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Do Stereotype Consistent Media Profiles of Sexual Outgroup Members affect Perceived Entitativity of and Bias Towards Sexual Outgroups?

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by

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Abstract

Intergroup contact has been shown to reduce discrimination towards several derogated social outgroups. In this paper, we examined the application of indirect contact to the reduction of bias towards male homosexuals. Specifically, we used social media to induce a situation in which participants engaged in contact with the media profile of a sexual outgroup member. In the first study, we manipulated whether the online profiles were consistent or inconsistent with social stereotypes towards gay men and examined the relation between outgroup stereotype consistency and entitativity, which may be a mediating variable between contact and bias reduction. We found that viewing stereotype consistent media profiles of sexual outgroup members might lead to perceptions that these sexual outgroup members were less entitative. In the second study, we used the same stimuli to examine the relation between outgroup stereotype consistency and implicit attitudes and affect towards sexual outgroup members. However, we found that there is no significant interaction between outgroup stereotype consistency and implicit attitudes and affect towards outgroups. Therefore, our studies show that outgroup stereotype consistency might be a manipulator of entitativity, but outgroup stereotype consistency does not change individuals' implicit affect or attitude towards outgroup members. Future studies may further investigate methods other than social media that may alter implicit attitudes and affect towards outgroups.

Key word: stereotype, consistency, entitativity, sexual minority

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Despite the fact that same sex marriage is legalized nationwide in the United States since

June 26, 2015, social bias towards sexual minorities did not stop with this legalization. Although

American citizens' attitudes towards the LGBT group have become more positive (Avery et al,

2007), sexual minorities are still experiencing social discrimination in various ways, resulting in

a deterioration in their life quality, health condition, and education level. Moreover, sexual

minorities are more likely to engage in suicidal behaviors (Bontempo et al, 2002; Fergusson,

Horwood, & Beautrais, 1999; Röndahl, 2011; United States Department of Health and Human

Services, 2011). Therefore, it is essential for us to understand the underlying cognitive

mechanism behind the discrimination against LGBT group members and to focus on looking for

ways to reduce social bias in general.

Specifically, we are interested in using behavioral tasks to measure implicit attitude and

affect. Under experimental environment, participants are often unwilling to reveal their prejudice

through explicit measure like self-report. Therefore, implicit measures are often used to report

participants' implicit attitudes and affects under the control of self-awareness (Greenwald,

McGhee, & Schwartz, 1998), so that participants cannot pretend to be unbiased. Behavioral

researches, i.e., Gay-Straight Implicit Association Test (IAT; Greenwald et al., 1998), show that

heterosexual participants show more negative implicit attitude towards homosexual targets than

to heterosexual targets (Banse, Seise, & Zerbes, 2001). Therefore, implicit attitude and affect measures are used in our study.

One of the ways that researchers have attempted to mitigate biases against group members is through intergroup contact. The contact theory suggests that long time intergroup cooperation can reduce prejudice towards outgroup members (Allport, 1954). A large scale meta-analysis supports the contact theory that long time intergroup contact typically reduces intergroup prejudice (Pettigrew & Tropp, 2006). Nevertheless, direct contact does not always lead to reduced prejudice (Pettigrew, 1998). For example, the representativeness of an individual belonging to an outgroup (e.g., a gay male dressed in a feminine way, or an aggressive-looking black male) often causes an immediate increase in anxiety, before any positive interaction has been made (Hewstone & Brown, 1986). This increased anxiety caused by the representativeness of the outgroup member can cause a rise in discrimination level after the short time interaction (Trawalter, Richeson, & Shelton, 2009).

In order to achieve positive intergroup contact without risking the potentiality of raising anxiety or hostility, indirect contact has been introduced in this field. For example, instead of having participants interact with a real outgroup member, this process can be mimicked by having participants imagine that they are interacting with an outgroup member in a positive way. Same as long time direct interaction, imagined contact can also reduce prejudicial attitudes, as has been shown with bias against elderly people and bias against homosexual people (Turner, Crisp & Lambert, 2007). A recent meta-analysis on intergroup contact shows that discrimination

towards ethnic minorities can be reduced indirectly using imagined contact (Lemmer & Wagner, 2015). Therefore, in our study, we will use indirect contact to achieve our goal of reducing prejudice.

Indirect exposure to outgroup members can also be achieved through media. Studies show that exposure to media portrayals of homosexuals, such as watching gay men in a television series, can lead to a reduced prejudicial attitude towards gay men (Schiappa, Gregg, & Hewes, 2005). It is reasoned that the audience can learn positive interactions with outgroup members through television (Bandura, 2002). In support of this idea, research demonstrated that seeing an ingroup character with which the audience identifies interacts positively with an outgroup member in the show is associated with a stronger learning result and therefore, can lead to a more positive intergroup attitude (Ortiz, & Harwood, 2007).

Given the benefits of indirect contact through media, therefore, Computer-mediated Communication (CMC) may be a useful way to facilitate indirect communication with outgroups. Previous research by Alvídrez, Piñeiro-Naval, Marcos-Ramos, and Rojas-Solís (2015) demonstrated that people showed decreased racial prejudice when they were aware that they were talking to a stereotype inconsistent outgroup member. In the study, participants were asked to ostensibly talk online with a target whom they believed was from a racial ingroup or outgroup. Two types of target individuals were created by the researcher: one showed an outgroup stereotype consistent character and one showed an outgroup stereotype inconsistent character. Participants in the inconsistent group showed a reduced prejudicial attitude on the

subtle prejudice scale towards Latin Americans (target outgroup) after the CMC manipulation. More research needs to be conducted to identify the mechanism responsible for this prejudice reduction.

A variable that may be responsible for the prejudice reduction seen following actual or imagined intergroup contact is entitativity. It refers to the degree to which group members share values and pursue common goals (Campbell, 1958). Reducing the perception about a group's level of entitativity could mediate the relationship between contact and prejudice reduction. This relationship is hypothesized for several reasons. First, to someone who belongs to an ingroup, outgroup members are typically thought to have higher entitativity than ingroup members because of a relative lack of contact with the former. Thus, ingroup members would more often base their judgments on stereotypes (Crawford, Sherman, & Hamilton, 2002, Crump, Hamilton, Sherman, Lickel, & Thakkar, 2010, Haslam, Rothschild, & Ernst, 2002). Second, higher levels of entitativity are associated with higher levels of prejudice against the outgroup (Haslam et al., 2002). Based on these previous works, reducing the perception of a group's entitativity may lower levels of prejudice. After making contact with outgroup members, the perceived entitativity decreases, so the judgments made are less stereotype-based, resulting in a reduced prejudicial attitude (Newheiser, Tausch, Dovidio, & Hewstone, 2009).

Manipulations of entitativity have been shown to affect implicit affect towards male homosexuals. Dickter, Forestell, Blass, & Gupta (2017) found that when entitativity level (low vs. high) was manipulated such that homosexual and heterosexual couples were described as less

or more entitative, implicit affective responses were affected. Participants in the low entitativity group showed more positive implicit affect for gay than straight groups, and there was no difference between gay and straight groups in the high entitativity condition. Therefore, directly manipulated entitativity has shown to reduce negative outgroup affect.

Our study sought to extend the previous work to examine whether exposure to male homosexuals through media reduces participants' perceived entitativity towards that outgroup and decreases bias. Our study intended to explore the influence of another kind of media, social media, such as Facebook or Instagram, on reducing people's intergroup prejudicial attitude and negative affect towards sexual minorities. The increasing usage of online media results in people thinking online media and webpages have more credibility than traditional press and TV news (Johnson, & Kaye, 1998). The population of interest in the current study is college students, who spend a significantly longer time on social media than on television. TV viewing dropped nearly 40% (from 26.28hr/w to 16.18hr/w) from 2011 to 2016 for the age range of 18 to 24 (MarketingCharts, 2016), while users of Facebook grew from 845 million to 1.15 billion (Statista, 2016).

Two studies were conducted to examine the relationships among media-mediated contact, entitativity and prejudice. The first study examined how media profiles of gay and straight men can affect the perceived entitativity of these groups. Previous study showed that there exists a relation between perceived consistency and group entitativity (McGarty, Haslam, Hutchinson, & Grace, 1995). As entitativity shows the degree to which group members share values and pursue

common goals (Campbell, 1958), it is possible that stereotype consistency is related with group

entitativity. To test whether entitativity would differ as a function of whether the targets in the

profiles consistent with stereotypes, we manipulated the information presented to be outgroup

stereotype consistent or inconsistent. Specifically, we created four groups, combining two

consistency conditions together for each group: one group viewing Gay Consistent and Straight

Consistent, one group viewing Gay Consistent and Straight Inconsistent, one group viewing Gay

Inconsistent and Straight Consistent, and one group viewing Gay Inconsistent and Straight

Inconsistent. We were also interested in how viewing ingroup consistent/inconsistent pictures

would affect participants' perceived outgroup entitativity. We expected to find that by perceiving

stereotype inconsistent cues, participants will perceive that sexual minorities are less entitative.

We also hypothesized that viewing stereotype inconsistent ingroup members would not affect

participants' perceived entitativity towards outgroups.

The second study extended this first study by examining how the profiles can affect implicit

attitudes and affect towards outgroup members. We hypothesized that by viewing stereotype

inconsistent outgroup member profiles, participants would show less implicit prejudicial attitude

and affect (Alvídrez et al., 2015). Existing literature suggested that after perceiving the sexual

outgroup members as less entitative, participants would also show less prejudice towards

outgroup members (Dickter, Forestell, Blass, & Gupta, 2017). Therefore, if viewing stereotype

consistency successfully manipulates perceived entitativity in study one, then we can

hypothesize that the decrease in prejudice caused by outgroup stereotype inconsistency is

mediated by a lower level of perceived outgroup entitativity.

Study 1

Method

Participants

In study one, 122 participants, 40 males and 82 females from the age of 18 to 23 years were

included in the study. All were undergraduate students enrolled in a psychology course at the

College of William and Mary, receiving partial class credit for their participation. All procedures

were approved by the William and Mary Protection of Human Subjects Committee.

Materials

Picture stimuli

A pilot study was first conducted. The pilot study contained four categories of

stereotypically gay descriptive traits (fashionable, compassionate, hairdresser, and with earrings)

and four stereotypically straight traits (tough, masculine, sloppy, and unemotional), as identified

in previous research (Lehavot & Lambert, 2007; Madon, 1997). Each category had seven picture

stimuli in it. Picture stimuli were selected online, showing subjects in the pictures acting

according to the labelled adjectives (e.g., a man intimately holding a cat, for the trait of

compassionate). All pictures were cropped square (1080 pixels*1080 pixels). Participants were

asked to rate how clearly the pictures depicted the traits (i.e., how do the picture and text above

represent the word "fashionable"), and how attractive the subjects were in the pictures (i.e., how

attractive is the person in the picture). Both questions were rated on a scale from 0 (not at all) to 100 (extremely). Seventy-eight participants in a convenience sample from the age of 18 to 24 participated in the pilot survey disseminated from a social media website. Three categories out of four were selected for both kinds of traits: fashionable, compassionate, with earrings among gay adjectives, and tough, masculine, sloppy among straight traits. Three out of seven pictures were drawn for each category. Pictures selected had an average relevance level above 57 out of a 101-point scale. The average attractiveness levels for gay group and straight group were also controlled, so attractiveness would not bias participants in the later study. Analyses revealed that the means for the groups were not different from one another, $t(57)= 1.06, p = 0.29$.

Eighteen pictures from the pilot test were selected as the stimuli for study one. In study one, the pictures were displayed on Qualtrics in a way to imitate Instagram (see Figure 1). A "heart" button was also designed at the bottom of each picture. Participants were asked to hit the "heart" button if they liked this picture. Therefore, this process emulated the real life experience when people use social media. In order to make the profile more complete, above the picture stimuli, virtual demographic information was also listed, including age, gender, sexual orientation, hometown, and a sentence ostensibly provided by the subjects in the pictures. The participants were asked to memorize the virtual demographic information. A memory test was given after viewing the stimuli to make sure that the participants would actually pay attention to the sexual orientation of the stimuli and incorporate this information in the later survey, and also to deviate the participants' idea of the true purpose of the study. Different sexual orientations were assigned

to the same pictures, representing either consistent or inconsistent groups. Therefore, four

conditions were created, Gay Consistent (GC), Gay Inconsistent (GI), Straight Consistent (SC),

Straight Inconsistent (SI).

Questionnaires (see Appendix)

Participants filled out a demographic questionnaire indicating their basic information like

age, race, sexuality, etc. They also completed the series of questionnaires below about their

attitudes and familiarity towards homosexuality.

Entitativity Survey

The entitativity survey contained two general questions about sexual orientation and

perceived entitativity (i.e., "In general, to what extent do you think that homosexual couples are

dependent on one another and seek to pursue common goals?") and the entitativity part of the

questionnaire from Sexual Orientation Beliefs Scale (SOBS) Form One (Arseneau, Grzanka,

Miles & Fassinger, 2013). This part of SOBS scale is intended to measure the people's attitude

about the group homogeneity of the target sexual outgroup. Participants were asked questions

like "Individuals with the same sexual orientation seem to be connected to one another by some

invisible link" on a 5-point scale from 1 (never) to 5 (always).

Measure of Familiarity (Dickter, Forestell, & Mulder, 2015)

In order to measure more objectively regarding the question of how many gender minority

friends the participants have, participants were asked to name 20 of their close friends. Then they

were asked to identify how many of their friends are self-identified as sexual minorities. Thus, the percentage of their close friends who are sexual minorities was generated.

Essentialist Beliefs Scale (Bastian & Haslam, 2006)

The Essentialist Beliefs Scale is a measure of evaluating to what extent do people think certain traits are biologically based, perceived with discrete boundaries, and are informative about the subject. Therefore, the scale is divided down to three parts: biological basis (i.e., "whether someone is one kind of person or another is determined by their biological make-up"), discreteness (i.e., "the kind of person someone is, is clearly defined; they either are a certain kind of person or they are not"), and informativeness (i.e., "it is possible to know about many aspects of a person once you become familiar with a few of their basic traits"). The biological scale has shown a good internal consistency ($\alpha = .80$). The reliability of discreteness and informativeness were lower but still adequate ($\alpha = .69$ and $\alpha = .62$). The scale consists of 23 questions in total and 11 reversed score questions. All three parts are rated on a 6-point scale, from 1 (strongly agree) to 6 (strongly disagree).

Attitudes towards Lesbians and Gay Men scale (ATLG; Herek, 1988)

The revised long version of the ATLG is used in this study. This scale has shown to have a high internal consistency ($\alpha = .97$). The scale consists of two parts: ATL (Attitudes towards Lesbians) and ATG (Attitudes towards Gay Men). Each part has 10 questions, measuring participants reported attitudes towards certain statements (i.e.: "I think male homosexuals are

disgusting"; "Female homosexuality is a threat to many of our basic social institutions"), scaling

from 1 (strongly disagree) to 7 (strongly agree), with reversed-scored questions.

Procedure

Participants registered for this study online using the SONA participation system. After their

registration, they received a link to the survey of the study. All participants were randomly

assigned to two conditions, which are the combinations from GC, GI, SC, and SI (GC and SC;

GC and SI; GI and SC; GI and SI). In order for them to pay attention to the sexual orientation of

the subjects in the pictures, they were told that they will be tested on their memory for the

demographic questions. During the picture viewing process, participants were also asked to click

on the "like" button if they like the picture. After completing the picture viewing and fake

memory test, they proceeded to the entitativity questionnaires and finished the survey. After

finishing the survey, they read a debriefing statement and received their credits for participation.

Results

Among the 122 participants, 10 were excluded for having wrong answers in the memory

test. Thirteen participants were excluded for taking the test longer than three standard deviations

above the mean duration time ($M = 946$ second, $SE = 354$ second), as we suspected that they

may have been paying less attention to the stimuli. Thirteen were excluded for reporting

themselves as sexual minorities, because this study examined heterosexuals' perception towards

sexual minorities.

Thus, the analyses below used the data of 88 participants (30 males and 58 females), from 18 to 23 years of age ($M = 19.14$, $SE = 1.11$). There were 17 people in the GC and SC group, 25 in the GC and SI group, 24 in the GI and SC group, and 22 in the GI and SI group. Therefore, we had 42 people in the GC groups, 46 in the GI groups, 41 in the SC groups, and 47 in the SI groups. There was no difference between these four groups on scale measures and familiarity measure (see Table 1).

In order to examine whether gay or straight stereotype consistency affected perceived entitativity towards gay men, a 2 (Sexual Orientation: Gay vs Straight) x 2 (Consistency: Consistent vs Inconsistent) between-subject Analysis of Variance (ANOVA) was conducted. There was a marginally significant interaction found in the ANOVA analysis, $F(1,84) = 3.90$, $p = .053$. When broken down into two groups comparisons, within the Straight Inconsistent group, there was no significant difference between the GC group and the GI group, $F(1,39) = 1.20$, $p = .280$. There was marginal difference between the GC and the GI group, within the Straight Consistent group, $F(1,45) = 2.87$, $p = 0.097$.

This ANOVA result showed that outgroup members were rated as the least entitative among the four combinations (see Figure 4) when participants viewed profiles of gay men displaying stereotype inconsistent traits and straight men displaying stereotype consistent profiles.

There were two significant correlations between the Entitativity scale and two parts (discreteness and inform) of the Essentialist Belief Scale (see Table 2). Also, Essentialist Belief Scale showed a consistency pattern within its three parts. At the same time, the ATLG also

showed a great consistency between its lesbian part and gay part. Both the ATLG scales

correlated significantly with the Entitativity scale and discreteness in the Essentialist Belief

Scale.

Discussion

The current findings suggested that outgroup stereotype consistency can cause moderate

changes in perceived entitativity of gay men. Specifically, when comparing within the SC group,

the difference between the GC and GI group was marginally significant, suggesting that possibly

the perceived outgroup entitativity is lower when viewing SC and GI pictures, comparing to

viewing SC and GC pictures.

The correlations we found supported existing research on the internal consistency of the

Essentialist Belief Scale and ATLG (Bastian & Haslam, 2006; Herek, 1988). The significant

correlations between entitativity and ATLG expanded the existing literature, showing that ATLG

scale is a covariate with entitativity. In Study 2, we predicted that by viewing inconsistent

outgroup member pictures, participants will show less negative affect and attitudes towards

outgroup members.

Study 2

Participants

Participants who had already participated in study one were excluded from study two from

the participation system. Ninety-four participants, 55 males, 37 females and 2 non-binary gender

from the age of 18 to 22, were included in the study. They were all undergraduate students

enrolled in a psychology course at the College of William and Mary and participated for partial

class credit for their participation. All procedures were approved by the William and Mary

Protection of Human Subjects Committee.

Materials

Affect Misattribution Procedure (AMP; Payne, Cheng, Govorun, & Stewart, 2005)

The AMP measured participants' implicit affective responses to stimuli. Forty-two pictures

(pictures were developed from former study; Cunningham, Forestell & Dickter, 2013) of

gay/straight couple (i.e., two men kissing or intimately hugging each other; a man and a woman

kissing or intimately hugging each other) were used in the test. Each test had 14 pictures. The

pictures used has been previously created, cropped into square, turned into black and white to

avoid bias. The facial expression, posture, and degree of emotional involvement were carefully

controlled.

The stimuli described above were shown for 75ms as a prime stimulus, followed by a blank

screen for 125ms. Then a neutral stimulus (a Chinese character) was shown for 100ms, and after

that a masking screen was shown until the participants rate the neutral stimulus as pleasant or

unpleasant. Participants who knew Chinese were recorded in the following survey and were

ruled out in data analysis. Therefore, for the rest of the participants, they should hold no

emotional judgment against the neutral stimulus, and so their implicit emotional response was

associated with the prime stimulus presented, which was the picture of the gay/straight couple.

This procedure has been shown to be a reliable indicator for implicit affective response towards homosexual couples relative to heterosexual couples.

Implicit Association Test (IAT; Greenwald et al., 1998)

IAT has been shown to be an effective measure for implicit attitudes towards outgroup members. The test consisted of three major blocks. In the first block, participants were asked to pair a list of pleasant words (i.e.: happy, beautiful, awesome), with the pleasant category, and a list of unpleasant words (i.e.: sad, painful, awful) with the unpleasant category. In the second block, they needed to pair words/pictures representing gay/straight people (i.e., two men kissing each other/one man and one woman kissing each other) with the gay category or the straight category. In the third block, they were asked to attribute the mix of words/pictures to the category "pleasant+gay" and "unpleasant+straight", and another trial of "pleasant+straight" and "unpleasant+gay". Reaction time for "pleasant+gay with unpleasant+straight" group and "pleasant+straight with unpleasant+gay" group was compared, and the shorter-time group was the implicit attitude favored group. The implicit attitude for gay/straight group was measured by these words' association with pleasant/unpleasant.

Procedure

Participants were asked to come into the lab for this experiment. After they entered the room, they were asked to sit in front of a computer and call the researcher once they finished the assigned test. First, the same picture stimuli and requirements in study one were given to the participants. After viewing the pictures and finishing the memory test, they were asked to do

either the AMP or the IAT test. After finishing one of those tests, participants were asked to

finish the other test. The order of the tasks was counterbalanced between participants. After

finishing these two tests, the participants were asked to finish an end survey. After the survey,

they were debriefed in person.

Results

Among the 94 participants, nine were excluded for answering wrong answers in the stimuli

test. Six participants were excluded for AMP data analysis because they self-reported as knowing

Chinese calligraphy, since the accuracy of AMP is based on participant's neutral attitude towards

Chinese character. Therefore, there were 85 participants (52 males, 31 females and 1 gender non-

binary) left for data analysis. 17 participants were in the GC and SC group. 21 participants were

in the GC and SI group. 24 participants were in the GI and SC group. 18 participants were in the

GI and SI group. There was no difference between four groups on scale measurements and

familiarity measure (see Table 3).

When examining whether consistency of the gay and straight profiles affected participants'

implicit affective response (AMP) towards outgroup members, three 2 (Sexual Orientation: Gay

vs Straight) x 2 (Consistency: Consistent vs Inconsistent) between-subject Analysis of Variance

(ANOVA) were conducted respectively with gay, lesbian and straight groups in AMP

measurement. There was no significant interaction in AMP gay group, $F(1,73) = .00$, $p = .986$

(see Figure 5), no significant interaction in AMP lesbian group, $F(1,73) = .09$, $p = .769$ (see

Figure 6), and no significant interaction in AMP straight group, $F(1,73) = 2.74$, $p = .102$. When

taking out the sexual minority participants, the results did not change.

To examine whether consistency of the gay and straight profiles affected participants'

implicit attitude score (IAT) towards outgroup members, the same 2 x 2 ANOVA was conducted

with the IAT d score as the dependent variable. A marginal interaction was found, $F(1,81) =$

3.93, $p = .051$. However, there was no significant difference between GI and GC groups, $F(1,43)$

$= 2.07$, $p = .157$, within the Straight Consistent group. Within the Straight Inconsistent group,

there was no difference between GI and GC groups, $F(1,38) = 1.86$, $p = .180$ (see Figure 7).

When taking out the participants who reported themselves as sexual minorities, the result did not

differ.

When a correlation was conducted, IAT score was found to be significantly correlated with

ATLG scale, as supported by the good validity and external consistency between IAT

measurement and attitude towards homosexual scales (Banse et al., 2001). The gay group and

lesbian group of AMP were also found to be significantly correlated with ATLG scale. Straight

group of AMP was not found to correlate with any other measurements as predicted (see Table

4).

Discussion

From the result of study two, we did not find a significant interaction in ANOVA analyses

relative to IAT and AMP scores.

The correlations between the ATLG scale and AMP Gay, the ATLG scale and AMP Lesbian were never found before. It is possible that the ATLG scale being a covariate with AMP Gay and AMP Lesbian shows that explicit scales and implicit measures are measuring the same outgroup affect construct. The insignificant correlation between the ATLG scale and AMP Straight increased the credibility of this hypothsis.

General Discussion

This research examined whether gay and straight men's social media profiles differing in stereotype consistency can manipulate perceived entitativity and reduce implicit bias towards sexual outgroup members. We predicted that viewing profiles featuring stereotype inconsistent outgroup members through online media would decrease perceived entitativity, and viewing stereotype consistent outgroup members would not affect entitativity. Viewing ingroup members as either consistent or inconsistent should not affect people's perceive entitativity. Furthermore, we examined whether stereotype consistency was able to influence implicit attitudes and affect towards outgroup members. If viewing stereotype inconsistent outgroup members through online media does decrease participants' perceived entitativity and leads to reduced negative attitudes and negative affect towards the outgroups, then we can find support for the model that stereotype inconsistent outgroup members reduce negative attitudes and affect towards that outgroup through reducing entitativity.

The results of study one suggest that it is possible that sexual outgroup members can be rated as less entitative after viewing stereotype inconsistent gay male and stereotype consistent

straight male. Currently, the literature only shows that stereotype consistency is able to

manipulate bias (Alvídrez et al., 2015) and that less perceived entitativity has shown to be an

indicator of reduced prejudicial attitude (Newheiser et al., 2009). However, no literature has

shown that stereotype consistency is an effective manipulation of perceived entitativity.

Therefore, the first part of our study is intended to fill in the gap between stereotype consistency

and entitativity.

　　We also found that there are several significant correlations between different measures. The

entitativity scale was significantly correlated with nearly all other scales, which is an indication

that entitativity is related to outgroup attitudes. For example, according to the positive significant

correlation between entitativity and ATLG scale, when the score of entitativity is lower, the

score of ATLG will also be lower, which means people have less negative attitude towards

lesbians and gays, when they perceive lesbians and gays as less entitative. Therefore, these

significances in correlation resonated with previous findings between entitativity and attitudes

towards outgroup (Haslam et al., 2002).

　　The second part of our study was designed to demonstrate that online media can affect

prejudicial attitudes and affect. From the results of study two, we found that there is no

interaction between consistency and stereotypes regarding the results of AMP. There was a

marginal significant interaction regarding the result of IAT, but no main effect was found

between groups. Although previous research showed that entitativity can effectively manipulate

implicit affect and attitude (Dickter et al., 2017; Newheiser et al., 2009), our study did not

support this. This could be because the previous research manipulated entitativity directly by giving participants made-up facts about homosexuals and heterosexuals, but our study presented entitativity through mimicking social media. Our result might show that changing entitativity through social media cannot predict implicit affect and attitude like directly manipulated entitativity did. Therefore, there may exist a difference between directly manipulated entitativity and entitativity changed through social media that needs further examination. Another reason might be that entitativity is not a mediator between stereotype consistency and implicit attitude and our hypothesis was wrong.

A third reason might be that using online social media, especially personal media like Instagram, was not an effective mediator for entitativity, when comparing to directly controlled entitativity. This might be because that people tend to pay less attention to online media information nowadays – Costumer Insights, Microsoft Canada (2015) researchers found that people's average attention span dropped from 12 seconds to eight seconds since 2000. Therefore, it is possible that the less time they spend on viewing the profiles, the less information they will perceive.

The correlation and regression analyses showed that there were strong correlations between AMP, IAT, and other measures (Payne et al., 2005; Greenwald et al., 1998), and there existed strongly predictive variances, which aligned with previous studies (Banse et al., 2001). The correlations indicated that implicit attitude and affect measures are related to explicit attitudes. The strong regression between AMP Gay and ATLG showed that ATLG contributes

significantly to the prediction of implicit affect, which meant that explicit attitude measures are also reflexive of implicit affect and attitude. The correlation between ATLG and IAT proved the existing literature on explicit scale measures and implicit attitude (Banse et al., 2001). The correlations between ATLG and AMP Gay and AMP Lesbian was never shown in other research. Therefore, our study expanded the existing literature over the correlations between implicit affect and explicit measures.

There are several limitations to this research. These two studies may have an inadequate sample size. After excluding unqualified participants, the sample size was around 90 people for study two. However, when breaking down to the four groups combination, each group only has around 20 participants, which might be a small sample size for quantitative analysis. Also, the arrangement of the picture stimuli may cause confusion for participants. The study might be more rigorous if the questionnaires were randomized in the sequence of been taken in both study one and study two. We counterbalanced the order of the AMP and IAT to prevent potential influence on the results. However, the order that the scale measures were presented might also have had an influence on each other. Also, the relation between different types of perceived entitativity and outgroup attitude needs to be further examined, especially through online media given its rapid development and deep influence in people's daily life.

This research serves to add literature into the contact theory in order to more effectively mediate discrimination and prejudice, and therefore, reducing negative attitude and affect towards sexual minorities. As nearly all theories pointed out, increasing contact with outgroup

members in all kind of ways might be the effective solution to decrease bias, and eliminate

further hatred towards outgroups.

References

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

Avery A, Chase J, Johansson L, Litvak S, Montero D, Wydra M. (2007). America's changing

attitudes toward homosexuality, civil unions, and same-gender marriage: 1977-2004. *Soc*

Work, 52(1), 71–79.

Bandura, A. (2002). Social cognitive theory of mass communication. In J. Bryant & D. Zillmann

(Eds.), *Media effects: Advances in theory and research* (2nd ed., pp. 121-153). Hillsdale NJ:

Lawrence Erlbaum Associates, Inc.

Banse, R., Seise, J., & Zerbes, N. (2001). Implicit attitudes towards homosexuality: Reliability,

validity, and controllability of the IAT. *Zeitschrift für Experimentelle Psychologie, 48*(2),

145-160.

Bastian, B., & Haslam, N. (2006). Psychological essentialism and stereotype endorsement.

Journal of Experimental Social Psychology,42, 228–235.

Bontempo DE, D'Augelli AR. (2002). Effects of at-school victimization and sexual orientation

on lesbian, gay, or bisexual youths' health risk behavior. *J Adolesc Health, 30*(5), 364–374.

Costumer Insights, Microsoft Canada. (2015). *Attention Spans.* Retrieved from

https://advertising.microsoft.com/en/wwdocs/user/display/cl/researchreport/31966/en/micro

soft-attention-spans-research-report.pdf

Crawford, M. T., Sherman, S. J., & Hamilton, D. L. (2002). Perceived entitativity, stereotype

formation, and the interchangeability of group members. *Journal of Personality and Social*

Psychology, *83*(5), 1076-1094.

Crump, S. A., Hamilton, D. L., Sherman, S. J., Lickel, B., & Thakkar, V. (2010). Group

entitativity and similarity: Their differing patterns in perceptions of groups. *European*

Journal of Social Psychology, *40*(7), 1212-1230.

Cunningham, E., Forestell, C. A., & Dickter, C. L. (2013). Induced disgust affects implicit and

explicit responses toward gay men and lesbians. *European Journal of Social Psychology,*

43(5), 362-369.

Dickter, C. L., Forestell, C. A., Blass, J. J., & Gupta, N. P. (2017) Manipulating Entitativity

Decreases Implicit Behavioral and Neural Attentional Biases toward Gay Couples. *Revise*

and resubmit.

Dickter, C. L., Forestell, C. A., & Gupta, N. P. (2017). Reducing perceptions of

entitativity decreases implicit affective and attentional biases toward homosexual

couples. *Under review.*

Dickter, C. L., Forestell, C. A., Mulder, B. E. (2015) Neural attention and evaluative responses to

gay and lesbian couples. *Social Neuroscience, 10*(3), 308-19.

Fergusson DM, Horwood LJ, Beautrais AL. (1999). Is sexual orientation related to mental health

problems and suicidality in young people? *Arch Gen Psychiatry, 56*(10), 876–880.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual

differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74*(6), 1464-1480.

Haslam, N., Rothschild, L., & Ernst, D. (2002). Are essentialist beliefs associated with

prejudice? *The British Journal of Social Psychology, 41*, 87-100.

Herek, G. M. (1998). The Attitudes Toward Lesbians and Gay Men (ATLG) scale. In C.M.

Davis, W.H. Yarber, R. Bauserman, G. Schreer, & S.L. Davis (Eds.), *Sexuality-related measures: A compendium*. Thousand Oaks, CA: Sage Publications.

Hewstone M, Brown R, eds. (1986). Contact and Conflict in Intergroup Encounters. *Oxford:*

Blackwell, 231.

Huebner DM, Rebchook GM, Kegeles SM. (2004). Experiences of harassment, discrimination,

and physical violence among young gay and bisexual men. *Am J Public Health, 94*(7),

1200–1203.

Johnson, T. J., Kaye, B. K. (1998). Cruising is believing? Compare internet and traditional

sources on media credibility measures. *Journalism & Mass, Communication Quarterly, 75*(2), 325-340.

Lehavot, K., & Lambert, A. J. (2007) Toward a greater understanding of antigay prejudice: On

the role of sexual orientation and gender role violation, *Basic and Applied Social Psychology, 29*, 279-292.

Madon, S. (1997). What do people believe about gay males? A study of stereotype content and

strength. *Sex Roles*, *37*, 663-685.

MarketingCharts. (2016). [Graph illustration of TV watching rate]. *Traditional TV Viewing

Trends Among 18-24-Year-Olds*. Retrieved from

http://www.marketingcharts.com/television/are-young-people-watching-less-tv-

24817/attachment/nielsen-traditional-tv-weekly-viewing-trends-among-18-24-q12011-

q22016-oct2016/

McGarty, C., Haslam, S. A., Hutchinson, K. J., & Grace, D. M. (1995). Determinants of

perceived consistency: The relationship between group entitativity and the meaningfulness

of categories. *British Journal of Social Psychology, 34*(3), 237-256.

Newheiser, A.-K., Tausch, N., Dovidio, J. F., & Hewstone, M. (2009). Entitativity and prejudice:

Examining their relationship and the moderating effect of attitude certainty. Journal of

Experimental Social Psychology, 45(4), 920-926.

Ortiz, M., & Harwood, J. (2007). A social cognitive theory approach to the effects of mediated

intergroup contact on intergroup attitudes. *Journal of Broadcasting & Electronic Media,

51*(4), 615 – 631.

Payne, B. K., Cheng, C. M., Govorun, O., & Stewart, B. D. (2005). An inkblot for attitudes:

Affect misattribution as implicit measurement. *Journal of Personality and Social

Psychology, 89*, 277-293.

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65-85.

Pettigrew, T. F., &Tropp, L. R. (2000). Does intergroup contact reduce prejudice? Recent meta-analytic findings. In S. Oakamp (Ed.), *Reducing prejudice and discrimination* (pp.93-114), Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology, 90*(5), 751-783.

Röndahl, G. (2011). Heteronormativity in health care education programs. *Nurse Education Today*, *31*(4), 345-349.

Salvador Alvídrez, Valeriano Piñeiro-Naval, María Marcos-Ramos, José Luis Rojas-Solís. (2015) Intergroup contact in computer-mediated communication: The interplay of a stereotype-disconfirming behavior and a lasting group identity on reducing prejudiced perceptions. *Computers in Human Behavior 52*, 533-540.

Schiappa, E., Gregg, P. B., & Hewes, D. E. (2005). The parasocial contact hypothesis. *Communication Monographs, 72*, 92-115.

Statista. (2016). [Graph illustration of Facebook user growth]. *Numbers of Monthly Active Facebook Users Worldwide as of 2nd Quarter 2016 (in Millions)*. Retrieved from https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/

Trawalter S., Richeson J. A., Shelton J. N. (2009). Predicting behavior during interracial interactions: A stress and coping approach. *Personality and Social Psychology Review, 13*, 243–268.

Turner, R. N., Crisp, R. J., & Lambert, E. (2007). Imagining intergroup contact can improve

    intergroup attitudes. Group Processes & Intergroup Relations, 10(4), 427-441.

U.S. Department of Health and Human Services, Health Resources and Services Administration

    (2011). *Women's Health USA 2011*. Rockville, Maryland: Author.

Table 1. Participant characteristics as a function of their manipulated groups in study one.

Continuous variables are reported as means ± *SD*.

Characteristic	GC+SC (*n* = 17)	GC+SI (*n*= 25)	GI+SC (n = 24)	GI+SI (n = 22)	Test Statistic
LGBT friends (%)	5.47 ± 7.53	10.72 ± 11.34	7.79 ± 9.66	13.12 ± 13.97	$F(3,84) =$ 2.07, $p = .11$
Entitativity Scale	2.16 ± .47	2.09 ± .52	2.01 ± .44	2.38 ± .65	$F(3,84) =$ 1.84, $p = .15$
Essentialist Biology Scale	3.78 ± .70	3.96 ± .70	4.08 ± .75	3.98 ± .76	$F(3,84) = .58$, $p = .63$
Essentialist Discreteness Scale	2.91 ± .67	2.81 ± .83	2.85 ± .66	2.96 ± .84	$F(3,84) = .19$, $p = .91$
Essentialist Informativeness Scale	3.50 ± .53	3.38 ± .67	3.53 ± .74	3.32 ± .78	$F(3,84) = .49$, $p = .69$
ATLG – Lesbian Scale	1.45 ± .76	1.48 ± .69	1.30 ± .39	1.45 ± .67	$F(3,84) = .38$, $p = .77$
ATLG – Gay Scale	1.48 ± .80	1.53 ± .93	1.30 ± .50	1.65 ± .81	$F(3,84) = .83$, $p = .48$

Table 2. Correlations, means, and standard deviations (SD) of measurement scale variables in Study 1.

		Mean	SD	1	2	3	4	5
1	Entitativity scale average	2.150	.516					
2	Essentialist belief scale – biology average	3.859	.734	.074				
3	Essentialist belief scale – discreteness average	2.797	.734	.338**	.196*			
4	Essentialist belief scale – inform average	3.448	.698	.280**	.205*	.461**		
5	ATLG scale – lesbian average	1.369	.561	.313**	-.025	.261**	.096	
6	ATLG scale – gay average	1.435	.709	.396**	-.047	.258**	.074	0.876**

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

Table 3. Participant characteristics as a function of their manipulated groups in study two. Continuous variables are reported as means ± *SD*.

Characteristic	GC+SC (*n* = 17)	GC+SI (*n* = 25)	GI+SC (n = 24)	GI+SI (n = 22)	Test Statistic
LGBT friends (%)	11.89±17.29	11.39±12.45	10.46±14.92	8.56±7.75	$F(3,81) = .22$, $p = .88$
Entitativity Scale	2.61 ± .71	2.50 ± .54	2.62± .62	2.59 ± .69	$F(3,81) = .15$, $p = .93$
Essentialist Biology Scale	3.47 ± 1.05	3.58 ± .73	3.75 ± .88	3.61 ± .83	$F(3,81) = .42$, $p = .74$
Essentialist Discreteness Scale	2.76 ± .72	2.58 ± .92	2.54 ± .81	2.62 ± .56	$F(3,81) = .32$, $p = .81$
Essentialist Informativeness Scale	3.31 ± .57	3.18 ± .81	3.25 ± .84	3.53 ± .74	$F(3,81) = .81$, $p = .49$
ATLG – Lesbian Scale	1.19 ± .25	1.42 ± .68	1.37 ± .54	1.42 ± .65	$F(3,81) = .71$, $p = .55$
ATLG – Gay Scale	1.98 ± .34	2.06 ± .51	1.91 ± .20	2.14 ± .57	$F(3,81) = 1.23$, $p = .31$

Table 4. Correlations, means and standard deviations (*SD*) of measurement scale variables in Study 2

		Mean	SD	1	2	3	4	5	6	7	8	9	10
1	Entitativity	2.58	0.64										
2	Essentialist – biology	3.60	.87	.053									
3	Essentialist – discreteness	2.63	.77	.257*	.219								
4	Essentialist – inform	3.28	.76	.402**	.234*	.513**							
5	ATLG – lesbian	1.35	.57	.359**	.041	.328**	.256*						
6	ATLG – gay	2.02	.43	.253*	.088	.310**	.161	.748**					
7	IAT	.33	.47	.190	.164	.281*	.246*	.342**	.264*				
8	AMP – gay	14.92	7.03	-.343**	-.065	-.367**	-.367*	-.410**	-.464**	-.238*			
9	AMP – lesbian	16.39	6.25	-.252*	-.034	-.213	-.213	-.313**	-.268*	-.133	.629**		
10	AMP – straight	17.14	5.67	-.069	.033	-.130	-.130	.046	-.001	-.139	.361**	.570**	

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

Figure Captions

Figure 1. Sample pictures of Gay Consistent group from generated social media profile.

Figure 2. Sample pictures of Gay Inconsistent group from generated social media profile.

Figure 3. Sample pictures of Straight Consistent group from generated social media profile.

Figure 4. Sample pictures of Straight Inconsistent group from generated social media profile.

Figure 5. Sample pictures that were used in AMP and a demonstration of AMP procedure.

Figure 6. Sample pictures that demonstrate the procedure of IAT.

Figure 7. The means of the entitativity scores of the four groups from study one and their standard errors. There is no significant difference between groups. The overall interaction is marginally significant.

Figure 8. The means of the AMP_Gay score of the four groups from study two and their standard errors. There is no significant difference between any of these two groups.

Figure 9. The means of the AMP_Lesbian score of the four groups from study two and their standard errors. There is no significant difference between any of these two groups.

Figure 10. The means of the IAT score of the four groups from study two and their standard errors. There is no significant difference between any of these two groups.

Age: 33
Gender: male
Sexual orientation: gay
Hometown: Chandler

"Hands up for tummy rubs from my baby."

Figure 1.

Age: 35
Gender: male
Sexual orientation: gay
Hometown: Henderson

"My arms used to be my weak spots - now
they are my strength!"

Figure 2.

Age: 28
Gender: male
Sexual orientation: straight
Hometown: North Hempstead

"Only one more to go for my leg day!"

Figure 3.

Age: 24
Gender: male
Sexual orientation: straight
Hometown: Scottsdale

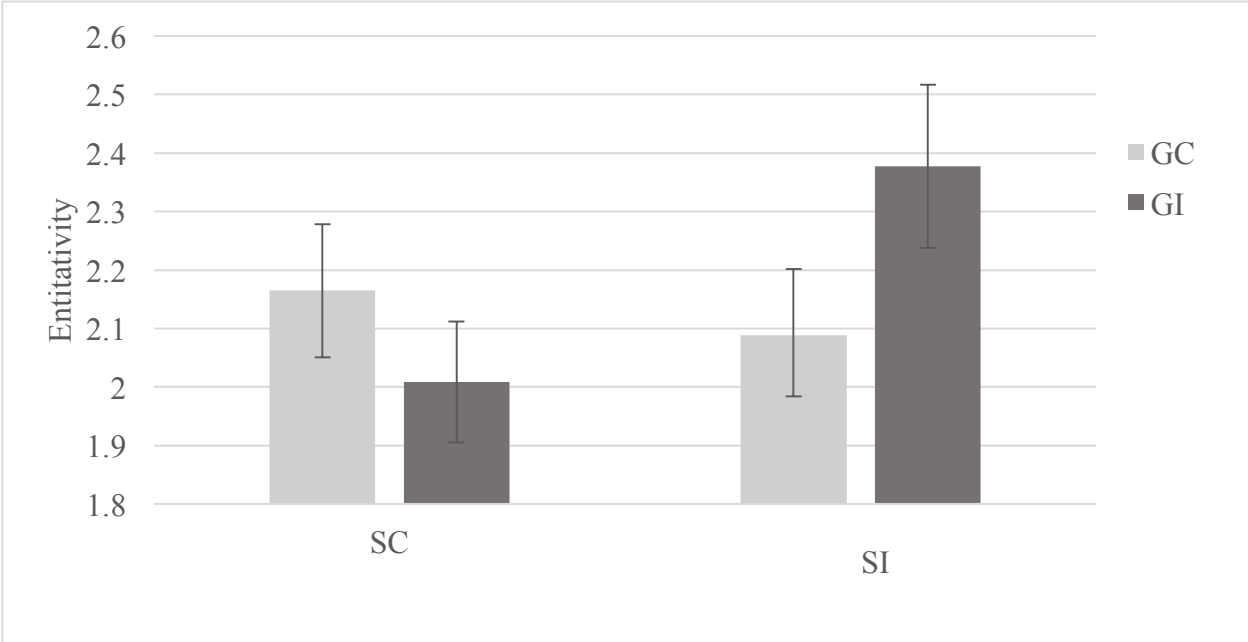"Took me half an hour to pick the shoes that match with my shirt today."
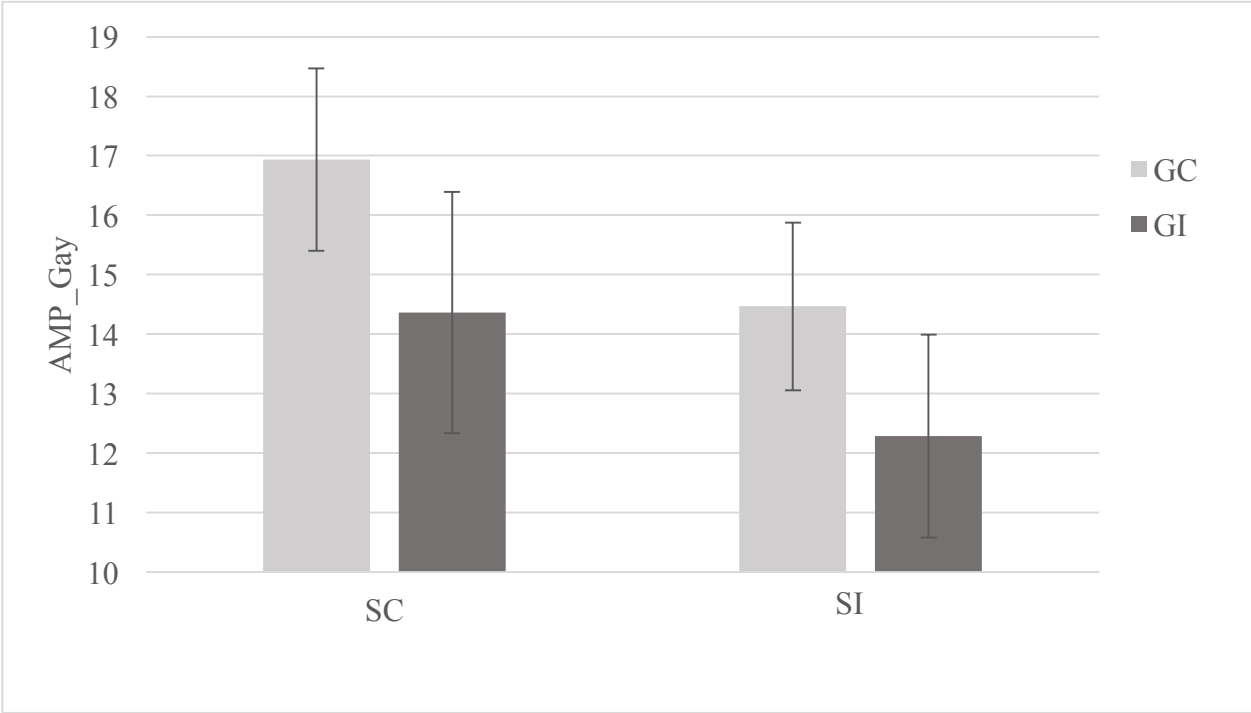

Figure 4.
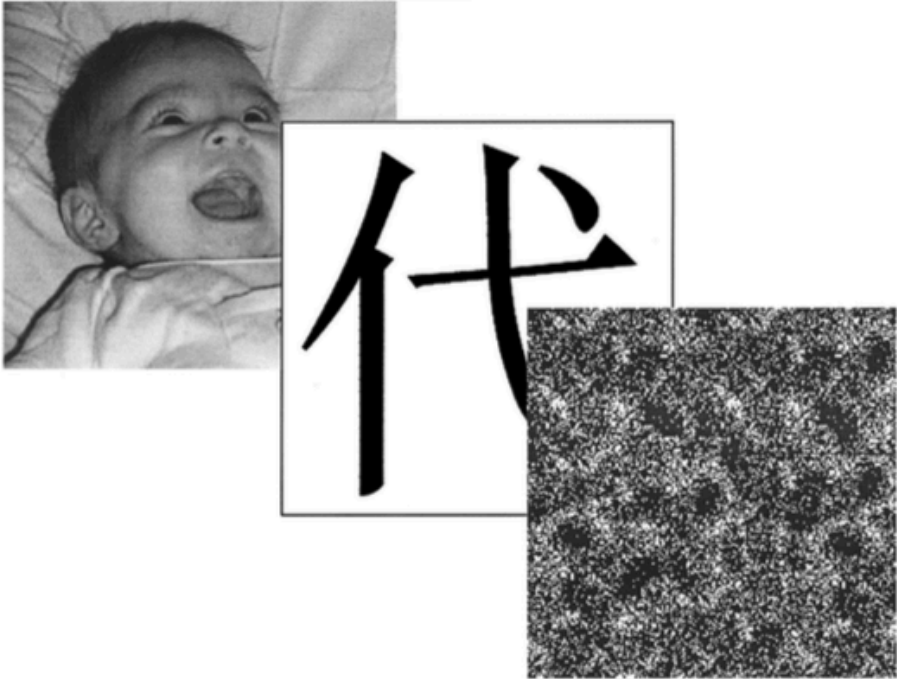
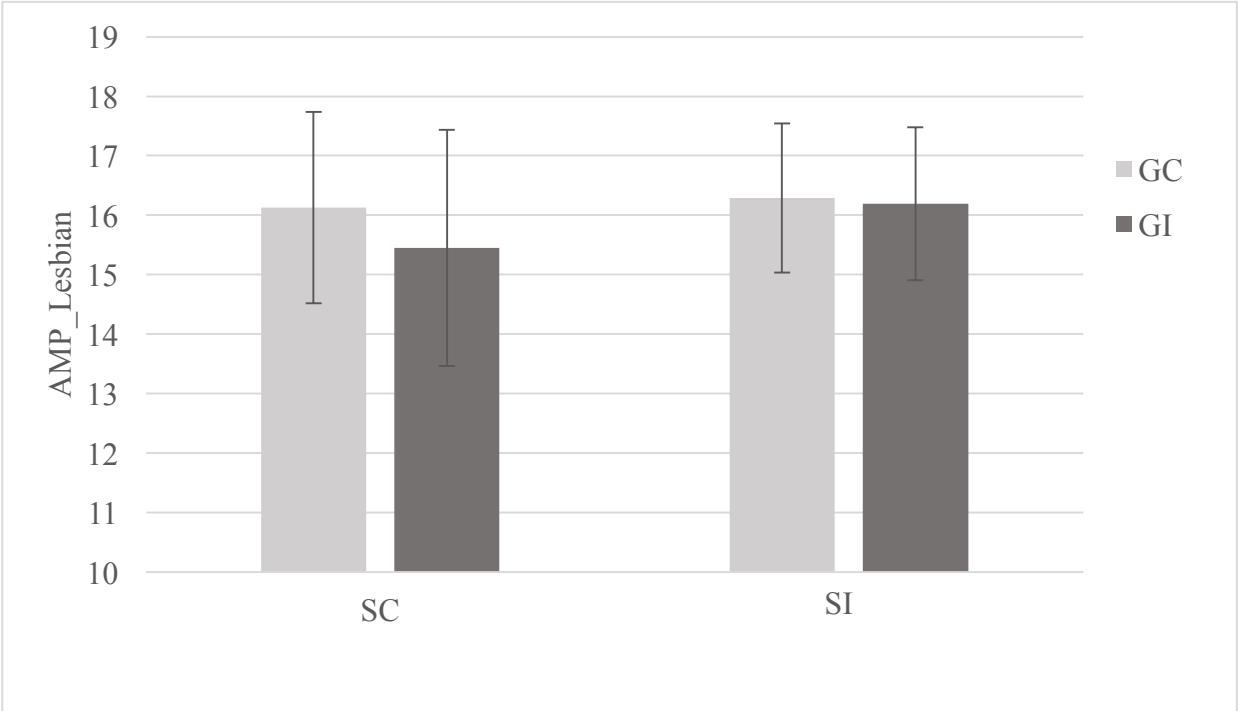Figure 5.
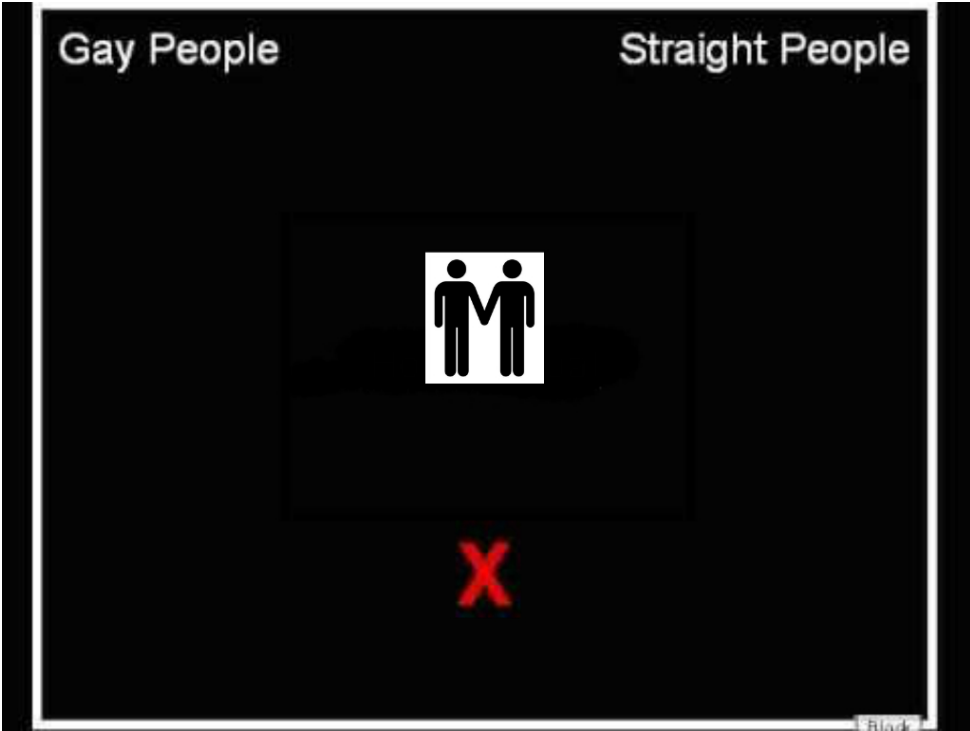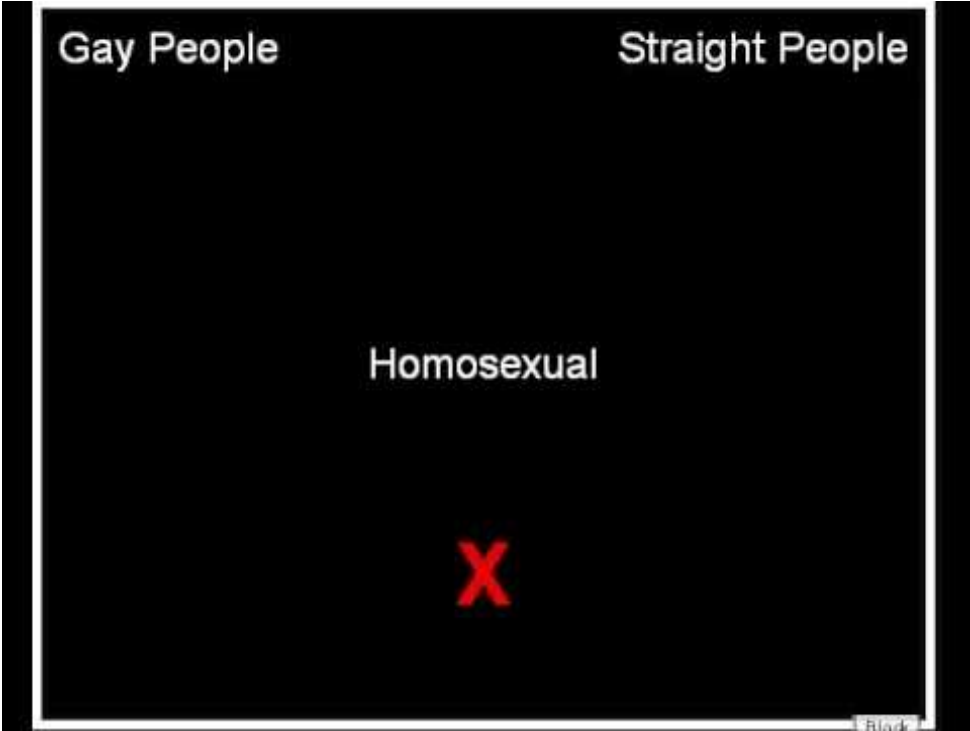
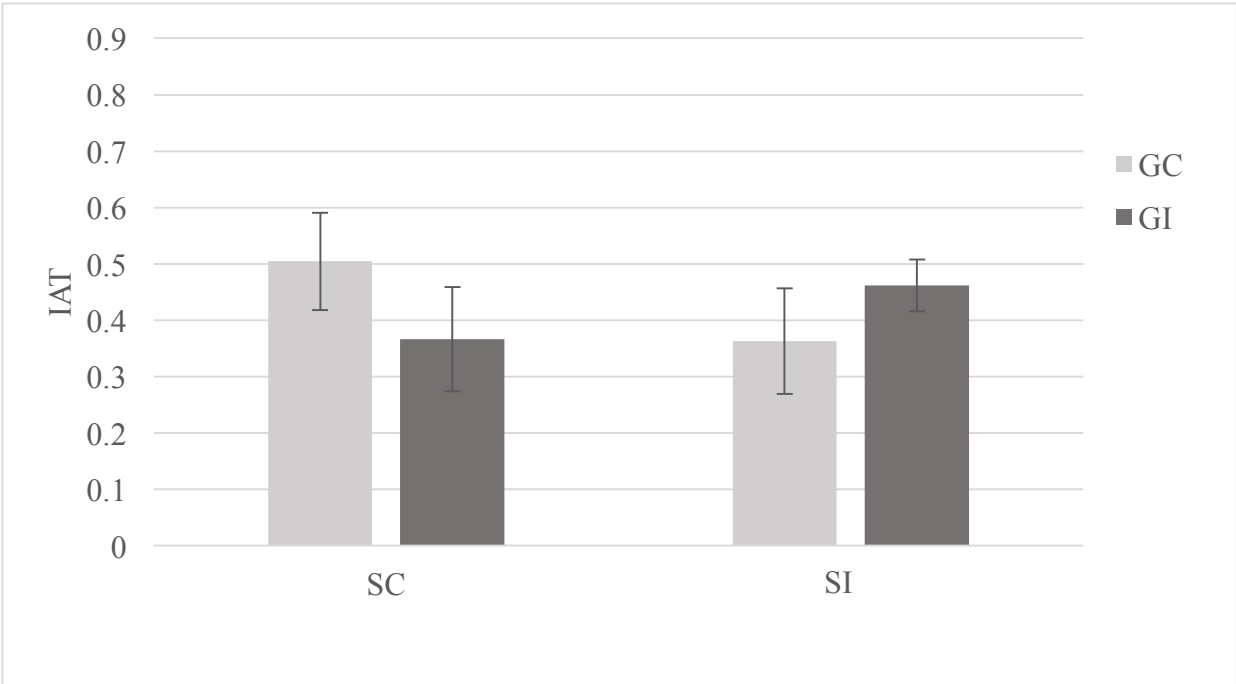Figure 6.

Figure 7.

Figure 8.

Figure 9.

Figure 10.

Appendix

Measurements

Entitativity Survey (answer on a five-point scale)

1. In general, to what extent do you think that homosexual couples are dependent on one another and seek to pursue common goals?

2. In general, to what extent to do you think that heterosexual couples are dependent on one another and seek to pursue common goals?

3. Individuals with the same sexual orientation seem to be connected to one another by some invisible link.

4. People who have the same sexual orientation are very similar to one another.

5. There are more similarities than differences among people who have the same sexual orientation.

6. It is possible to know about may aspects of a person one you know her or his sexual orientation.

7. It is usually possible to know a person's sexual orientation without being told.

8. People tend to have a sense of group belonging based on their sexual orientation.

9. People who share the same sexual orientation pursue common goals.

10. Knowing a person's sexual orientation tells you a lot about them.

11. People who have the same sexual orientation interact frequently with one another.

12. People with the same sexual orientation share a common fate.

Measure of Familiarity

1.   Please list the initials of up to 20 of your closest friends. You may also list acquaintances.

Continue to the next page when you are finished.

a. 20 blank spaces for entering

2.   Look at your list of 20 friends/acquaintances you just generated:

a)   How many of them are sexual minorities (gay, lesbian, transgender, gender queer,

etc.)?

a. a blank space for entering

b)   How many of them are heterosexual?

a. a blank space for entering

Essentialist Belief Scale (answer on a six-point scale)

Part one: biological basis

1. The kind of person someone is can be largely attributed to their genetic inheritance.

2. Very few traits that people exhibit can be traced back to their biology (reversed).

3. I think that genetic predispositions have little influence on the kind of person someone is

(reversed).

4. Whether someone is one kind of person or another is determined by their biological make-up.

5. There are different types of people and with enough scientific. knowledge these different

'types' can be traced back to genetic causes.

6. A person's attributes are something that can't be attributed to their biology (reversed).

7. With enough scientific knowledge, the basic qualities that a person has could be traced back

    to, and explained by, their biological make-up.

8. A person's traits are never determined by their genes (reversed).

    Part two: discreteness basis

1. The kind of person someone is, is clearly defined; they either are a certain kind of person or

    they are not

2. People can behave in ways that seem ambiguous, but the central aspects of their character are

    clear-cut

3. A person's basic qualities exist in varying degrees, and are never easily categorized

    (reversed)

4. Everyone is either a certain type of person or they are not

5. A person's basic character is never easily defined (reversed)

6. A person either has a certain attribute or they do not

7. No matter what qualities a person has, those qualities are always indefinite and difficult to

    define (reversed)

8. People can have many attributes and are never completely defined by any particular one

    (reversed)

    Part three: informativeness basis

1. When getting to know a person it is possible to get a picture of the kind of person they are very quickly

2. It is possible to know about many aspects of a person once you become familiar with a few of their basic traits

3. A person's behavior in a select number of contexts can never tell you a lot about the kind of person they are (reversed)

4. Although a person may have some basic identifiable traits, it is never easy to make accurate judgments about how they will behave in different situations (reversed)

5. Generally speaking, once you know someone in one or two contexts it is possible to predict how they will behave in most other contexts

6. It is never possible to judge how someone will react in new social situations (reversed)

7. There are different 'types' of people and it is possible to know what 'type' of person someone is relatively quickly

Attitudes towards Lesbian and Gay Men Scale (ATLG) (answer on a five-point scale)

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

2. A woman's homosexuality should not be a cause for job discrimination in any situation. (Reverse-scored)

3. Female homosexuality is bad for society because it breaks down the natural divisions between the sexes.

4. State laws against private sexual behavior between consenting adult women should be abolished. (Reverse-scored)

5. Female homosexuality is a sin.

6. The growing number of lesbians indicates a decline in American morals.

7. Female homosexuality in itself is no problem unless society makes it a problem. (Reverse-scored)

8. Female homosexuality is a threat to many of our basic social institutions.

9. Female homosexuality is an inferior form of sexuality.

10. Lesbians are sick.

11. Male homosexual couples should be allowed to adopt children the same as heterosexual couples. (Reverse-scored)

12. I think male homosexuals are disgusting.

13. Male homosexuals should not be allowed to teach school.

14. Male homosexuality is a perversion.

15. Male homosexuality is a natural expression of sexuality in men. (Reverse-scored)

16. If a man has homosexual feelings, he should do everything he can to overcome them.

17. I would not be too upset if I learned that my son were a homosexual. (Reverse-scored)

18. Sex between two men is just plain wrong.

19. The idea of male homosexual marriages seems ridiculous to me.

20. Male homosexuality is merely a different kind of lifestyle that should not be condemned.

    (Reverse-scored)