Buffering Effects of Negative Intergroup Contact Through Complex Social Identities

BUFFERING EFFECTS OF NEGATIVE INTERGROUP CONTACT THROUGH COMPLEX SOCIAL IDENTITIES

A Thesis Presented

by

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ABSTRACT

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Although negative intergroup contact occurs less frequently than positive contact, negative contact can more strongly influence outgroup attitudes and behaviors due to the effect of category salience in the generalization process. The present study (N =306) tests whether being aware of an outgroup member's complex social identity will serve as a buffer against the adverse impact of a negative intergroup contact experience on outgroup attitudes. In a 3X2 between-subjects design, social identity complexity (SIC) of an outgroup confederate (high versus low versus control) and the valence of contact (neutral versus negative) were manipulated. Participants interacted with an outgroup confederate on Skype chat; before this interaction, the confederate introduced herself with different identities that either overlap a lot (low social identity complexity), or a little (high social identity complexity), or no information was given regarding the confederate's social identity complexity. After this manipulation, the confederate leaves the chat, either because of presumed dislike of the participant (negative contact condition) or due to technical issues (neutral contact condition). Following these procedures, participants were asked to respond to several questions about their contact experience, their interaction partner, and the target outgroup. In line with my hypothesis, results showed a significant SIC by valence

interaction effect for outgroup attitudes; adverse attitudinal outcomes of negative intergroup contact were less extreme when participants interacted with a confederate high in SIC (i.e., with little overlap in their social identities), as compared to when they interacted with a confederate low in SIC (i.e., with considerable overlap in their social identities). Nevertheless, this pattern of experimental effects did not hold for outcomes related to perceived variability of the outgroup and willingness to become friends with outgroup members.

Keywords: intergroup contact, social categorization, social identity complexity, prejudice

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INTRODUCTION

Understanding and overcoming prejudice have been prominent topics in the social psychology research literature (Brown, 2010). Since early theorizing by Williams (1947) and Allport (1954) intergroup contact has been one of the most studied strategies for reducing prejudice and improving intergroup relations (Pettigrew & Tropp, 2011). Intergroup contact has been shown to be an effective strategy for reducing prejudice because it not only improves attitudes toward the outgroup individual with whom contact occurs, but also towards the outgroup as a whole, which is commonly referred to as the "generalization process" (Boin et al., 2021; Brown et al., 1999).

Though research attention has typically focused on the role of positive contact, in real life, people may have pleasant or unpleasant experiences when interacting with individuals from different groups. Although negative contact typically occurs less frequently than positive contact, any single negative contact experience can more strongly influence outgroup attitudes and behaviors than a positive contact experience (Graf et al., 2014). Negative contact also heightens the salience of social categories, and thus plays a vital role in the generalization of negative intergroup attitudes growing from negative intergroup contact experiences (Paolini et al., 2010). We must therefore find ways to buffer the detrimental effects of negative contact, and the potential generalization of negative intergroup attitudes growing from such contact. Considering the key role of category salience in the generalization process, the proposed research experimentally tests whether becoming aware of an outgroup member's complex social identities—including their membership in multiple non-overlapping groups—impedes the generalization of negative attitudes toward the outgroup as a whole.

1.1. Why Study Negative Contact?

Pettigrew and Tropp's (2006) meta-analysis showed convincing evidence for the effectiveness of intergroup contact in reducing prejudice. Nevertheless, until recent years, the predominant focus of the contact research literature has been on the effects of positive contact, with relatively little attention focused on the effects of negative contact. This leaning in the research literature may inadvertently bias our understanding of the role of intergroup contact in intergroup relations towards its positive impact (Barlow et al., 2012; Graf & Paolini, 2016; Hayward et al., 2017; McKeown & Dixon, 2017; Schafer et al., 2021). Negative contact is especially relevant in applied contexts outside the laboratory where it is difficult to control the social environment; as such, it is important to understand the potential negative effects of contact and their implications for intergroup relations (Hayward et al., 2017; Schafer et al., 2021). Research has shown that ?negative? intergroup contact is much less frequent than positive contact (Graf et al., 2014); nevertheless, having a negative contact experience is likely to influence outgroup attitudes to a greater extent than a positive contact experience (see also Barlow et al., 2012). In addition, negative contact experiences not only contribute to greater prejudice, but they can also lead to avoidance of future contact with any member of the relevant outgroup, which would then limit potential effects of positive intergroup contact as well (Meleady & Forder, 2019).

Importantly, negative intergroup contact's influence relates to the process of attitude generalization. Research on attitude generalization suggests that negative attitudes toward an encountered individual member of an outgroup—which grow from having an unpleasant contact experience with that outgroup member—can generalize into more negative attitudes toward that outgroup member's social group as a whole. Many studies

have demonstrated the generalization process in relation to positive intergroup contact (Boin et al., 2021; Brown et al., 1999; Gonzalez & Brown, 2002), and though less studied, similar generalization processes are assumed to emerge in relation to negative intergroup contact (Meleady & Forder, 2019).

Moreover, according to many theorists, category salience—or, the extent to which group memberships are psychologically 'prominent' during contact—plays a vital role in the generalization process (see Brown & Hewstone, 2005, for a review). Through experimental and longitudinal studies, Paolini, Harwood and Rubin (2010) have shown that negative intergroup contact causes greater attention to group memberships during contact than positive contact does. Thus, these authors concluded that because negative contact is especially likely to make group membership salient, negative contact is likely to facilitate the generalization of negative attitudes growing from negative contact experiences.

Nevertheless, instead of discouraging contact between groups overall, I contend that researchers should focus on finding ways to buffer the generalization effects of negative contact. Buffering refers to preventing the generalization of negative attitudes and behaviors towards the whole outgroup after unpleasant contact experiences with one or more individuals from that outgroup (see, e.g., Paolini et al., 2014). There has been relatively little prior work on buffering against the effects of negative contact and that little work mainly focused on one strategy—the role of prior positive contact experiences (e.g. Arnadottir et al. 2018; Paolini et al., 2014).

In naturalistic settings, prior positive contact experiences cannot be ensured or manipulated as people contend with a negative contact experience. Indeed, people can only

be reminded of such positive intergroup experiences if there have been such prior instances of positive contact in people's lives. We must therefore find alternate strategies for buffering against negative attitude generalization that can be effective during the contact itself, regardless of people's past experiences. Instead of looking to prior positive contact as such a buffer, the proposed research focuses on the role of highlighting complex social categories of the encountered outgroup member. This strategy would have important applications in the field as well since the complexity of anyone's identity can be acknowledged and emphasized in an interaction between members of different groups.

1.2. Social Categorization and Intergroup Contact

Social categorization—that is, how we view ourselves and other people as group members—is at the heart of intergroup processes because it shapes our perceptions and behaviors toward members of other social groups (Tajfel & Turner, 1979). There have been different views on the role of social categorization in intergroup contact in the past literature (Miller, 2002). Whereas some argue that group categories should be salient during contact so that positive attitudes can generalize more easily to the outgroup as a whole (i.e., categorization; see Hewstone & Brown, 1986), others argue that group categories should be minimized during contact, so that a process of decategorization can occur (Brewer & Miller, 1984). Decategorization refers to the process of increasing within-category variability by emphasizing the unique characteristics and distinctiveness of individual group members (Ensari & Miller, 2001). Past studies have found that increasing perceived outgroup variability leads to a decrease in intergroup prejudice and discrimination (Brauer & Er-rafiy, 2011; Er-rafiy & Brauer, 2012).

1.2.1. Social Categorization in Relation to Multiple Group Memberships

It should be noted that the original theorizing on categorization and decategorization focused on only one group membership at a time, and the question of whether the salience of that one group membership should be heightened or weakened. Nevertheless, at any given time, human beings belong to more than one social category (e.g. gender, race, nationality), such that ingroup-outgroup distinctions may not always be as simple and clear-cut in real life (Cole, 2009). Therefore, it is important to consider simultaneously the effects of multiple social categorizations when studying intergroup relations.

Generally, learning more about an outgroup member can lead to processes of decategorization and individuation, whereby group members are more likely to be seen as distinct individuals, and their group membership is regarded as less relevant (Brewer & Gaertner, 2001). However, learning about the different identities a person possesses could lead perceivers to recognize that person as an outgroup member on one dimension, and to the recognition of shared group memberships on other dimensions. In the case of crossed categories, for example, encountered individuals would be seen as ingroup members on some dimensions and as outgroup members on others. When we think of individuals as belonging to multiple crossed categories, intergroup differentiation becomes more difficult to perceive, and thus, intergroup bias decreases (Brewer, 2000; Crisp & Hewstone, 2007; Crisp et al., 2001). On the other hand, when social categories don't cross, multiple categories can create double (or numerous) outgroups, which has been shown to increase intergroup bias (e.g., Deschamps & Doise, 1978; Mullen et al., 2001). Related to this work,

the present research is concerned specifically with the role of learning about the different social identities of the outgroup individual during an interaction.

Whereas crossed-categories can lead people to see individuals as both ingroup and outgroup at the same time, on different identity domains (e.g., race and gender), certain individuals may simultaneously be viewed in relation to multiple social categories within the same domain (e.g. bi-racial people or people with dual citizenship). Individuals who are perceived as belonging to distinct social groups within the same domain are often referred to as "gateway" groups (Levy et al. 2017a; 2017b; Love & Levy, 2019). A number of studies in different contexts – including Israel, Western Balkans, and the United States – showed that the mere presence (as opposed to absence) of gateway group members improved perceptions and behavioral tendencies toward individuals belonging to the different groups that converge in the gateway group's constellation of social identities (Levy et al., 2019). Moreover, the more that people perceived members of gateway groups to have a dual identity, the more they reported positive attitudes and behavior toward the intended outgroup (Levy et al., 2017c).

These bodies of research converge to suggest that awareness of an outgroup member's multiple identities can reduce outgroup bias regardless of any group memberships the outgroup member might share with the perceiver (Hall & Crisp, 2005). The reasoning here is that simultaneously considering multiple categorical dimensions should lead any individual category to become less relevant when making social judgments. This tendency is understood to be rooted in a cognitive process related to information processing, given that humans have great difficulty processing information about structures defined on more than four variables (Halfold et al., 2005). That is, when

people process information about an individual who belongs to four or more categories, they become less inclined to rely on categorical thinking; this tendency may also be the result of cognitive load, as past studies have shown that increasing cognitive load is associated with a decreasing ability to categorize (Spears et al., 1999; Nolan et al., 1999; Rivera et al., 2009). Simultaneously processing and recalling multiple pieces of information is relatively effortful; thus, people may have more difficulty in categorizing individuals when their multiple identities are salient at the same time. Past studies also support the idea that when multiple social categories are salient, people are less likely to rely on stereotypes when judging a given individual, and they instead tend to make more personalized judgments (Crisp et al., 2001; Crisp et al., 2006). Thus, how we perceive outgroup members in contact is likely to depend on how those outgroup individuals identify and present themselves in relation to multiple group memberships.

1.2.2. Social Identity Complexity

A body of research has begun to consider how individuals conceptualize and perceive their membership in multiple groups in relation to intergroup contact effects. Given that people simultaneously belong to multiple social groups, they may perceive varying levels of overlap between the different groups to which they belong. This is the crux of the concept of social identity complexity (Roccas & Brewer, 2002), which refers to an individual's subjective representation of overlap among his or her membership in multiple social groups. Social identity complexity (SIC) has been conceptualized as being based on two dimensions: perceived similarity between typical members of different groups and perceived extent of shared membership across different groups. Whereas the

similarity dimension considers the content of group representations, the shared membership dimension considers the perceived overlap in the composition of groups.

According to Roccas and Brewer's SIC model, belonging to multiple, dissimilar and non-overlapping groups should reduce prejudice toward outgroups. Multiple social identities can be represented on a spectrum of inclusiveness as a function of complexity, depending on how much (or little) identities are differentiated and integrated within an individual's mind. When the perceived overlap of group identities is high, SIC will be low, and individuals will have a less inclusive representation of identity because their multiple identities overlap and converge to form a single ingroup representation. By contrast, when the perceived overlap of group identities is low, SIC will be high, and individuals will have a more inclusive representation of identity that spans across many distinct groups (Brewer & Pierce, 2005; Prati et al., 2021; Roccas & Brewer, 2002). To illustrate with an example, we can consider the case of a person who identifies as both American and Christian. If this person sees their American and Christian identities as highly overlapping, s/he will differentiate little between those identities and will likely see only American Christians (or Christian Americans) as ingroup members. However, if this person sees little overlap between their American and Christian identities—thereby acknowledging that there are many non-Christians who are also American, and many non-Americans who are also Christian, then their social identity would be more complex and a broader array of people would likely be seen as fellow ingroup members.

Past literature looked at the effects of SIC on intergroup relations from the perspective of the person identifying with multiple social identities, in line with Roccas and Brewer's original model. Research shows that people who identify strongly and

simultaneously with many distinct social groups—i.e. those with high SIC—tend to show greater intergroup tolerance and greater support for multiculturalism as compared to those who identify with fewer social groups (Brewer & Pierce, 2005; Miller et al., 2009; Verkuyten & Martinovic, 2012). Moreover, higher SIC predicts greater readiness to engage in intergroup contact and more positive feelings toward members of other social groups (Maloku et al. 2019; Schmid et al., 2009). Direct and vicarious intergroup contact help to explain why SIC leads to favorable attitudes towards different outgroups. Through intergroup contact, people may come to recognize that some people who are outgroup members on one dimension can be ingroup members on another dimension, thereby enhancing perceptions of diversity both in their ingroup and in the outgroup (Brewer, 2008). Consistent with this view, Schmid et al. (2009) found that intergroup contact is positively associated with how complexly people perceive their group identities and social identity complexity mediated the effects of contact on outgroup attitudes.

1.2.3. Novel Extensions to Social Identity Complexity Approach

Since SIC was conceptualized as the subjective representation of one's own multiple identities, past research looked at its effects on intergroup relations from the actor's perspective and explored how the SIC of participants influenced their attitudes and behaviors towards outgroup members. Extending prior work, the present research applies the SIC concept to how people in contact perceive outgroup individuals, as opposed to how they subjectively represent their own group identities. This research aims to manipulate the social identity complexity of the target (outgroup member) rather than the perceiver (participant), using the same indicators in the original model, to move forward the literature on social categorization and intergroup contact.

The proposed research is informed by and consistent with past literature on changing perceptions of typicality by providing counter-stereotypical examples. Nevertheless, I aim to manipulate social identity complexity without necessarily referring to counter-stereotypic vs stereotypical examples. First of all, SIC focuses on social categories rather than specific traits or behaviors. Second, SIC may be associated with expectations about a group member, but high SIC does not necessarily mean that the identity characteristics of that individual will be counter-stereotypical or unexpected; rather, it may demonstrate the variety of distinct identities that an individual can hold. This novel approach of perceiving others' identities in intergroup contact will also make an important contribution to the long-standing debate regarding the role of social categorization in intergroup contact.

1.3. The Present Research

In sum, the overarching goal of the present research is to investigate whether perceiving an encountered outgroup member's social identity as complex can serve to buffer against the generalization of negative intergroup attitudes following a negative intergroup contact experience. Meeting a person with multiple non-overlapping identities should make it difficult to place the outgroup individual within only one category, thereby curbing the generalization of negative intergroup attitudes in response to a negative cross-group interaction. I therefore hypothesize that perceiving an outgroup target as belonging to multiple non-overlapping categories can serve as a buffer against the generalization of negative intergroup attitudes growing from a negative contact experience.

The present study tests this hypothesis in a 3X2 between-subject experiment where social identity complexity (SIC) of an outgroup confederate (high SIC versus low SIC

versus control) and the valence of contact (neutral versus negative) are manipulated. Participants interact with a confederate on Skype chat; before this interaction, the confederate introduces herself with different identities that either overlap a lot (low SIC), or overlap very little (high SIC), or no information is given regarding the confederate's SIC (control condition). After this manipulation, the confederate leaves the chat, either because of presumed dislike of the participant (negative contact condition) or due to technical issues (neutral contact condition). Following these procedures, participants are asked to respond to a number of survey questions about their contact experience, their interaction partner, and the target outgroup in another survey framed as a different study on general group attitudes.

I predict that participants who have negative contact with the outgroup confederate will have more negative attitudes towards the target outgroup, see less variability within the target outgroup and have less willingness to befriend a target outgroup member overall compared to those who have neutral contact. More importantly, I predict an interaction effect between contact valence and SIC where negative contact would lead to significantly less perceived variability within the target outgroup, more negative attitudes toward the target outgroup and less willingness to befriend members of the target outgroup in the low SIC condition than in the high SIC condition, because high SIC should "buffer" the generalization of negative attitudes growing from negative contact. Ideally, responses in the high SIC in the negative contact will be similar to responses in the neutral contact condition overall. I also expect that perceiving a more complex identity of the encountered outgroup member will curb the extent to which negative attitudes will generalize to the

whole outgroup, through the path of increasing perceptions of variability within the target outgroup.

PILOT STUDIES

Prior to conducting the main thesis study to test these predictions, I conducted two pilot studies. The first pilot test aimed to determine the target outgroup for measuring intergroup attitudes after contact. The second pilot test aimed to measure perceived overlap between the target outgroup and different social groups that will be used in high and low SIC conditions.

2.1. Pilot Test for Determining Target Outgroup

An initial pilot test was conducted to determine a target outgroup for this study. Twenty two UMass Amherst undergraduate students (11 female, 4 male, 2 non-binary and 5 unspecified; M_{age} = 20 years; 9 East Asian, 6 White, 1 mixed, 1 Hispanic, 5 unspecified) were asked to rate their feelings toward six different social groups (Chinese Americans, East Asians, Arab, Muslims, African Americans, Whites) on a feeling thermometer ranging from 0 to 100, with higher scores indicating warmer feelings and more positive attitudes. I chose Arabs as the non-White target group, as it yielded the lowest overall mean rating (M = 83.71, SD = 18.80), to avoid possible ceiling effects in participant responses, and to enhance the likelihood of seeing any possible effects of the experimental manipulations (see Procedure, below).

2.2. Pilot Test for Determining Social Groups for SIC Conditions

As a second part of this pilot test, I asked the 22 undergraduate students to complete measures indicating perceived similarity and overlap between "Arabs" and 11 other social identities, using items adapted from previous studies (Brewer & Pierce, 2005; Schmid et al., 2012). On a scale from 0 to 6, pilot test respondents rated (a) how much overlap there is between "Arabs" and each of the other groups, and (b) how similar a "typical Arab" is to a typical member of each of the other groups. I looked for three social groups with the lowest mean responses in terms of overlap ratings for the high SIC condition, and highest mean responses for the low SIC condition. I wanted to use a variety of groups that a student might realistically mention when introducing themselves, and I also sought to use similar types of social groups across SIC conditions to keep the experimental conditions as comparable as possible. Therefore, the stimuli include membership in a student club, a linguistic group and a religious group. According to Lickel et al.'s (2000) taxonomy of social groups, membership in religious and linguistic groups can reflect social categorizations based on symbolic attachments, as opposed to membership in activity clubs, which may more strongly reflect social ties among group members.

Table 1 summarizes respondents' ratings of perceived overlap in membership between Arabs and the linguistic, religious, and dance groups listed for each SIC condition. Whereas respondents showed clear differences in their ratings of the religious and linguistic groups provided in the high and low SIC conditions ($d_{\text{religious}} = 1.78$; $d_{\text{linguistic}} = 2.73$), respondents' ratings of dance clubs across the two conditions did not show such marked differences ($d_{\text{club}} = 0.55$).

Table 1

Means ratings of membership overlap between Arabs and high/low SIC groups.

High SIC condition			**Low SIC condition**		
Member of hiphop dance club	Spanish speaker	Christian	Member of belly dance club	Arabic speaker	Muslim
M = 2.36 *SD* = 1.33	*M* = 1.86 *SD* = 1.28	*M* = 2.27 *SD* = 1.42	*M* = 2.91 *SD* = 1.38	*M* = 4.59 *SD* = 1.10	*M* = 4.05 *SD* = 0.95
	***M* = 2.16**			***M* = 3.85**	

Table 2 summarizes respondents' ratings of similarity between Arabs and the linguistic, religious, and dance groups listed for each SIC condition. Once again, respondents showed clear differences in their ratings of the religious and linguistic groups provided across the high and low SIC conditions ($d_{\text{religious}}$ = 1.18; $d_{\text{lingiustic}}$ = 1.64), yet respondents' ratings of dance clubs did not differ as greatly across the two conditions (d_{club} = 0.17).

Table 2

Mean ratings of similarity between Arabs and high/low SIC groups.

High SIC condition			**Low SIC condition**		
Member of hiphop dance club	Spanish speaker	Christian	Member of belly dance club	Arabic speaker	Muslim
M = 2.18 *SD* = 1.29	*M* = 2.18 *SD* = 1.46	*M* = 2.23 *SD* = 1.48	*M* = 2.35 *SD* = 1.50	*M* = 3.82 *SD* = 1.59	*M* = 3.41 *SD* = 1.27
	***M* = 2.19**			***M* = 3.19**	

Based on these patterns of results, it appears that participants in the pilot study are seeing notable differences in the complexity of social identities across conditions. Thus, these results suggest that the selected groups could function well as SIC manipulations. Although results show very small mean difference for the dance club, I believe that differences in religious and linguistic groups would primarily drive the expected effect and make up for the lack of difference in ratings of the dance clubs. I wanted to include the dance club to add variety in the characteristics of the confederate who will be introducing herself in the main thesis study, to make the ostensible interaction between two undergrad students more realistic and credible.

METHOD

The pilot test results informed both the research design and hypotheses of the main study. Based on the first pilot test results, I decided to examine participants' attitudes and beliefs toward Arabs; therefore, the confederate with whom the participant interacts identifies as Arab across all experimental conditions. Materials for the SIC manipulation were based on results from the second pilot test. Ratings of overlap and similarity informed which social groups to present alongside the Arab identity when the confederate introduces herself at the start of the interaction.

3.1. Research Design and Hypothesis Testing

The present experimental study follows a 3 (social identity complexity: high/low/control) x 2 (contact valence: negative/neutral) factorial design. I included a control SIC condition to compare high and low SIC condition results against a group that gives no information on social identity complexity. Moreover, I included the neutral valence condition to test whether SIC will affect intergroup attitudes only in the negative

contact condition where group membership would be particularly salient. Based on G*power calculations with medium effect size and considering possible attrition, missing or unusable data, I planned to recruit 300 participants, in order to have 50 participants in each of the six conditions to which participants would be randomly assigned.

I predict that participants who experience negative contact with the Arab confederate will have more negative attitudes towards Arabs overall, see less variability among Arabs as a group, and report less willingness to befriend Arab people in the future compared to those who experience neutral contact. More importantly, I predict an interaction effect between contact valence and SIC where negative contact would lead to significantly more negative attitudes toward Arabs, less perceived variability among Arabs, and less willingness to befriend Arabs in the low SIC condition than in the high SIC condition. I propose that these effects would be due to high SIC serving as a "buffer" against the generalization of negative intergroup attitudes growing from negative contact. Ideally, responses in the high SIC in the negative contact will be similar to responses in the neutral contact condition overall.

3.2 Data Collection and Participants

Data collection started at the end of March 2022 and ended in June 2023. Participants were recruited through the UMass SONA system and through fliers disseminated around the UMass campus and via UMass social media. All SONA participants who are 18 years or older were welcome to participate. Nevertheless, participants who took Psych 360 in Fall 2022 were screened out and excluded from the study, because I was the graduate TA for that course and appear in the study stimuli, such

that students in that class could recognize me and not believe the deception used in research procedures. Participants recruited through SONA received one SONA credit for their participation. Non-SONA participants who were recruited through fliers and social media posts entered a raffle with their email addresses. As promoted in the fliers, at the end of data collection 5 emails were randomly selected via an R code. Those five people received $150 Amazon gift cards each via email.

In total 365 participants completed the study. Per IRB's request, the survey included an option to remove data following debriefing and 43 participants chose to remove their data without specifying any reasons, hence their data was excluded from the study. Of those who requested to remove their data, 28 of them were randomly assigned to the negative contact valence condition, whereas 15 were randomly assigned to the neutral contact valence condition. As I expect more negative intergroup attitudes to emerge among participants in the negative valence condition, this unequal distribution of voluntary data removals across valence conditions could potentially affect the results reported below. Data removals were fairly evenly distributed across SIC conditions (14 high, 15 low, 14 control).

Unfortunately, due to IRB regulations, I am not allowed to examine the responses of those who requested to have their data removed, so I cannot test whether these participants significantly differ from those who allowed their data to be retained. Moreover, I excluded 10 participants who identified as Arab, since the study is on intergroup contact and the confederate identifies as Arab. In addition, 6 participants were excluded due to expressing suspicion about the deception in the study. After all the exclusions 306 participants in total remained in the study (232 female, 65 male, 6 non-binary, 2 chose not to report; 18 - 33years, M_{age} = 20.05 years). Table 3 presents the number of participants for

the final sample across all experimental conditions (SIC: low, control, high; Contact valence: negative, neutral). As seen in Table 3, the number of participants is fairly evenly distributed across the cells. However, due to voluntary data removals by participants, there are slightly less participants in the negative condition overall.

Table 3

Number of participants across all conditions.

		Social Identity Complexity			
		Low	Control	High	
Contact valence	Negative	51	48	51	**150**
	Neutral	52	54	50	**156**
Total		**103**	**102**	**101**	**306**

Table 4 presents demographic characteristics of the final sample of participants. Overall, there were more female (*N* = 232) than male participants (*N* = 65), which reflects the gender distribution of undergraduate psychology students at UMass. Moreover, the majority of participants identified as White (N = 176) and a significant minority identified either as East Asian (*N* = 40) or South Asian (*N* = 38). The racial demographics of participants are also representative of the UMass student body.[1]

[1] https://www.umass.edu/diversity/data-policies

Table 4

Gender and ethnicity distribution of participants.

Demographic characteristics	**# of Participants**
Gender	
Female	232
Male	65
Non-binary	6
Prefer not to say	2
Race/ethnicity	
White	176
East Asian	40
South Asian	38
Black or African American	19
Hispanic or Latino	17
Other	14
Native American/Pacific Islander	1

3.3. Procedure

Through the SONA page and fliers around campus, prospective participants are invited to a study that examines perceptions and attitudes during online interactions. They are asked to sign up for time slots on Sona or Calendly, an online scheduling platform, to interact with another student for 20 minutes on Skype chat. When participants sign up for the study, they receive a Qualtrics link that first directs them to an informed consent form. After participants consent online, they receive a unique Skype chat link and instructions on how to enter the chat on the next page. They are asked to join the chat as a guest and enter their name as “Participant 1”. This procedure was used to ensure that participants without a Skype account would be able to participate in the study as well.

The participants join the chat thinking that they will have a live interaction with a fellow participant through video messages. In reality, participants interact with a confederate whose social identity complexity is presented with a pre-recoded video and valence of contact is manipulated via live messages in Skype chat that follows a pre-written script. Once the participant enters the chat, the experimenter messages instructions about the interaction. The experimenter explains that each interactant will be asked to answer ten questions posted on the chat to help them get to know each other. Each participant is asked to record their short answers using the video function on Skype and send it to the other person in the chat immediately after a question is posted. If participants have difficulty with recording their video on Skype, they are asked to record video on their device and send it as an attachment. If there is an issue with the camera of their device, they are asked to record their audio on Skype. If participants still have difficulty, they are asked to write their answer on the chat so that the study can proceed.

Although a Skype video call would have been more likely to resemble a natural interaction, the video record function on chat was purposely used (rather than a video call), for several reasons. Crucially, this approach ensures that all participants will receive the exact same pre-recorded responses from the confederate for each experimental condition to which they are randomly assigned. This approach also facilitates the job of the confederate, by allowing her not to memorize the entire script and potentially varying the content of the interaction across experimental testing sessions. Moreover, having the video responses pre-recorded facilitates controlling for many details such as the confederate's facial expressions and voice, across all testing sessions. This approach also helps to administer the experimental conditions in a manner that keeps the confederate blind to

experimental conditions. In addition, live chat as opposed to video call allows the "Experimenter" to remain anonymous throughout the course of the experiment, precluding any visual or auditory cues that might reveal the experimenter's social identity as well. This is important since certain features that indicate social identity, like the gender or race of the experimenter, could potentially impact participants' attitudes and behaviors to the extent that the experimenter is seen as either an ingroup or outgroup member, or as similar or dissimilar (see, e.g., Davis & Silver, 2003; Liu & Wang. 2016; Wilson et al., 2002). Lastly, this method also has external validity, given how common it is for young people to communicate via recorded videos on online chat platforms like Snapchat (Alhabash & Ma, 2017; Piwek & Joinson, 2016).

Experimental manipulation: Social identity complexity. After the instructions about the interaction, the experimenter writes "*Please introduce yourself to your partner. What are some things that you would want your partner to know about you?*". Then, the confederate introduces herself with her name, mentioning that she is a sophomore, and that she is Arab, along with mentioning three other social identities that either highly overlap with her Arab identity (low social identity complexity, or low SIC) or don't overlap very much with her Arab identity (high social identity complexity, or high SIC), based on results from the second pilot test.

Specifically, in the high SIC condition, the confederate says "*Hi, I am Leila, I'm a sophomore, I'm Arab, I am a member of the hip hop dance club, I'm a Spanish speaker and I am Christian*". In the low SIC condition, the confederate says "*Hi, I am Leila, I'm a sophomore, I'm Arab, I am a member of the belly dance club, I am an Arabic speaker and*

I am Muslim". In the control condition, the confederate only mentions her name, that she is a sophomore and that she is Arab ("*Hi, I am Leila, I am a sophomore and I'm Arab*").

I recognize that the information provided to participants in the control condition includes fewer social identities as part of confederate's introduction as compared to the information presented to participants in the two experimental conditions. I made this decision considering that adding more social groups could create a challenge to controlling how the confederate's identity is perceived in terms of complexity. As the number of groups mentioned increases, interpretation of how the relationship between those groups are perceived becomes more complicated. Therefore, for the first study in this line of research, I wanted to have a control group that only includes the name of the confederate, her racial group and college year, to make the introduction more natural and similar to the key experimental conditions. This control condition would help to examine how the number of group memberships impacts the intergroup variables.

Experimental manipulation: contact valence. The exchange of introductory videos that serves to manipulate social identity complexity is followed by the manipulation of contact valence. In the negative contact condition, the confederate "accidentally" writes in the online chat, ostensibly to the experimenter, that she wishes to change partners because she doesn't feel comfortable interacting with this participant. Then, the experimenter writes back on the mutual chat indicating that this is the group chat and informs her that she will message her privately, after which the confederate leaves the chat. In the neutral contact condition, the confederate instead writes that she is having technical problems with her computer and asks if they can reschedule the session, before leaving the chat. Across both conditions, the experimenter apologizes to the participant for the

unexpected inconvenience and asks her to wait for a couple of minutes while she handles the situation. After a two-minute wait, the experimenter asks the participant to go back to the Qualtrics link and answer the survey questions about the interaction as best they can. In addition, ostensibly because the study could not be completed due to "unforeseen circumstances," the experimenter asks the participant to complete another short survey for another research project, so that they can be compensated for the full testing session for which they signed up.

The first survey includes measures about participants' experience in this online interaction and their impression of the interaction partner (confederate). This survey also includes some filler items regarding participants' opinions on online interactions, to not raise suspicion about the real aim of the survey. The second survey includes dependent measures relevant to intergroup outcomes of the experimental manipulation (see Measures, below). This "additional" survey is framed as a pilot study looking at college students' perceptions of different social groups and questions here will be included in a nationwide survey of student attitudes. Therefore, this survey asks the same set of questions towards different social groups such as college students, White people, Black people, Asian people, Republicans and Democrats, in addition to Arab people which is the target group for this study. Questions about Arab people were placed in between questions about other social groups, to distract participants from the actual focus of the study. At the end of the second survey, participants receive the debriefing form that provides more information about the study and discloses the deception; at this point, and as required by the IRB, they were given the option of withdrawing their data from the study. After they read the debriefing form,

participants have the chance to provide comments on the study. This free response question was added to see if participants express suspicion about the deception used in the study.

3.4. Measures

3.4.1. Manipulation Checks

Contact experience. As a check for the contact valence manipulation, participants were asked about their experience in the interaction with their partner, including the following four questions adapted from Tropp, Okamoto, Marrow, & Jones-Correa (2018): "*How much did your interaction with the other participant feel… unpleasant or pleasant? negative or positive? uncomfortable or comfortable? tense or relaxed?*". These items were scored on 7-point scales, with higher scores indicating more pleasant, positive, comfortable, and relaxed feelings with the interaction partner. Responses to these four items were averaged to create a composite measure ($\alpha = .92$).

Perception of ethnic group typicality. Due to the deception used in this study, I could not ask participants direct questions about the perceived social identity complexity of the confederate. Instead, checks for the social identity complexity manipulation include (a) asking participants if they can accurately remember the ethnicity of the confederate (as well as the confederate's gender, as a filler item, to enhance the believability of the procedures used); and (b) asking participants to indicate how much they see the confederate as a typical member of their ethnic group, scored on a scale ranging from 1(not typical at all) to 7(very typical) (see Brown et al., 1999). Rather than a direct manipulation check, the typicality measure would be a proxy for the SIC variable.

Perception of identification with ethnic group. Since the confederate "voluntarily chooses" to introduce herself using her ethnic identity, participants may assume that she highly identifies with being Arab across all conditions, and perhaps more so in the low SIC condition where she is also presented as an Arabic-speaking Muslim. Since strongly identified minorities could receive more prejudice from majority group members (see Kaiser & Pratt-Hyatt, 2009), variability in perceived ethnic identification of the confederate could potentially confound the results. Though my intention is to manipulate social identity complexity, and not the level of group identification the confederate is perceived to have, I included a question to ask participants *"How much do you think this person identifies with their ethnic group?"* on a scale ranging from 1(not at all) to 7(very much). Responses to this question can be used to control for the possibility that any observed experimental effects would be due to perceived level of group identification of the confederate, as well as to see if this perceived level of group identification has any meaningful association with perceptions of the confederates' ethnic group typicality.

3.4.2. Dependent Measures

Dependent measures include questions to assess participants' attitudes toward and perceptions about the confederate with whom they engaged, and about the target outgroup (Arabs) to which the confederate ostensibly belongs.

Attitudes. As one of the main dependent measures, I assessed attitudes towards both the confederate in the study and Arab people in general using a feeling thermometer scale (adapted from Converse & Presser, 1986). Participants rated feelings toward the interaction partner, and toward Arab people overall, on scales ranging from 0 (very cold or unfavorable) to 100 (very warm or favorable). These measures allowed for direct

measurement of attitudes toward the confederate, and the generalization of outgroup attitudes following negative contact, in relation to the social identity complexity of the confederate.

Willingness for future intergroup contact. Another key dependent measure involved participants' willingness for future contact with outgroup members, which tends to be associated with outgroup attitudes (see Ron et al., 2017). Willingness for future contact was assessed in two ways, using items adapted from Esses and Dovidio (2002). In the first survey, participants rated the items *"I would be interested in meeting this person again"* and *"I would be interested in becoming friends with this person"* on a scale from 1 (strongly disagree) to 7 (strongly agree) which are analyzed separately. In the second survey, participants responded to a similar question; *"How willing are you to become friends with Arab people?"* on a scale from 1 (not at all willing) to 7 (Very willing).

Outgroup variability. I also measured perceptions of outgroup variability with the question *"How much are Arab people "all alike" vs "all very different"?"* Participants responded using a slider scale ranging from 0 (all alike) to 100 (all very different). Outgroup variability was included as a dependent variable, because prior work suggests that people's perceptions of variability of a target group may enhance or reduce prejudice and discrimination against that group (e.g., Er-Rafiy & Brauer, 2012).

3.4.3. Additional measures

Prior intergroup contact. In the second survey, participants responded to the question *"How many of your friends are Arab?"* on a 7-point scale from 0 to 14+. Since prior positive contact in the form of cross-group friendships is positively associated with

outgroup attitudes (Davies et al., 2011), it could potentially moderate the effect of social identity complexity on outgroup attitudes.

Perceptions of shared group identity. Participants' perceptions of shared group identity with the confederate were also assessed in two ways. First, participants were asked to respond to the question *"How much do you feel different from or similar to your interaction partner?"* on a scale from 1 (very different) to 7 (very similar). In addition, participants were asked in an open-ended format, *"What are some characteristics you share with your interaction partner?"* with a free text response. Perceptions of shared group identity were included, as prior research suggests that people may have more positive attitudes toward others the more they have in common, or perceive similarity, with those others (see meta-analysis of Montoya et al., 2008).

Also, the demographics questions ask ethnicity, religion, languages spoken and club memberships to identify shared group memberships. I measured shared group identity in different ways to investigate whether the expected effects of SIC would hold regardless of shared group membership (See Results section for detailed description).

RESULTS

4.1. Checking Effectiveness of Experimental Manipulations

All statistical analyses were conducted using IBM SPSS statistical software. First, I checked the contact valence manipulation by comparing the means for the contact experience composite score across negative and neutral conditions with an independent t-test. I expected that participants' reported contact experience would be significantly more

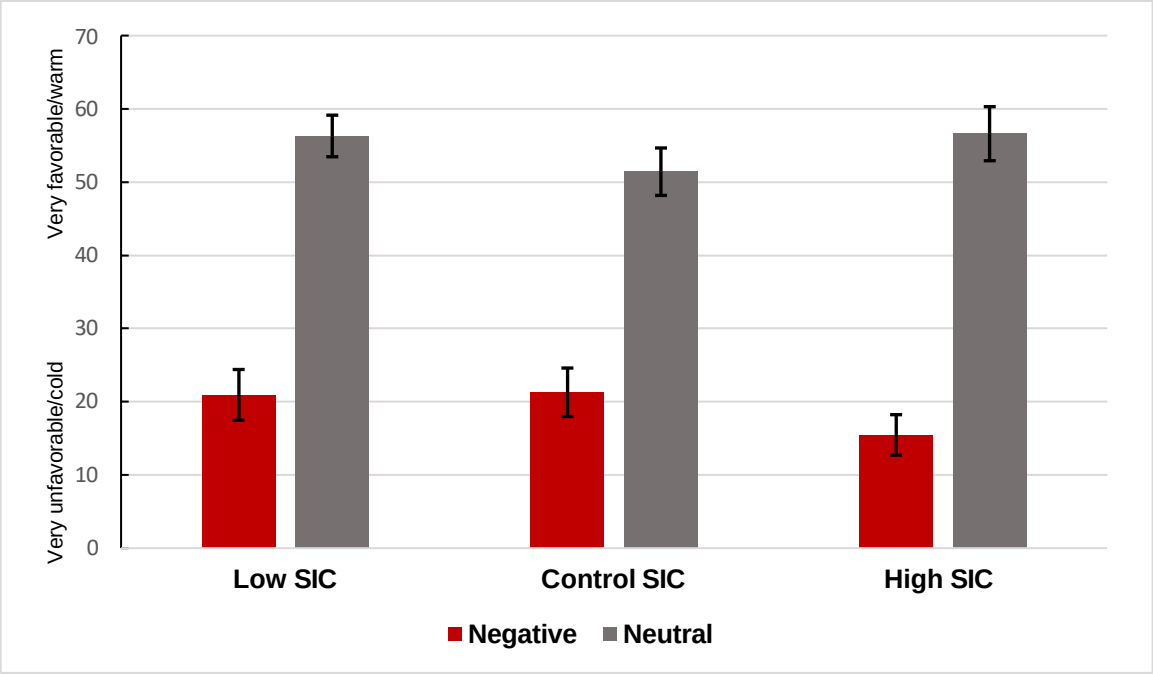
negative in the negative contact condition compared to in the neutral contact condition. Moreover, I planned to compare attitudes toward and willingness for future contact with the confederate (interaction partner) across valence conditions with t-tests. Again, I expected that those in the negative contact condition will have significantly less positive attitudes toward and willingness to have contact with the confederate.

Independent t-tests comparing two contact valence conditions showed that participants in the negative condition (M = 2.40, SD = 1.07) reported a significantly less positive experience during the online interaction than those in the neutral contact condition (M = 4.42, SD = 1.03), $t(302) = -16.78$, $p < .001$. Also, participants in the negative condition (M = 19.17, SD = 22.35) had significantly less favorable attitudes towards their interaction partner (confederate) than those in the neutral contact condition (M = 54.70, SD = 23.50), $t(302) = -13.49$, $p < .001$. Moreover, participants in the negative condition showed significantly less interest in meeting the interaction partner again (M= 2.43, SD = 1.66) and becoming friends with her (M = 2.23, SD = 1.48) than those in the neutral contact condition (M = 4.46, SD = 1.23; M = 4.24, SD = 1.21), $t(303)_{\text{meeting}} = -12.16$, $p < .001$; $t(303)_{\text{friends}} = -12.94$, $p < .001$.

In order to prepare for tests of the generalization of attitudes from the encountered individual outgroup member to the outgroup as a whole, I also conducted 3X2 ANOVA with feelings toward the Arab interaction partner. Results showed a significant main effect of contact valence, $F_{\text{contact valence}}(1, 298) = 181.76$, $p < .001$, but no main effect of SIC or an interaction effect, $F_{\text{SIC}}(2, 298) = .38$, $p = .685$; $F_{\text{valence*SIC}}(2, 298) = 1.46$, $p = .234$. See Figure 1 for feelings toward interaction partner by contact valence and SIC. These results indicate that the contact valence manipulation functioned as intended.

Figure 1

Feelings toward interaction partner by contact valence and SIC.



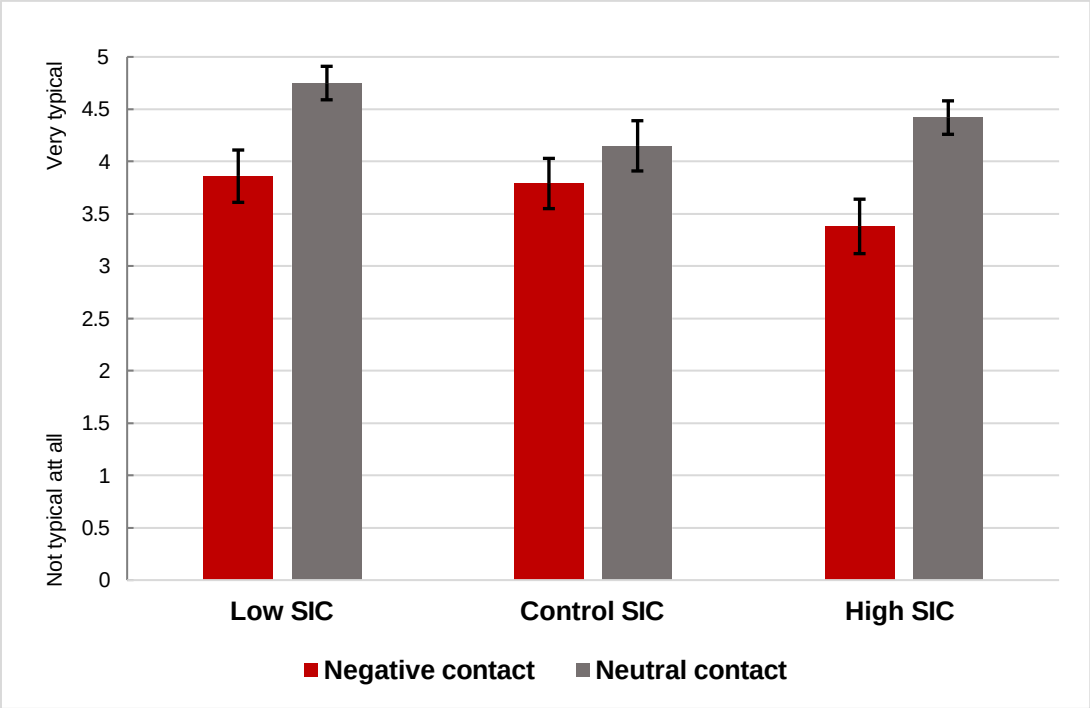
Second, as a proxy manipulation check for the SIC manipulation, I predicted that the perceived typicality of the interaction partner measure would differ across SIC conditions. Specifically, I expected participants to perceive the confederate as more typical of her ethnic group in the low SIC condition as compared to the high SIC condition. However, I predicted that these perceptions could also depend on the valence of contact. Therefore, I planned to also compare means of the typicality score across all conditions by performing a multi-factor ANOVA, to test for any main or interaction effects. It is possible that, among participants in the neutral condition, those introduced to a confederate with high SIC might see her as less typical of her ethnic group compared to those introduced to a confederate with low SIC, yet this trend may not hold for participants in the negative contact condition.

Contrary to expectations, multi-factor ANOVA results showed no main effect of SIC on perceived typicality of the interaction partner, $F(2, 298) = 1.90$, $p = .151$. On the other hand, there was a significant main effect of contact valence where, overall, participants in the negative contact condition ($M = 3.68$, $SD = 1.77$) rated the typicality of their interaction partner lower than those in the neutral contact condition ($M = 4.44$, $SD = 1.39$), $F(1, 298) = 17.65$, $p < .001$. There was no significant contact valence X SIC interaction effect, $F(2, 298) = 1.31$, $p = .272$.

I also conducted post-hoc pairwise comparisons to examine perceived typicality of the interaction partner. Post-hoc comparisons using Least Square Difference (LSD) indicated that the mean typicality rating in the negative contact low SIC condition ($M = 3.86$, $SD = 1.77$) was significantly lower than the neutral contact low SIC condition ($M = 4.75$, $SD = 1.14$), $p = .005$. Similarly, the mean typicality rating in the negative contact high SIC condition ($M = 3.38$, $SD = 1.85$) was significantly lower than the neutral contact high SIC condition ($M = 4.42$, $SD = 1.16$), $p = .001$. Moreover, within the neutral condition, the mean typicality rating of the interaction partner among participants in the low SIC condition ($M = 4.75$, $SD = 1.14$) was marginally higher than the mean typicality rating of participants in the control SIC condition ($M = 4.15$, $SD = 1.73$), $p = .051$. Nevertheless, typicality ratings of low SIC and high SIC condition ($M = 4.42$, $SD = 1.16$) did not significantly differ, $p = .293$. See Figure 2 for mean ratings of ethnic group typicality across contact valence and SIC conditions.

Figure 2

Perception of ethnic group typicality of the interaction partner by contact valence and SIC.



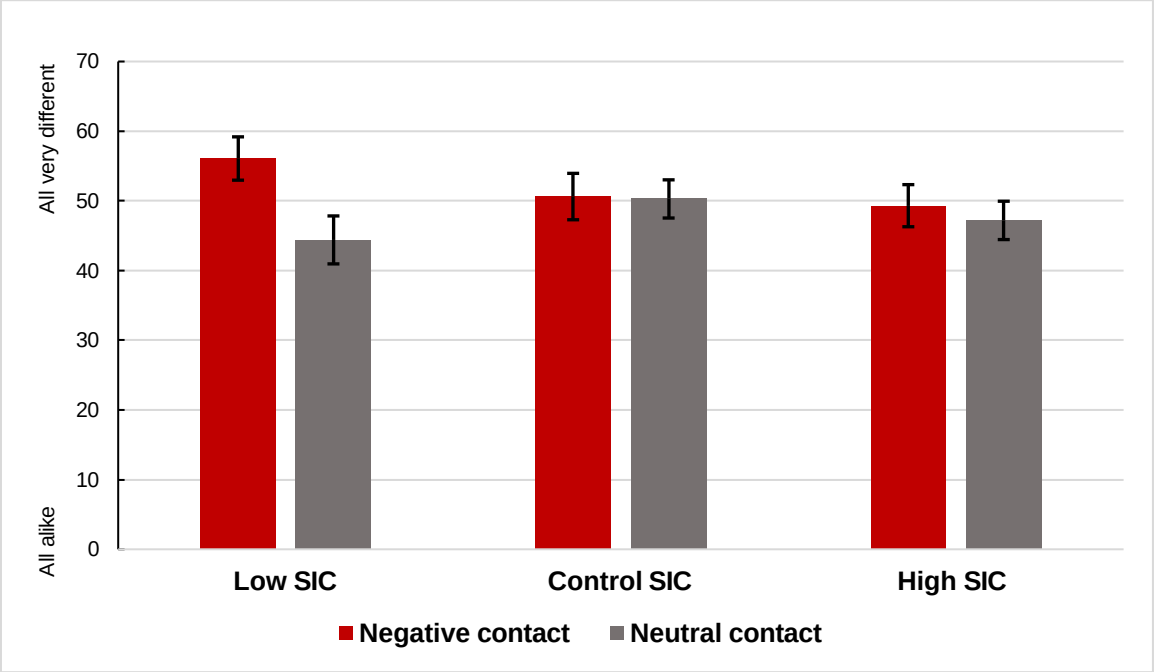
In addition, in order to overcome potential confounds I wanted to check whether perceived ethnic identification of the confederate would be influenced by the SIC manipulation. Therefore, I conducted 3X2ANOVA to test (a) whether ratings of the confederate's ethnic identification would vary significantly across SIC conditions overall, and (b) whether valence of contact would have any effect on these ratings. Results show that participants' ratings of the confederate's ethnic identification were not affected by the contact valence or SIC manipulations, as there were no significant main or interaction effects, $F_{\text{contact valence}}(1, 297) = 2.67$, $p = .103$; $F_{\text{SIC}}(2, 297) = 1.28$, $p = .281$; $F_{\text{valence*SIC}}(2, 297) = 1.94$, $p = .145$. These results indicate that the SIC manipulation did not appear to affect participants' overall ratings of the confederate's ethnic identification.

4.2. Testing the Main Hypothesis

In order to test the main hypothesis, I conducted 3X2 ANOVA expecting a main effect of contact valence, and an interaction effect of SIC X contact valence, for the main dependent measures (variability among Arab people, attitudes toward Arab people, willingness to befriend an Arab person). For the variability ratings, results showed a marginally significant main effect of contact valence $F_{\text{contact valence}}(1, 300) = 3.53$, $p = .061$. In general, participants rated variability among Arabs higher in the negative contact condition than in the neutral contact condition. Nevertheless, there was no main effect of SIC, $F_{\text{SIC}}(2, 300) = .31$, $p = .735$. Contrary to expectations, the SIC X contact valence interaction was not significant either, $F_{\text{valence*SIC}}(2, 300) = 1.98$, $p = .140$. I also conducted post-hoc pairwise comparisons to understand what drives the main effect of contact valence. Post-hoc comparisons using LSD indicated that the mean variability rating in the low SIC negative condition ($M = 56.08$, $SD = 22.22$) was significantly higher than the low SIC neutral condition ($M = 44.40$, $SD = 24.78$), $p = .007$. Moreover, no SIC pairs significantly differed within the neutral condition. See Figure 3 for mean ratings of variability across contact valence and SIC conditions.

Figure 3

Perception of variability within Arab people by contact valence and SIC.

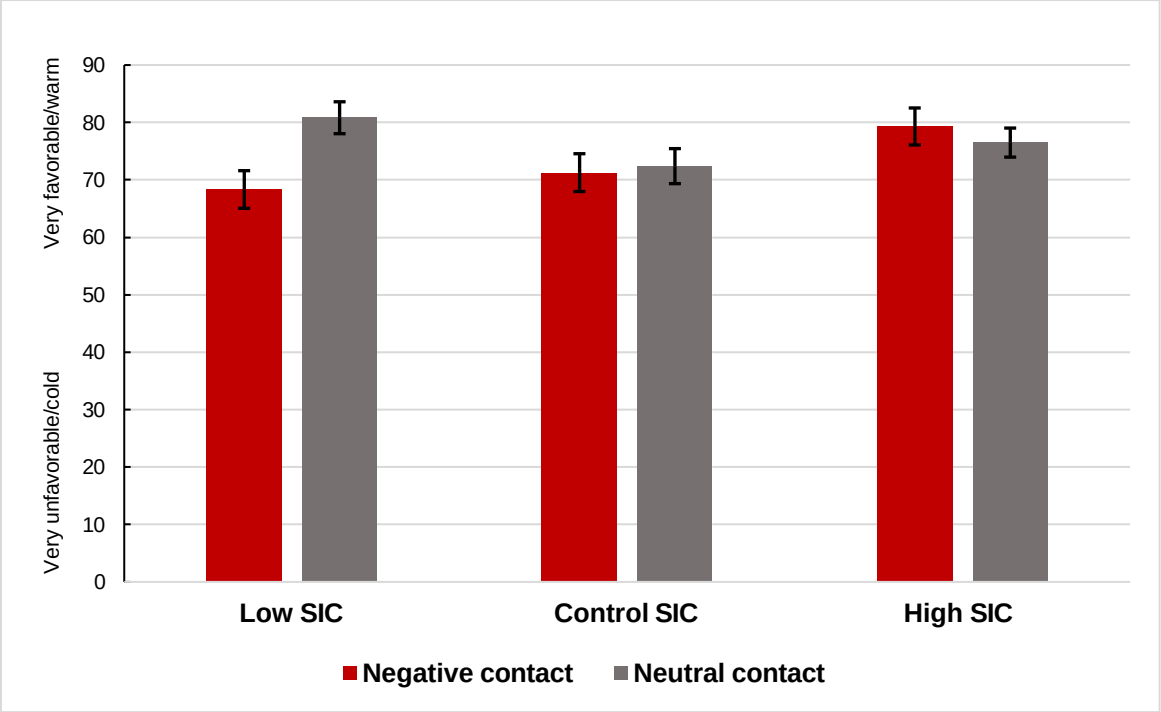


Then, I conducted 3X2 ANOVA to predict generalized attitudes toward Arab people overall. Results showed no significant main effect of contact valence, $F_{\text{contact valence}}(1, 299) = 2.11$, $p = .147$, or SIC, $F_{\text{SIC}}(2, 299) = 1.99$, $p = .138$. However, in line with predictions, there was a significant SIC X contact valence interaction effect, $F(2, 299) = 3.45$, $p = .033$. Post-hoc comparisons using LSD indicated that within the low SIC condition, participants who experienced negative contact ($M = 68.33$, $SD = 23.39$) reported significantly less favorable attitudes toward Arab people in general than participants who experienced neutral contact ($M = 80.83$, $SD = 20.06$), $p = .004$. Also, within the negative contact condition, participants who met the confederate with low SIC ($M = 68.33$, $SD = 23.39$) had significantly less favorable attitudes toward Arab people than participants in the high SIC condition ($M = 79.31$, $SD = 22.99$), $p = .011$. Moreover, in line with predictions,

within the high SIC condition, mean ratings of attitudes toward Arab people in general did not differ between participants in the negative contact condition (M = 79.31, SD = 22.99) and the neutral contact condition (M = 76.50, SD = 17.86), p = .514. See Figure 4 for mean ratings of generalized attitudes toward Arab people across contact valence and SIC conditions.

Figure 4

Feelings toward Arab people by contact valence and SIC.

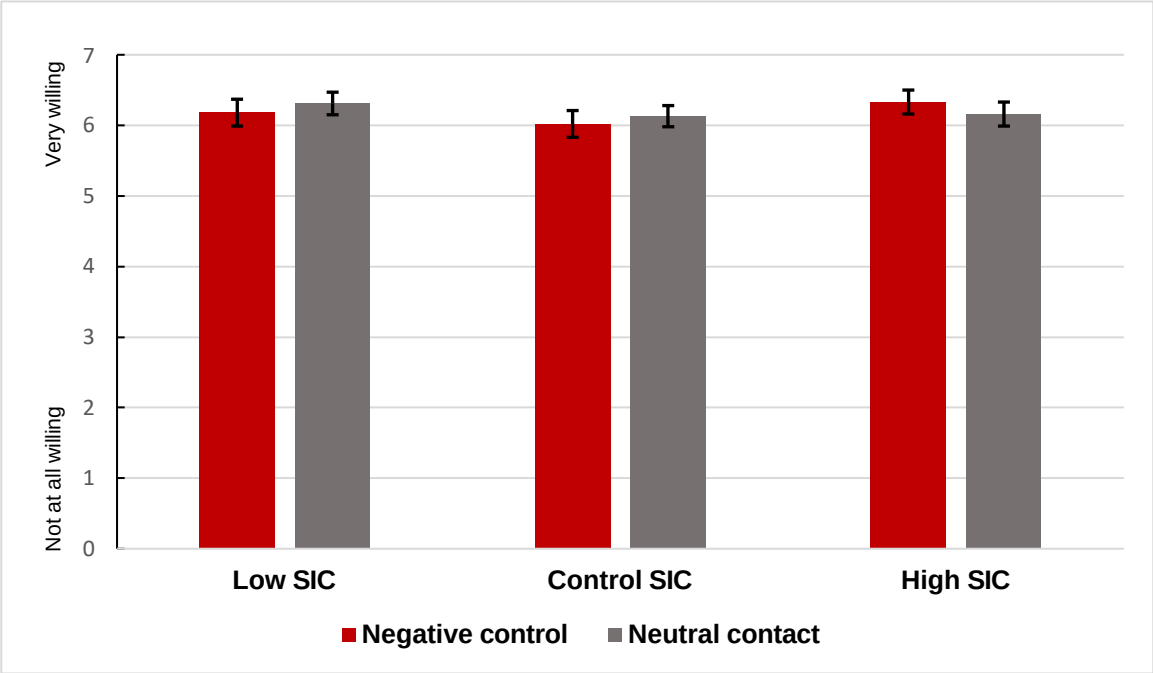


Next, I conducted 3X2 ANOVA to predict participants' willingness to become friends with Arab people (see Figure 5); there was no significant main effect of contact valence, $F_{\text{contact valence}}(1, 300) = .025$, p =.874, or SIC, $F_{\text{SIC}}(2, 300) = .65$, p =.524. The SIC X contact valence interaction effect was also not significant, $F(2, 300) = .49$, p = .615. The

mean ratings for willingness to be friends across all the conditions ranged between 6.02 and 6.33.

Figure 5

Willingness to be friends with Arab people by contact valence and SIC.



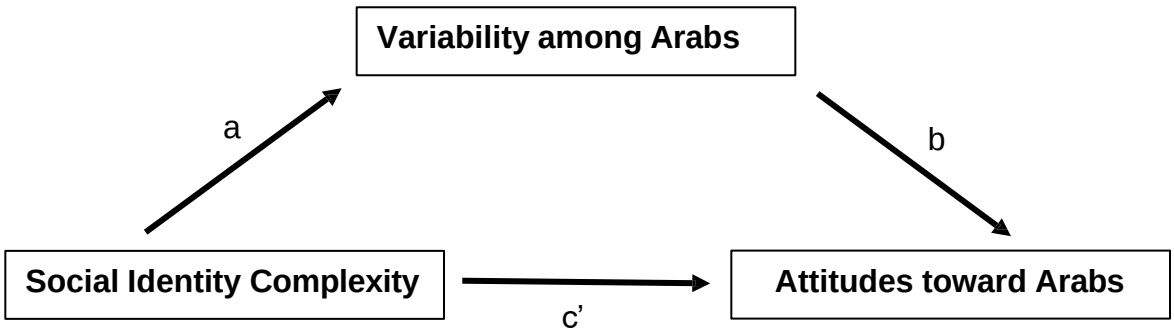
4.3. Mediation Analysis

Considering past research on the effect of perceived out-group variability on decreased prejudice (Er-rafiy & Brauer, 2012; Brauer & Er-rafiy, 2011), I predicted that high SIC would lead to more positive attitudes toward Arabs through increased variability among Arabs. In order to test this prediction, I performed mediation analysis using Hayes' Macro Process via bootstrapping method in the whole sample. According to this method, perceived variability would function as a mediator when the indirect effect (IE) of SIC on attitudes towards Arabs via perception of variability among Arabs is significant, meaning

that the 95% confidence intervals (CI) from 5000 bootstrap re-samples excludes zero. See Figure 6 for the proposed mediational model.

Figure 6

Simple mediation model with SIC as predictor, Outgroup Attitudes as outcome and Outgroup Variability as mediator

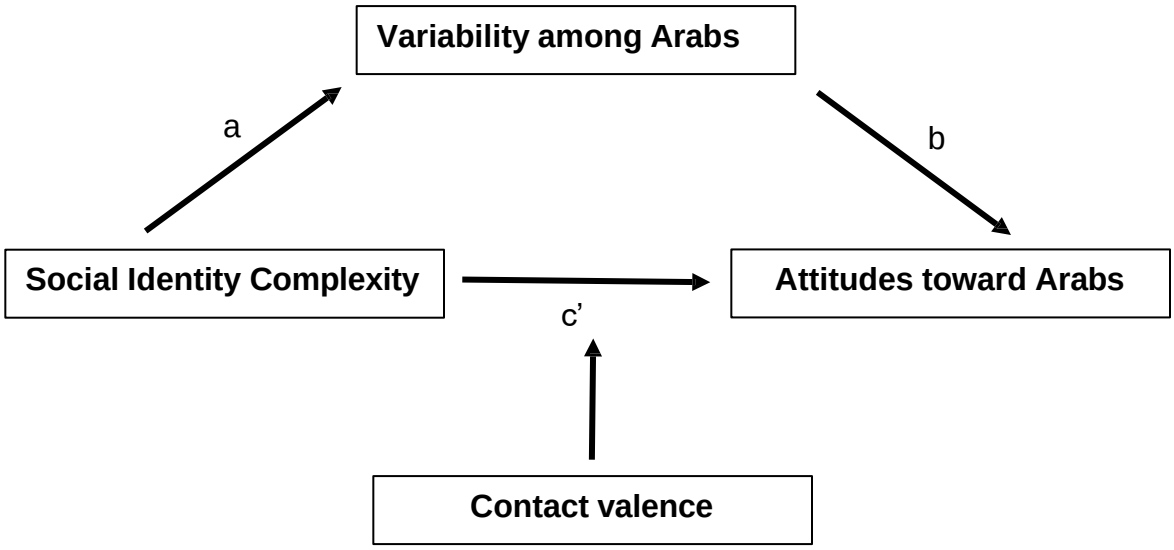


In order to simplify reporting the results of the mediation analyses, I focused on the comparison between high and low SIC, and disregarded the control SIC condition. Below, I report the unstandardized coefficients for results of the mediation analyses. First of all, in the whole sample regression results show no total effect (path c) of SIC (low v. high) on attitudes , b = 3.28, t(302) = 1.07, p = .285. SIC(low v. high) is also not a significant predictor for perceived variability among Arabs (path a), b = -1.92, t(302) = -0.62, p = .537. However, variability among Arabs is a significant predictor (path b) for attitudes toward Arabs even after accounting for the effect of SIC, b = .15, t(301) = 2.58, p = .010. As the perception of variability increases positive attitudes increase overall. There is also no direct effect of SIC on attitudes toward Arabs accounting for the effect of variability (path c'), b = 3.56, t(301) = 1.17, p = .242. Moreover, there is no indirect effect of SIC on attitudes through variability, Low v. High indirect = -0.28, SE = 0.49, 95% CI[-1.30, 0.70].

Since multifactor ANOVA results showed a significant SIC X contact valence interaction effect predicting generalized attitudes toward Arabs, but not variability among Arabs, I also conducted a moderated mediation analysis where contact valence moderates the path from SIC to attitudes (c'). Figure 7 shows the hypothesized moderated mediation model (Process Model 5).

Figure 7

Moderated mediation model with SIC as predictor, Outgroup Attitudes as outcome, Outgroup Variability as mediator and Contact Valence as moderator.

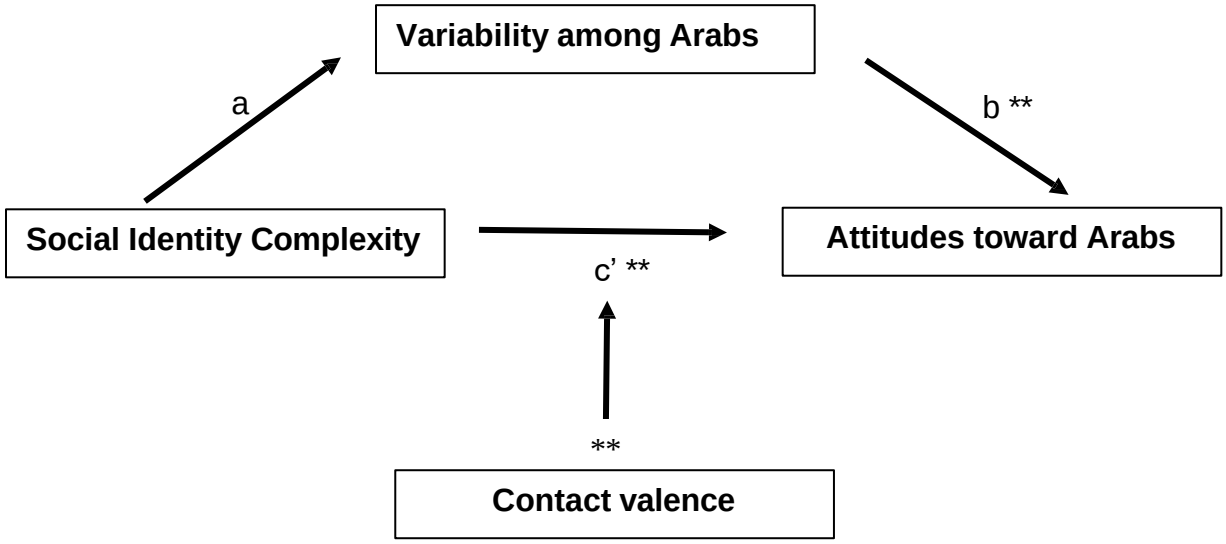


To reiterate, SIC(low v. high) did not significantly predict perceived variability among Arabs (path a), b = -1.92, t(302) = -0.62, p = .537. Similar to the simple mediation, variability among Arabs significantly predicted (path b) attitudes toward Arabs even after accounting for the effect of SIC and contact valence, b = .17, t(298) = 3.10, p = .002. As the perception of variability increased positive attitudes increased overall. Moreover, controlling for the effect of SIC and variability, contact valence significantly predicted attitudes toward Arabs, b = 14.52, t(298) = 3.41, p < .001. This time, there is also a

significant direct effect of SIC (low v. high) on attitudes toward Arabs accounting for the effect of variability and contact valence (path c'), $b = 29.13$, $t(298) = 3.07$, $p = .002$. Results showed that contact valence interacted with SIC (low v. high) when predicting attitudes, $b = -16.97$, $t(298) = -2.83$, $p = .005$. On the other hand, similar to the results of the simple mediation model there was no indirect effect of SIC on attitudes through variability, Low v. High indirect = -0.33, $SE = 0.57$, 95% CI[-1.54, 0.79]. Figure 8 shows the significant paths for the moderated mediation model.

Figure 8

Moderated mediation output with SIC as predictor, Outgroup Attitudes as outcome, Outgroup Variability as mediator and Contact Valence as moderator.[2]



4.4. Covariance Analysis with Shared Group Membership and Similarity

Shared group memberships influence attitudes towards the encountered individual and their target group (Brewer, 2000; Crisp & Hewstone, 2007; Crisp et al., 2001). Moreover, considering UMass demographics, participants who share identities with the

[2] * p < .05; ** p < .01; *** p <.001.

confederate might be unequally distributed across the SIC conditions. Therefore, it is important to verify if the interaction between SIC and contact valence predicting attitudes toward Arabs would still be significant after controlling for number of identities participants reported sharing with the Arab confederate (i.e., school year, gender, religion, languages spoken, dance).

Looking at free response and demographic questions, I coded the number of shared identities between the participant and the confederate depending on the SIC condition. Specifically, I first checked to see whether the participant reported being a college sophomore and identified as female, characteristic of the Arab confederate which were held constant across all experimental conditions. Then, for participants in the high SIC condition, I checked to see whether they identified as Christian, mentioned Spanish as one of the languages they speak, and/or mentioned dance as one of their extracurricular activities. For participants in the low SIC condition, I checked to see whether they identified as Muslim, mentioned Arabic as one of the languages they speak, and/or mentioned dance as one of their extracurricular activities.[3] After that, I calculated the composite shared identity score by adding all these shared identities for each participant, and using total number of shared identities as a predictor of attitudes toward Arabs in data analysis.

In order to address the concerns about the role of shared identities in the observed effects, first, I wanted to check if number of shared identities actually significantly differ across SIC conditions due to the types of groups used in the manipulation. Participants in

[3] Going through all the responses, I noticed that none of the participants mentioned being a member of either of those dance clubs so if they mentioned any kind of dance club or dancing in general in the free response question asking about shared characteristics, I counted that as a shared identity as well.

the high SIC condition (M = 1.61, SD = 1.01) share significantly more identities with the confederate than those in low (M = 1.20, SD = .71) and control SIC (M = 1.08, SD = .67) conditions, $F(2, 303) = 12.17$, $p < .001$. Moreover, in line with previous research, number of shared identity significantly predicted outgroup attitudes, such that more shared identities corresponded with more positive outgroup attitudes, b = 3.09, t(1, 303) = 2.07, p = .040. Considering these findings, I proceeded to perform 3x2 multi-factor ANOVA on attitudes toward Arabs with number of shared identities as a covariate to check if shared identity confounded the findings regarding my main hypothesis. Results still showed a significant interaction effect of contact valence*SIC on attitudes, $F(2, 298) = 3.17$, $p = .044$.

Since shared group membership can influence participants' perceptions of similarity with the confederate and that feelings of similarity can greatly influence attitudes (Montoya et al., 2008), I also checked if ratings of similarity with the confederate has any confounding effects on the contact valence by SIC interaction findings testing my main hypothesis. 3X2 ANOVA on attitudes toward Arabs with similarity ratings as a covariate still showed a significant interaction effect of contact valence*SIC, $F(2, 295) = 4.04$, $p = .019$. This result shows that the predicted interaction effect is observed regardless of feelings of similarity toward the confederate in the study. Moreover, ANOVA results showed that ratings of similarity between participants and the confederate depend on contact valence but not on SIC, $F_{\text{contact valence}}(1, 297) = 78.85$, $p < .001$; $F_{\text{SIC}}(2, 297) = .07$, $p = .934$. There wasn't an interaction effect either, $F_{\text{valence*SIC}}(2, 297) = .81$, $p = .445$.

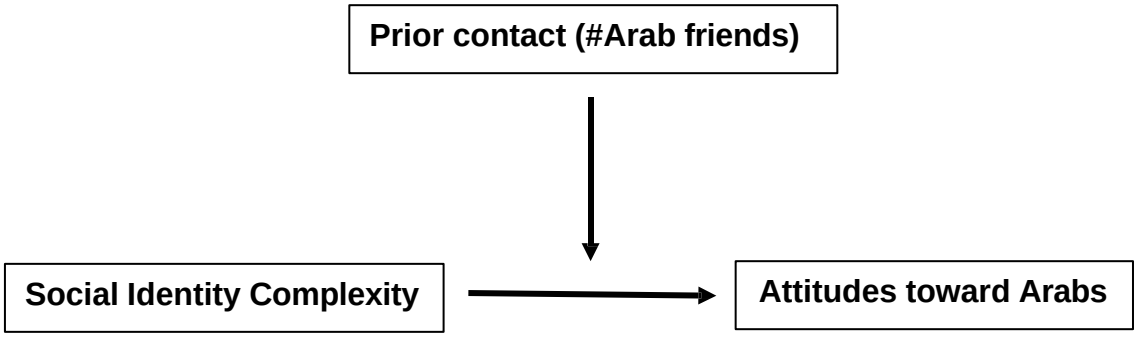
4.5. Exploratory Moderation Analysis with Prior Contact with Arabs

In addition to analyses addressing my main research questions, I conducted exploratory analyses to test for potential effects associated with participants' prior contact

with Arabs. I tested whether prior contact with Arabs (number of Arab friends) moderates the relationship between SIC and attitudes toward Arabs, however I don't have a clear prediction for this analysis. Participants with no or little prior contact with Arabs may be less aware of the variability among Arabs in general (Islam & Hewston, 1993), may thus be more sensitive to information about social identity complexity. Therefore, among participants with no or little prior contact with Arabs, there could be a stronger relationship between SIC and attitudes compared to participants with many Arab friends. Nevertheless, prior contact may have different effects depending on how participants perceive their Arab friends in terms of typicality and complexity (Wolsko et al., 2003). All the moderation analyses were performed with Process by Hayes (2013). Figure 9 shows the simple moderation input model.

Figure 9

Simple moderation model with SIC as predictor, Outgroup Attitudes as outcome and Prior contact as moderator.



Preliminary 3X2 ANOVA results indicate that participants' reports of prior contact did not vary across the SIC or contact valence conditions, $F_{\text{contact valence}}(1, 299) = .001$, $p = .976$; $F_{\text{SIC}}(2, 299) = .46$, $p = .629$; $F_{\text{valence*SIC}}(2, 299) = .39$, $p = .678$. Therefore, I proceeded to test prior contact with Arabs as a potential moderator for the effects of SIC

and contact valence. Similar to the mediation analysis, I only focused on comparing low v. high SIC and disregarded the control SIC. Response options for number of Arab friends (0, 1-3, 4-6, 6-8, 9-11, 12-14, 14+) were coded from 1 to 7. I reported unstandardized coefficients for all the analyses.

Regression results show that in the whole sample, prior contact significantly predicts attitudes toward Arabs controlling for the effect of SIC where, as number of Arab friends increase, positive attitudes toward Arabs increase, b = 4.22, t(5, 298) = 2.17, p = .031. However, the interaction between SIC (Low v. High) and prior contact with Arabs was not significant, b = -1.76, t(5, 298) = -.57, p = .566. These results show that prior contact tends to be associated with more positive attitudes toward Arabs overall, but that prior contact did not moderate the relationship between SIC and attitudes.

I also ran the same moderation analysis in negative and neutral conditions separately. When looking at participants in the neutral contact condition only, regression results show that prior contact with Arabs significantly predicted attitudes toward Arabs. As number of Arab friends increase positive attitudes toward Arabs increase as well, b = 5.66, t(5, 149) = 2.11, p = .037. However, the interaction between SIC (Low v. High), and prior contact with Arabs was not significant; b = -6.99, t(5, 149) = -1.60, p = .112. On the other hand, when looking at participants in the negative contact condition only, regression results show that prior contact did not significantly predict attitudes toward Arabs, b = 3.75, t(5, 143) = 1.37, p = 0.172. Moreover, the interaction between SIC (Low v. High), and prior contact with Arabs was not significant, b = 1.22, t(5, 143) = .29, p = .77.

DISCUSSION

Considering the central role of social categorization in processes of attitude generalization through intergroup contact (Brown & Hewstone, 2005; Paolini et al, 2010), this research aimed to investigate whether perceiving an encountered outgroup member as belonging to multiple non-overlapping groups (i.e., having a complex social identity) can buffer the negative effects growing from a negative contact experience. Negative interactions normally draw attention to group memberships denoting intergroup differences (Graf et al., 2014) and meeting a person with multiple non-overlapping identities make it difficult to put the individual into one category (Brewer & Gaertner, 2001; Hall & Crisp, 2005). Thus, I hypothesized that acknowledging greater complexity in social identities may help to curb the generalization of negative attitudes toward any of the groups to which the outgroup member belongs.

As predicted, results showed a significant interaction effect of contact valence and SIC on generalized attitudes toward Arabs. A negative contact experience led to significantly more negative attitudes toward Arabs in general among participants who engaged with an Arab confederate with highly overlapping social identities (i.e., low SIC condition), as compared to participants who engaged with an Arab confederate whose social identities overlapped less (i.e., high SIC condition) because high SIC "buffered" the generalization of negative attitudes growing from negative contact. Among participants who encountered the confederate with low SIC, those who had negative contact experience had significantly more negative feelings toward Arabs than participants who had a neutral contact experience. Nevertheless, among participants who met the Arab confederate with high SIC, those had neutral and negative contact experience did not significantly differ in

their attitudes toward Arabs. Moreover, among participants who had a negative contact experience, those who met the confederate with low SIC had significantly more negative feelings toward Arabs than participants who met the confederate with high SIC. It is important to note that the results showed significant effects in line with my hypothesis even after many participants in the negative contact condition required to remove their data from the study.

Results of interpersonal measures showed that overall, participants who had negative contact had significantly less positive attitudes toward the Arab interaction partner than participants who had a neutral contact experience. Nevertheless, there was no difference in interpersonal attitudes across SIC conditions and unlike intergroup attitudes there wasn't an interaction effect by contact valence and SIC. These results show that SIC manipulation did not affect attitudes toward individuals but impacted attitudes toward the group the individual belongs to. On the other hand, although contact valence affected willingness to meet and be friends with the confederate, willingness to befriend Arab people was not influenced by contact valence or SIC probably due to a ceiling effect. Across all conditions mean ratings for willingness to be friends with Arabs were very high.

Moreover, contrary to our predictions, results did not show an interaction effect for perception of variability among Arabs. Overall, variability responses did not differ across SIC conditions either. Different trends in perception of variability and feelings may be due to the difference between cognitive vs. affective outcomes. Perception or beliefs about variability within a group could be considered a cognitive outcome whereas feelings toward a group would be an affective outcome. These findings would be in line with Tropp and Pettigrew's (2005) research showing that intergroup contact is more likely to change

affective indicators of prejudice than cognitive indicators such as stereotypes. Also, when looking at pairwise comparisons results showed one unexpected valence effect where only among participants who met the confederate with low SIC, those who had negative contact rated variability of Arabs significantly higher than those who had neutral contact. Possibly, when answering the variability among Arabs question, participants made a conscious effort to think that "not Arabs are the same" due to motivations to control prejudice (Wolsko et al., 2003). Moreover, regression results indicated that perception of variability significantly predicts outgroup attitudes of participants, which is in line with past studies showing that increasing perceived out-group variability leads to a decrease in intergroup prejudice and discrimination (Brauer & Er-rafiy, 2011; Er-rafiy & Brauer, 2012). However, perception of variability among Arabs did not mediate the relationship between SIC and attitudes toward Arabs.

Results of variability among Arabs resemble the unexpected trends observed in the typicality measure where overall, participants in the negative contact condition rated the typicality of their interaction partner lower than those in the neutral contact condition but there was no effect of SIC. I believe that possibly due to motivation to control prejudice, participants did not want to assume that the "rude" confederate was typical of her ethnic group. Therefore, in the negative contact condition, participants paid attention more to confederate's behavior than to different identities with which she presented herself. Moreover, within the neutral condition the mean typicality ratings of participants in the low SIC condition was significantly higher than ratings of participants in the control SIC condition but not significantly different from high SIC condition. Therefore, we cannot conclude that SIC manipulation directly influences perception of ethnic typicality. Low SIC may indicate

high typicality but high SIC may not necessarily equate to low typicality or counter stereotypical. Instead, high SIC might indicate multi-faceted. One can be typical of their ethnic group but can still be multi-faceted by embracing their different types of identities. I was also worried that SIC manipulation in an intergroup contact context would influence perception of ethnic identification which could confound results regarding prejudice outcomes (Kaiser & Pratt-Hyatt, 2009). However, ethnic identification responses did not vary across the SIC condition.

I also explored certain factors that can affect the relationship between SIC and prejudice toward Arabs. I looked at the role of prior contact with Arabs on the relationship between SIC and attitudes. Consistent with past studies (Davies et al., 2011; Paolini et al., 2004) regression results show that prior contact with Arabs significantly predicted attitudes toward Arabs where participants with more Arab friends held more positive attitudes toward Arabs overall. Nevertheless, in the negative contact condition, prior contact did not predict attitudes probably due to the strength of the contact valence manipulation. This finding challenges Paolini et al.'s (2014) study showing that positive and extensive intergroup contact in the past buffers against the impact of negative contact in the present. Moreover, overall, prior contact did not moderate the relationship between SIC and attitudes.

5.1. Explaining the Effect of SIC on Outgroup Attitudes

Belonging to multiple crossed categories -sharing certain identities with the outgroup member- could challenge intergroup differentiation and lead to a decrease in intergroup bias (Crisp & Hewstone, 2007; Crisp et al., 2001). Nevertheless, I expected that high SIC would have an effect on buffering the generalization of negative attitudes during intergroup contact beyond the effect of cross-categorization. The results show that the

significant interaction effect on attitudes toward Arabs remained when controlling for number of shared identities. This finding indicates that SIC had effects beyond any shared categories. Covariance results suggest that the effect of SIC is related to the cognitive process of socially categorizing individuals (Halfold et al., 2005). When the increase in cognitive load is due to the presentation of multiple social categories about a person, it becomes more effortful to process each category about a person and make categorical judgments accordingly (Nolan et al., 1999; Rivera et al., 2009; Spears et al., 1999). This categorization process could be more effortful when those multiple identities do not overlap, are not thought of going together when describing an individual as in the high SIC condition. That is why, meeting an outgroup person who expresses multiple non- overlapping identities during contact would lead to more personalized judgments about that person (Crisp et al., 2001; Crisp et al., 2006). Individuation is especially important in negative contact so that people don't treat the encountered individual solely as a group member and don't automatically generalize negative feelings to their group. If people were able to fully process each category about a person and still think of the individuals as solely group members, we would observe prejudicial attitudes toward every mentioned category about an individual who appears unlikable in an interaction. Instead, we observed a decrease of negative attitudes in the high complexity condition because perceiving outgroup members as belonging to multiple non-overlapping social groups facilitated the decategorization and individuation process.

Besides increasing cognitive effort for categorization, encountering individuals with complex social identities may also influence perceptions of social categories more generally. For example, some people hold essentialist views about social categories like race—thinking that members of a given racial group share defining qualities that are innate and immutable—and such views tend to be associated with beliefs that social categories are homogeneous and

coherent (Haslam et al. 2000; Rothbart & Taylor 1992; Roth et al., 2023). Essentialist views also correspond with maintaining strict category boundaries and accentuating intergroup differences (Roberts et al., 2017). Correspondingly, a number of studies have shown that essentialist beliefs are associated with greater likelihood of stereotyping (Bastian & Haslam, 2006; Coleman & Hong, 2008) and holding prejudicial attitudes (Haslam et al., 2006; Hodson & Skorska, 2015; Mandalaywala et al., 2017). Although the present research does not measure essentialist views, the broader literature on essentialism can help us understand how SIC of racial outgroup members can influence attitudes. Past studies found that exposure to racial diversity is associated with decreased endorsement of race essentialism and its downstream consequences (Pauker et al., 2017). Therefore, encountering an individual from a racial outgroup with a complex social identity- belonging to groups that are not expected to overlap- may change beliefs about social categories i.e., essentialism which would then reduce prejudices. Alternatively, some people are more inclined than others to perceive rigid views of social categories and differences between them, regardless of how effortful it may be to process information about social categories. Therefore, essentialist views as an individual difference variable could moderate the effect of SIC on outgroup attitudes. Future studies that manipulate SIC of the target individual during intergroup contact should consider measuring essentialism beliefs as well.

5.2. Contribution to the Literature and Implications

This study makes important contributions to social categorization and intergroup contact literature both theoretically and methodologically. First of all, despite increasing evidence highlighting the harmful consequences of negative contact between different groups (Barlow et al., 2012; Graf et al., 2014;), there has been limited research exploring methods for mitigating these adverse effects. The existing research primarily concentrates on looking at the

influence of prior positive encounters as a buffer for generalizing negative effects (Arnadottir et al. 2018; Paolini et al., 2014). This study offers a novel approach to the buffering process by showing evidence for the effectiveness of complex social identities on preventing negative feelings, growing out of a negative contact experience, from generalizing to the encountered members' group as a whole.

Second, Social Identity Complexity was conceptualized as the subjective representation of one's own multiple identities. Therefore, past research investigated its effects on intergroup relations from the actor's perspective and explored how the SIC of participants influenced their attitudes and behaviors towards outgroup members (Brewer & Pierce, 2005; Roccas & Brewer, 2002). This research manipulated the social identity complexity of the target (outgroup member) rather than the perceiver (participant), using the same indicators in the original model. The study shows that not only the number of identities but also the perception of relationship between these identities is important during intergroup contact, especially when the contact is unpleasant. Introducing oneself by using identities that don't seemingly overlap can help with the decategorization process during intergroup contact. Also, the results indicated that high SIC may not mean low typicality which indicates that SIC is a distinct concept that calls for further attention in future research.

Moreover, this study brings a new approach to the old debate on the role of social categories in intergroup contact by bringing the impact of contact valence to attention. Original theories arguing for different approaches to social categorization in intergroup contact did not consider different possible affective experiences during contact hence did not manipulate contact valence when testing for the generalization effect (e.g. Brewer & Miller, 1984; Brown & Hewstone, 2005; Gaertner et al., 1989; Hewstone & Brown, 1986). If the contact experience is positive, the categorization approach would help with generalizing positive outcomes

(Hewstone & Brown, 1986). Nevertheless, if contact experience is negative decategorization approach would prevent negative attitudes from generalizing and leading to a prejudice about a group (Brewer & Miller, 1984). In real life, especially in contexts of conflict, contact experience may not be easy to control even if the optimal conditions are present. Therefore, both researchers and practitioners need to consider the risk of an intergroup contact situation going badly and think about the best approach for introducing social groups of individuals during contact. This study suggests a new way of introducing social groups during contact by blurring but not eliminating social categories through emphasizing the complex social identity of the individuals.

Besides the theoretical contributions, this research will have direct applications in programs involving intergroup contact. For example, this research can inform the structure of intergroup dialogues where intergroup differences are naturally heightened. Emphasizing group differences in the initial stages of intergroup contact can increase perceptions of threat and intergroup anxiety which then affects the quality of contact and can lead to more prejudiced attitudes (e.g., Dovidio et al., 2016; Pettigrew, 1998). Therefore, in the beginning of dialogue where group differences would be introduced, facilitators can ask participants to share very distinct aspects of their social identity to increase awareness of the diversity of the outgroup and buffer potential negative generalizations later on.

Lastly, this study provides a great example of studying different aspects of intergroup contact while maintaining internal and external validity. The experimental design simulates a real-life contact experience that could go wrong, in a highly controlled environment. The manipulation checks for contact valence clearly show that participants' contact experience can be easily altered with a simple script without raising suspicion about the nature of the study. This script can be used in other research that aims to experimentally investigate the effect of negative contact. In addition, this method of exchanging video responses online on a platform

like Skype facilitates data collection, makes the confederate blind to experimental conditions and controls for small details outside the script such as facial expressions, gestures etc. which can confound the findings.

5.3. Limitations and Future Directions

Despite the rigorous design, this study has important limitations as well. One important limitation is the brevity of the interaction between the participant and the confederate. Normally, intergroup contact should be more frequent and more meaningful. Nevertheless, due to practical concerns with data collection, I decided to include a very brief interaction that will mainly help to form first impressions. Therefore, the potential effects may not be enduring. Future studies should replicate this study with longer and more frequent interactions. Another limitation concerns the groups in the SIC conditions. The sample size of the pilot test was limited hence future studies should select the groups from a more comprehensive pilot test conducted with more participants. Also, participants had a higher number of shared identities with the confederate in the high SIC condition. Although I controlled for this factor in the main analyses, future studies should be cognizant of the demographics of the population when choosing groups for different SIC conditions. Due to the deception, it was not possible to measure attitudes toward each of the social groups in both SIC conditions during the actual study. Therefore, future pilot tests should attempt to balance the average attitudes toward the social groups across the SIC conditions so that I can more confidently assert that the effect is due to the complexity impression overall rather than ingroup-outgroup dynamics or baseline attitude difference toward the groups used in these conditions. As evident from the typicality responses, I believe that participants had motivation to control their prejudice or did not want to appear prejudiced. Therefore, future studies should directly measure variables such as motivation to control prejudice as well to account for their effect on the relationship between SIC and attitudes toward

the outgroup.

For future research, another direction could be looking at how identity expression or SIC of the confederate influence identity expression of participants during intergroup contact. As contact is a dynamic process, one's own expression of their identity can impact how they are perceived and how the other person expresses their identity. In this study, I collected video recordings of participants where they introduced themselves to their interaction partner. Nevertheless, I was not able to investigate whether the complexity manipulation affected identity expression of the participants because I did not control whether the participant or the confederate sent the video first. The confederate sent her introduction video approximately 20 seconds after the experimenter messaged the first question- which is the duration of the pre-recorded videos. Therefore, some participants sent their video first or right after the confederate sent hers suggesting that their responses were not influenced by the confederate's video. Moreover, 77 participants sent audio recordings due to technical challenges with recording videos on their device. Unfortunately, Skype automatically deleted audio recordings one month after they were recorded, before I could transcribe them. Future studies could control the timing of sending videos by instructing participants to take turns when responding to questions. This way, we can also investigate the impact of perception of different expressions of identity on participants' expression of their own identity.

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