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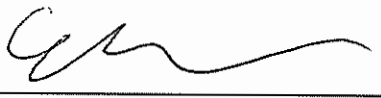
Imagined Intergroup Contact as a Mechanism to Change Beliefs About Gender

By  
Samantha Oyler

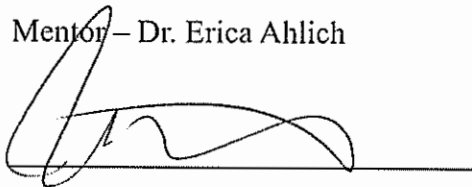
A thesis submitted in partial fulfillment of the requirements of the Honors College at  
University of South Alabama and the Bachelor of Arts in the Psychology Department

University of South Alabama  
Mobile  
May 2024

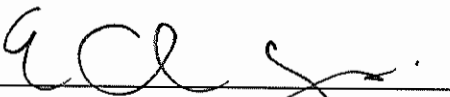
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## **Dedication**

This thesis is dedicated to my parents Dr. Ann Guzy and Mr. Reggie Oyer, to my dog Maverick, and to everyone who has supported me in my academic pursuit. It is also dedicated to the queer communities in Mobile. Thank you.

## **Acknowledgements**

Thank you so very much to my mentor, Dr. Erica Ahlich, for allowing me the space to create the project that I wanted while guiding me confidently throughout the entire process. Having someone in my corner at all times who listened to me and understood my ideas and goals has been so wonderful. Thank you to my committee members Dr. Josh Foster and Dr. Claire Cage for providing feedback on my work and accepting the call to action on behalf of an undergrad. Thank you to the donors for the USA Honors College Exploration and Experiential Learning Scholarship for helping to fund the study. I also wanted to thank Dr. Laura Vrana for acting as a mentor to me and always offering to help in any way despite being in an entirely different field of work. It really does take a village.

## **Abstract**

Gordon Allport first proposed the Intergroup Contact Theory in 1954. According to his theory, contact between ingroup and outgroup members, under certain conditions, would lead to positive effects, specifically the reduction of prejudice. Since then, this theory has been expanded to include members of other majority/minority groups. Research suggests intergroup contact has positive effects for reduction of anti-trans prejudice. To date, the focus has largely been on the mechanisms driving changes in attitudes and intentions towards trans individuals through intergroup contact interventions. It is unclear whether this intervention might also promote the acquisition of more nuanced sociocultural understanding about gender, which could also explain a reduction in trans prejudice. This Honors Thesis Project will test the hypothesis that there is a parallel mediating effect of 1) beliefs about gender and 2) attitudes towards trans individuals in the association between imagined intergroup contact and behavioral intentions towards transgender individuals.

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## **Introduction**

Gordon Allport first proposed the Intergroup Contact Theory in 1954 when researching effects of the racial integration of troops in WWII. According to his hypothesis, contact between an ingroup and an outgroup under certain conditions will lead to positive effects, specifically the reduction of prejudice towards the outgroup. Allport defined prejudice as “an antipathy based on faulty and inflexible generalization...[that] may be directed toward a group or an individual of that group” (Allport, 1954). Following the theory’s publication, authors continued to publish findings of support for changes in attitudes as a result of interracial contact (Chu & Griffey, 1985;Cohen, 1982; Wilner et al., 1955). Through meta-analysis, researchers later established that the hypothesis could be applied to minority-majority contact outside of racial/ethnic groups (Pettigrew & Tropp, 2006).

In recent decades, there has been application of the theory to gender minority-majority contact (Walch, Sinkkanen, et al., 2012). There is supporting evidence of reduction of anti-trans prejudice following intergroup contact (Hoffarth & Hodson, 2018), but something that has to date not been examined is change in belief about gender. Starting during toddlerhood, everyone begins to develop awareness of their own gender based on cultural conceptions of male/femaleness (Jensen & Arnett, 2020). Those in the gender minority, referred to with the umbrella term “transgender,” identify with a gender that they were not assigned with at birth based on their sex. They typically believe in gender as something that is a combination of social construction, internal identity, behaviors, and physicality (Nagoshi et al., 2012). Cisgender people, those whose gender matches the one they were assigned at birth, are less likely to see gender this way due to their internal and physical consistency (Anderson, 2022). It is possible that through transgender and cisgender contact, the cisgender individual(s) may develop different

concepts of gender through their interaction with the transgender individual(s). Addressing this gap in literature will be the focus of the current study.

### **Early Revisions of Intergroup Contact Theory**

In his original hypothesis, Allport established four optimal conditions for effective interaction: 1) equal status, 2) common goals, 3) cooperation, and 4) social customs. In order to have equal status, neither group member would view themselves nor the other as having higher or lower status. They each had to have some common goal in their interaction requiring active effort from each member, and it would have to be a cooperative effort without competition. Finally, the positive effects of intergroup contact would be more likely to happen if there was “explicit social sanction” of their contact (Pettigrew, 1998). Pettigrew revised the theory in 1998, adding that achievement of friendship was found to be pivotal for positive effects in some cases. He also highlighted that change of attitude occurred through four processes of 1) learning about the outgroup, 2) changing ingroup behavior, 3) generating affective ties, and 4) ingroup reappraisal. The study additionally brought into question the ability to achieve the supposed optimal interaction, which Pettigrew would further expand upon. Years later, he and his colleague specifically focused on the equal status condition from Allport’s original four (Tropp & Pettigrew, 2005). When approaching cross-group contact, those in both the outgroup and ingroup will have preconceived attitudes and expectations of how the other will interpret their status. If there is an expectation of devaluation in the minority member, there is a lesser chance of positive outcome from the interaction.

The theory was again revised in 2006 with changes to condition requirements and application. Tropp and Pettigrew conducted a meta-analysis of studies which had used intergroup contact theory (Pettigrew & Tropp, 2006). One of the major findings was that it had been

successfully applied outside of racial/ethnic intergroup contact. Since the theory was originally devised out of interracial encounters, this was a significant revision due to implications for a wide variety of minority-majority groups. Tropp and Pettigrew also found that Allport's four key conditions were not necessary for the process of prejudice reduction. While the conditions did generally enhance positive outcomes of contact, they were not found to be key in every study. The authors found that the best way to approach them was to combine the conditions conceptually into a wider interrelated bundle rather than necessary individual components. According to Tropp and Pettigrew, the conditions all together "act as facilitating conditions that enhance the tendency for positive contact outcomes to emerge" (Pettigrew & Tropp, 2006, p. 766). Additionally, attitude change was determined to exist outside of the interaction between individuals. Across studies, participants' attitudes towards the other person in the interaction were generalized to that entire group. This implies the possibility of wide-range effects of intergroup contact. Since this revision, one instance of wider application of the theory has been to explain prejudice reduction from contact between cisgender and transgender individuals.

### **Application of Intergroup Contact Theory to Gender Minorities**

Although limited in comparison to studies with racial and sexual minorities, research on the application of intergroup contact theory to reduction of anti-trans prejudice has begun to appear gradually. In 2012, a study was conducted in which participants sat in on panels discussing trans issues with one led by transgender individuals and the other led by cisgender individuals. (Walch, Sinkkanen, et al., 2012). Separate groups of students participated in each, and their levels of prejudice were examined before and after the intervention. While the baseline measures of transphobia were not high to begin with, there was a more significant reduction of transphobia in those who attended the panel with trans speakers compared to those who attended

the lecture with cisgender speakers. In a more recent study, the impact on anti-trans prejudice based on the quantity and quality of the contact between groups was investigated (Kanamori et al., 2022). This study included both implicit and explicit measures of prejudice, and it examined how different levels of quantity and quality of contact impacted each. A greater quantity of contact led to less implicit biases but did not affect explicit biases. In comparison, favorable (i.e., qualitative) contact led to a decrease in both implicit and explicit anti-trans prejudice. This study suggests that to see positive results of intergroup contact, frequency of contact is not as essential as quality of contact.

### **Methods of Intergroup Contact**

Evidence suggests that significant effects can be achieved via methods beyond just face-to-face contact. There are novel methods of contact which have shown similar efficacy to in-person intergroup contact. In a recent study similar to the 2012 panel experiment, a similar comparison was tested using an online E-contact intervention (Boccanfuso et al., 2021). Participants were either assigned to have contact with trans individuals or cisgender individuals, and those who engaged with trans individuals were found to have reduced expression of transphobia following the interaction. Based on these findings, the technology-focused generation who exist largely on social media can experience similar effects of intergroup contact through conversations on their phones.

Another significant development has been the use of imagined contact. Imagined Intergroup Contact (IIC) involves the mental simulation of contact aimed at activating the same concepts in the brain resulting from positive and successful interactions in real life (Crisp et al., 2009). In daily life on average, there is a higher frequency of contact with sexual minority members (lesbian, gay, bisexual, etc.) than there is with gender minority members (trans,

nonbinary, gender non-conforming, etc.). Additionally, it has been found that minority members as compared to majority members are more likely to avoid intergroup contact when they expect to be treated as a lesser status by a majority status member (Tropp & Pettigrew, 2005).

Therefore, transgender individuals may avoid initiating intergroup contact out of expectation of prejudice from a cisgender individual. It follows that for gender majority-minority contact, IIC may be more easily accessible as an intervention (Hoffarth & Hodson, 2018). In one example, researchers tested how IIC impacted cisgender employers who had previously been reluctant to hire transgender employees. They found that after undergoing a process of imagined contact, employers were more likely to hire transgender applicants than they were prior to the IIC intervention (Moss-Racusin & Rabasco, 2018).

### **Gender Perception & Intergroup Contact**

Something that none of the available research has seemed to do thus far is consider possible changes in gender perception in addition to reductions in prejudice. It is understood in scientific communities that gender constitutes a separate concept from sex. According to the American Psychiatric Association, gender is defined as having two components: gender identity, which is the general internal sense of being a man/woman/gender nonconforming person, etc.; and gender expression, which constitutes the appearance and behaviors typically falling into masculine and feminine categories (*Definitions of Gender*, n.d.). Sex refers to the biological/anatomical/hormonal aspects of the body based on reproductive organs. The use of “gender/sex” as a combined concept accounts for the fact that while gender and sex can be explored as separate dimensions, they are still two parts of a complex relationship (Schudson, 2020). In a recent study, participants were asked to define terms such as man/woman, male/female, and masculine/feminine. Participants who were cisgender and heterosexual

(CisMaj) were overall more likely to include biological content in definitions, whereas there was more complexity in cisgender sexual minority participants (CisMin), and the most use of sociocultural elements in gender minority participants (GenMin) (Schudson, 2020).

To date, the only found example close to demonstrating intergroup contact as a way to transmit more complex understanding of gender between outgroup and ingroup was a study done with transgender children and their cisgender peers and siblings (Gülgöz et al., 2021). The children were presented with descriptions of imaginary children, some more explicitly describing the gender of the child and some not, and the children were asked to respond with what they thought the imaginary child's gender was. It is understood and supported by this work that children are more likely to essentialize attributes, including gender/sex. They generally showed understanding of gender and sex in general as innate aspects, unconsciously demonstrating gender essentialism. Overall, though, in responses to prompts, trans children and their siblings gave more ambiguous answers about the imaginary scenarios. For example, when presented with a prompt using gender non-specific language, the trans children and their siblings were less likely to essentialize gender. They did not assume a stable, innate gender of the prompted imaginary child as much as the unrelated cisgender children did. The study did not explicitly measure intergroup contact, but some elements are similar. The prompts that the children were given were similar to IIC prompts in that the participants imagined various gendered and/or ungendered children. Additionally, the fact that cisgender children who had transgender siblings had similar answers could be interpreted as support for transfer of ideas about gender through contact between siblings.

One of the processes of change that Pettigrew established was learning about the outgroup. The transfer of knowledge about more complex perceptions of gender seems like a

probable result, yet the increase in accurate knowledge within an ingroup has yet to be studied within these specific populations. To reduce anti-trans prejudice, it is important to understand whether this mechanism of intergroup contact may provide insight into how interventions may not only decrease prejudice towards trans people, but additionally increase accurate and beneficial knowledge of the complexity of gender. Cisgender people are less likely than transgender people to have awareness of the internal and sociocultural aspects of gender outside of just biology (Schudson, 2020). If more cisgender individuals had more frequent interactions with trans individuals, who are more likely to express gender in terms of identity, they might leave the interaction holding different and more nuanced beliefs about what gender is.



## **Current Study**

Intergroup Contact Theory has been supported as an effective intervention for reduction of anti-trans prejudice. To date, there has not been any examination of it as an intervention which promotes the acquisition of more sociocultural understanding about gender. In this project, we will determine whether or not there is a parallel mediating effect between contact and resulting behavioral intentions through both a change in attitude and beliefs. The following are the hypotheses we will be testing:

H1: IIC will have a significant direct effect on behavioral intentions, such that those in the IIC condition will show more positive and less negative behavioral intentions compared to those in the neutral condition.

H2: IIC will have a significant indirect effect on behavioral intention through attitudes towards trans individuals, such that those in the IIC condition will show more positive attitudes towards trans individuals, which will be associated with more positive and less negative behavioral intentions.

H3: IIC will have a significant indirect effect on behavioral intentions through beliefs about gender, such that those in the IIC condition will more strongly endorse social gender theory, which will be associated with more positive and less negative behavioral intentions.

## Methodology

### Participants

Participants who were fluent in English and aged 18 to 44 years old were recruited through community outreach as well as through the University of South Alabama Psychology Subject Pool (SONA). Participants from the subject pool were awarded 0.5 credits for participating, and participants from community outreach were given the chance to enter a raffle for one of five \$10 gift cards. A total of 423 survey responses were collected. Those who completed <50% of the survey ( $n = 82$ ), were <18 ( $n = 86$ ) or >44 ( $n = 31$ ), were not fluent in English ( $n = 2$ ), identified as something other than cisgender ( $n = 19$ ), failed the attention check ( $n = 3$  inconsistent,  $n = 12$  infrequent), or requested that their data be withdrawn ( $n = 13$ ) were removed from the final data pool. A Monte Carlo simulation power analysis was conducted to assess the number of participants needed to detect a significant effect. At  $\alpha = .05$ , power = .80, 190 participants were estimated to be needed to detect a significant indirect effect via two parallel mediators. The final sample included 175 participants, just short of sufficient to power the analysis.

The sample was 60% White, 23% Black or African American, 7% Biracial, 6% Asian, 1% Latino or Hispanic, 0.75% American Indian or Alaskan Native, 0.75% Middle Eastern or North African, 0.75% Self-Described, and 0.75% Preferred Not to Say. The average age was 21.1 years old ( $SD = 5.62$ ). The sample was 78% Straight/Heterosexual, 10% Bisexual, 3% Pansexual, 2% Gay, 2% Lesbian, 2% Asexual, 1% Queer, 1% Demisexual, and 1% Preferred Not to Answer. The sample was made up of predominantly cisgender women (86%) with 13% being cisgender men and 1% who preferred not to answer. The sample was 85% Not of Hispanic, Latina/o/x, or of Spanish origin, 10% Preferred Not to Say, 2% Mexican, Mexican American,

Chicana/o/x, 0.5% Cuban, 0.5% Another Hispanic, Latina/o/x, or Spanish origin, and 2% Other/Self-Described.

## **Measures**

**Attentive Responding Scale.** The Attentive Responding Scale (ARS-18; Maniaci & Rogge, 2014) is a two-part scale used to measure participants' attention to the task. Each of the two subscales has 9 items. 12 of the items measure inconsistency (e.g., "I am an active person" and "I have an active lifestyle"), and 6 of the items measure infrequency (e.g., "My favorite subject is agronomy"). Participants reported the accuracy of each statement with regards to themselves on a 5-point scale ranging from not true at all (0) to very true (4). If individuals scored higher than 6.5 on inconsistency items and/or higher than 7.5 on infrequency items, their responses were considered problematic, and their data was ultimately removed.

**Imagined Intergroup Contact.** In order to engage in imagined contact, participants were shown one of two possible prompts. The control group saw the following prompt (Turner et al., 2007): "We would like you to take two minutes to imagine an outdoor scene. Try to imagine aspects of the scene about you (e.g., is it a beach, a forest, are there trees, hills, what's on the horizon)." The experimental group saw the following prompt (Stathi et al., 2012): "We would like you to take two minutes to imagine yourself meeting a transgender stranger for the first time. Imagine that interaction is positive, relaxed, and comfortable."

**Attitudes.** The Attitudes Towards Transgender Individuals (ATTI) scale consists of 20 items to measure attitudes towards transgender individuals (Walch, Sakkaphat, et al., 2012). Participants saw statements with both positive attitudes (e.g., "It would be beneficial to society to recognize transgenderism as normal") and negative attitudes (e.g., "Transgenderism endangers the institution of the family"). They rated their agreement with each statement using a 5-point

Likert scale ranging from strongly disagree (1) to strongly agree (5). Higher scores on the ATTI indicate more positive attitudes towards transgender individuals. Internal consistency was adequate in the sample  $\alpha = .97$  (95% CI 0.96, 0.98).

**Beliefs.** The Gender Theory Questionnaire is a 10-item scale measuring endorsement of aspects of lay gender theory (Coleman & Hong, 2008). Three items measure endorsement of biological theory (e.g., “When men and women differ in some way, it is likely that the difference is due to biological factors”), the middle three items measure endorsement of social theory (e.g., “If social situations change, the characteristics we attribute to gender categories will change as well”), and the final four measure preference of one theory over the other (e.g., “Gender is the result of nurture more than nature”). Participants reported their agreement with each statement using a 6-point Likert scale ranging from strongly agree (6) to strongly disagree (1). Scores on the Gender Theory Questionnaire are divided into social theory and biological theory aspects. A higher average of scores on questions 1, 2, 3, 9, and 10 indicates more support of biological gender theory, and a higher average of scores on questions 4, 5, 6, 7, and 8 indicates more support of social gender theory. Internal consistency was adequate in the sample for both the biological subscale  $\alpha = .82$  (95% CI 0.77, 0.86) and the social subscale  $\alpha = .83$  (95% CI 0.79, 0.87).

**Behavioral Intentions.** To measure behavioral intention, 3 of the subscales created in 2017 by Barbir et al. were used. The Negative Intentions subscale includes 11 items to measure negative intentions towards transgender individuals (e.g. “Would stop hanging out with friend if they found out they were trans”). The Positive Intentions/Views subscale includes 11 items to measure positive intentions towards and views of transgender individuals (e.g., “Would stick up for trans person being bullied”). The Supportive Public Intentions subscale includes 5 items to

measure intentions to openly support transgender individuals in public settings (e.g., “Would attend parade supporting trans rights”). Participants reported their agreement with each statement using a six-point Likert scale ranging from strongly disagree (1) to strongly agree (6). Higher scores on the Negative Intentions subscale indicate negative behavioral intention towards trans individuals, and higher scores on the Positive Intentions/Views subscale and the Supportive Public Intentions subscale reflect more positive behavioral intention towards transgender individuals. Internal consistency was adequate in the sample for the negative intentions subscale  $\alpha = .93$  (95% CI 0.92, 0.95), the positive intentions subscale  $\alpha = .97$  (95% CI 0.96, 0.97), and the public intentions subscale  $\alpha = .93$  (95% CI 0.91, 0.94).

**External Contact Measure.** The General Intergroup Contact Quantity and Quality Scale was also included as an exploratory measure to assess contact that participants had with gender minority individuals outside of the present study (Islam & Hewstone, 1993). The first five items assess the quantity and frequency of contact that the participant has had with a trans individual (e.g., “How much contact would you say you’ve had with a transgender individual as close friends?”). On three of the questions, participants reported their level of contact ranging from not at all (1) to a great deal (7), and on two of the questions, they reported the frequency of contact ranging from never (1) to very often (7). Higher scores indicate higher levels of quantity of contact. The second five items assess the quality of contact that the participants have had with a trans individual (e.g., “For you, [your most recent contact with a transgender individual] was perceived as equal”). For each item, participants responded with the level of agreement with the statement on a 1-7 scale (e.g., “Definitely Unequal (1)” through “Definitely Equal (7)”). Higher scores indicate higher levels of quality of contact. Internal consistency was adequate in the

sample for both the quantity of contact subscale  $\alpha = .85$  (95% CI 0.81, 0.88) and the quality of contact subscale  $\alpha = .80$  (95% CI 0.75, 0.85).

## **Procedure**

Participants completed the survey remotely using Qualtrics. They read incomplete information on the study (to mask the true purpose of the study), then provided informed consent in order to continue. Participants were randomly assigned to either a control or IIC condition. They were given a prompt which asked them to imagine a certain scenario for two minutes. Control participants were given a neutral prompt, and experimental participants were given a prompt related to positive contact with a transgender person. Following the two minutes of imagined contact, they were prompted to write about their imagined experience in detail. Participants provided brief written reports about what they imagined, learned, and felt during the exercise. Then, they completed measures on attitude, belief, and behavioral intention following the imagined contact. The order in which the questionnaires appeared was randomized for each participant.

At the end of the study, participants were asked a few generic debriefing questions. They were first asked to elaborate on what they thought the purpose of the project was. They were then asked yes/no questions on if they were suspicious at any point, and if they suspected that they had been lied to at any point. If they answered yes to either, they were asked to elaborate. The project was then explained in depth, and participants were given the chance to request that their data be withdrawn. After that, participants from community outreach were given the opportunity to enter a raffle. If they chose “yes,” they were then taken to a different survey to provide their email to be entered into the raffle.

## **Data Analytic Plan**

Jamovi (v 2.0.0) was used to conduct all preliminary statistical analyses. Independent Samples T-Tests were used for each scale and subscale to examine differences in attitude, belief, and behavioral intentions between conditions. Levene's test was used to determine if there were any violations of equal variances. Additionally, a correlational matrix was created including all primary study variables including attitudes, beliefs, behavioral intentions, and quantity and quality of contact scores.

Primary analyses were conducted in SPSS (v. 25). To test all hypotheses, the PROCESS (Model 4) tool was used to perform each parallel mediation analysis (Hayes, 2017). Effects were determined using a 95% confidence interval based on 10,000 bootstrap samples. The model was used to examine the direct effect of the condition on behavioral intentions (H1). It was also used to examine the indirect effects of condition on behavioral intentions through both attitude and belief (H2 and H3). Because there were three separate behavioral intention subscales, a separate mediation was run for each subscale. Additionally, since hypotheses are focused on social gender theory, analyses were only run with the Social Subscale scores from the Gender Theory Questionnaire. Missing data was handled by listwise deletion.

## Results

### Preliminary Analyses

First, debriefing responses were qualitatively assessed. Most responses in the debriefing showed that the majority of participants were aware of the attitude and behavioral intention aspects of the research, but no responses mentioned anything about gender beliefs. A significant portion reported believing that age was relevant to the hypotheses, likely due to the screener question. One participant reported suspecting that the project was looking at the concept of gender identity and how it differed for sexual majority and minority members. No participant mentioned suspicions of an experimental component being involved.

Second, preliminary analyses were conducted examining differences in self-report measures by condition. The 80 participants in the experimental condition ( $M = 77.8, SD = 16.9$ ) compared to the 95 participants in the control condition ( $M = 77.8, SD = 21.0$ ) demonstrated more positive attitudes towards transgender individuals (see **Table 1.**). However, the difference was not statistically significant,  $t(173) = -1.05, p = .295$ . Participants in the experimental condition ( $M = 17.7, SD = 5.40$ ) compared to the participants in the control condition ( $M = 17.2, SD = 5.90$ ) demonstrated more biological beliefs about gender, but the difference was not statistically significant,  $t(173) = -.63, p = .173$ . Participants in the experimental condition ( $M = 16.1, SD = 5.20$ ) compared to the participants in the control condition ( $M = 17.4, SD = 6.62$ ) demonstrated less social beliefs about gender, but the difference was not statistically significant,  $t(173) = 1.4, p = .157$ .

There were also no statistically significant differences for any of the Behavioral Intentions subscales (see **Table 1.**): negative behavioral intentions towards transgender individuals (experimental condition  $M = 18.4, SD = 9.54$ ; control condition  $M = 20.3, SD = 11.1$ ),  $t(173) = 1.20, p = .233$ ; positive behavioral intentions towards transgender individuals



(experimental condition  $M = 52.7$ ,  $SD = 13.8$ ; control condition  $M = 50.5$ ,  $SD = 15.5$ ),  $t(173) = -.978$ ,  $p = .329$ ; public behavioral intentions towards transgender individuals (experimental condition  $M = 17.6$ ,  $SD = 7.17$ ; control condition  $M = 17.7$ ,  $SD = 8.81$ ),  $t(173) = .108$ ,  $p = .914$ .

**Table 1.**

*Differences in Attitude, Gender Theory Endorsement, and Behavioral Intention by Condition*

	IGC ( $n = 80$ )	Control ( $n = 95$ )	$t$ (df)	$p$	$d$
	$M$ ( $SD$ )	$M$ ( $SD$ )			
ATTI <sup>a</sup>	77.8 (16.9)	74.8 (21.0)	-.11 (173)	.295	.16
GTQ Biological	17.7 (5.40)	17.2 (5.90)	-.63 (173)	.529	.09
GTQ Social <sup>a</sup>	16.1 (5.2)	17.4 (6.62)	1.4(173)	.157	.23
BI Negative <sup>a</sup>	18.4 (9.54)	20.3 (11.1)	1.2(173)	.233	.18
BI Positive	52.7 (13.8)	50.5 (15.5)	-.98(173)	.329	.15
BI Public <sup>a</sup>	17.6 (7.17)	17.7 (8.81)	.11(173)	.914	.11

*Note.* ATTI = Attitudes Towards Transgender Individuals, GTQ = Gender Theory Questionnaire, BI = Behavioral Intentions. <sup>a</sup> = unequal variances.

In contrast, every correlation was found to be statistically significant (see **Table 2.**).

Regarding a participant's quantity and quality of contact with trans people outside of the IIC, both were: positively correlated with a higher positive attitude ( $ps = <.01$ ) towards trans individuals, positively correlated with social theory endorsement ( $ps = <.01$ ), negatively correlated with biological theory endorsement ( $ps = <.01$ ), positively correlated with positive ( $ps = <.01$ ) and supportive public ( $ps = <.01$ ) behavioral intention, and negatively correlated with negative ( $ps = <.01$ ) behavioral intention. Those with both higher quantity and quality of contact with trans individuals outside of the study reported having more positive attitudes towards trans individuals overall, higher social gender theory endorsement, and more positive and supportive public behavioral intentions towards trans individuals. Those with both higher quantity and quality of contact with trans individuals outside of the study also reported having lower

biological gender theory endorsement and negative behavioral intentions towards trans individuals.

**Table 2.**  
*Correlations*

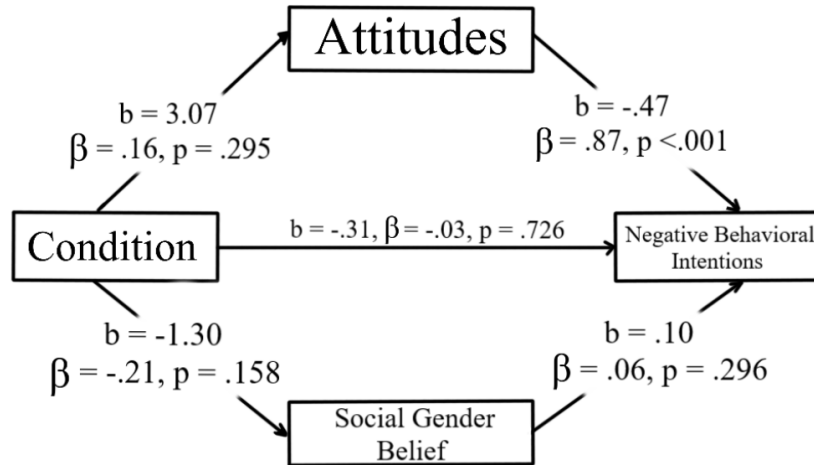
	1.	2.	3.	4.	5.	6.	7.	8.
1. Quantity of Contact	—							
2. Quality of Contact	.56**	—						
3. Attitudes	.42**	.67**	—					
4. Biological Gender Theory	-.32**	-.42**	-.61**	—				
5. Social Gender Theory	.27**	.40**	.64**	-.59**	—			
6. Negative Behavioral Intent	-.30**	-.57**	-.84**	.49**	-.50**	—		
7. Positive Behavioral Intent	.38**	.64**	.93**	-.57**	.61**	-.86**	—	
8. Public Behavioral Intent	.45**	.59**	.86**	-.66**	.64**	-.73**	.85**	—

Note. \*\*  $p < .01$

### Parallel Mediation Analyses

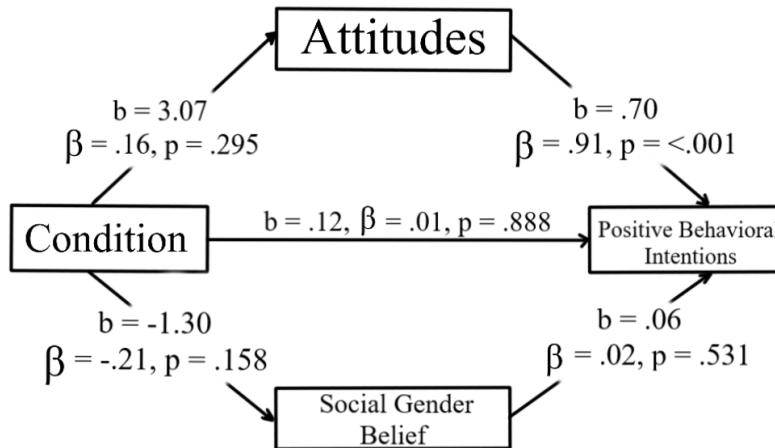
#### *Negative Behavioral Intentions*

Findings indicated that the condition did not have a statistically significant direct effect on their negative behavioral intentions towards gender minority individuals ( $b = -.31$ ,  $\beta = -.03$ ,  $p = .726$ ). There were no significant indirect effects through attitudes ( $b = -1.45$ , 95% CI -4.17, 1.18) or through belief ( $b = -.13$ , 95% CI -.501, .146). The total effect was also not significant ( $b = -1.89$ ,  $\beta = -.18$ ,  $p = .233$ ). See **Figure 1**.



**Figure 1.** Parallel mediation analysis showing the effect of condition on negative behavioral intentions towards gender minority individuals as mediated simultaneously by attitudes towards gender minority individuals and social gender theory belief.

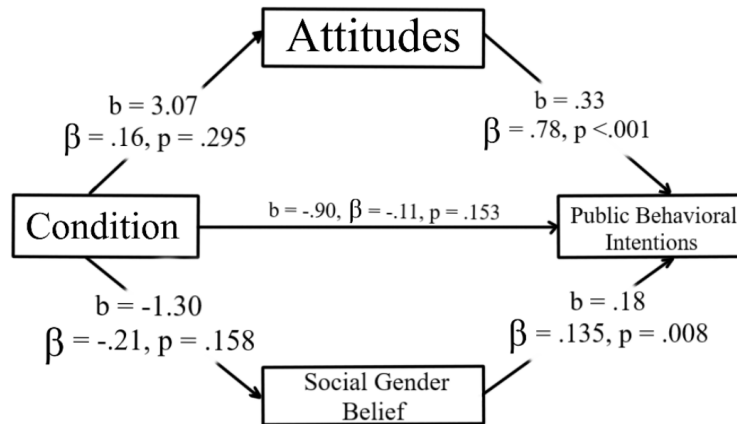
*Positive Behavioral Intentions*



**Figure 2.** Parallel mediation analysis showing the effect of condition on positive behavioral intentions towards gender minority individuals as mediated simultaneously by attitudes towards gender minority individuals and social gender theory belief.

Findings indicated that the condition did not have a statistically significant direct effect on their positive behavioral intentions towards gender minority individuals ( $b = .12, \beta = .01, p = .888$ ). There were no significant indirect effects through attitudes ( $b = -2.14, 95\% \text{ CI } -1.80, 6.15$ ) or through belief ( $b = -.08, 95\% \text{ CI } -.446, .220$ ). The total effect was also not significant ( $b = .218, \beta = .15, p = .329$ ). See **Figure 2**.

*Supportive Public Behavioral Intentions*



**Figure 3.** Parallel mediation analysis showing the effect of condition on supportive public behavioral intentions towards gender minority individuals as mediated simultaneously by attitudes towards gender minority individuals and social gender theory belief.

Findings indicated that the condition did not have a statistically significant direct effect on their supportive public behavioral intentions towards gender minority individuals ( $b = -.90$ ,  $\beta = -.11$ ,  $p = .153$ ). There were no significant indirect effects through attitudes ( $b = 1.0$ , 95% CI  $-.798, 2.86$ ) or through belief ( $b = -.235$ , 95% CI  $-.640, .082$ ). The total effect was also not significant ( $b = .218$ ,  $\beta = .15$ ,  $p = .329$ ). See **Figure 3**.

## Discussion

The aim of the study was to determine if imagined intergroup contact (IIC) had an impact on behavioral intentions towards gender minority individuals through both a change in attitudes and beliefs. It was predicted that being in the IIC condition would have a direct effect on reporting more positive and supportive public behavioral intentions (H1). Positive attitudes towards trans individuals (H2) and more social beliefs about gender (H3) were predicted to have parallel mediating indirect effects on behavioral intentions. Based on the conducted analyses, it was found that hypotheses 1-3 were not supported by the evidence.

None of the attitude, belief, or behavioral intention scales were significantly different across conditions. A possible explanation for this could be the study design. Since the aim of the study is to measure change, differences between conditions might be clearer with a longitudinal study in which IIC participants have more time before and after contact. Additionally, since prior literature has supported IIC leading to changes in attitudes (Crisp et al., 2014), some weakness in the specific design of the imagined contact in this study could explain the results.

Since change in belief has not been explored at the same depth as change in attitude, there is not as much evidence to compare to as far as the lack of difference between conditions in gender theory. One explanation for this may be that some participants had an understanding that trans individuals are very conscientious of their bodies and the biological aspects of sex associated with gender. A key aspect of the experience of gender dysphoria is distress caused by discomfort in the physical body due to assigned sex not matching the experienced internal gender identity (Pulice-Farrow et al., 2019). In this case, it could be argued that a more nuanced view is not only endorsement of social gender theory, but also acknowledgement of the importance of physical characteristics to many gender minority individuals.

Higher quantity and quality of support was correlated with having more positive attitudes towards trans individuals, as well as having more positive behavioral intentions. These results align with a 2016 study about how friendships with trans individuals impact attitudes about and behavioral intentions towards gender minority individuals (Barbir et al., 2017). In that study, it was found that individuals with at least one transgender friend had more positive attitudes and behavioral intentions than those who did not.

Additionally, there is evidence here that having a higher quantity and quality of contact with trans individuals in daily life is associated with having significantly more social beliefs about gender. Higher quantity and quality of intergroup contact was also associated with having fewer biological beliefs about gender. The association between contact with gender minority individuals and belief about gender has yet to be studied in-depth by prior literature, and the exact mechanism that would lead to a change in gender belief is also unexamined at this time. Future research should address this question of how perception of gender is impacted based on contact with an individual with a different gender identity.

There are implications as far as future versions of intergroup contact as a form of intervention to reduce trans prejudice via cisgender participants gaining a different understanding of gender outside of bioessentialism. Through daily and regular contact, it is possible that cisgender individuals might be able to better understand and accept trans individuals and reduce negative behavioral intentions. Also, the conceptual understanding of gender on a more sociocultural level could realistically shift if it is related to intergroup contact since a larger population of people are openly identifying as transgender (Ghorayshi, 2022). This could have significant implications for gender psychology and sociology as far as how the population more widely experiences and communicates about gender on a day-to-day basis. However, as this

aspect of the study was only correlational in nature, it is important to note that quantity and quality of intergroup contact cannot be assumed as a mechanism of cause for changes in attitudes and beliefs due to the cross-sectional design of the study.

With regard to the results of the mediation analysis, there were no significant direct effects of condition on any form of behavioral intentions. Thus, H1 was not supported. There were also no significant indirect effects through attitudes or belief. Thus, H2 and H3 were not supported, either. Condition had no significant direct effect on either attitude or belief. There were consistent significant associations between attitudes and behavioral intentions, including positive, negative, and public. A higher ATTI score, meaning more positive attitudes towards trans individuals, was associated with higher scores on the positive and supportive public intentions subscales. A higher ATTI score was negatively associated with higher scores on the negative behavioral intentions subscale. The finding here that a more positive attitude towards trans individuals is associated with more positive behavioral intentions is similar to Moss-Racusin & Rabasco's study regarding perceived hireability following IIC. The employers in this study reported having more positive attitudes towards trans individuals and reported being more likely to hire them following imagined intergroup contact (Moss-Racusin & Rabasco, 2018).

Social gender theory belief had no significant direct effects on positive or negative behavioral intentions, but it did have a significant pathway with supportive public intention. This finding is also unique in that no prior research has examined the effect of belief about gender on behavioral intentions towards trans individuals. The supportive public behavioral intentions subscale measure was shorter than the negative and positive subscales with only 5 questions compared to 11, but it had an adequate alpha, so it had internal consistency. The difference of the intentions being public might cause the respondents to report more strongly in comparison to the

other behavioral intention subscales. The positive and negative intentions statements could be understood as intentions for behaviors that would mostly occur between them and one other person. Public support of trans individuals is inherently different than support of just a friend or neighbor in more private interactions. Still, the finding does lack significance regarding direction of effect and causation due to the cross-sectional nature of the design. Further research is needed to examine this relationship between beliefs about gender and behavioral intentions towards gender minorities.

### **Limitations**

One limitation of the study was the sampling strategy. Over half of the participants came from a student pool, which limits the generalizability of the findings. Generalizability is also limited because the demographics were not very diverse; the sample was predominantly non-Hispanic/Latino/a/x, white, cisgender women, and straight/heterosexual. There were only 175 total participants, so the sample size did not meet the amount required to have statistical power (190). Additionally, the measure of gender theory belief was brief and quantitative. A more in-depth exploration of gender theory endorsement would be helpful in the future to assess beliefs about gender more accurately.

The most evident limitation is the method of asynchronous 2-minute imagined intergroup contact. Despite empirical support for IIC as a form of intervention, it does have weaknesses. The original developers of IIC acknowledge this in their original paper, and they suggest that imagined contact may work best if followed by actual contact (Crisp et al., 2009). Therefore, a future direction for this project may be to use both imagined and real contact. Alternatively, it is possible that 2 minutes was too brief for this exercise, or that if the exercise had been conducted in a laboratory rather than on a personal device at home, results could have been different.



## **Conclusions**

While the IIC form of intervention was not supported by this study, there are still implications for intergroup contact as shown through the results of the exploratory measure. Future research examining the role of contact in individual beliefs about gender could be built off of this initial examination. Supportive evidence could have implications for future interventions that lead towards larger acceptance of and less discrimination towards gender minority individuals. Research may also give an insight into shifting perceptions of gender on the whole and inform how things like gender dysphoria are recognized and diagnosed, as well as how gender is experienced and explained in general.

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## Appendix

### Attentive Responsive Scale (ARS-18)

*Instructions: Read each statement carefully and indicate your degree of agreement using the scale below.*

#### Scale Part 1

	Not True at All	Slightly Untrue	Slightly True	True	Very True
I am an active person	0	1	2	3	4
I enjoy the company of my friends	0	1	2	3	4
I don't like being ridiculed or humiliated	0	1	2	3	4
I enjoy relaxing in my free time	0	1	2	3	4
I spend most of my time worrying	0	1	2	3	4
My favorite subject is agronomy	0	1	2	3	4
It frustrates me when people keep me waiting	0	1	2	3	4
I am a very energetic person	0	1	2	3	4
I enjoy the music of Marlene Sandersfield	0	1	2	3	4

#### Scale Part 2

	Not True at All	Slightly Untrue	Slightly True	True	Very True
I have an active lifestyle	0	1	2	3	4
I like to spend time with my friends	0	1	2	3	4
I don't like getting speeding tickets	0	1	2	3	4
In my time off I like to relax	0	1	2	3	4
I worry about things a lot	0	1	2	3	4
It feels good to be appreciated	0	1	2	3	4
It's annoying when people are late	0	1	2	3	4
I have a lot of energy	0	1	2	3	4
I'd rather be hated than loved	0	1	2	3	4

**General Intergroup Contact Quantity and Contact Quality Scale (CQCQ)**

*Instructions: Read each statement carefully and indicate your degree of agreement using the scale below.*

**How much contact would you say you've had with transgender individuals as...**

	None at all (1)	Barely Any (2)	Little (3)	Occasional (4)	Some (5)	Much (6)	A Great Deal (7)
Classmates	1	2	3	4	5	6	7
Neighbors	1	2	3	4	5	6	7
Close friends	1	2	3	4	5	6	7

**How frequently would you say that you have...**

	Never (1)	Rarely (2)	Occasionally (3)	Sometimes (4)	Usually (5)	Often (6)	Very Often (7)
Informally spoken with a transgender person	1	2	3	4	5	6	7
Visited the house of a transgender person	1	2	3	4	5	6	7

**For the following 5 questions, recall your most recent contact with a transgender individual. For you, the contact was perceived as...**

	Definitely Unequal (1)	Unequal (2)	Somewhat Unequal (3)	Neither Equal nor Unequal (4)	Somewhat Equal (5)	Equal (6)	Definitely Equal (7)
Equal	1	2	3	4	5	6	7

	Definitely Involuntary (1)	Involuntary (2)	Somewhat Involuntary (3)	Neither Voluntary nor Involuntary (4)	Somewhat Voluntary (5)	Voluntary (6)	Definitely Voluntary (7)
Voluntary	1	2	3	4	5	6	7

	Definitely Superficial (1)	Superficial (2)	Somewhat Superficial (3)	Neither Intimate nor Superficial (4)	Somewhat Intimate (5)	Intimate (6)	Definitely Intimate (7)
Superficial/ Intimate	1	2	3	4	5	6	7

	Definitely Unpleasant (1)	Unpleasant (2)	Somewhat Unpleasant (3)	Neither Pleasant nor Unpleasant (4)	Somewhat Pleasant (5)	Pleasant (6)	Definitely Pleasant (7)
Pleasant	1	2	3	4	5	6	7

	Definitely Competitive (1)	Competitive (2)	Somewhat Competitive (3)	Neither Competitive nor Cooperative (4)	Somewhat Cooperative (5)	Cooperative (6)	Cooperative (7)
Competitive/ Cooperative	1	2	3	4	5	6	7



### Attitudes Towards Transgender Individuals (ATTI) Scale

*Instructions: Read each statement carefully and indicate your degree of agreement using the scale below.*

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
It would be beneficial to society to recognize transgenderism as normal	1	2	3	4	5
Transgender individuals should not be allowed to work with children	1	2	3	4	5
Transgenderism is immoral	1	2	3	4	5
All transgender bars should be closed down	1	2	3	4	5
Transgender individuals are a viable part of our society	1	2	3	4	5
Transgenderism is a sin	1	2	3	4	5
Transgenderism endangers the institution of the family	1	2	3	4	5
Transgender individuals should be accepted completely into our society	1	2	3	4	5
Transgender individuals should be barred from the teaching profession	1	2	3	4	5
There should be no restrictions on transgenderism	1	2	3	4	5
I avoid transgender individuals whenever possible	1	2	3	4	5
I would feel comfortable working closely with a transgender individual	1	2	3	4	5
I would enjoy attending social functions at which transgender individuals were present	1	2	3	4	5
I would feel comfortable if I learned that my neighbor was a transgender individual	1	2	3	4	5
Transgender individuals should not be allowed to cross dress in public	1	2	3	4	5
I would like to have friends who are transgender individuals	1	2	3	4	5

I would feel comfortable if I learned that my best friend was a transgender individual	1	2	3	4	5
I would feel uncomfortable if a close family member became romantically involved with a transgender individual	1	2	3	4	5
Transgender individuals are really just sexual minorities “in the closet”	1	2	3	4	5
Romantic partners of transgender individuals should seek psychological treatment	1	2	3	4	5

### Gender Theory Questionnaire (GTQ)

*Instructions: Read each statement carefully and indicate your degree of agreement using the scale below.*

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
To a large extent, a person's gender biologically determines his or her abilities and traits	1	2	3	4	5	6
When men and women differ in some way, it is likely that the difference is due to biological factors	1	2	3	4	5	6
The properties of gender are constructed totally for economic, political, and social reasons	1	2	3	4	5	6
If social situations change, the characteristics we attribute to gender categories will change as well	1	2	3	4	5	6
Gender is not set in stone and can be changed	1	2	3	4	5	6
Gender is a result of "nurture" more than "nature"	1	2	3	4	5	6
A person's gender has more to do with a person's social environment than with an individual's disposition	1	2	3	4	5	6
Gender is more directly linked to biology than to the way a person is socialized	1	2	3	4	5	6
People's displays of gender behaviors are based more on biological factors than on the social climate	1	2	3	4	5	6

### Behavioral Intentions Subscales

*Instructions: Read each statement carefully and indicate your degree of agreement using the scale below.*

#### Factor 1: Negative Intentions

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I would not live in same neighborhood as a trans person	1	2	3	4	5	6
I would stop talking to my friend if they came out as trans	1	2	3	4	5	6
I would excuse myself if a trans person entered room	1	2	3	4	5	6
I would refuse to engage in conversations with trans people	1	2	3	4	5	6
I would not want to join a sports team with a member who identifies as trans	1	2	3	4	5	6
I would not sit next to a trans person on the bus	1	2	3	4	5	6
I would not take a class with a trans professor	1	2	3	4	5	6
I would stop hanging out with my friend if I found out they were trans	1	2	3	4	5	6
I would not use the locker room with a trans person	1	2	3	4	5	6
I would refuse to befriend a trans person	1	2	3	4	5	6
I would change the topic if trans lifestyle came up	1	2	3	4	5	6

#### Factor 2: Positive Intentions

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I think families should show support for their children if they identify as trans	1	2	3	4	5	6

I think people should have right to love whomever regardless of their gender identity status	1	2	3	4	5	6
I think it should be important to teach children and students positive attitudes towards trans people	1	2	3	4	5	6
I would stick up for a trans person being bullied	1	2	3	4	5	6
I would vote for marriage equality for trans people	1	2	3	4	5	6
I would vote for a politician who is trans	1	2	3	4	5	6
I would consider myself self-accepting of trans	1	2	3	4	5	6
I would be comfortable being supervised by a trans person	1	2	3	4	5	6
I would be open to learning about sexual minority experiences from someone who is trans	1	2	3	4	5	6
I would be comfortable being identified as an ally to trans people	1	2	3	4	5	6
I would hug someone who identifies as trans	1	2	3	4	5	6

Factor 4: Supportive Public Intentions

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I would display a bumper sticker to support trans people	1	2	3	4	5	6
I would attend a seminar on trans issues	1	2	3	4	5	6
I would attend a parade supporting trans rights	1	2	3	4	5	6
I would not want a roommate who is trans	1	2	3	4	5	6
I would request to be moved to different room if I was roomed with a trans person	1	2	3	4	5	6