We hope you have learned something about psychological research processes by taking part in this study. If you wish to discuss the study with people who have already participated in the study, or people who never will participate (e.g., parents, friends who do not attend Brock), that is acceptable.

If you feel uncomfortable following this study, the debriefing form will give you resources to deal with any potential stress you may have regarding the study.

This study is completely anonymous. Because of the way the computer has been programmed to save data, I don't even have a way to match data with specific participants. Moreover, the interest is in the average responses of the entire group of participants, not the responses of specific individuals.

I will give you this debriefing form which also provides more detail about the study, including the specific research questions to be examined. If you have any further questions please do not hesitate to use the contact information on this form. Again, we thank your for your time and participation.

APPENDIX 4E: Study 3 "Typical student" demographics

Because not all participants will have had the same amount of contact with Brock students (i.e., some students have only been Brock students for a short time, some live off-campus, etc.), some basic information about typical Brock students follows, to give all participants an idea of the type of person you may interact with.

Read this information, then hit continue.

<u>Brock student demographics</u>

- 42% of Brock students are male
- 58 % of Brock students are female

The majority (over 80%) of Brock students are:

- Between the ages of 18 and 24
- Canadian
- from Ontario
- of White/Caucasian/European descent (students belong to the following other ethnic groups also attend Brock: Black, Asian, Middle Eastern, Aboriginal, and Hispanic)
- Heterosexual
- Full-time students
- politically somewhat liberal
- undergraduate students

APPENDIX 4F: Study 3 personal profile information

You will now be asked some personal information about yourself. Your responses to these questions will be put together and make up your online “profile.” **Your partner may or may not be able to view your profile before or after your interaction** (how this happens will depend on the experimental condition you’ve each been assigned to).

Age: ________ years old

Sex (check one): ☐ Male ☐ Female

Year of Study (circle): 1 2 3 4 5+

Major: _______________

Ethnic background

☐ White/Caucasian/European

☐ Black/African-American

☐ Asian

☐ Aboriginal Peoples of Canada

☐ Middle Eastern

☐ Hispanic/ Latino/ South American

☐ Other (please specify): ___________

Sexual orientation

☐ Heterosexual

☐ Homosexual

☐ Bisexual

☐ Asexual

☐ Don’t know

Favourite course taken so far at Brock: ____________________

What is your favourite food?

____

____

What is your favourite movie?

____

____

What is your favourite television show?

____

____

What is your favourite pastime?

____

____

APPENDIX 4G: Study 3 RWA scale

Please circle your response, using the scale below.

1	2	3	4	5	6	7
Strongly Disagree	**Moderately Disagree**	**Slightly Disagree**	**Neither Disagree Nor Agree**	**Slightly Agree**	**Moderately Agree**	**Strongly Agree**

1. Our country needs a powerful leader, in order to destroy the radical and immoral currents prevailing in society today.
1 2 3 4 5 6 7

2. Our country needs free thinkers, who will have the courage to stand up against traditional ways, even if this upsets many people.
1 2 3 4 5 6 7

3. The ‘‘old-fashioned ways’’ and ‘‘old-fashioned values’’ still show the best way to live.
1 2 3 4 5 6 7

4. Our society would be better off if we showed tolerance and understanding for untraditional values and opinions.
1 2 3 4 5 6 7

5. God_s laws about abortion, pornography and marriage must be strictly followed before it is too late, violations must be punished.
1 2 3 4 5 6 7

6. The society needs to show openness towards people thinking differently, rather than a strong leader, the world is not particularly evil or dangerous.
1 2 3 4 5 6 7

7. It would be best if newspapers were censored so that people would not be able to get hold of destructive and disgusting material.
1 2 3 4 5 6 7

8. Many good people challenge the state, criticize the church and ignore ‘‘the normal way of living’’.
1 2 3 4 5 6 7

9. Our forefathers ought to be honored more for the way they have built our society, at the same time we ought to put an end to those forces destroying it.
1 2 3 4 5 6 7

10. People ought to put less attention to the Bible and religion, instead they ought to develop their own moral standards.
1 2 3 4 5 6 7

11. There are many radical, immoral people trying to ruin things; the society ought to stop them.
1 2 3 4 5 6 7

12. It is better to accept bad literature than to censor it.
1 2 3 4 5 6 7

13. Facts show that we have to be harder against crime and sexual immorality, in order to uphold law and order.
1 2 3 4 5 6 7

14. The situation in the society of today would be improved if troublemakers were treated with reason and humanity.

1	**2**	**3**	**4**	**5**	**6**	**7**

15. If the society so wants, it is the duty of every true citizen to help eliminate the evil that poisons our country from within.

1	**2**	**3**	**4**	**5**	**6**	**7**

APPENDIX 4H: Study 3 openness to experience

Please respond to the following 10 questions:

1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

1 ______ I would be quite bored by a visit to an art gallery.

2 ______ I'm interested in learning about the history and politics of other countries.

3 ______ I would enjoy creating a work of art, such as a novel, a song, or a painting.

4 ______ I think that paying attention to radical ideas is a waste of time.

5 ______ If I had the opportunity, I would like to attend a classical music concert.

6 ______ I've never really enjoyed looking through an encyclopedia.

7 ______ People have often told me that I have a good imagination.

8 ______ I like people who have unconventional views.

9 ______ I don't think of myself as the artistic or creative type.

10 ______ I find it boring to discuss philosophy.

APPENDIX 4I: Study 3 pre-manipulation attitudes toward homosexuals

People have been found to vary in their attitudes toward the groups listed below. Please indicate your attitude toward these groups. The rating scale resembles values on a **thermometer**. Lower values are used to indicate unfavourable attitudes (i.e., dislike the group), and higher numbers are used to indicate favourable attitudes (i.e., liking of the group).

1. Lesbian women

Extremely unfavourable — Extremely favourable

$0\text{-}10^o$	$11\text{-}20^o$	$21\text{-}30^o$	$31\text{-}40^o$	$41\text{-}50^o$	$51\text{-}60^o$	$61\text{-}70^o$	$71\text{-}80^o$	$81\text{-}90^o$	$91\text{-}100^0$
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

2. Gay men

Extremely unfavourable — Extremely favourable

$0\text{-}10^o$	$11\text{-}20^o$	$21\text{-}30^o$	$31\text{-}40^o$	$41\text{-}50^o$	$51\text{-}60^o$	$61\text{-}70^o$	$71\text{-}80^o$	$81\text{-}90^o$	$91\text{-}100^0$
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

APPENDIX 4J: Study 3 RCIT questions and partner responses

1.1. What is your first name?
1.1. **Partner response**: Alex M.

1.2. How old are you?
1.2. **Partner response**: 19

1.3. Where are you from?
1.3. **Partner response**: St. Catharines

1.4. What year are you in at Brock?
1.4. **Partner response**: 1st year

1.5. What do you think you might major in? Why?
1.5. **Partner response**: I think psychology, because its [sic] what I am most interested in, but I'm not 100% sure yet.

1.6. What made you come to Brock?
1.6. **Partner response:** It was convenient since I already lived in the area.

1.7. What is your favorite class at Brock? Why?
1.7. **Partner response**: I like Psyc. 1F90 because it is more interesting than the other courses I am taking right now.

2.1. What are your hobbies?
2.1. **Partner response:** I mostly just like to hang out with friends, watch TV, sometimes work out. I don't really have any specific hobbies I do regularly.

2.2. What would you like to do after graduating from Brock?
2.2. **Partner response**: Maybe go for more school, or maybe get a job. I'll just see how it goes. That seems a long way off right now.

2.3. What would be the perfect lifestyle for you?
2.3. **Partner response**: It would be having a job I love where I don't have to get up too early, and have the opportunity to do lots of travelling.

2.4. What is something you have always wanted to do but probably will never be able to do?
2.4. **Partner response**: hmmm…
I've always wanted to run a marathon but I can't see myself actually having the time to dedicate to training.

2.5If you could travel anywhere in the world, where would you go and why?
2.5. **Partner response**: Definitely Australia. A friend of mine went last year and it sounds awesome.

2.6. What is one strange thing that happened to you since you've been at Brock?
2.6. **Partner response**: ummm…
Once I was in the book store and an older lady asked me to help her find a book. I said I didn't know where it was. She got mad and gave me a lecture about taking my job more seriously and how terrible the book store employees are. The thing is… I don't work there! I was there to buy a book…

2.7. What is one embarrassing thing that happened to you since you arrived at Brock?
2.7. **Partner response**: Just the other day I was running up the stairs and I tripped but couldn't catch myself because my hands were full and I fell really awkwardly. A bunch of people saw, it was real bad…coffee everywhere

2.8. What is one thing happening in your life that makes you stressed out?
2.8. **Partner response**: I have a lot of assignments that are due around the same time which stresses me out big time.

2.9. If you could change anything that happened to you in high school what would that be?
2.9. **Partner response**: meh, it was ok, no regrets.

2.10. If you could change one thing about yourself what would that be?
2.10. **Partner response**: I am a really big procrastinater [sic]. I tend to leave everything until the last minute, and I hate it. But I find it really hard not to. So I would like to be able to change that.

2.11. Do you miss your family?
2.11 **Partner response**: I see them quite often, so no.

2.12. What is one habit you'd like to break?
2.12. **Partner response**: I have a pretty bad junk food habit. I dunno[sic] if I'm ready to break it though…lol

3.1. If you could have one wish granted, what would that be?
3.1. **Partner response**: To win the lottery, or have more money magically appear to me…lol

3.2. Is it difficult or easy for you to meet people? Why?
3.2. **Partner response**: It's fairly easy, I think it is for most students at Brock because its [sic] a small University and there are lots of opportunities to interact with other students in seminar and stuff.

3.3. Describe the last time you felt lonely?
3.3. **Partner response**: Last week I had a lot of work to do so I just went to the library and worked in a cubicle upstairs by myself all day. I turned off my phone and didn't talk

to anyone all day. At the end of the day I realized, wow I haven't had any real human contact in hours…then I felt kinda [sic] sad and lonely…

3.4. What is one emotional experience you've had with a good friend?
3.4. **Partner response**: My best friend's mom died a couple of years ago, that was pretty emotional.

3.5. What is one of your biggest fears?
3.5. **Partner response**: Death…it's so unknown and final…

3.6. What is your most frightening early memory?
3.6. **Partner response**: hmmm….I remember going to the hospital and getting a lot of different tests done one time when I was a kid. It was pretty scary because I didn't know what was going on. I mean…it wouldn't be scary now but because I was a kid and didn't understand…it was.

3.7. What is your happiest early childhood memory?
3.7. **Partner response**: I guess it isn't one specific memory…but I remember going on trips to the cottage with my family and playing water games at the beach.

3.8. What is one thing about yourself that most people would consider surprising?
3.8. **Partner response**: ummm...I am a really good cook. I have surprised people in the past with my cooking skills…but its [sic] just stuff my mom taught me.

3.9. What is one recent accomplishment that you are proud of?
3.9 **Partner response**: I just got a part time job that there was a lot of competition for so I'm really happy about that.

3.10. Tell me one thing about yourself that most people who already know you don't know.
3.10. **Partner response**: I worry about the future a lot. I think most people I know would find it surprising because I appear very laid back and care free.

APPENDIX 4K: Study 3 manipulation check

What was your partner's age? (a) 17 (b) 19 (c) 25 (d) 37 (e) don't know

What was your partner's sexual orientation? (a) heterosexual (b) homosexual (c) bisexual (d) asexual (e) don't know

What was your partner's favourite tv show? ___________________________________

APPENDIX 4L: Study 3 interaction (i.e., contact) experience scale

To what extent was the interaction with your partner:

(a.) Pleasant

1	2	3	4	5	6	7
Not at all						**Very much**

(b.) Cooperative

1	2	3	4	5	6	7
Not at all						**Very much**

(c.) Superficial and Insincere

1	2	3	4	5	6	7
Not at all						**Very much**

(d.) Awkward

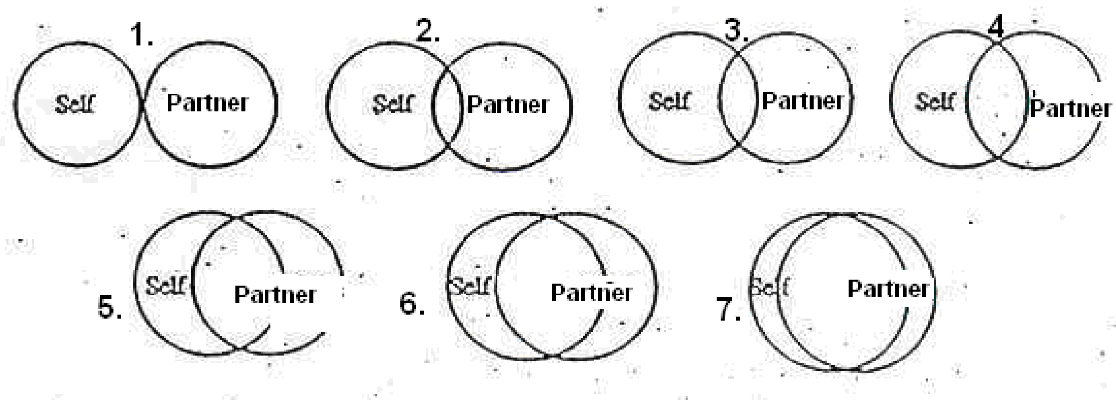
1	2	3	4	5	6	7
Not at all						**Very much**

(e.) Comfortable

1	2	3	4	5	6	7
Not at all						**Very much**

APPENDIX 4M: Study 3 bond with partner measure

Please choose the picture below that best represents your relationship with your interaction partner:
1 2 3 4 5 6 7



APPENDIX 4N: Study 3 positive emotions scale

What was your partner's sexual orientation? (a) heterosexual (b) homosexual (c) bisexual (d) asexual (e) don't know

	Not at all								**Very much**
(a.) How surprising is this information?	1	2	3	4	5	6	7	8	9
(b.) How upsetting is this information?	1	2	3	4	5	6	7	8	9
(c.) How exciting is this information?	1	2	3	4	5	6	7	8	9
(d.) How anxiety provoking is this information	1	2	3	4	5	6	7	8	9
(e.) How worrisome is this information?	1	2	3	4	5	6	7	8	9
(f.) How happy does this information make you?	1	2	3	4	5	6	7	8	9
(g.) How threatening is this information?	1	2	3	4	5	6	7	8	9
(h.) How pleasing is this information?	1	2	3	4	5	6	7	8	9
(i.) How satisfying is this information?	1	2	3	4	5	6	7	8	9

APPENDIX 4O: Study 3 attitudes toward partner scale

Please indicate your CURRENT attitude toward YOUR partner.

Extremely unfavourable | Extremely favourable

0-10°	11-20°	21-30°	31-40°	41-50°	51-60°	61-70°	71-80°	81-90°	91-100°
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

APPENDIX 4P: Study 3 attitudes toward homosexuals scale

Please circle your response, using the scale below.

1 2 3 4 5 6 7 8 9

Strongly Disagree ... **Strongly Agree**

(1.) Lesbians just can't fit into our society

1 2 3 4 5 6 7 8 9

(2.) Male homosexuals should *not* be allowed to teach school.

1 2 3 4 5 6 7 8 9

(3.) Female homosexuality is a sin.

1 2 3 4 5 6 7 8 9

(4.) I would not be too upset if I learned that my son were a homosexual.

1 2 3 4 5 6 7 8 9

(5.) Lesbians are sick.

1 2 3 4 5 6 7 8 9

(6.) I think male homosexuals are disgusting.

1 2 3 4 5 6 7 8 9

(7.) Female homosexuality is detrimental to society because it breaks down the natural divisions between the sexes.

1 2 3 4 5 6 7 8 9

(8.) Just as in other species, male homosexuality is a natural expression of sexuality in human men.

1 2 3 4 5 6 7 8 9

(9.) Female homosexuality is a threat to many of our basic social institutions.

1 2 3 4 5 6 7 8 9

(10.) Male homosexuality is merely a different kind of lifestyle that should not be condemned.

1 2 3 4 5 6 7 8 9

APPENDIX 4Q: Study 3 supplemental information/ analyses

Appendix 4Q.1: Study 2 suspicious participants

As in Study 2, all Study 3 participants were asked if anything about the study made them suspicious (yes or no). Participants indicating “yes” were asked to elaborate in an open-ended space. All participants were assigned a suspicion code based on these open-ended responses and/or verbal statements made to the experimenter upon completion of the study. The suspicion code scale ranged from 0 to 4, whereby 0 = not suspicious, 1 = irrelevant suspicion (e.g., suspicious about elements of the study unrelated to the manipulation [sample response: “{suspicious about}This question lol.”]), 2 = slightly suspicious (e.g., suspicious about the interaction generally [sample response: “{suspicious that} We couldn't have a real conversation, but I understand the need for control in a study.”]), 3 = moderately suspicious (e.g., questioning whether the partner may not be a real person [sample response: “seemed kinda fake... not entirely sure though”]), 4 = strongly suspicious (e.g., confidently stating that the partner was not a real person [sample response: “I asked my partner questions that they did not answer, which any HUMAN would have reciprocated. So I knew I was talking to an automated program. This removed the link between myself and my fellow partner.”]).

After excluding non-heterosexual participants and those incorrectly identifying their interaction partner’s sexual orientation, 157 participants were assigned a suspicion code of 0, 27 participants were assigned a suspicion code or 1, 30 participants were assigned a suspicion code of 2, 10 participants were assigned a suspicion code of 3, and 21 participants were assigned a suspicion code of 4. Participants assigned a suspicion code of 3 or 4 (i.e., approximately 13% of the sample) were excluded from the analyses.

Appendix 4Q.2: Study 3 preliminary analyses (missing data, normality, outliers)

Preliminary analyses were conducted to examine missing data, normality, and outliers. Missing data were analyzed by examining frequency statistics for all variables. No data were missing from the single-item variables (bond with partner and attitudes toward partner) or from any of the final computed multi-item variables. Upon examining missing data on specific items used to calculate each final variable, several missing values were revealed. Two values were missing from positive emotions item 4 (anxiety provoking), one value was missing from positive emotions item 7 (threatening), and two values were missing from positive emotions item 8 (pleasing). Two values were missing from contact experience item 3 (superficial and insincere), one value was missing from contact experience item 4 (awkward), and one value was missing from contact experience item 5 (comfortable). One value each was missing from (post-manipulation) attitudes toward homosexuals items 3, 5, 6, 7, 8, 9, and 10. One value each was missing from RWA items 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15. One value each was missing from openness items 3, 6, 8, and 9, and two values each were missing from openness items 7 and 10. For positive emotions, contact experience, and attitudes toward homosexuals, no single participant was missing more than 1 item per scale. However, it was revealed that one participant was missing data for 10 items on the RWA scale (66% of the scale) and for 4 items on the openness scale (40% of the scale). Computing means on these scales for this individual participant would be unlikely to accurately represent the variables, so this participant was excluded from the analyses involving these variables (i.e., the moderation analyses). Results did not differ significantly and were almost identical with this participant excluded. No additional action was taken with regard to missing data.

Skewness and kurtosis values were examined for each variable to investigate normality. No skewness values were > |2| indicating that all variables were normal with regard to skewness. All variables were also normal with regard to kurtosis with one exception. Attitudes toward homosexuals (post-manipulation) was slightly leptokurtic with a kurtosis value of 2.22. Visual examination of the histogram for attitudes toward homosexuals revealed a peak in the distribution whereby a large proportion of participants indicated very positive attitudes toward homosexuals. The inflated kurtosis value therefore was likely due to a high concentration of scores between 7 and 9 on the scale, with markedly fewer scores below 7. This normality violation was not considered problematic. Note that when skewness and kurtosis were examined within experimental condition, results were equivalent.

To examine potential outliers, scores on each variable were converted to z-scores. Based on the criterion that z-scores > |3| are probable outliers, examination of z-score frequencies revealed two outliers on pre-manipulation attitudes toward homosexuals, three outliers on contact experience, one outlier on positive emotions, three outliers on attitudes toward partner, and three outliers on post-manipulation attitudes toward homosexuals. All analyses were performed with and without these outliers, with no significant changes in results observed. Thus, outliers were not deemed to be problematic.

Appendix 4Q.3: Table depicting effects of Study 3 manipulation on dependent variables

Table Q.1.

Effects of manipulation (Study 3)

Dependent Variable	Earlier Disclosure Mean (SD)	Later Disclosure Mean (SD)	*t*	*d*
Positive emotions	5.66 (1.03)	5.59 (1.06)	.46	.06
Positive contact experience	6.06 (.72)	5.81 (.91)	2.18*	.30
Bond with partner	3.36 (1.61)	2.94 (1.41)	2.05*	.28
Positive attitudes toward partner	8.26 (1.24)	7.89 (1.52)	2.18*	.27
Positive attitudes toward homosexuals	7.53 (1.41)	7.52 (1.64)	-.03	-.01

Notes. N = 214 (109 early disclosure condition, 105 late disclosure condition). * p < .05

Appendix 4Q.4: Study 3 correlation matrix

Table Q.2. Correlations among variables from Study 3

Variables	1.	2.	3.	4.	5.	6.
1. Condition dummy code (early vs. late)	--					
2. Contact experience	.15*	--				
3. Bond with partner	.14*	.33*	--			
4. Positive emotions	-.03	.24*	.25*	--		
5. Attitudes toward partner	.14*	.46*	.46*	.29*	--	
6. Attitudes toward homosexuals	-.01	.24*	-.09	.56*	.28*	--

Notes. N =214 (109 early disclosure condition, 105 late disclosure condition). * p < .05.

Appendix 4Q.5: Testing the model in Study 3 using a regression (*vs.* SEM) approach

The model in Figure 4.2 was also tested using a regression-based approach. Using standardized continuous variables (Aiken & West, 1991), the following regressions were conducted: (1) Positive contact experience was regressed on the coded categorical variable representing the timing of disclosure manipulation (+1 = early disclosure, 0 = late disclosure), (2) Bond with partner was regressed on the manipulation variable, (3) Positive attitudes toward partner was regressed on the manipulation variable, (4) Bond with partner was regressed on positive contact experience, (5) Positive attitudes toward partner was regressed on positive contact experience, (6) Positive attitudes toward the partner was regressed on bond with partner, (7) Bond with partner was regressed on the manipulation Step 1, and positive contact experience Step 2, (8) Positive attitudes toward partner was regressed on positive contact experience on Step 1 and bond with partner on Step 2, (9) Positive attitudes toward partner was regressed on the manipulation on Step 1, positive contact experience on Step 2, and bond with partner on Step 3. Results of these analyses are displayed in Table Q.3.

Consistent with the results reported in Chapter 4, the early (*vs.* late) disclosure manipulation significantly predicted positive contact experience. Additionally, positive contact experience predicted both bond with partner and positive attitudes toward partner, and bond with partner predicted positive attitudes toward partner. When examining positive contact experience as a mediator of the relationship between the manipulation and bond with partner, the manipulation no longer significantly predicted bond with partner in the presence of positive contact experience. A Sobel test revealed that this change was marginally significant Sobel $z = 1.86$, $p = .06$. When bond with partner was

Table Q.3. Testing Study 3 model using a regression based approach

Step	Predictor	Positive contact experience				Bond with partner				Positive attitudes toward partner			
		R^2	β	SE	*t*	R^2	β	SE	*t*	R^2	β	SE	*t*
1	Manipulation	.02	.15*	.14	2.18	.02	.14*	.14	2.05	.02	.14*	.14	2.00
1	Positive contact experience					.11	.33***	.06	5.12	.21	.46***	.06	7.50
1	Bond with partner									.21	.46***	.06	7.52
1	Manipulation					.02	.14*	.14	2.05				
2	Manipulation					.12	.09	.13	1.41				
	Positive contact experience						.32***	.06	4.86				
1	Positive contact experience									.21	.46***	.06	7.50
2	Positive contact experience									.32	.34***	.06	5.69
	Bond with partner										.35***	.06	5.72
1	Manipulation									.02	.14*	.14	2.00
2	Manipulation									.21	.07	.12	1.13
	Positive contact experience										.45***	.06	7.25
3	Manipulation									.32	.04	.12	.66
	Positive contact experience										.34***	.06	5.76
	Bond with partner										.34***	.06	5.62

Note. N = 214 (109 early disclosure condition, 105 late disclosure condition). *** $p < .001$, * $p < .05$.

examined as a mediator of the relation between positive contact experience and positive attitudes toward partner, positive contact experience predicted positive attitudes toward partner less strongly (although still significantly) in the presence of bond with partner. A Sobel test revealed that this reduction in magnitude was significant, Sobel $z = 4.60$, $p < .001$. Finally, when examining positive contact experience (on Step 2) and bond with partner (on Step 3) as mediators of the relation between the manipulation and positive attitudes toward partner, the manipulation no longer significantly predicted attitudes in the presence of the mediators. A Sobel test revealed that the relation between the manipulation and attitudes toward the partner was marginally reduced in the presence of the mediators, Sobel $z = 1.82$, $p = .06$. Thus, the pattern is largely consistent with the results reported in Chapter 4, with the exception that the Sobel test determined the relation between the manipulation and positive attitudes toward partner to be only marginally reduced in the presence of the mediators.

Appendix 4Q.6: Testing the Study 3 model including all variables examined

A parsimonious approach was adopted in Study 3 such that only variables differing as a function of the manipulation were included in the tested model. However, in order to fully test the pattern presented in the overarching model (Figure 1.1) as well as the generalization pattern described in Chapter 1, the Study 3 model was also tested including all variables examined, even those that did not differ as a function of the manipulation (i.e., also including positive emotions and attitudes toward homosexuals). Specifically, a model was tested whereby the earlier (*vs.* later) disclosure manipulation predicted positive contact experience, with positive contact experience predicting positive attitudes toward the partner through heightened bond with the partner and positive emotions. Positive attitudes toward the partner predicted positive attitudes toward homosexuals in this model. The model was tested using AMOS 20.0. The manipulation was represented by a categorical code (+1 = early disclosure; 0 = late disclosure). Continuous variables were standardized (see Aiken & West, 1991), and bootstrapping (*n* = 1000) was employed to estimate the significance of indirect effects (Kline, 2011). All possible paths were initially included (i.e., *df* = 0), with non-significant paths subsequently dropped (Kline, 2011).

The earlier (*vs.* later) discovery manipulation predicted positive contact experience, which in turn predicted heightened bond with partner, positive emotions, and positive attitudes toward the partner. Heightened bond with the partner predicted more positive attitudes toward the partner but, counter-intuitively, less positive attitudes toward homosexuals. Positive emotions predicted more positive attitudes toward the partner and more positive attitudes toward homosexuals. Finally, more positive attitudes toward the partner predicted more positive attitudes toward homosexuals.

Table K.3 displays effects decomposition. The manipulation had significant indirect effects on bond with partner, positive emotions, and positive attitudes toward the partner. Positive contact experience had significant indirect effects on both positive attitudes toward the partner and homosexuals. Additionally, whereas bond with partner directly predicted *less* positive attitudes toward homosexuals, bond with partner indirectly predicted *more* positive attitudes toward homosexuals. Thus, the manipulation did not directly or indirectly impact attitudes toward homosexuals, but a combination of positive and negative intergroup effects were observed “downstream”, such that positive emotions and positive attitudes toward the partner predicted more positive attitudes toward homosexuals, and bond with partner predicted less positive attitudes toward homosexuals. After dropping non-significant paths (Kline, 2011), the trimmed model (see Figure Q.1) demonstrated good fit: $\chi^2(5)= 5.28$, p = .383, $\chi^2/df = 1.06$, CFI = .999, RMSEA = .016, SRMR = .030.

Table Q.4

Decomposing Study 3 model including all variables examined (fully saturated model, df = 0)

	Sample Overall		
Effects	Total	Direct	Indirect
1. Manipulation → Positive contact experience	.15*	.15*	--
2. Manipulation → Bond with partner	.14*	.09	.05*
3. Manipulation → Positive emotions	.03	-.01	.04*
4. Manipulation → Positive attitudes toward partner	.14*	.04	.10*
5. Manipulation → Positive attitudes toward homosexuals	.00	-.03	.03
6. Positive contact experience → Bond with partner	.32***	.32***	--
7. Positive contact experience → Positive emotions	.24***	.24***	--
8. Positive contact experience → Positive attitudes toward partner	.45***	.32***	.13**
9. Positive contact experience → Positive attitudes toward partner	.25**	.10	.15*
10. Bond with partner → Positive attitudes toward partner	.32***	.32***	--
11. Bond with partner → Positive attitudes toward homosexuals	-.09	-.14*	.05*
12. Positive emotions → Positive attitudes toward partner	.13*	.13*	--
13. Positive emotions → Positive attitudes toward homosexuals	.55***	.53***	.02
14. Positive attitudes toward partner → positive attitudes toward homosexuals	.14*	.14*	--

Notes. *N* = 214 (109 early disclosure condition, 105 late disclosure condition). *** $p < .001$, ** $p < .01$, * $p \leq .05$. The manipulation was coded such that earlier discovery = +1; later discovery = 0.

Examining a generalization pattern. Testing the Study 3 model including all variables examined allowed for testing the generalization pattern first described in Chapter 1. As displayed in both Table Q.4 and Figure Q.1, model results follow a

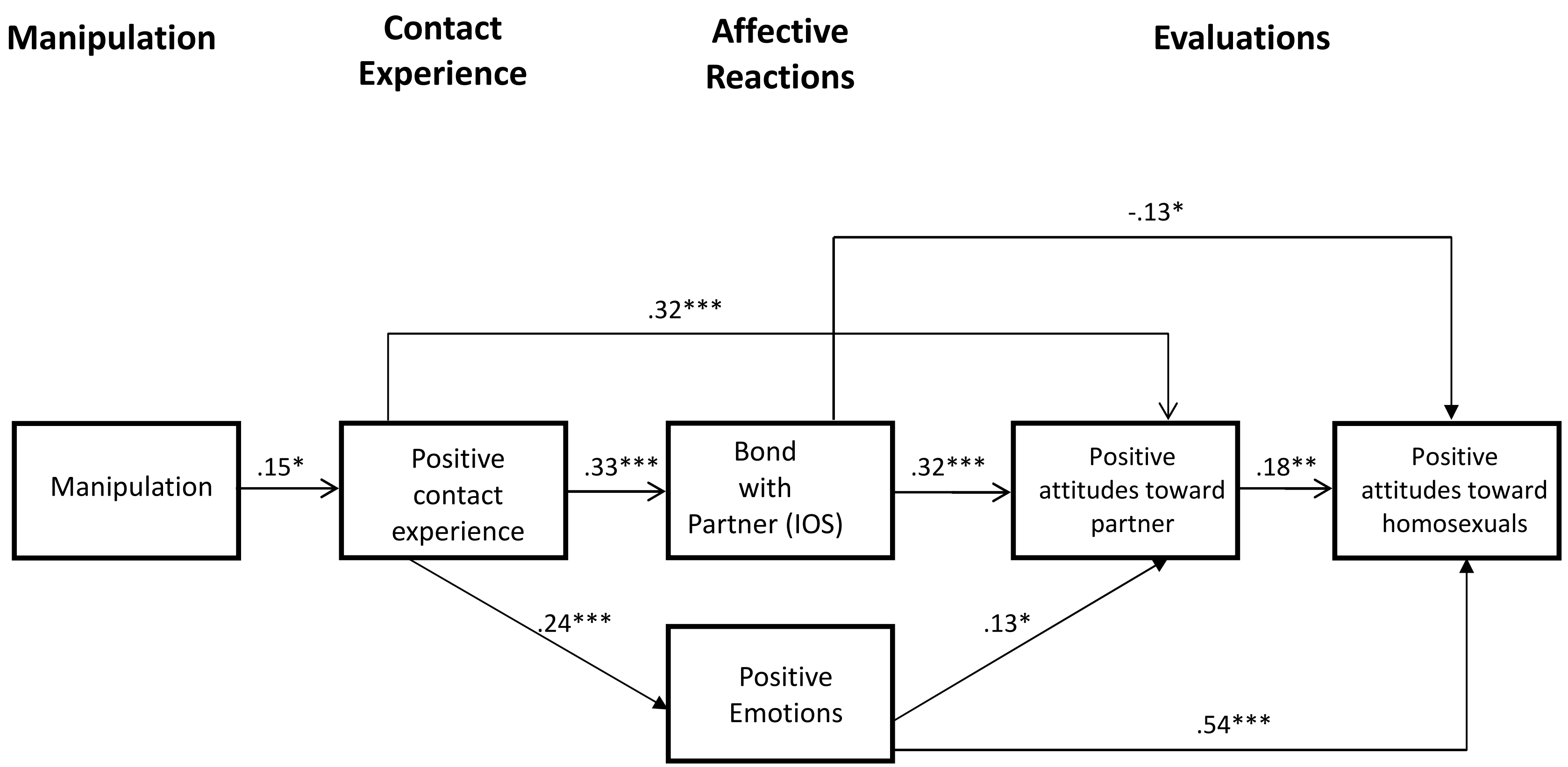


Figure Q.1. Study 2 model including all variables examined (trimmed). $N = 214$ (109 early disclosure condition, 105 late disclosure condition). Paths represent standardized values. *** $p < .001$, * $p = .029$. IOS = inclusion of other in self. Manipulation coded such that 1 = earlier discovery, 0 = later discovery.

generalization pattern, such that positive attitudes toward the individual (partner) predict positive attitudes toward the group (homosexuals). Also consistent with the overarching model (see Figure 1.1a & Figure 1.1c) and Study 1 results (see Figure 2.1d), emotions positively predicted evaluations of the partner which in turn positively predicted attitudes toward homosexuals (although emotions did not significantly indirectly predict group attitudes). Inconsistent with the overarching model however, heightened feelings of closeness with partner were associated with less positive attitudes toward homosexuals. The association between bond with partner and attitudes toward homosexuals was also negative at the zero-order level, though non-significant. Future research is necessary to explain this unexpected finding. Overall, the model revealed evidence of a generalization pattern, but group evaluations were not impacted by the manipulation.

Another means by which to examine the generalization pattern is to test whether the path between individual and group evaluations varies as a function of the manipulation. I examined whether any of the paths in the model depicted in Figure Q.1 (starting with positive contact experience as the exogenous variable) differed between the two conditions (earlier *vs.* later discovery). The potential moderation of all paths was tested, but examining whether condition moderated paths between individual and group evaluations was of primary interest. For each path in the model, the criterion was regressed on predictor variable and the moderator (condition) on Step 1, and on the interaction between the predictor and condition on Step 2. Only one of these interactions was significant: the path between positive contact experience and bond with the partner ($\beta = .45$, $p = .045$) was of stronger magnitude in the earlier (*vs.* later) condition[16]. All other paths were equivalent across conditions. Importantly, the key path between

[16] Of course, given multiple moderation tests, this result should be interpreted with caution.

attitudes toward the partner and attitudes toward homosexuals did not differ as a function of condition. This suggests that in this context, attitudes toward the partner are generalized to attitudes toward homosexuals regardless of timing of disclosure.

Appendix Q Reference

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Newbury Park, CA: Sage Publications.

Kline, R.B. (2011). *Principles and practice of structural equation modeling* (3rd edition). New York: Guilford Press.