Examining the Processes by Which Multiple Forms of Intergroup Contact Predict Prejudice in Daily Life

By

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A thesis submitted in conformity with the requirements for the degree of Doctorate of Philosophy

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Abstract

Intergroup contact theory posits that interaction with outgroup members should improve our attitudes toward the outgroup as a whole. However, contact with outgroups is rare, even in diverse communities. One form of contact that might be particularly useful for improving intergroup attitudes would be contact with outgroups through mass media. Indeed, people spend several hours a day consuming media, and mass media have become more diverse over the last few decades, offering many opportunities for people to have contact with outgroups. The goal of the present research was to examine how daily experiences of intergroup contact through social interaction (direct contact) and exposure to outgroups in mass media (media contact) relate to intergroup attitudes. In Study 1, a 1-time diary survey was used to examine whether direct social interaction with outgroup members and exposure to outgroup members in the media would predict attitudes toward these groups. Moreover, I had participants respond to several items to determine the mechanisms explaining these relationships. I found that intergroup contact did indeed occur more through media than direct social interaction. Importantly, the relationships of direct contact and media contact with attitudes toward ethnic/racial outgroups were explained by different mechanisms. Moreover, I found that these relationships were moderated by group status (minority or majority), such that many of them were only significant when considering contact
with minority group members. This provides initial evidence that intergroup contact through media and direct social interaction each uniquely predict intergroup attitudes in daily life, but that the processes through which they do differs as a function of the type of contact and the status of the target group. In Study 2, I used an experience sampling design, which required participants to answer surveys throughout the day over a 5-day period. The goal of this study was to better ascertain how the quality of contact experiences moderates these relationships. Study 2 partially replicated the findings from Study 1, but found that quality played an important role in determining whether each form of contact would improve attitudes. Altogether, these studies provide important information about how we can optimize the effectiveness of multiple forms of intergroup contact.
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Chapter 1
General Introduction and Theoretical Framework

1 Introduction

Interacting with outgroup members, referred to as intergroup contact, may be one of the most effective ways to reduce prejudice (Allport, 1954). Indeed, a meta-analysis examining decades of empirical research on intergroup contact theory indicated that intergroup contact has a small but reliable effect of reducing prejudice and this effect holds across a number of social groups (Pettigrew & Tropp, 2006). Intergroup contact has traditionally been defined as face-to-face interactions with outgroup members (Pettigrew & Tropp, 2006), however, face-to-face cross-group interactions are not very common, even in diverse communities (Page-Gould, 2012). This is partly due to our preference for affiliating with in-group members (Brewer, 2007), but also due to the anxiety some people experience during cross-group interaction (Stephan & Stephan, 1985).

Because of these barriers to direct contact, research has burgeoned over the past decade on indirect forms of contact. For example, intergroup contact may occur indirectly, such as when someone is aware that a friend or family member has outgroup friends, which is referred to as extended contact (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997; Zhou, Page-Gould, Aron, Moyer, & Hewstone, In Press). Moreover, it has been demonstrated that just imagining having a cross-group interaction can improve intergroup attitudes (Miles & Crisp, 2013). One form of indirect contact that has been receiving greater attention over the last decade is contact that occurs through media. Research has demonstrated that seeing outgroups and cross-group interactions in the media is related to improved intergroup interactions, with a recent meta-analysis finding a small but reliable effect of media contact reducing prejudice toward outgroups across multiple group domains (Zhou, Sharples, & Page-Gould, In prep).

Media contact may be a particularly important area of research given that many North Americans spend several hours a day consuming media (Short, 2013). In the program of research described here, I will examine daily experiences of media contact and direct contact to better understand the frequency of these contact experiences in daily life. In addition, I will examine the various mechanisms that might explain their relationships with intergroup attitudes. Finally, I will look at
the role that the quality of these interaction experiences plays in determining how effective they are at improving intergroup attitudes.

1.1 Intergroup Contact Through Mass Media

According to Social Cognitive Theory (Bandura, 2001) nearly all behaviours that can be enacted can be learned vicariously through models, and a good portion of the values and ideologies we acquire are shaped through our exposure to mass media (Bandura, 2001). This is because, while experiences in our direct social environment tend to have stronger influences on our behaviour (Berkowitz & Alioto, 1973), we are only able to encounter a limited number of social targets and situations within our direct social realities. However, in our mediated realities we are able to come into contact with a variety of social targets and situations that we may never be exposed to directly, and as such we are able to form attitudes about those targets and situations based on this mediated experience (Bandura, 2001). Over repeated mediated exposure to particular targets or situations, we detect patterns and acquire behavioural scripts. These scripts are important because they influence the formation of attitudes about a given target or situation, even if we haven't encountered it directly, that we could apply should we encounter that situation in our immediate environment (Bandura, 1965). Following this logic, experiences with outgroup members via media could be conceptualized as a form of contact that might have a similar impact on our attitudes toward these social groups as our direct contact experiences with them.

Indeed, while direct contact may be defined as cross-group interaction with an outgroup member which involves oneself actually participating in that interaction, media contact may be defined as exposure to outgroups or an outgroup member via any form of mass media (e.g., television, radio, newspaper) which does not involve oneself directly participating in that interaction.

The idea that exposure to outgroups via media is a form of intergroup contact has been put forth by multiple scholars and been defined in multiple ways. On the one hand, it has been proposed that media contact is a parasocial process, whereby one might feel as though they are interacting with an outgroup member in the media. This feeling of interacting with a character that belongs to a social outgroup may activate interpersonal processes similar to those activated during direct contact, and thus improve intergroup attitudes similarly to direct contact. Indeed, research has found support for this theory demonstrating that measures of parasocial interaction (i.e., feeling like that character is a real person) via media predict improved attitudes toward outgroups, above
and beyond overall contact with that group through media (Schiappa, Gregg, & Hewes, 2006; Shim, Zhang, & Harwood, 2012). On the other hand, it has been proposed that media contact operates through a vicarious learning process, which posits that observing or hearing about an ingroup member interacting with an outgroup member should improve intergroup attitudes. This process operates through an ingroup character, such that when one identifies with an ingroup character, and they watch/read or hear about that ingroup character engaging in a cross-group interaction, it should improve their attitudes toward the outgroup. Research has found that watching cross-group interactions in the media is related to improved intergroup attitudes (Gomez, & Huici, 2008; Mazziotta et al., 2011; Oritz & Harwood, 2007), but it has not demonstrated that this is because of one’s focus on the ingroup characters. As such, it is hard to disentangle the extent to which this improvement in attitudes is due to vicarious contact versus exposure to the outgroup member in the media.

Although past research has tended to focus on media contact as operating either through a parasocial or vicarious process, it is possible – and likely – that both parasocial contact and vicarious contact occur within any given media program such that a person may both witness cross-group interactions and identify with an outgroup character. Moreover, just being exposed to outgroup members or hearing/reading about an outgroup may be enough to improve intergroup attitudes, even if parasocial and vicarious contact are not occurring. Indeed, many studies have defined media contact more generally by suggesting that just being exposed to media depicting social outgroups should improve attitudes (Mazur & Emmers-Sommer, 2002; Ramasubramanian, 2015; Riggle, Ellis, & Crawford, 1996; Shim, et al., 2012; Tukachinsky, Mastro, & Yarchi, 2015). For example, over the past few decades, changes in the quantity and quality of Black and Latino characters in American media correlated with changes in attitudes towards these groups (Tukachinsky et al., 2015). Specifically, a greater quantity of Black characters in the media, regardless of quality, predicted more positive attitudes toward Black people, whereas a greater quantity of high-quality representations of Latino characters predicted more positive attitudes toward Latinos. Other studies have found that self-reported overall media exposure to a specific outgroup predicts more positive attitudes toward that outgroup (Lienemann & Stopp, 2013; Oritz & Harwood, 2007). Likewise, experimental studies have had participants view media with outgroup members and have found that viewing this media improves attitudes (Murrar & Brauer, 2017; Riggle, Ellis, & Crawford, 1996). Across all these
studies, media contact was viewed as exposure to outgroups members through media. For the purpose of the current research, I took a similar approach, viewing media contact as the amount of exposure people had to outgroups in the media.

Regardless of how media contact is operationalized, much past research suggests that it has great promise for improving intergroup attitudes toward a number of social groups. Indeed, media contact has been found to improve non-Black participants' attitudes toward Black people (Lienemann & Stopp, 2013; Oritz & Harwood, 2007; Ramasubramanian, 2015), White participants’ attitudes toward Black people and interracial relationships (Lienemann & Stopp, 2013), White participants' attitudes toward East Asians (Mazziotta, Mummendey, & Wright, 2011), White participants’ attitudes toward Arabs/Muslims (Murrar & Brauer, 2017), Korean participants' attitudes toward U.S. Americans (Shim et al., 2012), and American participants' attitudes toward immigrants (Joyce & Harwood, 2013). However, much of this past research only focused on one target group at a time. In the current investigation, I sought to examine the effects of media contact with 7 ethnic/racial groups. This provides a more comprehensive picture of how media contact operates across multiple target groups.

An important reason for focusing on the quantity of media contact is that this operationalization allows us to most directly consider the consequences of mass media. Mass media may be streamed through a variety of mediums and broadcast to the general public. Even though research on media contact has tended to focus on televised media (Joyce & Harwood, 2013; Mazziotta et al., 2011; Mazur & Emmers-Sommer, 2002; Oritz & Harwood, 2007; Riggle et al., 1996; Schippa et al., 2005; 2006; Shim et al., 2012; Tukachinsky et al., 2015), exposure to outgroups and intergroup relations via audio and print media may foster similar improvements in intergroup attitudes. Indeed, a field study conducted in Rwanda demonstrated that repeated exposure to a radio soap opera portraying positive relations between two conflicting groups promoted the endorsement of positive social norms and behaviours between the two groups (Paluck, 2009). Another study found that having participants read an online news article depicting a counter-stereotypical news story about a Black celebrity led to more positive attitudes toward Black people (Ramasubramanian, 2015). Moreover, exposure to written narratives describing friendship between members of different ethnic groups has been found to improve interethnic attitudes (Cameron & Rutland, 2006; Cameron, Rutland, Brown, & Douch, 2006). Taken together, these studies suggest that media contact may occur across multiple
mediums, facilitating similar improvements in intergroup attitudes as to what has been found with televised media. As such, I view media contact as an aggregate of exposure through the variety different mediums (e.g., radio, television, print, internet) that are available to the public.

1.2 Comparing Media Contact and Direct Contact

Media contact overcomes two important barriers to direct contact. First, media's ubiquity allows it to be accessed by a wide range of people, including people that have little opportunity for direct interaction with outgroups. Indeed, segregation among ethnic groups (Myles & Hou, 2003; Rugh & Massey, 2013) is still a problem in many North American cities. People living in these segregated areas may only be able to experience intergroup contact via media. Second, similar to other forms of indirect contact (i.e., imagined contact, extended contact), media contact may be able to circumvent the anxiety that is often experienced during direct contact (e.g., Stephan & Stephan, 1985). Direct social interactions, whether intra- or intergroup, can be anxiety-provoking experiences. That is, if a person believes they are not capable of conveying a desired impression during an interaction, then they may have negative expectations regarding the outcome of the interaction, which may lead to anxiety (Schlenker & Leary, 1982). Importantly, these feelings tend to be amplified during an intergroup interaction (Plant & Devine, 2003; Stephan & Stephan, 1985; Vorauer, 2006). However, as the observer in an interaction experienced via media is not an active participant in the interaction, there is little reason for them to be concerned about how they are acting or how they are being perceived. This may allow individuals who are prone to anxiety during intergroup interaction to reap the benefits of intergroup contact without suffering from the anxiety that can occur with direct contact.

Given that media is a rather salient aspect of our daily lives and that media contact is not impeded by the anxiety that may pervade direct contact, it may be a particularly important means by which to attenuate prejudice and promote more positive intergroup relations at the societal level.

Even when direct contact is possible, it is likely that media contact occurs parallel to direct contact because of media's ubiquity. In diverse societies, it is likely that people are experiencing both forms of contact in daily life and thus it is important to ascertain their independent influences on intergroup attitudes. Much past research has looked at how prior levels of direct
contact moderate the relationship between media contact and intergroup attitudes, finding that media contact tends to have the greatest influence on attitudes for people that have little direct contact (Fujioka, 1999; Mastro & Tropp, 2004; Schippa et al., 2005; Shim et al., 2012). Research has yet to examine both direct contact and media contact in tandem to determine their unique relationships with intergroup attitudes. Beyond allowing us to compare their effectiveness, this also answers the important question of which type of contact is more common. Indeed, one argument I have made for the importance of studying media contact is that this type of contact is likely occurring more frequently than direct contact. By examining both forms of contact in daily life, I can compare both the frequency and the effectiveness of each form of contact. The current research will do this by asking participants about their experiences of media contact and direct contact in daily life, and examining their unique relationships with intergroup attitudes.

1.3 Mechanisms Explaining the Relationships of Direct Contact and Media Contact and with Intergroup Attitudes

Apart from determining whether multiple forms of intergroup contact would uniquely predict intergroup attitudes when considered together, I also wanted to better understand why intergroup contact via media and social interaction would be related to more positive attitudes. Although the mechanisms underlying direct contact have been well established (Pettigrew & Tropp, 2008), much less research has examined the mechanisms underlying the relationship between media contact and attitudes. There is some evidence that specific types of media contact are related to increased closeness to the outgroup (Lienemann & Stopp, 2013) and reduced intergroup anxiety (Mazziotta et al., 2011; Shim et al., 2012; West & Turner, 2014). However, this past research has been limited and has tended to examine these mechanisms in isolation from one another. For the current research, I hoped to provide a better understanding of why media contact is related to more positive intergroup attitudes and whether the process is different for news media relative to entertainment media. To do this, I measured the three key mediators studied in the direct contact literature: knowledge of the outgroup, empathy for the outgroup, and intergroup anxiety (Pettigrew & Tropp, 2008) as well as an additional mediator, intergroup closeness, which has been found to explain the relationships of both direct contact (Page-Gould, Mendoza-Denton, Alegre, & Siy, 2010) and media contact (Lienemann & Stopp, 2013) with intergroup attitudes.
1.3.1 Intergroup Contact and Knowledge

When intergroup contact theory was initially posited by Gordon Allport in 1954, he argued that a key reason why intergroup contact might improve intergroup attitudes was because one would come to know more about the outgroup. This would provide the opportunity for intercultural education, which should create a sense of familiarity with the outgroup. In a meta-analysis examining the mediators of intergroup contact, knowledge was found to be a weak mediator relative to the affective mediators; empathy and intergroup anxiety (Pettigrew & Tropp, 2008). Although knowledge has been studied as a mechanism explaining the relationship between direct contact and attitudes, it has not been examined it as a potential mechanism explaining the relationship between media contact and attitudes. Given that many people approach media, particularly news media and educational media, with a learning orientation, and that these types of media provide facts about current events, social groups, etc., it follows that seeing outgroups in these types of media should lead to greater knowledge about these groups. The question is whether this knowledge would in turn improve intergroup attitudes, similar to the way that it has been found to with direct contact. Given the importance placed on knowledge in the original formulation of intergroup contact theory and the fact that it has not been studied as a mechanism explaining the relationship between media contact and attitudes, the current research will examine intergroup knowledge to determine whether it might explain the relationship between daily experiences of each form of intergroup contact with attitudes.

1.3.2 Intergroup Contact and Intergroup Anxiety

As mentioned above, one reason that direct cross-group interactions are avoided is due to the fact that these interactions tend to be riddled with anxiety. That said, this anxiety, termed “intergroup anxiety” is also one of the reasons that continued participation in cross-group interactions seems to reduce prejudice. Indeed, a recent meta-analysis (Pettigrew & Tropp, 2008) found that intergroup anxiety was a particularly important mediator explaining the relationship between direct intergroup contact and intergroup attitudes. While examining any given cross-group interaction suggests that these are anxiety provoking experiences, over time engaging in these interactions should reduce intergroup anxiety as a person becomes more familiar with the proper behavioural scripts to engage in, and learns that these interactions will not lead to the negative outcomes they may have anticipated (MacInnis & Page-Gould, 2015; Paolini, Harris, & Griffin,
2016). This should in turn improve their attitudes toward the group. Most research on intergroup anxiety has focused on direct contact, but there is some evidence that media contact has the potential to reduce intergroup anxiety as well. For example, watching an interaction between an ingroup member and outgroup member (someone diagnosed with schizophrenia) was enough to reduce physiological correlates of anxiety prior to an interaction with a confederate that they were told also had schizophrenia (West & Turner, 2014). This also predicted more positive attitudes toward people with schizophrenia and a higher quality interaction with the confederate they were told had schizophrenia. Research has also demonstrated that watching an ingroup member interact with an outgroup member can reduce uncertainty about engaging in a cross-group interaction, which in turn may improve intergroup attitudes (Mazziotta et al., 2011). Taken together, this research suggests that media contact may have the ability to reduce intergroup anxiety, and this may explain why it is related to improved intergroup attitudes. It should be noted, however, that some research has found that media contact may also heighten intergroup anxiety, and has suggested that the quality of the contact experience may be important for determining whether media will reduce or exacerbate intergroup anxiety (Shim et al., 2012). In the current research, I will examine intergroup anxiety as a potential mechanism explaining the relationship between each form of contact and intergroup attitudes and try to disentangle when media contact might be most effective at reducing intergroup anxiety.

1.3.3 Intergroup Contact and Empathy

Frequent contact with outgroup members may allow one to empathize with the concerns of the outgroup, which in turn should lead to more favourable attitudes toward the outgroup. Indeed, empathy has been found to be another important mediator in the relationship between direct intergroup contact and intergroup attitudes (Pettigrew & Tropp, 2008). That said, little research has examined whether empathy might explain the relationship between media contact and attitudes. One study found that when participants listened to an interview involving a member of a stigmatized group (e.g., Homeless person), that was specifically designed to elicit empathy, it improved their attitudes toward that group (Batson et al., 1997). It was found that self-reported empathy participants felt toward the stigmatized person in the interview explained their improved attitudes toward the stigmatized group. This provides some evidence that various forms of media, particularly media that encourage one to take on the feelings of an outgroup
member or take their perspective, might increase empathy toward that outgroup member. This empathy might then predict more positive attitudes toward the group they belong to. In the current research, I will examine the role of empathy in explaining the relationship between both direct contact and media contact with intergroup attitudes.

1.3.4 Intergroup Contact and Closeness

Another potential mechanism explaining why intergroup contact predicts more positive intergroup attitudes may have to do with the fact that when people have more contact with an outgroup they start to feel closer to that outgroup. Indeed, past research examining cross-group friendship has found that people with more cross-group friends incorporate their friends’ ethnic group membership into their own self-concept, and this explains the relationship between cross-group friendship and more positive expectations regarding a novel cross-group interaction (Page-Gould, Mendoza-Denton, Alegre, & Siy, 2010). In the literature examining indirect forms of contact, closeness with the outgroup has been implicated as one of the key mediators explaining the relationship between extended contact and intergroup attitudes (Turner, Hewstone, Voci, & Vonofakou, 2008; Wright et al., 1997). Moreover, research examining vicarious intergroup contact, specifically, found that the relationship between this type of contact and intergroup attitudes was explained by the fact that participants that witnessed more cross-group interactions in the media were more likely to include the outgroup in the self. The authors argued that this is because seeing an ingroup member and outgroup member interacting leads one to see them as connected, and thus to see their group membership as connected to that of the outgroup member (Lienemann & Stopp, 2013). Given that closeness has been found to explain the relationships of both direct and media contact with more positive intergroup attitudes, I will examine closeness to the outgroup as a potential mediator explaining the relationship of each form of contact with attitudes.

1.4 Examining the Quality of Intergroup Contact

Intergroup contact theory takes an optimistic approach to the study of cross-group interaction, in that it assumes that these interactions should have positive outcomes. But the outcome of a given interaction is likely to depend on how it unfolds. Indeed, social interactions have to potential to be negative such that conflict may occur (e.g., an argument or physical altercation) or a member
of the interaction may feel awkward, uncomfortable, or anxious. In a cross-group interaction, these negative experiences have a strong impact on intergroup attitudes such that they may lead to more negative feelings toward the outgroup (Barlow et al., 2012). Encouragingly, negative contact experiences are rare (Graf, Paolini, & Rubin, 2014) and their impact on attitudes may be buffered by past positive contact (Paolini, Harwood, Rubin, Husnu, Joyce, & Hewstone, 2014). Nonetheless, it is important to consider the role of quality when examining how these interactions impact attitudes, especially if we are to get a better understanding of the processes through which contact predicts attitudes. Intergroup anxiety is a particularly important mediator of the relationship between contact and attitudes (Pettigrew & Tropp, 2008), but it is likely that in cross-group interactions that do not go well, anxiety about interacting with the outgroup would be heightened. Indeed, these interactions would make the outgroup membership of one’s interaction partner salient (Paolini, Harwood, & Rubin, 2010), and are likely to confirm the belief that they cross-group interactions are difficult or uncomfortable, which in turn should heighten one’s anxiety about engaging in these interactions. Yet past research has not examined how the quality of direct contact experiences impacts intergroup anxiety. As such, the current research will consider the quality of cross-group interactions to see how this impact both intergroup attitudes and intergroup anxiety.

While research on media contact has assumed that seeing outgroups in the media should improve our attitudes toward these outgroups, other research on media and intergroup attitudes has demonstrated that many minority groups are portrayed negatively in the media (Dixon, Azocar, & Casas, 2003; Dixon, 2016; Tukachinsky, et al., 2015), and these negative portrayals may increase prejudice (Das, Bushman, Bezemer, Kerkhof, & Vermeulan, 2009; Johnson, Bushman, & Dovidio, 2008; Ramasubramanian, 2015). This suggests that the quality of the media people consume that includes outgroup members may be important in determining its impact on intergroup attitudes. Defining the quality of media contact is more difficult than defining the quality of direct contact. It is typically thought of as having to do with how the outgroup is portrayed, or more specifically whether they are portrayed in a negative and stereotypical way. If we are to consider media contact as comparable to direct contact, then it may make more sense to define the quality of media contact as having to do with how one feels while consuming the media. Some research has found that consuming media that is inspiring improves attitudes toward outgroups (Oliver et al., 2015), though these outgroups were not actually seen in the
media. They focused on the role of elevation, finding this specific emotion predicted how connected people saw themselves as with a number of outgroups. Indeed, there is evidence that feelings of positive affect can increase one’s tendency to see their group as overlapping with others (Dovidio, Gaertner, Isen, & Lowrance, 1995). This suggests that positive affect while consuming media which includes outgroups members may increase the extent to which one sees their group as overlapping with that/those outgroup(s), and this should in turn improve their attitudes toward that outgroup (Page-Gould et al., 2010; Lienemann & Stopp, 2013; Turner et al., 2008). Research on media contact has not conceptualized media quality as having to do with how one feels while consuming media. In order to make the quality of media contact and direct contact experiences comparable, and to ascertain how to best define quality when examining media contact, the current research will focus more on the emotional content of the media, rather than the extent to which groups were portrayed positively or negatively (Study 1) and try to compare these two ways of conceptualizing media contact (Study 2).

1.5 Examining Intergroup Contact in Daily Life

Media consumption and social interaction are experienced frequently in daily life. However, past studies on both direct and media contact have examined them at one time-point – either as an aggregate of all past contact experiences or as a manipulated one-time interaction in the lab. Each of these methods has important strengths, but they also have drawbacks. For the former, you are asking a person to retrospect on all the contact they have experienced with a group over a long time period, but people may have trouble accurately recalling each contact experience they have had. For the latter, you lose external validity because people are put into a social interaction in an artificial environment. In order to circumvent these issues, the current studies took a naturalistic approach by using daily diary and experience sampling designs.

There are two key advantages these designs. For one, by examining media contact and direct contact naturalistically, I am able to get a better sense of how frequently intergroup contact is occurring. A problem with direct contact is that it may not occur very frequently with certain outgroups, given that many communities are segregated in terms of ethnic/racial and sexual orientation groups (Rugh & Massey, 2013). As media have started including more diverse groups over the past few decades, intergroup contact via media may be occurring more frequently than direct contact. By examining media contact and direct contact in daily life, I can
get a better sense of how often each type of intergroup contact is occurring. Moreover, by examining these experiences as they are occurring in daily life, I can get a richer picture of the quality of these interactions.

1.6 Present Studies

The present studies extend past findings of intergroup contact by measuring two forms of intergroup contact as they occur in daily life with multiple social groups and testing multiple mechanisms that may explain the relationship between these two forms of contact and intergroup attitudes. In Study 1, I did this by examining participants’ exposure to social groups in the media (media contact), social interactions (direct contact), and attitudes in a survey. I also measured a number of potential mechanisms that might explain the relationship between each type of contact and intergroup attitudes. In Study 2, I replicate and extend these findings using an experience sampling methodology to look at media contact and direct contact with multiple ethnic/racial outgroups over the course of 5 days. I also examined participants’ perceptions of how these groups tend to be portrayed in the media (i.e., media norms) to see whether these may be important above and beyond contact alone.
Chapter 2
Examining the Relationships Between Media Contact and Direct Contact with Attitudes: A Survey Approach

2 Study 1 Overview

Study 1 uses a survey design to examine whether the amount of direct and media contact participants have with a racial/ethnic outgroup in a given day predicts their attitudes toward that group that day. This will allow me to get a snapshot of whether daily experiences of each form of contact predict attitudes. I also asked participants questions to determine the mechanisms (i.e., knowledge, anxiety, empathy, & closeness) explaining the relationships of each form of contact with attitudes. To the best of my knowledge, this is the first study to examine how the processes by which multiple forms of contact in daily life predict attitudes. Moreover, it will be the first study to examine all of these mediators together to determine their relative importance in explaining these relationships.

2.1 Hypotheses

Hypothesis 1: I expected that both direct contact and media contact with outgroup members would uniquely predict more favorable attitudes toward that outgroup.

Hypothesis 2: I predicted that the relationship between direct contact and attitudes would be explained by greater knowledge of the outgroup, reduced intergroup anxiety, and greater feelings of empathy and closeness with the outgroup. As for media contact, while I predicted that closeness and empathy should explain the relationship between media contact and attitudes, given that this has been found with past research, I was not sure whether greater knowledge of the outgroup or reduced anxiety would explain these relationships.

Hypothesis 3: I predicted that these relationships between each form of contact and attitudes would be moderated by the status of the outgroup (minority or majority), such that these relationships would be particularly strong for minority groups (all non-white groups) compared to the majority group (White).
Hypothesis 4: I predicted that the quality of direct contact and media contact would be important such that high quality interactions and media contact would be most likely to predict more positive intergroup attitudes

3 Study 1 Methods

3.1 Participants

An initial sample of 419 participants were recruited from the University of Toronto introductory psychology participant pool and online ads posted for the Greater Toronto Area community of Ontario, Canada to complete an online study. Given that the hypothesized model will have 23 free parameters, approximately 400 participants would be sufficient to test the model as that should provide approximately 2400 observations as each person is rating 6 target outgroups. This is well above the most conservative recommendation that sample size be 20 observations to each free parameter (Tanaka, 1987). Interested participants were provided with basic information via email. Upon completion of the study, participants were compensated with course credit or $10 for their participation. Twenty-two participants were removed from the analyses because they failed attention checks in the survey. The final sample (53% community) consisted of 397 participants (53.1% community; 62.5% female). The final sample had a mean age of 23.4 years ($SD=8.68$) and was ethnically diverse (29.4% White, 25.3% East Asian, 24.8% South Asian, 5.5% Multiracial, 5.3% Black, 3.3% Arab, 1.7% Latino, 4.7% unknown).

3.2 Procedure

Upon agreeing to participate in the study and providing informed consent, participants were sent an online survey to complete in the evening. They were instructed to complete this after 6:00pm but before going to bed that evening. This was a one-time diary reporting on their media contact, direct contact, knowledge about 7 ethnic groups, empathy with 7 ethnic groups, anxiety about interacting with 7 ethnic groups, closeness to 7 ethnic groups, and attitudes toward 7 ethnic groups. A few other measures unrelated to the current study were also included in the diary survey, such as questions to do with health and well-being. Each measure pertinent to the current study will be described in more detail below.
3.2.1 Demographic Information

Participants were asked to provide demographic information, such as their age, sex, socioeconomic status, and ethnicity. To determine their ethnicity, which was a key variable as I needed this to determine their same- and cross-group interactions, I asked participants to select from among 8 ethnic/racial groups (Arabic, Black, East Asian, First Nations, Latino, South Asian, White, Multiracial) the one which most closely resembled theirs.

3.2.2 Direct Contact

Participants reported on each direct social interaction they had that day and the duration of the interaction in minutes. It was explained to them that only interactions that lasted 10 minutes or longer should be reported (Brissette & Cohen, 2002). When reporting on their social interactions, participants were asked for demographic information (i.e., age, ethnicity, sex, & sexual orientation) about their interaction partner. Ethnicity was reported and coded the same way as it was with the background survey. To determine the quantity of intergroup interactions each day, the number of interactions that the participant had with each ethnic group were summed and only cross-group interactions were included in the analysis. The quantity of direct contact is referred to as direct contact in the results section. To capture the quality of the interaction experience, I included items asking participants how they felt during the interaction. Specifically, participants were asked how happy, relaxed, anxious (reverse scored) and angry (reverse scored) they felt on a 1(not at all) to 7 (Very) Likert scale. I also asked them how positive the interaction was using a 1(very negative) to 7(very positive) Likert scale. These were aggregated to form a measure of interaction quality and the reliability of the scale was good ($\alpha = .76$).

3.2.3 Media Contact

I included separate items to capture media contact through both news media and entertainment media. To do this, I had two separate questions, one which asked participants how much information they saw about 7 different ethnic groups (i.e., Arabic, Black, East Asian, First Nations, Latino, South Asian, White) in news media, and another which asked participants how
much information they saw about the same 7 ethnic groups in entertainment media. This captured the quantity of media contact participants had with each group that day. Participants were also asked to report on the amount of time they spent in minutes consuming broadcast, print, radio, and internet news media and on the amount of time they spent in minutes consuming movies, television for entertainment, music, and novels. The quantity of media contact is referred to as media contact in the results section. To measure the quality of media contact, I asked participants a number of questions about all of the media they viewed that day. Specifically, participants were asked questions about how threatening, violent, and uplifting, the media was, and how much cooperation, conflict, or helping they saw in the media that day on a scale of 1(not at all, none) to 7(very or a lot). Negative items were reverse scored and an overall positivity of media score was created by computing the average across all items. The reliability for this scale was poor (α = .21) but when separating this into positive (uplifting, helping, cooperation) and negative (threatening, violent, conflict) items, the reliabilities were good (αs = .81, & .85).

3.2.4 Intergroup Knowledge

To measure knowledge of the outgroup I used a single item that asked participants to describe their familiarity with each ethnic group's culture from 1 (low) to 10 (high). This captured their subjective knowledge of each outgroup.

3.2.5 Intergroup Empathy

To measure intergroup empathy, I used an adaption of the intergroup understanding scale (Stephan & Finlay, 1999). Participants were asked to respond to 6 questions measuring their empathy with each of the 7 ethnic groups using a Likert scale that ranged from 1 (strongly agree) to 10 (strongly disagree). An example item would be “I believe I have a good understanding of how East Asians view the world.” Across all groups, the scale demonstrated good reliability (αs = .66 - .84).

3.2.6 Intergroup Anxiety

To measure intergroup anxiety, I used an adaption of Stephen and Stephen's (1985) intergroup anxiety scale. Specifically, participants were asked how impatient, careful, at ease (reverse scored), apprehensive, and anxious they would feel when interacting with members of each of
the 7 ethnic groups from 1 (Not at all) to 7 (Very). Across all groups, the scale demonstrated good reliability (αs = .71 - .76).

3.2.7 Intergroup Closeness

To measure closeness to ethnic groups, I used the Inclusion of Other in the Self scale developed by Aron, Aron, and Smollan (1992) which has been adapted to look at inclusion of social groups in the self (Tropp & Wright, 2001). This single-item measure consisted of seven pairs of overlapping circles, with greater overlap between the circles indicating greater closeness to that social group. For each of the 7 ethnic groups, participants were asked to indicate the degree to which each of the pictorial representations of the self and the group corresponded to their feelings of closeness with that group.

3.2.8 Intergroup Attitudes

To measure intergroup attitudes, I used a feeling thermometer. Participants were asked to respond to a single item asking how warm they felt towards the 7 ethnic groups from 1 (cold) to 10 (warm).

4 Study 1 Results

4.1 Preliminary Analysis

Participants reported seeing more information on ethnic ingroups (M = 5.72, SD = 3.76) than outgroups (M = 3.73, SD = 1.87) in the news media, t(353) = 8.90, p < .001, and they reported seeing more ethnic ingroups (M = 6.11, SD = 3.82) than outgroups (M = 4.02, SD = 1.91) in the entertainment media, t(363) = 8.90, p < .001. Participants also reported more same-ethnicity (66%) than cross-ethnicity (34%) interactions, t(397) = 9.31, p < .001, which was consistent with past studies of interethnic interaction in the Greater Toronto Area (Page-Gould, 2012). Importantly, although participants still reported seeing more ingroups than outgroups in the media, as seen in Table 1, participants reported more diverse contact experiences through media than through direct social interaction. Specifically, when it came to media contact there was no group which participants reported not seeing in the media at all and indeed, almost all groups were reported as being seen in the media across more than 50% of the diaries. However, when it came to their direct contact experiences, participants reported almost no social interactions with
first nations people and there was no group with which more than 50% of participants reported an interaction. This supports the initial hypothesis that media contact occurs more frequently than direct contact.

When it came to group status, minority and majority participants had roughly equal amounts of media contact (news and entertainment) and direct contact (see Table 2). Overall, participants reported seeing more information about majority group members ($M = 7.56, SD = 2.98$) than minority group members ($M = 3.33, SD = 2.98$) in the news media, and seeing more majority group members ($M = 8.13, SD = 3.02$) than minority group members ($M = 3.66, SD = 3.19$) in entertainment media.

On average, participants spent about one and a half hours ($M = 98.97$ minutes, $SD = 118.69$) consuming news media and half an hour consuming entertainment media ($M = 32.23$ minutes, $SD = 87.15$) each day. On average, participants engaged in two interactions a day ($M = 1.90, SD = 1.50$) and spent just under an hour ($M = 47.96$ minutes, $SD = 66.72$) engaged in an interaction. A paired $t$-test was run to compare the amount of time participants spent participating in direct interactions and the amount of time they spent consuming both entertainment and news media combined. Results indicated that participants spent significantly more time consuming media than they did in social interactions, $t(372) = -9.91, p < .001$. Correlations between all primary variables can be found in Table 3.
Table 1.

*Summary of percentages of daily diaries reporting direct contact and media contact across all social groups measured.*

<table>
<thead>
<tr>
<th>Group</th>
<th>Entertainment media contact</th>
<th>News media contact</th>
<th>Direct Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>50%</td>
<td>59%</td>
<td>8%</td>
</tr>
<tr>
<td>Black</td>
<td>79%</td>
<td>73%</td>
<td>10%</td>
</tr>
<tr>
<td>East Asian</td>
<td>56%</td>
<td>53%</td>
<td>27%</td>
</tr>
<tr>
<td>First Nation</td>
<td>33%</td>
<td>27%</td>
<td>0.003%</td>
</tr>
<tr>
<td>Latino</td>
<td>51%</td>
<td>45%</td>
<td>3%</td>
</tr>
<tr>
<td>South Asian</td>
<td>53%</td>
<td>48%</td>
<td>27%</td>
</tr>
<tr>
<td>White</td>
<td>94%</td>
<td>88%</td>
<td>38%</td>
</tr>
</tbody>
</table>

*Note.* Media contact percentages represent surveys that reported seeing any information in the news media or entertainment (score greater than 1 on Likert Scale). Direct contact was included if at least one interaction with that group was reported in the diary. Denominator of equation was all diaries completed.
Table 2.

Summary of Contact Means for Majority and Minority Group Participants

<table>
<thead>
<tr>
<th>Group</th>
<th>Entertainment media contact</th>
<th>News media contact</th>
<th>Direct Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Majority Group Participants</td>
<td>4.68(3.28)</td>
<td>3.96(3.37)</td>
<td>0.24(0.65)</td>
</tr>
<tr>
<td>Minority Group Participants</td>
<td>4.11(3.60)</td>
<td>4.01(3.38)</td>
<td>0.26(0.70)</td>
</tr>
</tbody>
</table>

*Note:* Means represent contact with outgroups. For each type of media contact are based on a 1-7 Likert scale, while means for direct contact are based on number of cross-group interactions reported in a day. No means across minority and majority groups were significantly different.
Table 3.

*Bivariate Correlations Among All Variables in Study 1*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. News Media Contact</td>
<td>-</td>
<td>.53**</td>
<td>.10**</td>
<td>-.00</td>
<td>.06*</td>
<td>.15**</td>
<td>.24**</td>
<td>.03</td>
<td>.22**</td>
<td>.08**</td>
</tr>
<tr>
<td>2. Entertainment Media Contact</td>
<td>-</td>
<td>.12**</td>
<td>-.02</td>
<td>.19**</td>
<td>.15**</td>
<td>.28**</td>
<td>.13**</td>
<td>.30**</td>
<td>.08**</td>
<td></td>
</tr>
<tr>
<td>2. Direct Contact</td>
<td>-</td>
<td>.02</td>
<td>-.04</td>
<td>.10**</td>
<td>.17**</td>
<td>-.07*</td>
<td>.21**</td>
<td>.08*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Media Quality</td>
<td>-</td>
<td>-.14**</td>
<td>.01</td>
<td>.05</td>
<td>-.06*</td>
<td>.03</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Direct Quality</td>
<td>-</td>
<td>.05</td>
<td>-.06*</td>
<td>-.38**</td>
<td>.02</td>
<td>.19**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Knowledge</td>
<td>-</td>
<td>.14**</td>
<td>-.01</td>
<td>.10*</td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Empathy</td>
<td>-</td>
<td>-.16**</td>
<td>.39**</td>
<td>.25**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Anxiety</td>
<td>-</td>
<td>-.11**</td>
<td>-.40**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Closeness</td>
<td>-</td>
<td>.36**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Warmth</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Note: †p = <.10, *p = <.05, **p = <.01.*
4.2 Primary Analysis

4.2.1 Contact and Attitudes Toward Outgroups

To test the hypothesized model positing that the relationships of intergroup contact through entertainment media, news media, and direct interaction with intergroup attitudes would be explained by greater knowledge of the outgroup, greater empathy for the outgroup, less intergroup anxiety, and greater closeness to the outgroups, I ran a multilevel path analysis using the lavaan package (Rosseel, 2012) of R 3.1.2. I used the lavaan survey package (Oberski, 2014) survey design function to account for nested data as I had participants responding to multiple target groups. This model only included measures of the predictors, mediators, and dependent variables for outgroups.

The initial model including all mediators had poor fit, RMSEA = 0.11, 90% CI [0.10, 0.12], CFI = .87, SRMR = .06, AIC = 53784.46. Therefore, in order to determine which mediators would be most suitable for the model, I systematically removed each mediator and recalculated model fit. All fit statistics are reported in Table 3 and model paths are reported in Figures 1 through 4. As you can see, the model including knowledge, anxiety, and closeness was the only model that had good fit, while the other models fit the data poorly. As such, I did not run any model comparisons but proceeded to examine the paths for the model which fit the data.
Table 4.

Summary of model fit statistics for each model fitted.

<table>
<thead>
<tr>
<th>Model</th>
<th>Fit Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediators: Empathy,</td>
<td>RMSEA = 0.14, 90% CI [0.12, 0.15], CFI = .89, SRMR = .07,</td>
</tr>
<tr>
<td>Closeness, Anxiety</td>
<td>AIC = 48850.68</td>
</tr>
<tr>
<td>Meditators: Knowledge,</td>
<td>RMSEA = 0.06, 90% CI [0.04, 0.08], CFI = .98, SRMR = .03,</td>
</tr>
<tr>
<td>Closeness, Anxiety</td>
<td>AIC = 48272.32</td>
</tr>
<tr>
<td>Mediators: Empathy,</td>
<td>RMSEA = 0.16, 90% CI [0.14, 0.18], CFI = .86, SRMR = .05,</td>
</tr>
<tr>
<td>Closeness, Knowledge</td>
<td>AIC = 49660.03</td>
</tr>
<tr>
<td>Mediators: Empathy,</td>
<td>RMSEA = 0.09, 90% CI [0.07, 0.11], CFI = .95, SRMR = .04,</td>
</tr>
<tr>
<td>Knowledge, Anxiety</td>
<td>AIC = 47687.06</td>
</tr>
</tbody>
</table>
As illustrated in Figure 1, the model revealed that entertainment media contact, $b = 0.05$, $\beta = 0.09$, $Z = 3.08$, $p = .002$, news media contact, $b = 0.06$, $\beta = 0.10$, $Z = 3.87$, $p < .001$, and direct contact, $b = 0.37$, $\beta = 0.08$, $Z = 3.40$, $p = .001$, each predicted greater knowledge of the outgroup, but greater knowledge of an outgroup did not predict more positive attitudes toward that outgroup, $b = -0.00$, $\beta = -0.00$, $Z = -0.005$, $p = .99$. Moreover, entertainment media contact, $b = 0.13$, $\beta = 0.25$, $Z = 8.66$, $p < .001$, news media contact, $b = 0.05$, $\beta = 0.09$, $Z = 3.17$, $p = .002$, and direct contact, $b = 0.75$, $\beta = 0.17$, $Z = 6.32$, $p < .001$, each predicted greater closeness with an outgroup, and greater closeness with an outgroup predicted more positive attitudes toward that outgroup, $b = 0.42$, $\beta = 0.30$, $Z = 8.50$, $p < 0.001$. Finally, news media contact did not predict anxiety about interacting with the outgroup, $b = -0.01$, $\beta = -0.03$, $Z = -0.77$, $p = .44$, but direct contact predicted less anxiety about interacting with the outgroup, $b = -0.23$, $\beta = -0.09$, $Z = -4.29$, $p < .001$, while entertainment media contact predicted greater anxiety about interacting with the outgroup, $b = 0.05$, $\beta = 0.15$, $Z = 3.94$, $p < .001$. Anxiety about interacting with an outgroup predicted less positive attitudes toward that outgroup, $b = -0.91$, $\beta = -0.37$, $Z = -9.83$, $p < 0.001$.

There were indirect effects from entertainment media contact to attitudes through closeness, $Z = 6.17$, $p < .001$, and anxiety, $Z = -3.64$, $p < .001$. There was also an indirect effect from news media contact to attitudes through closeness, $Z = 3.10$, $p = .002$. Finally, there were indirect effects from direct contact to attitudes through closeness, $Z = 4.95$, $p < .001$, and anxiety, $Z = 3.81$, $p < .001$. These findings suggest that the relationship between direct contact and attitudes is mediated by greater closeness to the outgroup and less intergroup anxiety, but the relationship between media contact and attitudes is only mediated by greater closeness to the outgroup. Indeed, entertainment media contact was actually related to greater intergroup anxiety. Overall, this model accounted for 24% of the variance in warmth toward outgroups, 12% of the variance in closeness toward the outgroup, 3% of the variance in intergroup anxiety, and 4% of the variance in knowledge of the outgroup.

Given that subsequent models will be more complex, in order to create a more parsimonious model, I collapsed across news media contact and entertainment media contact to create an overall media contact variable. This was also important as both forms of media contact were highly correlated. As illustrated in Figure 5, this model revealed a similar pattern of findings as to what was seen with the original model. A model comparison revealed that this model fit the
data better than the original model which separated each type of media contact, AIC difference = 9401.85, suggesting that separating each form of contact does not explain additional meaningful variance. As such, all subsequent models will aggregate across both types of media contact.

To determine the importance of including the mediators in the model, I compared this model which includes knowledge, closeness, and anxiety to a model where these mediators are removed and media contact and direct contact are directly predicting attitudes. This model had poor fit, RMSEA = .09, 90% CI [0.07, 0.12], CFI, = .59, SRMR = .04, AIC = 21395.69, suggesting that the model that includes knowledge, closeness, and anxiety fits the data better.

As the study design was cross-sectional in nature, I tested two alternative models to rule out alternative orders in which the contact, mediator, and attitudes variables could be placed. As can be seen in Figure 6, the first of these models kept the contact variables as the exogenous variables, but made attitudes the mediator and knowledge, closeness, and anxiety the outcome variables. This model had acceptable fit, RMSEA = 0.08, 90% CI [0.06, 0.10], CFI, = .97, SRMR = .03, AIC = 45952.82. A model comparison revealed that this model did not fit the data better than the original model we proposed, \(\chi^2(0) = 0, p = 1\), and indeed they fit the data equally well.

As can be seen in Figure 7, the second of these models made knowledge, closeness, and anxiety the exogenous variables and the contact variables the mediators, but kept attitudes as the outcome variable. This model also had acceptable fit, RMSEA = 0.07, 90% CI [0.06, 0.08], CFI, = .95, SRMR = 04, AIC = 38881.20. A model comparison revealed that the original model fit the data better than this alternative model, \(\chi^2(3) = 17.78, p < .001\).
Figure 1. Path analyses of the relationship of entertainment media contact, news media contact, and direct contact with warmth toward ethnic outgroups mediated by knowledge of the group, closeness to the group, and anxiety about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †p = .10, *p = .01, **p = .001.

RMSEA = 0.06, 90% CI [0.04, 0.08], CFI = .98, SRMR = .03, AIC = 47706.38
Figure 2. Path analyses of the relationship of entertainment media contact, news media contact, and direct contact with warmth toward ethnic outgroups mediated by knowledge of the group, empathy toward the group, and anxiety about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †$p = .10$, *$p = .01$, **$p = .001$. 

RMSEA = 0.09, 90% CI [0.07, 0.10], CFI = .95, SRMR = .04, AIC = 47687.06
Figure 3. Path analyses of the relationship of entertainment media contact, news media contact, and direct contact with warmth toward ethnic outgroups mediated by knowledge of the group, closeness to the group, and empathy about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.

RMSEA = 0.15, 90% CI [0.14, 0.17], CFI, = .87, SRMR = .05, AIC = 49753.85
Figure 4. Path analyses of the relationship of entertainment media contact, news media contact, and direct contact with warmth toward ethnic outgroups mediated by empathy toward the group, closeness to the group, and anxiety about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.

RMSEA = 0.14, 90% CI [0.13, 0.15], CFI = .89, SRMR = .07, AIC = 49566.30
Figure 5. Path analyses of the relationship of media contact, collapsed across entertainment media contact and news media contact, and direct contact with warmth toward ethnic outgroups mediated by empathy toward the group, closeness to the group, and anxiety about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.

RMSEA = 0.06, 90% CI [0.04, 0.08], CFI = .98, SRMR = .03, AIC = 47706.38
Figure 6. Alternate path analyses with media contact and direct contact as exogenous variables, attitudes as the mediator, and knowledge, anxiety and closeness as outcome variables. All slopes reported are standardized. Only significant paths are reported. †p = <.10,  p = <.01, **p = <.001.

RMSEA = 0.08, 90% CI [0.06, 0.10], CFI, = .97, SRMR = .03, AIC = 45952.82
Figure 7. Alternate path analyses with knowledge, closeness, and anxiety as exogenous variables, media contact and direct contact as mediators, and attitudes as the outcome variable. All slopes reported are standardized. Only significant paths are reported. †p = .10, p = .01, **p = .001.
4.2.2 Group Status as a Moderator

Given that most research on intergroup contact has focused on improving the majority group’s attitudes toward minority groups, I thought it would be important to consider the status of the outgroup as a moderator. To test this question, I ran the model including each form of contact predicting attitudes with knowledge, closeness, and anxiety as mediators, now including group status (majority or minority) as a moderator. White targets were coded as the majority group and all other targets were coded as minority groups. Once again, I ran a multilevel path analysis using the lavaan package (Rosseel, 2012) of R 3.1.2, using the lavaan survey package (Oberski, 2014) survey design function to account for nested data as I had participants responding to multiple target groups. This model only included measures of the predictors, mediators, and dependent variables for outgroups.

This model had good fit, RMSEA = 0.06, 90% CI [0.05, 0.08], CFI, = .96, SRMR = .03, AIC = 37574.32. I used the 'groups' argument of lavaan to estimate separate paths for ratings of minority and majority status groups. In order to test for moderation by target status, I ran a second model constraining the paths for majority and minority targets to be equal. This model had good fit, RMSEA = 0.06, 90% CI [0.05, 0.08], CFI, = .91, SRMR = .04, AIC = 37602.69, but a likelihood ratio test revealed that the model that estimated unique paths for majority and minority targets explained significantly more variance than the constrained model, $\chi^2(8) = 38.97$, $p < .001$, indicating that target status moderates these relationships.

As illustrated in Figure 8, looking at the model examining the relationship between intergroup contact and attitudes for minority participants and majority targets, media contact, $b = 0.03, \beta = 0.04, Z = 0.60, p = .55$ and direct contact, $b = -0.05, \beta = -0.03, Z = -0.38, p = .70$, did not predict greater knowledge of the majority outgroup, and greater knowledge of the majority outgroup did not predict more positive attitudes toward the majority outgroup, $b = 0.09, \beta = 0.07, Z = 1.29, p = .20$. Minority participants media contact with the majority outgroup, $b = 0.10, \beta = 0.16, Z = 2.34, p = .02$ and direct contact with the majority outgroup, $b = 0.49, \beta = 0.24, Z = 4.55, p < .001$, predicted greater closeness with the majority outgroup, and greater closeness with the majority outgroup predicted more positive attitudes toward the majority outgroup, $b = 0.59, \beta = 0.45, Z = 6.41, p < 0.001$. Finally, neither minority participants media contact, $b = -0.04, \beta = -0.10, Z = -1.62, p = .11$, nor direct contact with the majority outgroup, $b = -0.06, \beta = -0.05, Z = -
1.03, $p = .30$, predicted anxiety about interacting with the outgroup. Minority participants anxiety about interacting with the majority outgroup did, however, predict less positive attitudes toward the majority outgroup, $b = -0.57, \beta = -0.26, Z = -3.70, p < 0.001$.

As illustrated in Figure 8, looking at the model examining the relationship between intergroup contact and attitudes for majority participants and minority targets, media contact, $b = 0.05, \beta = 0.06, Z = 2.17, p = .03$, and direct contact, $b = 0.54, \beta = 0.08, Z = 3.27, p = .001$, predicted greater knowledge of a minority outgroup. Greater knowledge of a minority outgroup did not predict more positive attitudes toward that minority outgroup, $b = -0.02, \beta = -0.02, Z = -0.63, p = .53$. Majority participants media contact, $b = 0.19, \beta = 0.26, Z = 8.89, p < 0.001$, and direct contact, $b = 1.02, \beta = 0.17, Z = 6.25, p < .001$, with a minority outgroup predicted greater closeness with a minority outgroup, and greater closeness with a minority outgroup predicted more positive attitudes toward that minority outgroup, $b = 0.41, \beta = 0.29, Z = 7.59, p < 0.001$. Finally, consistent with the original model, Majority participants media contact predicted greater anxiety about interacting with a minority outgroup, $b = .06, \beta = 0.15, Z = 4.02, p < .001$, while majority participants direct contact predicted less anxiety about interacting with a minority outgroup, $b = -0.30, \beta = -0.09, Z = -4.15, p < .001$. Anxiety about interacting with a minority outgroup predicted less positive attitudes toward that minority outgroup, $b = -0.96, \beta = -0.39, Z = -9.61, p < 0.001$. All indirect and total effects are reported in Table 5.
Figure 8. Path analyses of the relationships of media contact and direct contact with warmth toward ethnic outgroups mediated by knowledge of the group, closeness to the group and anxiety about interacting with members of the group, with group status as a moderator (majority and minority target groups). All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.
### Table 5.

**Indirect Effects and Direct Effects of Media Contact and Direct Contact on Attitudes Through each Mediator and Across Majority and Minority Status Groups.**

<table>
<thead>
<tr>
<th>Mediator</th>
<th>Majority Target Group</th>
<th>Minority Target Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect effect of media contact on attitudes through knowledge</td>
<td>0.55</td>
<td>-0.60</td>
</tr>
<tr>
<td>Indirect effect of media contact on attitudes through closeness</td>
<td>2.29*</td>
<td>6.06**</td>
</tr>
<tr>
<td>Indirect effect of media contact on attitudes through anxiety</td>
<td>1.52</td>
<td>-3.58**</td>
</tr>
<tr>
<td>Indirect effect of direct contact on attitudes through knowledge</td>
<td>-0.36</td>
<td>-0.62</td>
</tr>
<tr>
<td>Indirect effect of direct contact on attitudes through closeness</td>
<td>3.72**</td>
<td>4.65**</td>
</tr>
<tr>
<td>Indirect effect of direct contact on attitudes through anxiety</td>
<td>0.99</td>
<td>3.75**</td>
</tr>
<tr>
<td>Direct effect of media contact on attitudes</td>
<td>-0.58</td>
<td>1.36</td>
</tr>
<tr>
<td>Direct effect of direct contact on attitudes</td>
<td>-1.33</td>
<td>0.40</td>
</tr>
</tbody>
</table>

†p = <.10  *p = <.01,  **p = <.001.
4.2.3 Examining the Role of Quality

To test the hypothesis that the quality of media contact and direct contact would predict intergroup attitudes and that this would be explained by knowledge, closeness, and intergroup anxiety, I ran a model which included quality of both direct contact and media contact as predictors. Specifically, I ran the original model including the quantity of each form of contact, as well as the quality of each form of contact, predicting attitudes with knowledge, closeness, and anxiety as mediators. Once again, I ran a multilevel path analysis using the lavaan package (Rosseel, 2012) of R 3.1.2, using the lavaan survey package (Oberski, 2014) survey design function to account for nested data as I had participants responding to multiple target groups. This model only included measures of the predictors, mediators, and dependent variables for outgroups. This model had good fit, RMSEA = 0.06, 90% CI [0.04, 0.08], CFI, = .97, SRMR = .02, AIC = 48953.86.

As illustrated in Figure 9, the primary pattern of results did not change. Moreover, I did not find that the quality of media contact or direct contact predicted attitudes directly or predicted closeness ($Z_s = -1.48 – 0.75$). The model did however indicate that the quality of direct contact predicted intergroup anxiety, $b = -0.34$, $\beta = -0.37$, $Z = -7.98$, $p < 0.001$, and this effect appears to be much stronger than that of the quantity of direct contact. The indirect effect of direct contact quality on attitudes through intergroup anxiety was significant, $Z = 5.69$, $p < .001$. The quality of media contact did not predict intergroup anxiety, $b = -0.00$, $\beta = -0.00$, $Z = -0.02$, $p = .99$. Overall, this model accounted for 25% of the variance in warmth toward outgroups, 12% of the variance in closeness toward the outgroup, 14% of the variance in intergroup anxiety, and 4% of the variance in knowledge of the outgroup.

When running a model that included group status (majority or minority) as a moderator (RMSEA = 0.08, 90% CI [0.04, 0.09], CFI, = .91, SRMR = .05, AIC = 56873.47), I did not find that group status moderated these effects as the quality of direct contact was related to improved attitudes for both majority, $b = -0.35$, $\beta = -0.35$, $Z = -5.18$, $p < 0.001$, and minority groups, $b = -0.32$, $\beta = -0.33$, $Z = -7.64$, $p < 0.001$. 

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Figure 9. Path analyses of the relationships of both quantity and quality of media contact (collapsed across news and entertainment media) and direct contact with warmth toward ethnic outgroups mediated by knowledge of the group, closeness to the group, and anxiety about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †p = .10, *p = .01, **p = .001.

RMSEA = 0.06, 90% CI [0.04, 0.08], CFI, = .97, SRMR = .02, AIC = 48953.86
5  Study 1 Discussion

Study 1 provides initial evidence that daily experiences of direct contact and media contact uniquely predict intergroup attitudes. Moreover, Study 1 found that the relationship of each form of contact with intergroup attitudes could be explained by increased closeness to the outgroup, as measured by the extent to which participants incorporated the outgroup into their self-concept. Empathy toward the outgroup also explained these relationships, but closeness was a stronger predictor and the model excluding empathy fit the data much better than alternate models. This may be because empathy and closeness are similar constructs. Indeed, the correlation between closeness and empathy was .39, suggesting about 15% of the variance between these two constructs overlaps. As might be expected, the model including empathy rather than closeness demonstrated the same pattern of results. In a meta-analysis examining the mediators of intergroup contact, measures that involved incorporating the outgroup into the self were categorized as measures of empathy, indicating that the measure of closeness is sometimes conceptualized as a measure of empathy (Pettigrew & Tropp, 2008). As such, future research should carefully disentangle the relationship between these two hypothesized mediators.

I also found that intergroup anxiety explained the relationship between direct contact and intergroup attitudes, which is consistent with past research (Pettigrew & Tropp, 2008). That said, it did not explain the relationship between news media contact and intergroup attitudes and entertainment media contact actually predicted greater intergroup anxiety. While there is some evidence that media contact may reduce intergroup anxiety (Mazziotta et al., 2011; Shim et al., 2012, West & Turner, 2014), the findings have been mixed (Ortiz & Harwood, 2007; Shim et al., 2012). Indeed, Korean participants that had parasocial contact with characters from American dramas also had less anxiety about interacting with Americans, whereas the total amount of time participants spent viewing American dramas was actually related to increased anxiety about interacting with Americans (Shim et al., 2012). The authors explained this finding based on past research, which found that Koreans perceive a great deal of ethnocentrism and racism in American dramas but still enjoy watching them (Kang, Kim, Noh, Kim, & Shin, 2008). They suggested that without parasocial contact to counterbalance these negative and stereotypical portrayals, exposure to outgroups in entertainment media could be detrimental for intergroup attitudes. It could be that watching entertainment television shows that make ethnic outgroups
salient raises concerns about how to act with members of these groups, especially if these shows don't include cross-group interactions. However, when viewers really connect with a particular outgroup character or watch positive interactions between outgroup characters and ingroup characters, it may alleviate these concerns and make them feel more confident about their own ability to have a positive interaction with members of that ethnic outgroup (Mazziotta et al., 2011). This might explain why parasocial (Shim et al., 2012) and vicarious (Mazziotta et al., 2011) contact through entertainment media are related to less intergroup anxiety, while general exposure to outgroups via entertainment media is not (Shim et al., 2012). As such, Study 2 will attempt to get more information about the type of media contact that is occurring to see whether this is important in determining whether these will reduce intergroup anxiety. Importantly, the quality of direct contact predicted intergroup anxiety such that having more positive interactions with a group in a given day predicted less anxiety about interacting with members of that group. The quality of media contact did not, however, predict intergroup anxiety. This may because I was not measuring media contact quality at the same resolution at which I was measuring direct contact quality. Indeed, for media contact quality I asked participants about the quality of all the media they consumed that day, and so I could not disentangle the quality of media that included outgroup members from that of media only included ingroup members. I will address this issue in Study 2.

While I did find that each form of intergroup contact predicted greater subjective knowledge of the outgroup, I did not find that subjective knowledge of the outgroup explained the relationship of each form of contact measured with intergroup attitudes. Indeed, there was no relationship between subjective knowledge of an outgroup and attitudes toward that outgroup. Knowledge of the outgroup has been found to be a key mediator of the relationship of intergroup contact and prejudice, but this has been measured in multiple ways. Most measures of outgroup knowledge look for objective knowledge, by asking people to answer factual questions about an outgroup. In the current research, as I was examining knowledge of multiple outgroups, I used a measure of subjective knowledge, asking participants how familiar they were with each group’s culture. This may not have accurately captured participants knowledge of each outgroup.

Finally, I found that the status of the outgroup was an important moderator of these relationships in that for majority groups, only direct contact was related to greater closeness and in turn to
more positive attitudes, but no other form of contact was related to knowledge, closeness, or anxiety, or directly related to attitudes. Indeed, most of the findings in the original model were specific to minority group members. Most research on intergroup contact, and in particular research examining the processes by which contact improves attitudes, has focused on attitudes of majority group members toward minority group members. Moreover, in a meta-analysis of intergroup contact, it was found that the effect of contact on attitudes was weaker for minority status samples than majority status samples (Tropp & Pettigrew, 2005). Altogether, the findings from the current research and past research suggest that contact may be particularly important for reducing prejudice toward minority groups.
Chapter 3
Examining the Relationships Between Media Contact and Direct Contact with Attitudes: A Daily Experience Study

1 Study 2 Overview

Study 2 attempts to replicate and extend Study 1 by examining the processes through which media contact and direct contact predict intergroup attitudes in daily life. However, Study 2 will only focus on the key mediators from Study 1, anxiety and closeness. Study 2 only focused on key mediators from Study 1 as I have included some additional measures relevant to the current research (i.e., social norms communicated via media), and I wanted to ensure the survey was a reasonable length so that participants would not become fatigued.

Study 2 will also examine participants’ perceptions of how various racial/ethnic groups are portrayed in the media. I thought their perceptions of how groups are portrayed in the media may be an important variable to consider when examining how media contact impacts intergroup attitudes. Indeed, if people are consuming a lot of media and believe that media portrays groups negatively, then past research suggests that exposure to these negative portrayals may lead them to feel negatively toward those groups (Johnson et al., 2008, Ramasubramanian, 2015). However, if they are consuming a lot of media and indicating that these groups are portrayed positively in the media, then it suggests that exposure to these positive portrayals should be related to more positive attitudes. This is one way I can get at how media quality impacts attitudes.

Study 2 overcomes some important limitations for Study 1. Indeed, Study 1 used a 1-item self-report measure that required participants to retrospectively report on how much they saw a number of outgroups in the media that day. However, this may not have captured participants’ actual exposure to these groups in the media. Study 2 used an experience sampling methodology that had participants report on social interactions and media consumption throughout the day. This should reduce concerns about participants’ ability to accurately retrospect on these experiences at the end of the day, which is what they were doing in Study 1. Study 2 will also measure media contact at the same resolution with which direct contact is being measured, which
provides a more accurate comparison of these different forms of contact. Another advantage of measuring media contact experiences this way is that I can ask more specific questions about each type of media participants are consuming. Specifically, in Study 2 participants will be asked to provide information about how they felt while consuming each piece of media and how negative that piece of media was, which will allow us to get a better sense of the quality of their media contact experiences, similar to how I examined the quality of direct social interactions in Study 1. Finally, by measuring the variables of interest over multiple time periods, I can run a lagged analysis to examine whether the quality of intergroup contact in a given day predicts changes in the quantity of contact the following day. Given that positive media contact experiences have been found to encourage interest in cross-group interaction (Mazziotta et al., 2011), it seems reasonable to posit that high quality media contact experiences in a given day may predict a higher frequency of cross-group interaction the next day. This may be because these high-quality media contact experiences would improve the quality of cross-group interactions (West & Turner, 2014). By examining the quality of both media contact and direct contact over a 5 day period I can acquire more information about the nature of their relationship over time.

Furthermore, participants will be asked about whether they saw a social interaction in this piece of media or whether they felt like they were interacting with a media character in this piece of media which may allow us to directly compare the effects of the two different types of media contact described in Chapter 1, parasocial contact and vicarious contact. This will, however, depend on how often participants are reporting these types of contact experiences.

### 1.1 Study 2 Hypotheses

Hypothesis 1: I predicted that the findings of Study 1 would be replicated, demonstrating that direct contact and contact through news media and entertainment predict more positive attitudes toward ethnic/racial outgroups. I thought this would be explained by greater closeness to the group for each form of contact, but that intergroup anxiety would only explain the relationships between direct contact and attitudes.
Hypothesis 2: As with Study 1, I predicted that these relationships would be moderated by group status such that they would be stronger when contact occurred with minority status groups than a majority status group.

Hypothesis 3: As with Study 1, I predicted that the quality of direct contact and media contact would be important such that only high quality interactions and media contact would be likely to reduce intergroup anxiety, in particular. Indeed, in Study 1 these forms of contact predicted greater closeness without considering quality, but media contact was not found to reduce anxiety. As such, I predicted that the quality of the media contact would be more important than quantity for reducing anxiety.

Hypothesis 4: I predicted that participants’ perceptions of how outgroups were portrayed in the media would predict participants’ attitudes toward outgroups, and that this would also be explained by intergroup anxiety and closeness. Specifically, I predicted that perceiving outgroups as being portrayed positively in the media should predict greater closeness to that outgroup and lower anxiety about interacting with members of that outgroups, which in turn would predict more positive attitudes toward that outgroup.

Hypothesis 5: I predicted that the quality of media contact in a given day, specifically how people felt while consuming the media, would encourage more cross-group interaction the next day, and that this would be explained by the fact that high-quality media contact would predict higher quality cross-group interactions.

2 Study 2 Methods

2.1 Participants

An initial sample of 135 participants were recruited using online ads posted for the Greater Toronto Area community of Ontario, Canada. Given the number of parameters I was including in the structural equation model, and the fact that I had a repeated measures design with participants responding across 5 days, I thought approximately 100 participants would be sufficient to test the model as that would provide 500 daily diaries and approximately 2000 daily experience surveys as participants completed approximately four a day. Interested participants were provided with basic information via email. Upon completion of the study, participants were compensated with
$115 for their participation. There was some attrition as some participants did not return for the daily experience portion of the study following the initial background session. The final sample after attrition consisted of 104 participants (62% female). The final sample had a mean age of 26.94 years ($SD=21.54$) and was ethnically diverse (36% East Asian, 19% White, 18% South Asian, 11% Black, 9% Latino, 4% Arab, 3% Multiracial).

2.2 Procedure

2.2.1 Background Session

Participants came into the lab for a background session. At this time, they were given more detailed information about the study and the nature of their participation. Specifically, the experimenter explained to the participants that they would be using an experience sampling application on their smartphone devices called ExperienceSampler (Thai & Page-Gould, in press). This application would be downloaded on their phone during the first day of the daily experience portion of the study. The experimenter went through the details of how the application worked, such as how many times a day it would ask them to complete a survey, and how they could use a snooze function if they were not able to complete a survey when they received a notification. The experimenter also explained some of the questions and terms used in the survey that might not have been understood by participants (e.g., what does it mean to feel like you are interacting with a person in the media). After providing informed consent, participants were asked to complete a background survey. After completing the background survey, participants were scheduled for a week to come in for the daily experience portion of the study.

2.2.2 Daily Experience Week

For this part of the study, participants were scheduled to come into the lab for 5 days, which were always scheduled to start on a Monday and end the following Friday. Participants were instructed to come into the lab each day to be fitted with ambulatory recording devices that would monitor their physiological responses throughout the day\(^3\). On the first day of the daily experience portion of the study, a trained research assistant downloaded the ExperienceSampler app (Thai & Page-Gould, in press) onto the participant’s smartphone and set the app up such that it would send notifications to participants throughout the day for the next 5 days from the time
they left the lab in the morning until they returned in the evening. Occasionally, participants were not able to download this application on their phone and therefore, those participants were sent Qualtrics versions of the same survey to complete throughout each day. At the end of each day, participants returned to the lab, had the ambulatory physiological recording equipment removed, and completed a daily diary survey. On the final day of the study (day 5), participants were debriefed and fully compensated. They also completed a post-consent form to indicate that I could still use their data after they were aware of the true nature of the study.

2.3 Measures

2.3.1 Background Survey

The background survey asked participants a number of demographic questions as well as health related questions which were pertinent to the physiological components of the study. Participants reported their ethnicity in the same way that they did with Study 1.

2.3.2 Experience Sampling Surveys

The experience sampling surveys that participants completed throughout the day each day first asked participants a few questions about how they were feeling in that moment. Next, participants were asked whether or not they had recently had a social interaction. If they answered yes, they were prompted to answer a number of questions about that social interaction which are described in more detail below. Next, participants were asked whether they had recently consumed any media. If they said yes, participants were prompted to answer a number of questions about that piece of media which are described in more detail below.

2.3.2.1 Direct Contact

Participants were prompted to report on each direct social interaction they had had since they first came into the lab that morning or since the last time they completed a survey. They reported on these social interactions the same way that they did in Study 1. To determine the quantity of intergroup interactions each day, the number the number of interactions participants had with a given outgroup were summed. To capture the quality of the interaction experience, I included items asking participants how they felt during the interaction. Specifically, participants were asked how happy, relaxed, anxious (reverse scored), and angry (reverse scored) they felt on a
I (not at all) to 7 (Very) Likert scale. I also asked them how positive the interaction was using a 1(very negative) to 7(very positive) Likert scale. These were aggregated to form a measure of interaction quality and the reliability of the scale was good (α = .73).

2.3.2.2 Media Contact

Participants were prompted to report on each piece of media they consumed since they first came into the lab that morning or since the last time they completed a survey. They reported on these interactions similar to the way they reported on direct social interactions. I asked participants to select whether that piece of media was news media or entertainment media, and I had them indicate the name of the media with an open-ended response item. I also asked participants to select all of the groups they saw in the media, including the same 7 ethnic/racial groups I examined in Study 1. To determine the quantity of media contact each day, the number of interactions participants had with a given outgroup were summed. To capture the quality of the interaction experience, I included items asking participants how they felt while consuming the media. Specifically, I asked participants how happy, relaxed, anxious (reverse scored), and angry (reverse scored) they felt on a 1 (not at all) to 7 (very) Likert scale. I also asked them how positive the media was using a 1 (very negative) to 7 (very positive) Likert scale. These were aggregated, and to form a measure of interaction quality and the reliability of the scale was good (α = .73). To capture which of these interactions were vicarious, I asked participants to report on interactions that stood out to them in that piece of media, and to indicate the ethnicity of each interaction partner by selecting one of the 7 ethnic/racial groups. This allowed me to code each interaction to determine whether an ingroup member and outgroup member were involved. Finally, to determine whether participants were having a parasocial interaction, I asked them whether they felt like they were interacting with anyone in the media and if so, to indicate the ethnic/racial group membership of that person. Providing participants were reporting these frequently enough, this would allow us to compare each form of media contact.
2.3.3 Daily Diary

The daily diary survey included a number of measures to examine the mechanisms explaining the relationships between each form of intergroup contact and intergroup attitudes. These will be described in detail below.

2.3.3.1 Intergroup Anxiety

As with Study 1, to measure intergroup anxiety, I used an adaption of Stephan and Stephan's (1985) intergroup anxiety scale. Specifically, I asked participants how impatient, careful, at ease (reverse scored), apprehensive, and anxious they would feel when interacting with members of each of the 7 ethnic groups from 1 (Not at all) to 7 (Very). Across all groups, the scale demonstrated good reliability ($\alpha = .72 - .80$).

2.3.3.2 Intergroup Closeness

To measure closeness to ethnic/racial groups, I used the Inclusion of Other in the Self scale developed by Aron, Aron, and Smollan (1992) which has been adapted to look at inclusion of social groups in the self (Tropp & Wright, 2001). This single-item measure consisted of seven pairs of overlapping circles, with greater overlap between the circles indicating greater closeness to that social group. For each of the 7 ethnic/racial groups, participants were asked to indicate the degree to which each of the pictorial representations of the self and the group corresponded to their feelings of closeness with that group.

2.3.3.3 Social Norms

To measure perceptions of social norms as communicated through the media, I asked participants how they thought these groups were portrayed in the media. Specifically, participants were asked how they thought the news media portrayed each social group from 1 (very negatively) to 7(very positively) and how they thought the entertainment media portrayed each social group from 1 (very negatively) to 7(very positively). These were highly correlated ($r = .83$) and as such, were aggregated to form one variable which reflected social norms of these groups communicated via media.
2.3.3.4 Intergroup Attitudes

To measure intergroup attitudes, I used two measures. First, I used a feeling thermometer which asked participants how warm they felt towards each group. However, this was different from the thermometer I used in Study 1 such that I had participants use a sliding scale to indicate their warmth toward each group from 0 to 100. I also asked participants to indicate how positively they felt toward each group overall by responding to a single item Likert scale from 1 (very negative) to 7 (very positive). Each of these variables were standardized and an average between them was computed to represent attitudes toward each target group.

3 Results

3.1 Preliminary Analysis

Out of the 1854 daily experience surveys completed, 413 (22%) reported a media consumption experience and 1016 (55%) reported a direct social interaction. Of the media consumption experiences reported, only 42 (10%) included a parasaical interaction and only 43 (10%) reported seeing a cross-group interaction in the media. As such, I did not have the power to statistically examine the relationship between specific forms of media contact (i.e., parasaical and vicarious) and intergroup attitudes. Of the interactions reported from which I could identify the ethnicity of both the participant and the interaction partner (811 total), 460 (57%) were cross-ethnicity and 351 (43%) were same-ethnicity. Of the media consumption experience reported, 411 (99%) contained an ethnic outgroup member and 65 (16%) contained an ethnic ingroup member. As such, for both direct contact and media contact, participants were reporting more cross-group than same-group interactions. This is inconsistent with the findings from Study 1 and with other research done in the Greater Toronto Area (Page-Gould, 2012), which suggests that people tend to have more same-group than cross-group interactions. It might have to do with how I am now measuring social interactions, as I am asking participants to report on these throughout the day rather than at the end of the day. Nonetheless, participants are still reporting being exposed to outgroups in the media almost as frequently as they are reporting having interactions with outgroups, which is important because participants reported far more social interactions in this study than media consumption experiences.
Participants reported similar direct interaction quality for both same-group ($M = 4.88$, $SD = 0.67$), and cross-group interactions ($M = 4.83$, $SD = 0.70$), and similar media quality for both same-group ($M = 4.75$, $SD = 0.94$), and cross-group ($M = 4.69$, $SD = 0.93$) media. Participants did however report more anxiety about interacting with outgroups ($M = 2.49$, $SD = 1.08$), than their ingroup ($M = 2.30$, $SD = 1.06$), $t(13055) = 7.133$, $p < .001$. Table 7 provides the means and standard deviations for each quality item. As you can see from examining the table, participants’ emotions did not differ much across each form of contact.

When it came to group status, minority and majority participants had roughly equal amounts of media contact (news and entertainment) and direct contact (see Table 8).

For this study, I once again collapsed across media types (news and entertainment) as there were fewer observations of media contact, and Study 1 revealed that separating each type of media contact did not explain meaningful variance in the model. On average, participants reported 1.61 media consumption experiences each day and spent about 40 minutes ($M = 37.82$ minutes, $SD = 46.29$) consuming media each day. On average, participants reported 2.09 social interactions each day and spent 25 minutes ($M = 25.13$ minutes, $SD = 32.83$) engaged in an interaction. A paired $t$-test was run to compare the amount of time participants spent participating in direct interactions and the amount of time they spent consuming both media. Results indicated that participants spent significantly more time consuming media than they did in social interactions, $t(1310) = 5.71$, $p < .001$. Correlations between all primary variables can be found in Table 9.
Table 6.

*Percentage of each type of contact reported for each ethnic group*

<table>
<thead>
<tr>
<th>Group</th>
<th>Media contact</th>
<th>Direct Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Black</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>East Asian</td>
<td>4%</td>
<td>11%</td>
</tr>
<tr>
<td>First Nation</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>Latino</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>South Asian</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>White</td>
<td>9%</td>
<td>14%</td>
</tr>
</tbody>
</table>

*Note: These represent percentages of contact with each group reported across all experience sampling surveys completed.*
Table 7.

*bMeans and Standard Deviations for Items Used to Capture Contact Quality*

<table>
<thead>
<tr>
<th></th>
<th>Angry</th>
<th>Anxious</th>
<th>Happy</th>
<th>Relaxed</th>
<th>Positivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Contact</td>
<td>1.55 (1.11)</td>
<td>2.16 (1.46)</td>
<td>4.12 (1.67)</td>
<td>4.23 (1.63)</td>
<td>5.03 (1.24)</td>
</tr>
<tr>
<td>Media Contact</td>
<td>1.96 (1.43)</td>
<td>2.00 (1.42)</td>
<td>4.02 (1.7)</td>
<td>4.39 (1.63)</td>
<td>4.47 (1.44)</td>
</tr>
</tbody>
</table>
Table 8.

*Summary of Contact Means for Majority and Minority Group Participants*

<table>
<thead>
<tr>
<th>Group</th>
<th>Media contact</th>
<th>Direct Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Majority Group Participants</td>
<td>0.28(0.73)</td>
<td>0.37(1.06)</td>
</tr>
<tr>
<td>Minority Group Participants</td>
<td>0.23(0.63)</td>
<td>0.39(1.02)</td>
</tr>
</tbody>
</table>

*Note:* No means across minority and majority groups were significantly different.
Table 9.

Bivariate Correlations Among All Variables in Study 2

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Media Contact</td>
<td>-</td>
<td>.11**</td>
<td>.30**</td>
<td>.13**</td>
<td>.11**</td>
<td>.08**</td>
<td>.05**</td>
<td>.05**</td>
<td>.10**</td>
<td>.08**</td>
</tr>
<tr>
<td>2. Direct Contact</td>
<td>-</td>
<td>.16**</td>
<td>.01</td>
<td>.06**</td>
<td>.05**</td>
<td>-.01</td>
<td>.02†</td>
<td>-.01</td>
<td>-.02*</td>
<td></td>
</tr>
<tr>
<td>3. Media Contact Quality</td>
<td>-</td>
<td>.48**</td>
<td>.11*</td>
<td>.03</td>
<td>-.23**</td>
<td>-.02</td>
<td>.28**</td>
<td>-.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Direct Contact Quality</td>
<td>-</td>
<td>.24**</td>
<td>.26**</td>
<td>-.16**</td>
<td>.0</td>
<td>.19**</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Entertainment Media Norms</td>
<td>-</td>
<td>.83**</td>
<td>.03*</td>
<td>.20**</td>
<td>.22**</td>
<td>.17**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. News Media Norms</td>
<td>-</td>
<td>.02†</td>
<td>.20**</td>
<td>.24**</td>
<td>.17**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Anxiety</td>
<td>-</td>
<td>-.23**</td>
<td>-.39**</td>
<td>-.37**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Closeness</td>
<td>-</td>
<td>.43**</td>
<td>.46**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Positivity</td>
<td>-</td>
<td></td>
<td>.68**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Warmth</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Notes: †p = <.10, *p = <.05, **p = <.01.
3.2 Primary Analysis

3.2.1 Replicating Primary Findings from Study 1

First, I wanted to partially replicate the findings from Study 1 by examining whether the relationships of intergroup contact through media and direct interaction with intergroup attitudes would be explained by less intergroup anxiety and greater closeness to the outgroups. To do this, I ran a multilevel path analysis using the lavaan package (Rosseel, 2012) of R 3.1.2. I used the lavaan survey package (Oberski, 2014) survey design function to account for nested data as I had participants responding to multiple target groups. This model only included measures of the predictors, mediators, and the dependent variable for outgroups. Media contact was aggregated across the various types of media (news and entertainment) as I didn’t find important differences between each type of media contact in Study 1, and as such I thought a more parsimonious model would be desirable. This was also helpful as participants reported that much of the media they consumed was both news and entertainment. It should be noted that because of the large number of observations in these models, some of the RMSEA confidence intervals reported will have the same lower and upper bounds.

This model had good fit, RMSEA = 0.03, 90% CI [0.02, 0.03], CFI = .91, SRMR = .06, AIC = 254362.29. As illustrated in Figure 10, the model revealed that neither media contact, $b = 0.07$, $\beta = 0.09$, $Z = 1.21$, $p = 0.23$, nor direct contact, $b = 0.00$, $\beta = 0.00$, $Z = 0.05$, $p = 0.96$, predicted greater closeness to an outgroup, though greater closeness to an outgroup did predict more positive attitudes toward the outgroup, $b = 2.47$, $\beta = 0.39$, $Z = 7.79$, $p < 0.001$. Moreover, neither media contact, $b = 0.04$, $\beta = 0.08$, $Z = 0.73$, $p = 0.46$, nor direct contact, $b = -0.02$, $\beta = -0.05$, $Z = -1.12$, $p = 0.26$, predicted anxiety about interacting with an outgroup, though less anxiety about interacting with an outgroup did predict more positive attitudes toward the outgroup, $b = -2.87$, $\beta = -0.30$, $Z = -4.74$, $p < 0.001$.

Consistent with the fact that neither form of contact predicted either of the mediators, I found no significant indirect effects (Zs = 0.05-1.17). I did however find a direct effect of media contact in predicting more positive intergroup attitudes, $b = 0.46$, $\beta = 0.10$, $Z = 2.16$, $p = 0.03$, but not direct contact, $b = -0.16$, $\beta = -0.05$, $Z = -1.04$, $p = 0.30$, and indeed the relationship between direct contact
and attitudes is in the opposite direction of what would be expected. This model explained 25% of the variance in attitudes, but very little variance in intergroup anxiety (.01%) and closeness (.01%).

As with Study 1, to determine the importance of including the mediators in the model, I compared this the model including closeness and intergroup anxiety to a model that had media contact and direct contact directly predicting attitudes. This model had excellent fit relative to the null model, but poor goodness of fit, RMSEA = .01, 90% CI [0.01, 0.01], CFI, = .78, SRMR = .10, AIC = 135860.75, suggesting that the model that includes closeness and intergroup anxiety fits the data better.

As the study design was cross-sectional in nature, I tested two alternative models to rule out alternative orders in which the contact, mediator, and attitudes variables could be placed. As illustrated in Figure 11, the first of these models kept the contact variables as the exogenous variables, but made attitudes the mediator and closeness and anxiety the outcome variables. This model had excellent fit, RMSEA = 0.02, 90% CI [0.01, 0.02], CFI, = .97, SRMR = .03, AIC = 202009.72. A model comparison revealed that this model fit the data better than the original model we proposed, $\chi^2(1) = 7.72, p = .01$. As illustrated in Figure 12, the second of these models made closeness and anxiety the exogenous variables and the contact variables the mediators, but kept attitudes as the outcome variable. This model also had excellent fit, RMSEA = 0.02, 90% CI [0.02, 0.02], CFI = .91, SRMR = .06, AIC = 202608.88. A model comparison revealed that this model did not fit the data better than the original model I proposed, $\chi^2(0) = 0, p = 1$. It is important to recognize that these processes may not be occurring in the direction I initially hypothesized. Nonetheless, all models reported below place the variables in the original order hypothesized as this order is consistent with contact theory, which is the theory that this research has been framed in.
Figure 10. Path analyses of the relationships media contact and direct contact with attitudes toward ethnic outgroups mediated by closeness to the group and anxiety about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.

RMSEA = 0.03, 90% CI [0.02, 0.03], CFI, = .91, SRMR = .06, AIC = 254362.29
Figure 11. Alternate path analyses with media contact and direct contact as exogenous variables, attitudes as the mediator, and closeness to the group and anxiety about interacting with members of the group as outcome variables. All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.

RMSEA = 0.02, 90% CI [0.01, 0.02], CFI, = .97, SRMR = .03, AIC = 202009.72
Figure 12. Alternate path analyses with closeness to the group and anxiety about interacting with members of the group as exogenous variables, each form of contact as mediators, and attitudes as the outcome variable. All slopes reported are standardized. Only significant paths are reported.

\[ p = .10, \ast p = .01, \ast\ast p = .001.\]

RMSEA = 0.02, 90% CI [0.02, 0.02], CFI = .91, SRMR = .06, AIC = 202608.88
3.2.2 Considering Target Status as a Moderator

To test the hypothesis that these relationships would be stronger for minority outgroups than the majority outgroup, I ran the model including each form of contact predicting attitudes with closeness and anxiety as mediators, now including group status (majority or minority) as a moderator. White targets were coded as the majority group and all other targets were coded as minority groups. Once again, I ran a multilevel path analysis using the lavaan package (Rosseel, 2012) of R 3.1.2, using the lavaan survey package (Oberski, 2014) survey design function to account for nested data as I had participants responding to multiple target groups. This model only included measures of the predictors, mediators, and dependent variables for outgroups.

This model had good fit, RMSEA = 0.03, 90% CI [0.03, 0.04], CFI, = .90, SRMR = .06, AIC = 209543.55. I used the 'groups' argument of lavaan to estimate separate paths for ratings of minority and majority status groups. In order to test for moderation by target status, I ran a second model constraining the paths for majority and minority targets to be equal. This model had good fit, RMSEA = 0.02, 90% CI [0.02, 0.02], CFI, = .96, SRMR = .06, AIC = 202013.27. A likelihood ratio test revealed that the model that estimated unique paths for majority and minority targets did not explain more variance than the constrained model, $\chi^2(9) = 8.80, p = .46$, indicating that target status did not moderate these relationships. Nonetheless, I will provide the separate model estimates below as I did find that target status was a moderator in Study 1.

As illustrated in Figure 13, looking at the model for minority participants contact with majority targets, neither media contact, $b = 0.17, \beta = 0.08, Z = 1.30, p = .17$, nor direct contact, $b = -0.08, \beta = -0.08, Z = -1.72, p = .09$ predicted greater closeness to the majority outgroup for minority participants, but greater closeness to the majority outgroup did predict more positive attitudes toward the majority outgroup for minority participants, $b = 0.23, \beta = 0.38, Z = 5.24, p < .001$. Neither media contact, $b = 0.05, \beta = 0.04, Z =0.53, p = .59$, nor direct contact, $b = -.01, \beta = -.01, Z = -0.13, p = 90$, predicted anxiety about interacting with the majority outgroup for minority participants, but less anxiety about interacting with the majority outgroup predicted more positive attitudes toward the majority outgroup for minority participants, $b = -0.44, \beta = -0.51, Z = -5.47, p < .001$. 

60
Looking at the model for majority participants contact with minority targets, media contact did not predict greater closeness to a minority outgroup for majority participants, $b = 0.09$, $\beta = 0.04$, $Z = 0.81$, $p = .42$, but direct contact did, $b = 0.21$, $\beta = -0.08$, $Z = 2.12$, $p = .03$, and greater closeness to a minority outgroup predicted more positive attitudes toward that minority outgroup for majority participants, $b = 0.29$, $\beta = 0.48$, $Z = 8.50$, $p < .001$. The indirect effect of direct contact on attitudes through closeness was significant, $Z = 2.12$, $p = .03$. Neither media contact, $b = 0.07$, $\beta = 0.05$, $Z = 0.58$, $p = .56$, nor direct contact, $b = -0.07$, $\beta = -0.04$, $Z = -1.00$, $p = .32$, predicted anxiety about interacting with a minority outgroup for majority participants, but less anxiety about interacting with a minority outgroup predicted more positive attitudes toward that minority outgroup for majority participants, $b = -0.31$, $\beta = -0.34$, $Z = -4.97$, $p < .001$. 
Figure 13. Path analyses of the relationships media contact and direct contact with attitudes toward ethnic outgroups mediated by closeness to the group and anxiety about interacting with members of the group, with group status as a moderator. All slopes reported are standardized. Only significant paths are reported. †p = <.10, * p = <.01, ** p = <.001
3.2.3 Examining the Role of Quality

To test the hypothesis that quality of each type of contact would predict intergroup attitudes and that this would be explained by less intergroup anxiety and greater closeness to the outgroups, I ran the original model including each form of contact, as well as the quality of each form of contact, predicting attitudes with closeness and anxiety as mediators. Given that there were a limited number of observations for both media contact and direct contact, I ran two separate models, one which added the quality for direct contact only and one which included the quality for media contact only. This was important as the model which included both only had 165 observations. Once again, this model was run as a multilevel path analysis using the lavaan package (Rosseel, 2012) of R 3.1.2, using the lavaan survey package (Oberski, 2014) survey design function to account for nested data as I had participants responding to multiple target groups. This model only included measures of the predictors, mediators, and dependent variables for outgroups.

The model including the quality of direct contact had good fit, RMSEA = 0.05, 90% CI [0.04, 0.06], CFI, = .92, SRMR = .06, AIC = 24202.98. As illustrated in Figure 14, the primary pattern of results changed such that anxiety about interacting with an outgroup no longer predicted attitudes toward an outgroup, $b = -0.39$, $\beta = -.04$, $Z = -0.45$, $p = .65$. Moreover, the model indicated that the quality of direct contact marginally predicted anxiety about interacting with the outgroup, $b = -0.26$, $\beta = -.16$, $Z = -1.79$, $p = .07$, but it did not predict closeness toward the outgroup, $b = 0.04$, $\beta = .02$, $Z = 0.19$, $p = .85$, though closeness toward the outgroup was still predicted by the quantity of direct contact, $b = 0.20$, $\beta = .11$, $Z = 3.21$, $p < .001$.

Overall, this model accounted for 28% of the variance in attitudes toward outgroups, 2% of the variance in closeness toward the outgroup, and 5% of the variance in intergroup anxiety.

I ran an additional model examining group status (majority or minority) as a moderator (RMSEA = 0.06, 90% CI [0.04, 0.08], CFI, = .93, SRMR = .06, AIC = 20066.87). I did not find that group status moderated these effects as the unconstrained and constrained models fit the data equally well, $\chi^2(1) = 1.07$, $p = .30$. However, when examining the models for each group the path of direct interaction quality predicting intergroup anxiety is stronger for minority status groups, $b =$
-0.28, β = -1.95, p = 0.05, than majority status groups, b = -0.20, β = -1.12, Z = -1.12, p = 0.26.

The model including the quality of media contact had good fit, RMSEA = 0.06, 90% CI [0.02, 0.10], CFI = .95, SRMR = .05, AIC = 6693.09. As illustrated in Figure 15, in this model closeness toward an outgroup was marginally significant in predicting attitudes toward an outgroup, b = 1.51, β = .24, Z = 1.82, p = .07. Moreover, the model indicated that the quantity of media contact now predicted anxiety about interacting with the outgroup, b = -.20, β = -.15, Z = -2.03, p = .04, such that greater media contact predicted less intergroup anxiety, though the quality of media contact did not, b = -.27, β = -.19, Z = -0.94, p = .35. The change in the results is likely due to the limited number of observations in this model relative to the other models.

Overall, this model accounted for 36% of the variance in attitudes toward outgroups, 4% of the variance in closeness toward the outgroup, and 8% of the variance in intergroup anxiety.

The model had too few observations (n = 321) to examine target status as a moderator.
Figure 14. Path analyses of the relationships of the quantity of media contact and the quantity and quality of direct contact with attitudes toward ethnic outgroups mediated by closeness to the group and anxiety about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.

RMSEA = 0.05, 90% CI [0.04, 0.06], CFI = .92, SRMR = .06, AIC = 24202.98
Figure 15. Path analyses of the relationships of the quantity and quality of media contact and the quantity of direct contact with attitudes toward ethnic outgroups mediated by closeness to the group and anxiety about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.

RMSEA = 0.06, 90% CI [0.02, 0.10], CFI = .95, SRMR = .05, AIC = 6693.09
3.2.4 Examining the Role of Media Norms

To test the hypothesis that perceptions of how groups are normally portrayed in the media would predict intergroup attitudes and that this might be explained by anxiety about interacting with an outgroup and closeness to an outgroup, I ran a model including perception of media norms, as well as the quantity of each form of contact, and the quality of direct contact, predicting attitudes with closeness and anxiety as mediators. Once again, this model was run as a multilevel path analysis using the lavaan package (Rosseel, 2012) of R 3.1.2, using the lavaan survey package (Oberski, 2014) survey design function to account for nested data as I had participants responding to multiple target groups. This model only included measures of the predictors, mediators, and dependent variables for outgroups.

This model had acceptable fit, RMSEA = 0.07, 90% CI [0.06, 0.08], CFI, = .92, SRMR = .06, AIC = 25059.60. As illustrated in Figure 16, the primary pattern of results was consistent with the original model including quality of direct contact. The only variable that was significantly predicted by perceptions of how groups were portrayed in the media was closeness such that perceiving outgroups as being portrayed more positively predicted greater closeness toward those outgroups, \( b = 0.25, \beta = .24, Z = 2.42, p = .02 \). The indirect effect of perceptions of how groups are portrayed in the media on attitudes through closeness was significant, \( Z = 2.20, p = .03 \).

Overall, this model accounted for 28% of the variance in attitudes toward outgroups, 7% of the variance in closeness toward the outgroup, and 5% of the variance in intergroup anxiety.

When running a model that included group status (majority or minority) as a moderator (RMSEA = 0.05, 90% CI [0.03, 0.06], CFI, = .93, SRMR = .06, AIC = 24451.12), I did not find that group status moderated these effects as the unconstrained and constrained (RMSEA = 0.06, 90% CI [0.05, 0.08], CFI, = .91, SRMR = .05, AIC = 20952.89) models fit the data equally well, \( \chi^2(2) = 0.84, p = .65 \).

I ran an alternate model that included perceptions of how groups were portrayed in the media as an endogenous variable, as it might be hypothesized that the amount of time one spends consuming media would influence their perceptions of how groups are portrayed. This model was estimated as demonstrated in Figure 17. This model had acceptable fit relative to the null
model, but poor fit goodness of fit, RMSEA = 0.07, 90% CI [0.06, 0.08], CFI = .79, SRMR = 0.07, AIC = 25131.999. Media contact did not predict perceptions of how groups were portrayed in the media, \( b = 0.05, \beta = .01, Z = 0.19, p = .85 \), though direct contact did such that more direct contact with a group predicted more positive perceptions of the way that group was portrayed in the media, \( b = 0.22, \beta = .12, Z = 2.00, p = .05 \). A model comparison revealed that the original model which treated media norms as an exogenous variable fit the data better than this alternative model, \( \chi^2(1) = 9.50, p = .002 \).
Figure 16. Path analyses of the relationships of the quantity of media contact and direct contact, the quality of direct contact, and perceptions of how groups are normally portrayed in the media, with attitudes toward ethnic outgroups mediated by closeness to the group and anxiety about interacting with members of the group. All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.
Figure 17. Alternative path analyses of the relationships of the quantity of media contact and direct contact with attitudes toward ethnic outgroups with how groups are normally portrayed in the media as an endogenous variable. All slopes reported are standardized. Only significant paths are reported. †p = <.10, *p = <.01, **p = <.001.

RMSEA = 0.05, 90% CI [0.03, 0.06], CFI = .93, SRMR = .06, AIC = 24451.12
3.2.5 Lagged Analysis of Media Quality Predicting Direct Contact

To test the hypothesis that the quality of media contact on a given day would predict the quantity of direct contact the next day, and that this might be explained by more high quality cross-group interactions the next day, I ran a cross-lagged panel model as depicted in Figure 18. I included a lagged path of media contact quality one day predicting direct contact quality the next day as well a concurrent path with media contact quality one day predicting direct contact quality that day. This is because it is possible that high-quality media contact improves the quality of cross-group interactions in the same day, the next day, or both. This model was run as a multilevel path analysis using the lavaan package (Rosseel, 2012) of R 3.1.2, using the lavaan survey package (Oberski, 2014) survey design function to account for nested data as I had participants responding to multiple target groups. This model only included measures of the predictors, mediators, and dependent variables for outgroups.

This model had poor fit relative to the null model, but excellent goodness of fit, RMSEA = 0.16, 90% CI [0.00, 0.21], CFI = 1, SRMR = .02, AIC = 641.52. As illustrated in Figure 18, the direct path between the quality of media contact the day before and the quality of media contact that day was significant, \( b = 1, \beta = .99, Z = 335.644, p = .00 \), as well as the direct path of direct contact quality the day before predicting direct contact quality that day, \( b = 0.98, \beta = .99, Z = 57.49, p = .00 \), and the direct path of direct contact quantity the day before predicting direct contact quantity that day, \( b = 0.51, \beta = .52, Z = 4.30, p = .00 \), such that each of these variables was reasonably consistent over time. The lagged path from media contact quality the previous day to interaction quality that day was not significant, \( b = 0.01, \beta = .01, Z = 1.34, p = .16 \), however, the concurrent path of media contact quality the day before predicting interaction quality the day before was significant, \( b = 0.47, \beta = .49, Z = 3.10, p = .002 \), suggesting that high quality media contact is most likely to predict better interactions within the same day rather than the following day. Nonetheless, the lagged path of interaction quality the day before predicting direct contact that day was not significant, \( b = -0.01, \beta = -.01, Z = -0.17, p = .87 \), however, there was a lagged effect of media contact quality the day before predicting the quantity of direct contact the next day, \( b = 0.11, \beta = .19, Z = 3.25, p = .001 \).
Overall, this model accounted for 33% of the variance in interactions in a given day, 98% of the variance in interaction quality in a given day and 24% of the variance in the lagged variable for interaction quality.

There were too few observations ($n = 166$) to examine target status as a moderator.
Figure 18. Lagged panel analyses of the relationships of the quality of media one day predicting the quantity of direct contact the next day, mediated by the quality of direct contact. All slopes reported are standardized. Only significant paths are reported. †p = .10, *p = .01, **p = .001.

\[ \text{RMSEA} = 0.15, 90\% \text{ CI [0.00, 0.16]}, \text{CFI} = 1, \text{SRMR} = 0.02, \text{AIC} = 641.52 \]
4 Summary and Discussion

Study 2 partially replicated and extended the findings from Study 1. Indeed, this study found that anxiety about interacting with a given outgroup and closeness toward a given outgroup predicted more positive attitudes toward that group, but these were not predicted by overall quantity of direct contact or media contact. I also found that the quality of direct contact predicted intergroup anxiety, but this was not true when looking at the quality of media contact. Indeed, when just considering media contact quality and quantity, I actually found that media contact quantity was predicting reduced intergroup anxiety, but not media contact quality. This may have been because there was a significant, moderate to large correlation between media contact quantity and quality, and so in this model when just considering observations for which I had a measure of quality, now greater media contact quantity was predicting less intergroup anxiety. It should be noted that when examining the bivariate correlations between all of the variables, both direct contact and media contact quality were more strongly related to positivity toward an outgroup than the quantity of each form of contact. Importantly, the quality of both direct contact and media contact demonstrated the strongest relationships with intergroup anxiety relative to all other variables in the study, such that higher quality direct and media contact experiences were related to lower intergroup anxiety. Given the correlational nature of this study, I cannot be certain of whether the quality of these contact experiences is reducing anxiety, or whether people that have less anxiety about interacting with outgroup members also have more positive direct and media contact experiences with outgroups. That said, in a cross-lagged analysis, I did find that high quality media contact experiences predicted higher quality cross-group interactions in a given day. Likewise, high quality media contact experiences directly predicted more cross-group interaction the following day, while the quality of direct contact experiences the day before did not. This suggests that high-quality media contact may prepare people to have more positive cross-group interactions and in turn, encourage more cross-group interaction.

As with Study 1, some of these findings were moderated by the status of the outgroup. Indeed, I found that direct contact and media contact did not predict closeness to an outgroup for majority status targets, but that direct contact did predict closeness to an outgroup for minority status targets. Similarly, while direct contact quality predicted anxiety about interacting with minority outgroups, it did not predict anxiety about interacting with the majority outgroup.
Finally, in Study 2, I also considered participants’ perceptions of how groups were portrayed in the media (how positively they were portrayed) as another way of thinking about the quality of media contact experience. This is important given that most research on media contact quality has focused on how outgroups are portrayed. I found that perceiving that an outgroup is portrayed positively in the media predicted greater closeness toward that outgroup, and that this in turn predicted more positive attitudes toward that outgroup. I did not, however, find that this was related to less anxiety about interacting with members of that outgroup.
Chapter 4
General Discussion

1 Summary

Across two studies, I found support for the hypothesis that media contact and direct contact uniquely predict intergroup attitudes when studied in daily life. Indeed, Study 1 found initial evidence that both media contact and direct contact predicted intergroup attitudes and for both forms of contact, this was explained by greater closeness to the outgroup, however, only the relationship between direct contact and intergroup attitudes was explained by reduced intergroup anxiety. Study 2 added to these findings by demonstrating that the quality of media and direct contact experiences was important as this was related to reduced intergroup anxiety, while the quantity of each type of contact was not.

Across both studies, I found that many of these relationships were moderated by group status, such they tended to apply to minority groups but not majority groups. This was not always true, and could be explained in part by the fact that I had more statistical power to examine these relationships with minority groups than majority groups, as I examined attitudes toward 6 minority groups in these studies but only 1 majority group. Nonetheless, this is consistent with past research demonstrating that intergroup contact seems to be most effective for improving attitudes in majority group members, but less so for improving attitudes in minority group members.

Moreover, across both studies I was able to examine the quality of media contact and direct contact experiences to see how these impacted with intergroup attitudes. Indeed, I found that quality of intergroup contact, and in particular how people felt while consuming media with outgroup members, was related to intergroup anxiety, though it was not directly related to intergroup attitudes. Importantly, high quality media contact experiences one day predicted a greater frequency of direct contact the following day. Given the importance of reducing intergroup anxiety for encouraging positive cross-group interaction in daily life, this highlights the need to better understand how we can improve the quality of the media contact experiences.
people are having as these may be important for reducing intergroup anxiety and encouraging more direct intergroup contact in diverse societies.

2 Implications

2.1 Implications for Intergroup Contact Theory

These findings are consistent with past research on intergroup contact (Allport, 1954; Pettigrew & Tropp, 2006), but build on this work in many important ways. For one, this work provides evidence that daily exposure to outgroup members in media predicts intergroup attitudes independently of direct contact. Much past research on media contact has only viewed direct contact as a moderator (Fujioka, 1999; Mastro & Tropp, 2003; Schippa et al., 2005; Shim et al., 2012), finding that media contact tends to have a stronger relationship with intergroup attitudes for people that have had little direct contact. The current research suggests that in diverse societies where people may be engaging in direct social interaction with outgroup members and consuming media depicting members of these outgroups, both contact experiences have unique relationships with intergroup attitudes in daily life. Importantly, however, the quality of these experiences may be particularly important for determining their impact on intergroup attitudes.

The fact that each form of contact has a unique impact on intergroup attitudes sheds light on the importance of studying them in tandem, and in thinking about the ways by which these forms of contact are similar and different. Indeed, both media contact and direct contact are similar in that they involve exposure to outgroup members. With both media contact and direct contact, one has the opportunity to become more familiar with the outgroup and to learn the behavioural scripts necessary to engage in a comfortable cross-group interaction, especially after repeated contact opportunities. This should reduce anxiety about interacting with the outgroup and in turn, improve attitudes toward that group. One key reason why each form of contact may have a unique impact on attitudes may be due to the fact that repeated exposure to diverse types of contact experiences are important for learning these behavioural scripts. Indeed, there is more potential for exposure to diverse models and contact experiences via media, especially as people tend to spend a lot of time consuming media in their daily lives (Short, 2013). This may be why media contact is related to more positive intergroup attitudes over and above the effect of direct contact; because it provides exposure to different outgroup members and cross-group interactions
and because it may fill in during gaps of time when direct contact is not occurring. A key difference between media contact and direct contact is that with media contact, a person is not directly involved in the interaction. This has the important benefit of allowing one to reap the benefits of cross-group interaction without the negative emotions that sometimes accompany cross-group interaction. That said, another key difference between media and social interaction is that most of the cross-group interactions we have in our daily lives are neutral or pleasant (Graf et al., 2014). On the other hand, minority group members tend to be portrayed negatively in the media (Dixon et al., 2003; Dixon, 2016; Tukachinsky, et al., 2015) and cross-group interaction in the media tends to involve more negative non-verbal behaviour (Weisbach, Pauker, & Ambady, 2009). Given that the current studies suggest that quality of media contact may be particularly important for reducing intergroup anxiety and encouraging direct contact, the fact that there is more potential for people to have negative contact experiences via media is disconcerting. Nonetheless, in the current studies participants did not report media contact as more negative than direct contact, though this may be because I measured quality based on how the participants felt while consuming the media, rather than directly asking them how the outgroup members they saw were portrayed or what they thought of them.

Comparing the results from Studies 1 and 2 suggests that we need to better understand how the methods we are using to study contact influence our findings. It has been argued that intergroup contact is not a panacea for prejudice (Hewstone, 2003), and this is further supported by the fact that it only has a small-moderate effect on intergroup attitudes (Pettigrew & Tropp, 2006). Indeed, even in communities where intergroup contact should be occurring frequently, we still see incidences of discrimination (Block, Galabuzi, & Weiss, 2014; Nestel, 2012), and we still see very few cross-group friendships being formed (Aboud, Mendelson, & Purdy, 2003; Schneider, Dixon, & Udvari, 2007). This may be due to the opposing effect that negative contact experiences have on attitudes, such that these negative experiences tend to increase prejudice (Barlow, 2012). Yet, research suggests that negative contact experiences are relatively infrequent (Graf, Paolini, & Rubin, 2014), and indeed in the current studies the means for negative emotions during cross-group interactions were very low.

The data from these studies suggests that one reason intergroup contact may seem to be effective when studied in correlational studies or in the lab is because you are capturing contact
experiences that are more memorable. Indeed, in Study 1 when I asked participants to retrospect on all the contact experiences they had that day, I found that that both direct contact and media contact were significantly related to more positive attitudes. This direct effect was not apparent in Study 2, and indeed contact itself was not related to less intergroup anxiety, it was really about the quality of each form of contact. It may be that having participants report on their contact throughout the day means they are reporting on contact experiences that they would not report on in a daily diary study, possibly because they are less memorable. In a daily diary study, participants are likely reporting the most memorable interactions they had, and it is also likely that these interactions that are more salient are more likely to influence their attitudes (Shavitt & Fazio, 1991). Not only would this explain the discrepancy in these findings across Studies 1 & 2, but it calls attention to the need to better understand how intergroup contact plays out in diverse societies in daily life. Is it that people are having more cross-group interactions than we realize, but that these interactions do not have much of an impact on their attitudes because they are less memorable? Future research could test this question by asking participants to report on all social interactions they are having in a day as they are occurring, and asking questions about the nature of the interaction such as how long it was, how well they knew their interaction partner, and how much they thought about the interaction after it occurred.

A key strength to these studies, and Study 2 in particular, is that participants were asked about each contact experience they had, and so I was able to get detailed information about what occurred during these contact experiences. Indeed, I could ask participants about the quality of each experience (how they felt, how positive it was), as well as how long the interaction was, and questions about who they were interacting with (ethnicity, gender, etc.). This allowed me to look at quality more comprehensively than has been done with past research, which tend to operationalize quality as how positive overall their interactions with a given group have tended to be (Barlow et al., 2012). This also made it less obvious to participants that we I was measuring intergroup contact, as they were not directly asked about how much contact they had with a given group that day. This provides a more objective measure of the intergroup contact participants are having.

Importantly, being able to get more detailed information about the quality of the media contact and direct contact that participants were having allowed us to better ascertain how this impacts
intergroup attitudes. Much of the previous research that has examined quality during direct contact has had participants retrospect on the overall positivity of all past cross-group interactions they have had (Barlow et al., 2012). This is not an ideal way to ascertain the quality of cross-group interactions as it is unlikely that participants are able to accurately recall how they felt during these interactions. Moreover, participants’ perceptions of how positive their interactions with members of a particular group have been is likely influenced by how they feel about the group to begin with, such that if participants have negative feelings toward a particular group they may view their interactions with them as being less positive than they actually were. By measuring the quality of interactions by asking participants to report on them as they were occurring in daily life, I was able to get a more accurate picture of how people feel during cross-group interactions and how these feelings influenced attitudes.

When it comes to media contact, very little research has directly examined quality. The research that has examined this has been primarily experimental, most of which focused on media that portrays groups negatively and how this might increase prejudice (Das et al., 2009; Johnson et al., 2008). Research that has compared negative and positive portrayals of groups has found that negative media increases prejudice while positive media reduces it (Joyce, & Harwood, 2012; Ramasubramanian, 2015). While this has provided us with important information about how the way a group is portrayed in the media impacts attitudes, this research has not asked participants about their perception of how the group was portrayed or how it made them feel. A strength of the current research is that it focused on participants’ perceptions of groups in the media as well as how they felt while consuming media with outgroup members, which allowed us to compare two different ways of operationalizing quality – a focus on thoughts about the group versus affect during the contact experience. Importantly, I found that affect was related to anxiety such that experiencing more positive affect during media contact experiences was related to less anxiety about interacting with that group, while perceptions of how the group was portrayed related to closeness toward the group such that having more positive perceptions of how a group was portrayed was related to feeling closer to that group. This suggests that conceptualizing media contact quality as being about how groups are portrayed in the media may be important for examining cognitive outcomes, such as seeing the outgroup as connected to the self, which is how I operationalized closeness. On the other hand, conceptualizing media contact quality as being about how one feels when consuming media that includes outgroup members may be more
important when examining affective outcomes, like how one thinks they will feel when interacting with members of that outgroup. Indeed, although I did not find that media contact quality predicted intergroup anxiety in the model, I did find a medium size correlation between these two variables, overall. More research should be done to better ascertain the relationship between how groups are portrayed and how media consumers feel, and how these both influence intergroup anxiety and attitudes.

Another strength to these studies was that I was able to examine contact with and attitudes toward multiple ethnic groups in daily life. Although most past research has focused on measuring contact with and attitudes toward members of a specific group (e.g., Latino/as), the current study measured contact with and attitudes toward 7 different target groups. To the best of my knowledge, this is the first study that has examined intergroup contact and attitudes across this many target groups at one time.

Finally, these studies had diverse samples. By recruiting a community sample from the Greater Toronto Area, I was able to get participants from a number of different ethnic groups, and that varied in terms of age and socio-economic status. As such, I was able to look at contact effects across majority and minority groups to have results that generalize across demographics. Ultimately, by sampling a demographically diverse set of participants, I limited the degree to which one group's perspective dominated the observations. This is important as much past research on intergroup contact has focused on the perspective of majority group member (Pettigrew & Tropp 2006), and research that has compared the relationship between contact and attitudes across minority and majority groups has found this relationship to be weaker for minority ethnic groups (Tropp & Pettigrew, 2005). Indeed, in both studies it was found that target moderated some of the effects such that these were stronger for minority group targets than majority group targets. This suggests that contact may be most effective for improving attitudes toward minority groups, but that this may be true for both members of the majority group and other minority groups.

2.2 Implications for Daily Life Methodologies

Using two different daily life methodologies across two studies allowed me to compare each type of methodology to determine their strengths and weaknesses. As mentioned above, I found
inconsistent results when looking at the direct effect of media contact and direct contact across Studies 1 & 2, and this may because using an experience sampling methodology in Study 2 provided a more accurate picture of the contact that was actually occurring. As I mentioned above, with daily diary studies participants are likely reporting on the most memorable interactions they had that day, rather than reporting on all the interactions they had that day. In experience sampling studies, participants are reporting on interactions that are occurring throughout the day, and so they are probably reporting on interactions they otherwise might forget to report in daily diary studies, or that they choose not to report due to participant fatigue.

A benefit of the daily diary methodology used in Study 1 was that participants were reporting on their contact toward the end of the day and on both weekdays and weekends. This meant that there was a longer time within which these types of contact could be occurring. In Study 2, I only asked participants about contact experiences during the day and during weekdays. It is important that research which examines experiences that are occurring often in daily life examines those experiences over different times of the day and different days of the week (when people would likely be at work versus at home). This would be particularly important with these forms of intergroup contact because it is likely that media contact would be occurring more outside of work and school hours, when people are unwinding at the end of the day, while direct contact may occur more during the day or early evening when people are working or at school, running errands, or meeting up with friends.

Nonetheless, both daily life methodologies used were correlation as the quantity of quality of contact experiences were not manipulated. As such, future research should combine daily life methodologies with experimental manipulations to reap the benefits of both methods by examining causality in naturalistic settings.

3 Limitations and Future Directions

While these results are encouraging, some methodological limitations should be acknowledged. Although the contact literature posits that intergroup contact leads to improvements in intergroup attitudes (Pettigrew, Tropp, Wagner, & Christ, 2011), the data collected here are inherently correlational. Future research on media contact could use a similar paradigm to observe daily intergroup attitudes but could manipulate the media participants are exposed to each day to
determine whether contact improves intergroup attitudes. This would allow us to better ascertain the causal relationship between media contact and intergroup attitudes, while still maintaining external validity.

Using a field methodology might also better allow us to compare the efficacy of different types of media contact. Indeed, in Study 2 I attempted to capture experiences of parasocial and vicarious contact so that I could compare the effectiveness of each form of media contact. However, participants were rarely reporting on these experiences, and so I did not have enough statistical power to answer this question. This could be in part due to when the data was being collected. Indeed, participants were reporting on the media they consumed during the day, during weekdays, but people are typically working or in school during these times and therefore they may not be consuming very much media relative to what they would be in the evenings or on weekends. Nonetheless, I still found that participants spent more time consuming media than they did in social interactions, so it may just be that participants were not motivated to provide that much detail about their media contact experiences. Future research could actually manipulate the extent to which participants are engaging in parasocial versus vicarious contact in daily life and see how this impacts their intergroup attitudes. This would provide a more rigorous test of how each form of media contact operates and whether these are important above and beyond overall media exposure to an outgroup.

Future research should get a better understanding of how intergroup anxiety is influenced by different types of media contact. The current research found inconsistent results, such that in Study 1, media contact, and entertainment media contact, in particular, predicted greater intergroup anxiety, but in Study 2 media contact was unrelated to intergroup anxiety. There is some evidence that media contact may reduce intergroup anxiety (Mazziotta et al., 2011; Shim et al., 2012), but the findings have been mixed (Ortiz & Harwood, 2007; Shim et al., 2012). Quality seems to play an important role for both direct contact and media contact. Indeed, media contact quality, and in particular how people felt when consuming media that included outgroup members, demonstrated a moderate relationship with intergroup anxiety such that more positive affect while consuming this media was related to reduced intergroup anxiety. Using experimental and field methodologies in future research that manipulate various aspects of the quality of media participants are consuming will allow us to better understand how this may impact
intergroup anxiety and in turn, intergroup attitudes. Considering the importance of reducing intergroup anxiety for encouraging high-quality cross-group interaction (Page-Gould et al., 2008), future research should determine why some media may heighten intergroup anxiety while others may reduce it.

Finally, future studies should consider other mechanisms that might explain the relationship between each form of contact and intergroup attitudes, focusing in particular on why negative contact experiences may increase prejudice. Indeed, it is well established that both negative media contact and direct contact are related to increased prejudice, but there is still a question of why? Are their unique mechanisms to explain why negative contact increases prejudice? One reason that negative contact is related to greater prejudice is because it makes the outgroup membership of the interaction partner more salient (Paolini et al., 2010). This makes it easier for attitudes toward that outgroup member to generalize to the outgroup as a whole, but might also lead a person to see the group a separate from them, which would be the opposite of seeing them as close to them. Other research suggests that threat may play an important role in determining why negative contact, and negative media contact in particular, increases prejudice. Indeed, research has found that viewing news stories about terrorism linked to Muslim extremists increased prejudice toward Muslims. This research was framed in terror management theory, suggesting that these news stories increased death related thoughts in participants, and this is what lead to them expressing more prejudice toward Muslims (Das et al., 2009). This brings to light the need to better understand the role of threat in explaining why negative media contact and direct contact might enhance prejudice. Indeed, many negative stereotypes of minority groups that have been found in media are likely to elicit threats such as the Black and Latino as criminal stereotype, the Muslim as terrorist stereotype, and the East Asian as devious and villainous stereotype. Combining research on contact, and negative contact in particular, with integrated threat theory (Stephan & Stephan, 2000), which suggest that prejudice may be explained by threats that are realistic (threats to one’s physical person, threats to the economy) and symbolic (threats to one’s values), may allow us to better understand whether negative contact experiences elicit threat, and whether this explains their negative impact on intergroup attitudes.
Conclusion

Research on intergroup contact has promisingly suggested that intergroup attitudes may be improved through both direct and indirect forms of intergroup contact (Crisp et al., 2007; Mazziotta et al., 2011; Pettigrew & Tropp, 2006; Schiappa et al., 2006; Wright et al., 1997). The current research provided some of the first evidence that two forms of contact, media contact and direct contact, uniquely predict intergroup attitudes in daily life. Considering the ubiquity of media, media contact could be a particularly important form of contact for prejudiced individuals who tend to avoid direct interaction or for those who do not have the opportunity for direct interaction. It is therefore unfortunate that content analyses of popular media programs over the past few decades have found that many minority groups have been and continue to be underrepresented in mainstream media (Media Action Media, 2014; Tukachinsky, et al., 2015). Taken together, the current studies suggest that careful consideration should be given to the diversity of groups represented across mainstream media and the quality of these representations, as these both have an impact on intergroup attitudes and anxiety about interacting with outgroup members.
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EndNotes

1Participants completed to attention checks in the survey that asked them to simply select a specific item on the Likert scale (e.g., please select number 4 of the scale). If they failed these checks, their data was removed. Importantly, removing their data does not change the pattern of results.

2It could be argued that although the model including empathy instead of closeness had poor fit according to one indicator, RMSEA, the model AIC was lower and model comparison would suggest it might be a better fitting model. As such, it should be noted that the pattern of results with empathy is the same as the pattern of results found with closeness, again suggesting that these two measures may be tapping the same or very similar constructs.

3The ambulatory data is still be processed and is not included in this thesis. This was part of a second line of research examining intergroup interaction and health in daily life.

4I asked participants about norms within their social network as well, and this was highly correlated with both our measures of attitudes, but wasn’t relevant to our current questions about intergroup contact.

5These do not total to the number of media consumption experiences reported because people could report seeing multiple groups in any given piece of media.

6This was true for quality and not quantity because participants could have a quantity of 0 if they had no contact experiences with a group, but they could not have a quality score of 0 as that would suggest the interactions were of poor quality when in fact they did not occur.