INVESTIGATING THE VALIDITY OF IMPLICT MEASURES OF EMPATHY IN A RACIAL INTERGROUP CONTEXT

JAELON LEID-BAILEY

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ABSTRACT

In this thesis, I examine implicit measures of empathy towards members of both the racial in-group and racial out-group. In study 1, McMaster students completed the Intergroup Emotional Go/No-Go Task to measure affective empathy towards racial in-group and racial out-group faces. Although, there was a significant effect of emotion, there was no significant effect of racial group suggesting that participants either showed similar levels of affective empathy towards both racial in-group and racial out-group members, or the Intergroup Emotional Go/NoGo task was not sensitive enough to detect the intergroup effect on affective empathy. In study 2, McMaster students completed the Intergroup Empathy Selection Task to measure motivation to engage in cognitive empathy towards both racial in-group and racial out-group faces. White participants were equally likely to empathize with faces that resembled their racial out-group compared to their racial in-group. However, Asian participants were significantly more likely to empathize with faces that resembled their racial in-group than their racial out-group. These findings provide insight into potential implicit measures of both affective and cognitive empathy, as well as reinforce our current understanding of how intergroup dynamics effect empathy.

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Introduction

Race Relations

"Treat others the way you want to be treated," is one of the few universal principles of humanity. This, 'Golden Rule' is the basis for maintaining peace and justice amongst human society by emphasizing the importance of treating others with kindness (Corazzini et. al., 2006). Most people understand that the 'Golden Rule' is a prescription we all ought to live by. When participants are tasked with either accepting or rejecting a cash split proposal from another participant, they accept a cash split proposal that is in line with what they would propose themselves 93% of the time, suggesting that people will accept treatment from others, so long as it is in line with how they would treat others. However, when participants believe that the other party would not observe their decision, this drops to 73% (Costa-Gomes et. al., 2019). Thus, while we understand that we should behave in accordance with the 'Golden Rule' there are situations where we fail to live by that code. An immediate social issue regarding a failure in adherence to the golden rule is racial discrimination. 37.5% of Canadians reported experiencing at least one form of discrimination or unfair treatment in 2022 (Statistics Canada https://www160.statcan.gc.ca/good-governance-saine-gouvernance/discrimination-eng.htm, 2022). And in 2021, when asked about their opinion regarding current race relations in Canada, 23% of Canadians reported that current race relations in Canada were 'generally bad'; 6% up from 2019 (Race relations in Canada 2021). From the statistics it appears we are failing to treat others with the same dignity that we would want for ourselves. So, why are we struggling with the 'golden rule'? Perhaps the issue is the 'golden rule' itself. Maybe this 'golden rule' is missing something that is imperative to motivating people to treat others with kindness. One big thing it

is missing is the ‘other’. “Treat OTHERS the way YOU want to be treated,” we can see the limit in the rule itself. You and the other are not the same person, in fact, you’re totally different.

Intergroup Factors

Social Identity Theory (SIT) proposed by Henri Tajfel and John Turner (1979) suggests that an individual, “derives a portion of their self-concept from their membership in social groups.” Essentially, our self-esteem is intertwined with the group with which we associate. Part of improving and maintaining our self-esteem requires a component known as positive distinctiveness, which refers to our desire to be perceived positively and different from others. Thus, a group under one social identity, may discriminate against another group of a different social identity to maintain their self-esteem. This in-group vs. out-group dynamic, which I will continue to refer to as “intergroup dynamic,” has been researched extensively. The most famous example of the intergroup dynamic is the Robbers Cave Experiment conducted by Sherif et. al. (1961). Twenty-two boys aged 11-12 years old were selected to go on a 3-week summer camp and were split into two groups: The Eagles and the Rattlers. These groups would compete against each other in a series of activities during their stay at the summer camp. As a result, hostility between the groups grew and the groups became physically and verbally aggressive towards each other. When the groups were asked to describe each other, the children associated positive characteristics with their own group, and negative characteristics with the other group. It is hypothesized that this phenomenon contributes to our everyday social interactions. Race is an example of a socially constructed group categorization, and therefore, the intergroup dynamic may naturally occur with regards to race. In the U.S., the Census Bureau projects that racial minorities will make up over 50% of the U.S. population by 2042 (as cited in Craig & Richeson, 2014). Craig and Richeson (2014) found that when White Americans are informed of the

growing minority population, they expressed more negative attitudes towards minorities, while also expressing more pro-in-group bias. Essentially, the growing minority population triggers a more salient out-group categorization, as it appears white Americans perceive this growth as a threat to the white majority's social status. Additionally, Conley and colleagues, (2010) primed white and black participants using either the highly sensationalized O.J. Simpson murder trial (divisive), or the Bill Cosby trial (non-divisive/control). The O.J. Simpson trial was a divisive murder trial because this trial had a Black vs. White sub-context. O.J. Simpson, a Black man, was acquitted for the murder of his ex-wife Nicole Brown Simpson, a White woman. The systemic racism and corruption of the legal system in which wealthy white offenders received lighter sentences compared to poorer black offenders caused a sentiment of retribution amongst Black participants, while white participants felt the trial was an example of injustice. The Bill Cosby trial, however, did not have any black vs. white sub-context and thus, did not produce this same divisive effect. Afterwards, participants completed a plane survival task in either same ethnicity, or different ethnicity pairs. In the O.J. Simpson trial (divisive) condition, different ethnicity pairs reported lower likeability scores, lower perceived consensus, and lower similarity regarding their partner compared to the Bill Cosby trial (non-divisive) control. On the other hand, same ethnicity pairs reported even greater likability, perceived consensus, and similarity compared to the Bill Cosby trial (non-divisive) control. Thus, upon making race a salient category, it becomes easy for racial groups to default into, "us vs. them" mindsets, resulting in adverse effects such as lower likeability scores between racial intergroup partnership.

How do we reduce the, "us vs. them," effect? The colourblind theory posits that we ought to avoid making racial distinctions, thereby circumventing the primes employed in the two studies mentioned above (Craig & Richeson, 2014; Conley et. al., 2010). However, multiple

empirical studies suggest that this theory in practice may do more harm than good (APA, 1997; APA Presidential Task Force on Preventing Discrimination and Promoting Diversity, 2012; as cited in Neville et. al., 2013). Researchers suggest that colour-blind theory advocates for the erasure of differential experiences among races and disregards the lack of equal opportunity. Another potential solution examines the 'Shared Reality' theory, a theory that suggests that by having a shared experience with another, that experience is no longer a lone subjective experience, but instead becomes an objective reality (Hardin & Higgins, 1996). By focusing on the superordinate human experience rather than the racial experience, it is thought that perhaps we can prime the racial groups to favour one another, much like how Conley and colleagues, (2010) were able to prime them to disfavour one another. This theory has more merit, for the simple reason that it addresses the major deficiency in intergroup dynamics which the colour-blind theory does not: Empathy.

Empathy

Empathy is the process of perceiving, understanding and even experiencing another's emotional state (Barker, 2008; as cited in Cuff et. al., 2014). Empathy naturally varies from person to person (trait) and from situation to situation (state). Trait empathy refers to empathy as though it were a personality trait, developed through gene and environment interaction, resulting in a baseline level of empathy. State empathy refers to how our empathic processes are affected by situational factors (Tobari & Oshio, 2023). These forms of empathy are distinct, but interact: trait empathy will act as our baseline levels of empathy but, depending on the situation, we may feel more empathy or less empathy. Although trait empathy plays an important role in determining how much empathy we can offer, intergroup interactions are temporary/momentary situations in which one's state level of empathy can vary based on the specific attributes of those

involved. In other words, it appears as though, people have some trait level of empathy, but in situations that prime people to think in terms of ‘us’ and ‘them’, state empathy decreases towards ‘them’ (Tarrant et. al., 2009; as cited in Vanman, 2016).

Empathy is further broken down into two sub-types. The first sub-type is cognitive empathy, which is a slower and more complex process. Cognitive empathy refers to the ability to understand an emotion-provoking stimulus using theory of mind (Blair, 2005; as cited in Cuff et. al., 2014). The second sub-type, affective empathy refers to the mostly automatic experience of emotion that is felt in response to another’s emotional experience (Yu & Chou, 2018). Thus, it may seem intuitive to conclude that to remediate the current decline in current race relations, we ought to focus on improving cognitive empathy, not affective. If there is a lack of understanding towards the other’s experience due to some degree of difficulty or effort, and if we can lower the degree of difficulty or required effort, then people might engage cognitive empathy processes more often. Gamble and colleagues (2023) found a negative correlation between pandemic fatigue from COVID-19 and empathy, arguing that the cognitive load of the pandemic produces state-level variation in one’s empathy. However, most social psychologists agree that although they are separate, cognitive and affective empathy interact with one another during the empathic process (Yu & Chou, 2018). Such interaction was shown by Hudson et. al., (2019), who examined participants that varied in social dominance orientation. Social dominance orientation (SDO) refers to “the extent to which people accept and promote group-based inequality.” Participants who report higher levels of SDO, also report lower levels of both cognitive and affective trait empathy (Hudson et. al., 2019). While state cognitive and state affective empathy have been largely studied within the racial intergroup context, these studies have been done using explicit measures of empathy. Herein lies the issue.

The Present Research

When researching sensitive topics such as empathy, explicit self-report measures suffer a major limitation, that being, we all like to look better than we are, a phenomenon known as social desirability bias (SDB). Empathy is highly associated with many prosocial behaviours, such as willingness to volunteer, motivation to help others in need (Davis (2015); Eisenberg & Miller (1987); Kamas & Preston 2021). As a result, empathic people may be perceived as highly desirable. Thus, participants may be inclined to exaggerate their self-reported levels of empathy because of social desirability bias. Van de Mortel (2008) analyzed fourteen-thousand two-hundred and seventy-five self-report studies and found that forty-three percent of these studies were influenced by SDB. Thus, when accounting for the SDB, we may have a mismatch between self-reported empathy, and the empathy we are aiming to measure. Implicit measures may provide a better measure of how much empathy we feel for the racial out-group. Therefore, this thesis will determine if implicit measures of state cognitive empathy and state affective empathy, can detect the, "us vs. them," effect on empathy. More specifically, across two studies, I examined White, Asian, Black, and Hispanic university students' performance on affective (Study 1) and cognitive (Study 2) empathy tasks when the target was the face of a person of their racial in-group compared to a face of their racial out-group. More specifically, in Study 1 we examined participants' state affective empathy in response to in-group and out-group faces. In Study 2, we examined participants' motivation (state) to engage in cognitive empathy when responding to in-group faces and out-group faces.

Study 1 included White, Asian, Black, and Hispanic university students. Study 2 included only White and Asian university students. Both studies were conducted in the Psychology Building at McMaster University (Hamilton, Ontario, Canada)

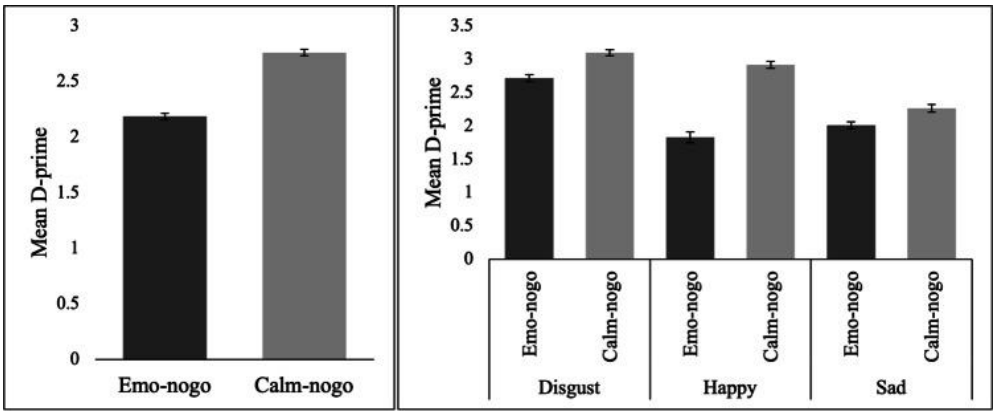
I examined whether participants would empathize with faces of their racial out-group as much as they would empathize with faces of their racial in-group. In accordance with previous literature, I expected that intergroup bias would impact empathy engagement in participants (Levine et. al., 2005; Wilson et. al., 2009; Cuddy et. al., 2007). Specifically, my hypothesis for study 1 was that participants would show more implicit affective empathy towards faces of people who are of their racial in-group compared to faces of people who are of their racial out-group. My hypothesis for study 2 was that participants would be more motivated to engage in cognitive empathy with faces of their racial in-group compared to faces of their racial out-group.

Should these hypotheses be supported, this research may provide evidence for these implicit measures being valid and sensitive methods of measuring state affective empathy (study 1) and motivation to engage in cognitive empathy (study 2). Additionally, such findings may provide a clearer picture of how intergroup dynamics affect state empathy by subverting the social desirability bias (SDB).

Study 1 – Effects of Race on the Emotional Go/NoGo Task

Study 1 examined a potential implicit measure of affective empathy using a modified version of the Emotional Go/NoGo Task. Specifically, I attempted to replicate the findings of Thomson and colleagues' (2022) study and determine if the Emotional Go/NoGo Task could detect a reduction in affective empathy towards the racial out-group. Recall that empathy is the process of perceiving, understanding and even experiencing another's emotional state (Barker, 2008; as cited in Cuff et. al., 2014). Researchers believe that aside from this ability to perceive and experience another's emotion, there is an ability to regulate one's own emotions (Decety, 2010; Schipper & Peterman, 2013; Thompson et al., 2019; Zaki, 2014; as cited in Thompson et. al. 2022). Naturally, the common theory behind this relationship is that there is

some overlap in cognitive processes that underlie both empathy and emotional regulation. Thompson and colleagues, (2022) posited the hypothesis that affective empathy would likely be negatively correlated because the automatic experience of another's emotion, "could interfere with one's ability to engage the…process necessary for emotional regulation" (Thompson et. al., 2022). To test this hypothesis, Thompson and colleagues, (2022) had participants complete the questionnaire of Cognitive and Affective Empathy (QCAE) which is 5-factor, 31-item questionnaire that assesses cognitive and affective empathy. In addition, participants also completed an emotional regulation task called the Emotional Go/NoGo task. In this task, participants are shown images of either an emotional face or a calm face, and must respond to emotional faces (by pressing a key; Go) and withhold their response to calm faces (NoGo), or vice versa. When participants with low emotional regulation are tasked with withholding their response (NoGo) to emotional faces, theory suggests that they are less able to inhibit responding and therefore will exhibit an interference effect comprising more errors (false alarms). Consistent with this prediction, Thompson and colleagues, (2022) found a significant positive association between high false alarm rates during the Emotional Go/NoGo task (i.e., emotional regulation) and trait affective empathy.



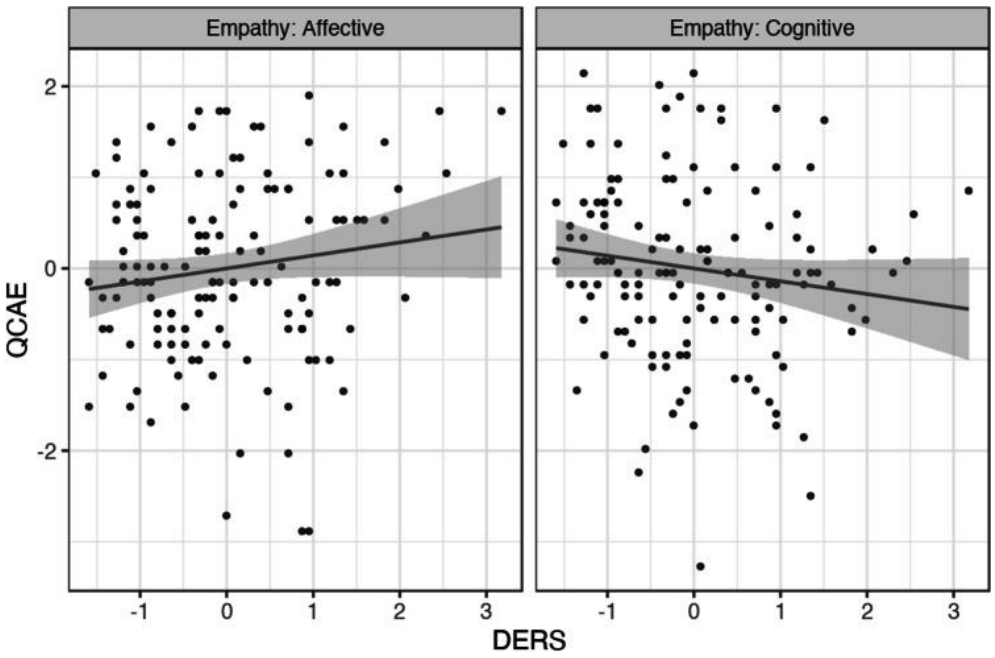


Figure 1. [Top] Mean D-prime of Emotional-NoGo and Calm-NoGo conditions on the left. Mean D-Prime for Emo-NoGo and Calm No-Go for each emotion on the right. [Bottom] Scatterplot showing the relationship between z-transformed cognitive and affective empathy and the Emotional-GoNoGo emotion interference effect. Affective empathy showed a significant positive correlation with the emotion interference effect. Adapted from "Cognitive and Affective Empathy Relate Differentially to Emotion Regulation," by N. Thompson, C. van Reekum, and B. Chakrabarti, 2020, Affective Science, 3, p. 126.

For this study, I used the Emotional Go/NoGo task based on the assumption that it is a potential measure for affective empathy. To examine if the Emotional Go/NoGo task could detect the racial intergroup factors that affect empathy, I incorporated different racialized faces for participants to respond/not respond to. The original finding from Thompson and colleagues' (2022) study was that the interference effect is positively correlated with affective empathy. Previous studies (Tarrant et. al., 2009; as cited in Vanman, 2016) have shown that empathy towards the out-group is reduced compared to empathy towards the in-group. Thus, the hypothesis was that participants will have exhibit less affective empathy to out-group faces, resulting in a reduced interference effect when responding to racial out-group faces in the Emotional Go/NoGo task. Therefore, I predicted there will be an interaction effect as a result of

adding the “Intergroup” manipulation in which we will see the difference between “Emo-nogo” and “Calm-nogo” decrease for the out-group condition relative to the in-group condition.

Methods

Description and Selection of Participants

To achieve 80% power, we aimed to recruit 100 participants with an additional 20 participants to account for any exclusions after data collection. 116 undergraduate students of White (N = 53), East Asian (N = 47), Latino (N = 1), and African American (N = 15) descent from McMaster University (M_{age} = 18.48, *SD* = 2.52) were recruited (99 female, 17 male). 1 student was excluded as they did not complete the task.

Apparatus and Stimuli

The Intergroup Emotional Go/NoGo task was built on PsychoPy (Pierce et. al., 2019). Face stimuli were taken from the RADIATE stimulus set, an open access face stimulus set comprised of 1,721 facial expressions from Black, White, Hispanic, and Asian models. All available faces with a ‘scared’, ‘happy’, and, ‘neutral’, facial expression were used for this study: 10 different East Asian female faces, 8 different East Asian male faces, 21 different Black female faces, 17 different Black male faces, 15 different White female faces, 13 different White male faces, 9 different Hispanic female faces, and 11 different Hispanic male faces. Each face was presented either with a closed-mouth ‘happy expression, a closed-mouthed ‘neutral’ expression, or a closed-mouth ‘scared’ expression. Psychopy uses its own standardized (normal) units for size dimensions to fit according to screen size. The faces were positioned at the center of the monitor and set to be 0.5x0.5 normal units or 480 pixels by 270 pixels.

Procedure

The task would begin with giving the participant instructions on how to complete the task (see appendix B for complete instructions). The Intergroup Emotional Go/NoGo task lasted approximately 30 minutes. This included a practice block comprised of 18 trials (9 male 'scared' faces of participant's racial in-group and 9 female 'scared' faces of participant's in-group), followed by 8 experimental blocks, each comprised of 36 trials. In each block, an equal number of male and female faces were presented (18 male, 18 female). Upon completion of a block, a holding screen was presented until participants pressed a key to continue; the order in which the blocks were completed was randomised. Each experimental block contained the closed-mouthed happy faces of one specific race, paired with the closed-mouthed neutral faces of that same race. The rationale for only using happy and calm faces is that this condition produced the greatest interference effect in Thompson and colleagues' study (2020) (See Figure 1). Therefore, if there is any interaction effect as a result of the 'Intergroup' manipulation, this will be best detected under these conditions. At the start of each block, the participant read instructions (on the monitor) indicating which emotion would be the "GO" stimuli and that they should press the '1' key on the keyboard as quickly as possible when they see this emotion.

Participants were not told which emotion was the "NOGO" stimulus but instead were instructed to respond to the "GO" stimulus and not any other emotion. To induce a prepotent tendency to respond, 75% (27 trials) of the trials in each block were "GO" trials and 25% (9 trials) of the trials in each block were "NOGO" trials. Trial order was pseudorandom and parametrically balanced. This was done to control for the number of "GO" trials that preceded each "NOGO" trial and to make sure "NOGO" trials were distributed equally across early, middle and late stages of a block. Additionally, as the number of GO and NOGO trials were

uneven, the number of male GO/NOGO trials and female GO/NOGO trials were counterbalanced such that in experimental block 1 there would be 13 male GO trials, 14 female Go trials and 5 male NOGO trials and 4 female NOGO trials. In block 2, there would be 14 male GO trials, 13 female GO trials and 4 male NOGO trials and 5 female NOGO trials and so on. Most faces were only presented once per block. However, due to the number of available faces, some faces were presented twice in a block. For example, there were only 8 Asian male faces available with the 'happy' and 'neutral' expression. Thus, to have 27 GO trials of Asian faces (13 male, 14 female) 5 male Asian faces were repeated. Stimuli were presented on the screen for 500ms. A white fixation cross positioned in the middle of the white background was presented during each interstimulus interval (ISI), which was jittered, ranging from 2,000ms to 6,000ms. Following the presentation of the face stimulus was a 2,000ms response window in which responses were recorded. If a participant failed to respond to GO trials within this time window, it would be classed as a 'miss' (see appendix C for example).

Results

Exclusion criteria – Participants with a mean hit rate (HR) or false alarm rate (FAR) that deviated from the group mean by more than 3*SD were removed as outliers. As a result, 1 participant was removed and upon further investigation, it appeared the participant did not follow instructions. Five total blocks were removed as well from 5 participants (1 block per participant) due to large deviation in HR. Upon further investigation, it appears participants misunderstood instructions for that particular block (which emotion they should respond to).

To account for any other potential intergroup factors that may affect performance on the Emotional Go/NoGo task, I examined the effect of gender. Gender, like race, is an example of

socialized group categorization that may produce an in-group vs. out-group effect on affective empathy. The study used a 2 x 2 x 2 within-subjects design in which the independent variables were racial group of face stimulus (in-group/out-group) and gender of the face stimulus (male/female), and the NOGO emotion condition (Emo-nogo/calm-nogo). Therefore, the data were analyzed with a repeated measures ANOVA. The hypothesis is that there is an interaction between NOGO emotion condition and racial group. Tests for homogeneity of variance were done using Bartlett's test in R (K^2 = 5.44, p = 0.61). D-primes were initially calculated manually and were checked using a d-prime calculator (https://camel.psyc.vt.edu/models/dprime/)

The results of the ANOVA are presented in Table 1. In accordance with the previous study, we found the emotion interference effect. The repeated-measures ANOVA found that participants performed significantly better on the Emotional Go/NoGo task when they responded to happy faces than when they responded to calm faces $F(1, 107) = 32.10$, $p < .001$, $d = 0.41$, 95% CI [0.28, 0.54]. Additionally, D-prime was greater when participants were responding to female faces than male faces $F(1, 108) = 4.69$, $p = .03$, $d = 0.18$, 95% CI [0.05, 0.31]. There was also a significant gender x emotion interaction in which the emotional interference effect was reduced when participants were responding to male faces compared to female faces $F(1, 108) = 9.10$, $p = .003$, $d = 0.34$, 95% CI [0.08, 0.60]. However, D-prime was not significantly different when participants responded to faces of their racial out-group relative to faces of their racial in-group $F(1, 107) = 1.96$, $p = .165$, $d = 0.14$, 95% CI [0.01, 0.27] . Finally, Further analysis was conducted upon yielding a significant gender x emotion interaction to determine if the result was due to the discrepancy in male and female participants. There was no significant interaction regarding participant sex and gender of the faces presented $F(1, 107) = 1.20$, $p = .275$ (Table 1; Figure 3). The three-way interaction between participant sex, gender of the faces presented, and

emotion condition was also not significant $F(1, 107) = 0.01$, $p = 0.922$. With regards to the main hypothesis, the group x emotion interaction was not significant $F(1, 108) = 0.078$, $p = .781$ (Table 1; Figure 2).

Table 1

ANOVA table for the Intergroup Emotional Go No Go task. Significant results for Group, Gender, Emotion and Gender x Emotion interaction.

Within Subjects Effects

	Sum of Squares	df	Mean Square	F	p
Group	**1.44583**	1	1.44583	1.95644	0.165
Group ✻ Sex	**0.22360**	1	0.22360	0.30257	0.583
Residual	**79.07412**	107	0.73901		
Gender	**2.47284**	1	2.47284	4.68819	0.033
Gender ✻ Sex	**0.63497**	1	0.63497	1.20382	0.275
Residual	**56.43834**	107	0.52746		
Emotion	**22.38861**	1	22.38861	32.10078	<.001
Emotion ✻ Sex	**0.04218**	1	0.04218	0.06048	0.806
Residual	**74.62688**	107	0.69745		
Group ✻ Gender	**0.98891**	1	0.98891	2.01966	0.158
Group ✻ Gender ✻ Sex	**0.18600**	1	0.18600	0.37988	0.539
Residual	**52.39166**	107	0.48964		
Group ✻ Emotion	**0.06322**	1	0.06322	0.09028	0.764
Group ✻ Emotion ✻ Sex	**0.32300**	1	0.32300	0.46128	0.498
Residual	**74.92357**	107	0.70022		
Gender ✻ Emotion	**3.45462**	1	3.45462	4.58103	0.035
Gender ✻ Emotion ✻ Sex	**0.00732**	1	0.00732	0.00970	0.922
Residual	**80.69026**	107	0.75411		
Group ✻ Gender ✻ Emotion	**2.40070**	1	2.40070	4.03604	0.047
Group ✻ Gender ✻ Emotion ✻ Sex	**2.11442**	1	2.11442	3.55475	0.062
Residual	**63.64531**	107	0.59482		

Note. Type 3 Sums of Squares

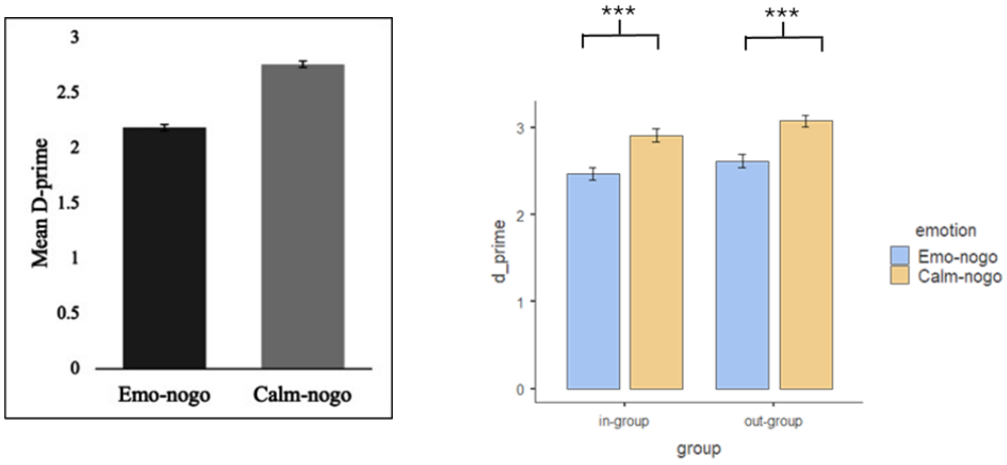


Figure 2. [Left] Mean D-prime of participants on the Emotional Go/NoGo task conducted by Thomspon et. al (2020). [Right]Mean D-prime of White, Black, Asian, and Hispanic participants on the Intergroup Emotional Go/NoGo task when responding to faces of their racial in-group and racial out-group. Error bars represent standard error for each column. Left graph adapted from "Cognitive and Affective Empathy Relate Differentially to Emotion Regulation," by N. Thompson, C. van Reekum, and B. Chakrabarti, 2020, Affective Science, 3, p. 126

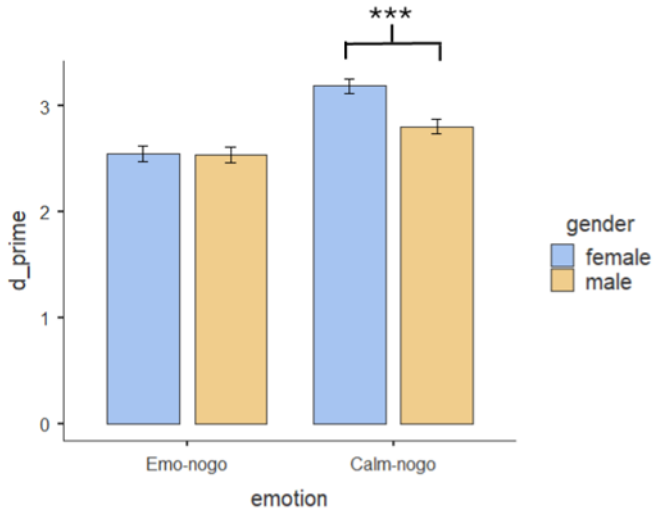


Figure 3. Mean D-prime on the Intergroup Emotional-GoNoGo in the Emo-NoGo condition and Calm-NoGo condition when responding to male and female faces. The Emotional Interference effect is significantly reduced when responding to male faces.

Discussion

We replicated Thompson and colleagues (2022) study's findings that there is a significant emotion interference such that participants had significantly greater D-Prime when calm faces were the NOGO stimuli relative to happy faces. This suggests that our methods were sufficiently sensitive to detect the emotion interference effect. However, we were not able to reject the null hypothesis that racial group has no significant effect on this emotion interference effect. One interesting result that was not expected was the gender x emotion interaction. It appears participants (both male and female) had a more significant emotion interference effect when the faces were female compared to when the faces were male. Initially, this result was thought to be a result of the disparity in the number of male and female participants. However, further analysis suggested that both male and female participants (although there were much less male participants) exhibited this effect. Another possible explanation for this interaction concerns the way emotions were expressed by the male and female subjects in our stimuli. Perhaps the RADIATE stimulus set reflects a social difference in the emotional expressiveness of men and women, which resulted in male faces exhibiting less intense emotional expressions than female faces. Although the RADIATE stimulus set has been validated by previous studies (Conley et. al., 2018; Tottenham et. al., 2009), these validations were done through 'all-or-none' rating procedures. Thus, the intensity of the emotions portrayed by the faces in the RADIATE stimulus set were not examined. It is possible that perhaps the male participants in the stimulus set had a less pronounced smile compared to the female participants and this may have lowered our participants' detection to happy male faces. As a result, not much can be concluded from this study other than the emotion interference effect seems to be strong when participants are required to refrain from responding to a happy face in contrast to a neutral one.

Discussion – Limitations

Participants in this study were McMaster University students. Multiple studies have indicated that education is positively correlated with tolerance of racial out-groups and support for abstract principles of equality (Jackman, 1978; Jackman & Muha, 1984; Schuman et. al., 1997; as cited in Wodtke, 2014). Although, I was able to replicate the original emotion interference effect in these students, the intergroup dynamic may be more difficult to detect in a sample of young university-educated Psychology students compared to the general population. Moreover, there was an uneven number of participants within each racial category and so, it remains unclear if there is a difference in performance between ethnicities in the Intergroup Emotional Go/NoGo task. Additionally, the study was unable to discern true out-group perceptions from the participant. While previous research suggests that, "perceivers differentiate others on the basis of race extremely quickly," this grouping has only been examined in clear two racial groups rather than multiple (Dickter & Bartholow, 2007). Since there were four races studied, it is possible that group membership can be muddied. Perhaps minorities feel more in-group partnership due to some shared experience. There may have also been some top-down expectation as the study was done within-subjects and participants may have caught on to the hypothesis (there was some debrief to see if this was the case and there wasn't evidence of a participant catching on, but not all participants were asked such debriefing questions). This study, however, is also a reaction time type study and so, knowledge of the hypothesis would not necessarily alter their ability to react to emotions within a small timeframe. Also, the effect size may be too small to detect with this measure and the total number of participants who completed the study (N = 119) was not sufficient. Perhaps simply doing two races with clear in-group/out-group membership would make this effect clearer. Also, as mentioned before, there is perhaps the

limitation of the stimulus set used, with the emotions perhaps not being salient enough for participants to respond to.

Study 2 – Effects of Race on the Empathy Selection Task

To continue from my investigation into affective empathy, I also examined how intergroup dynamics affect our motivation to engage in cognitive empathy. Previous literature suggests that cognitive empathy is hard work. When we are given the opportunity to empathize with others, regardless of the affect, we tend to choose not to (Cameron et. al., 2019). Cameron and colleagues, (2019) conducted multiple studies using a paradigm they call, "The Empathy Selection Task." In this task, participants were shown (using a computer program) an image of two decks of cards. At this point, participants had free choice to select a card from either deck. After selecting a card, participants would then be shown an image of an emotional human face and instructions of how they are to respond to that face. Depending on which deck the participant chose, they would receive a different set of instructions. The instructions would be either to 'Describe' the face by objectively focusing on the external features of the face, or to 'Feel' what the face is feeling and empathically focus on the internal experience of the face. The decks were organized so that all the 'Describe' cards would be in one deck and all the 'Feel' cards would be in the other deck. From this task, Cameron and colleagues, (2019) were able to achieve some behavioural evidence for how we generally engage in cognitive empathy. Cameron et. al., predicted that due to the difficulty of engaging in cognitive empathy, participants would avoid selecting the 'Feel' cards and prefer selecting the 'Describe' cards. After conducting this task with 1,204 total participants and manipulating the task in a multitude of ways to investigate confounds such as affect of the face, length of response, labelling the decks vs. unlabelled decks, etc. Cameron and colleagues found that participants selected the 'Feel' cards significantly less

than 50% of the time across all manipulations. Other researchers have also examined the reliability of the Empathy Selection Task and concluded that, “it is comparable or superior to other commonly used experimental tasks with…its ability to consistently rank individuals (Ferguson & Inzlicht, 2023). My goal was to then use this task in the same way I used the Emotional Go/NoGo Task. First, I used the Empathy Selection Task assuming is a potential measure for motivation to engage in cognitive empathy. Second, I wanted to determine if,the Empathy Selection Task could detect a reduction in empathy towards the racial out-group. I therefore replicated one version of Cameron and colleagues’ (2019) study but incorporated different racialized faces for participants to respond/not respond to. My hypothesis was that participants will be more likely to engage in cognitive empathy when viewing faces that belong to their racial in-group compared to faces that belong to their racial out-group. Cameron and colleagues, (2019) created multiple versions of their Empathy Selection Task, altering the design minimally to determine if empathy would still be avoided. I chose to base my experiment on the third version of their study because it was Cameron and colleagues’ most conservative version of the task: Participants who completed this version of the Empathy Selection Task selected the ‘Feel’ cards 41% of the time, which was greater than all other versions of the Empathy Selection Task. This finding is important is because I predicted that participants would select more ‘Feel’ cards when responding to faces of their racial in-group compared to their racial out-group. Therefore, I wanted to use conditions that maximized participants’ motivation to empathize to make it easier to detect any reduction in empathy.

Methods

Description and Selection of Participants

A power analysis indicated that a sample size of 55 participants was sufficient to detect a medium effect with 80% power. We therefore aimed to recruit 70 participants for this study to

account for any potential exclusions. Seventy participants were recruited, but 1 participant was removed from the final data set as they did not complete the entire task. Therefore, the final sample consisted of 69 participants (17 males, 52 females), M_{age} = 18.2 SD = 0.46, all of whom were students from McMaster University. Participants were either of eastern Asian descent (n = 37) or White descent (n = 32).

Design

The Intergroup Empathy Selection Task was built using Superlab 6. Face stimuli were taken from the RADIATE stimulus set and comprised of 27 White faces (13 male, 14 female) displaying an angry expression and 18 Asian faces (8 male, 10 female) also displaying an angry expression. The faces were positioned at the center of the monitor and set to be 480 pixels by 270 pixels. Along with the face stimulus, two images of a deck of cards were displayed (350 pixels by 150 pixels) in the bottom corners of the screen. The task would begin with giving the participant instructions on how to complete the task. The Intergroup Empathy Selection task lasted approximately 40 minutes. Participants were exposed to 60 total experimental trials split up into two blocks (30 trials per block). One block would show faces that were perceived to be of the participant's racial in-group, and the other would be faces of the participant's perceived racial out-group (Only Asian and White faces). As there were only 27 White faces and 18 Asian faces, some faces were presented twice. Trial presentation was pseudorandom such that no face was presented twice in succession. The order in which participant's saw each block was counterbalanced across participants. At the end of each block was a holding screen, informing the participant that they can take a break and that the experiment was over and to inform the experimenter accordingly. Each trial began with displaying a face to the participant along with two decks of cards, one labelled 'Deck A' and the other labelled, 'Deck B.' Participants were

given free choice of the cards and depending on which card they chose, they would get a different set of instructions in regards of how to respond to the face. In the first block, if the participant selected 'Deck A' they would be given "Empathy" instructions, essentially instructing the participant to empathize with the face they see (See Appendix E). If the participant selected from 'Deck B' they would be given "Describe," instructions, essentially instructing the participant to remain objective and describe the facial features of the face they see. In block two the "Empathy" instructions would then be assigned to 'Deck B' and the "Describe" instructions would be assigned to 'Deck A' for counterbalancing purposes. Based on those instructions, participants would then fill in a text box, using only 3 words to either "Empathize," with or "Describe" the face that they see. The keywords were not considered relevant to the final data, it was mainly used as a foil to blind the participant to the true nature of the study. The goal was to see how many cards from each deck the participant chose, and if this number changed when they were looking at faces of their racial in-group compared to when they were looking at faces of their racial out-group.

Data Processing

Data was initially analyzed manually. Superlab produces a raw data .txt file which shows the participants' inputs so I determined the number of times the participant selected the "Empathy" option in each block and compared that number to the total number of trials in that block (30) as a ratio (empathy choice). After having all the participants' empathy choice sorted in this way, the data was analyzed in R via a series of t-tests to compare participants' empathy choice across both in-group and out-group conditions, as well as to compare empathy choice to chance (50%). Additionally, in concordance with Study 1, I wanted to also examine the effect of gender on empathy choice as gender is another group categorization that may produce in-

group/out-group empathy effects. Thus, a repeated-measures ANOVA was conducted to examine any interaction with gender. Bartlett's test for the assumption of homogeneity of variances was conducted (K^2 = 2.18, p = 0.53).

Results

In accordance with Cameron and colleagues' study, (2019), a t-test was conducted across all conditions to determine if empathy choice significantly differed from chance (50%), and more specifically if empathy choice was significantly less than chance. Across all conditions, empathy choice was not significantly less than chance (t(68) = -0.57, p = 0.28). However, upon analyzing each condition, empathy choice was significantly less than chance when participants were responding to male out-group faces (M = 0.44, SD = 0.23), t(68) = -2.08, p = 0.02, d = -0.251, 95% CI [-0.49, -0.01]. Empathy choice was also significantly less than chance when participants were responding to female out-group faces (M = 0.45, SD = 0.22), t(68) = -1.70, p = 0.04, d = -0.20, 95% CI [-0.44, 0.03]. However, empathy choice was not significantly less than chance (50%) for male in-group faces (t(68) = 1.10, p = 0.82), and female in-group faces (t(68) = 1.22, p = 0.87). Overall, I failed to consistently replicate Cameron and colleagues findings that empathy is hard work.

In accordance with our hypothesis, the repeated measures ANOVA revealed a significant main effect of group, with participants selecting from the empathy deck significantly less when responding to faces of their racial out-group compared to when responding to faces of their racial in-group F(1, 68) = 4.40, p = 0.04, d = 0.36, 95% CI [0.12, 0.60]. This analysis also revealed a very large ethnicity x group interaction effect, F(1, 68) = 10.52, p < 0.01, d = -0.14, 95% CI [-0.62, -0.33]. Asian participants, but not White participants selected from the empathy deck far

less when looking at faces of the racial out-group compared to faces of the racial in-group. (See Figure 5).

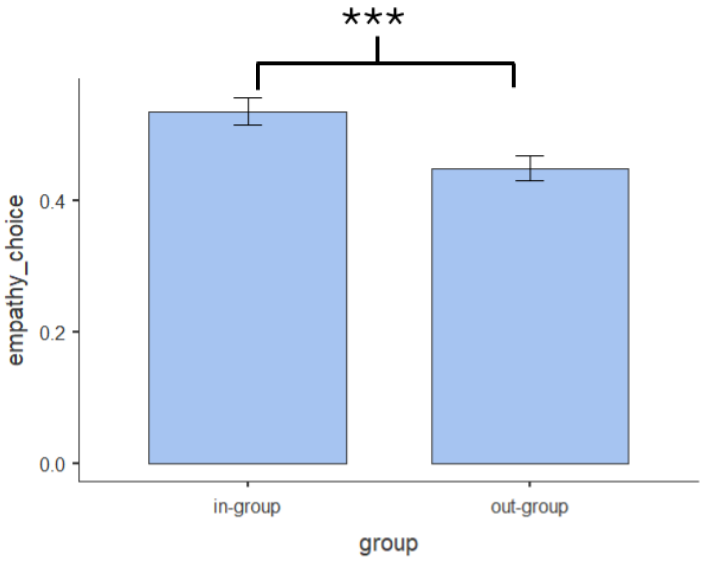


Figure 4. Empathy choice of participants when responding to faces of their racial in-group and faces of their racial out-group respectively. Empathy choice refers to the proportion of trials participants selected from the empathy deck. Error bars represent standard error for each column.

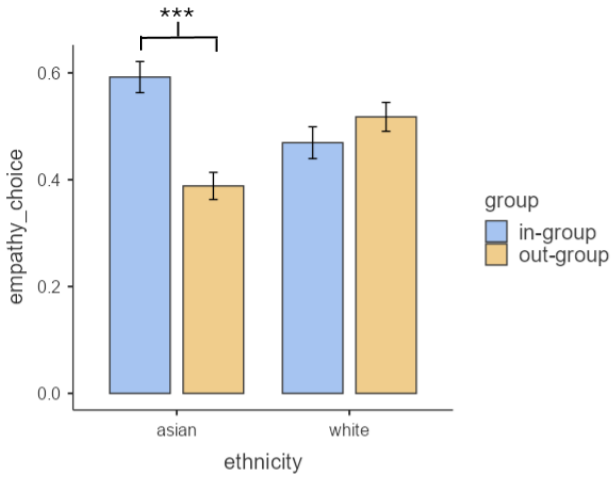


Figure 5. Empathy choice of Asian and White participants when responding to faces of their racial in-group and faces of their racial out-group. Error bars represent standard error for each column.

Discussion

I was unable to consistently replicate the findings of Cameron and colleagues, (2019) that participants choose to empathize significantly less than fifty percent of the time. Participants did

NOT select from the ‘Feel’ deck significantly less than chance in all conditions. This difference in the results obtained in the two studies may reflect differences in experimental participants. My study examined McMaster University students with a mean age of 18.2, which is a significantly younger age pool than Cameron and colleagues, (2019)’s study which varied in mean age across manipulations (34.51 – 40.45). Literature that investigates empathy in aging populations found that older adults (Ages 64-88 years) have lower cognitive empathy than younger adults (18-29 years) (Beadle & de la Vega, 2019). Perhaps due to reduced levels of cognitive empathy, the participants in the Cameron and colleagues, may have been less motivated to engage in cognitive empathy compared to the younger participants in my study. Although the mean age of participants in Cameron and colleagues’, study did not reach this ‘older adult’ category, the age difference between our studies may have some role in the difference in empathy avoidance. Despite not being able to replicate the findings of the Cameron and colleagues, (2019), my prediction and my main hypothesis was supported by the data. Specifically, participants were significantly more likely to select from the ‘Feel’ deck when responding to a face from their racial in-group compared to when they responded to faces from their racial out-group. In other words, participants were more willing to engage in cognitive empathy when it was targeted at a racial in-group face compared to when it was targeted at a racial out-group face. However, what was not predicted was the discrepancy in empathy selection between White and Asian participants. Asian participants were significantly more likely to choose to empathize with their racial in-group compared to their racial out-group, whereas White participants were equally likely to choose to empathize with both their racial in-group and racial out-group. In fact, the difference between Asian participants and White participants was so stark, that the main effect of racial in- vs. out-group was due entirely to Asian.

Discussion – Limitations

Several plausible reasons may explain why I was unable to replicate Cameron and colleagues' (2019) findings. One possibility is that the current sample size was too small. Although, a power analysis was conducted to determine a sufficient sample size for this study, there is a chance that there was some sample bias. A major sample bias that may have occurred is a potential difference in international students between White participants and Asian participants. McMaster University has a large international student pool (17.2%), with majority of that student pool being of Chinese descent (61.5%) (2021-2022 McMaster University Fact Book). China is not racially diverse, with 92% of the population being Han Chinese. Canada, on the other hand, is very racially diverse, with, "1 in 4 people in Canada [being] part of a racialized group" (Statistics Canada, 2022). Therefore, it is possible that Asian participants were more likely to be international students and, in comparison to the Canadian White students, may have come from a less racially diverse population. Research has extensively examined diversity and its effects on intergroup dynamics and shown that participants from a racially diverse community are more accurate in identifying emotion in other races (Zhou et. al., 2022). Another limitation of this study was that the experiment used a within-subjects design. As a result, participants were responding to both conditions (in-group and out-group faces) and therefore, they may have understood that we were expecting some differential response accordingly. Contrary to this hypothesis, participant responses during our debrief suggested that they did not in fact learn the hypothesis, White participants experiencing both conditions may have triggered a not-so-subtle side-effect of "White guilt," which refers to the sense of guilt that White Europeans and White Americans feel as a result of benefitting from illegitimate racial privilege (Iyer et. al., 2003). Iyer et. al., found that "White guilt," was associated with promoting racial policy that would address

the harm done by the in-group (White European/European American against African American). Therefore, perhaps we are seeing a similar phenomenon in this study, where a sense of, “White guilt” is compelling White participants to respond in a more compensatory manner compared to the Asian participants. A follow-up study currently is in progress to address these potential problems. With regard to sampling bias, the follow-up will add of a brief survey to address participants’ exposure to communal diversity throughout their life. In addition, participants will be asked to provide their full postal code to determine their current communal diversity through demographic statistics. In regard to the “White guilt,” problem, a future study could include a measure of “White guilt” (Swim & Miller’s (1999) five-item measure of White guilt) and measure its effect on the Intergroup Empathy Selection Task.

General Discussion

The primary goal of this study was to determine if there were valid, implicit measures of both state cognitive and state affective empathy, and whether these measures were sensitive to racial group effects. Based on previous literature, I hypothesized that the Emotional Go/NoGo task and the Empathy Selection Task were valid implicit measures of state affective empathy (study 1) and motivation to engage in cognitive empathy (study 2) respectively. Therefore, I predicted that both measures would be able to detect the racial intergroup dynamics that affect empathy. In experiment 1, we replicated the emotional interference effect in the Emotional Go/NoGo Task reported by Thompson and colleagues (2022). However, we found no evidence that the emotional interference effect increases or decreases based on the race of the face being presented. Thus, experiment 1 provides further evidence for the Emotional Go/NoGo Task being a valid measure of emotional regulation. However, it remains unclear if the Emotional Go/NoGo Task is a valid measure of empathy rather than just a measure of emotional regulation. In

experiment 2, using an Empathy Selection Task we failed to consistently replicate Cameron and colleagues' (2019) finding that participants selected empathy significantly less than 50% of the time, suggesting that empathy is hard work. This discrepancy may be due to age differences between the samples used in the two studies. Or perhaps, considering the original version of the Empathy Selection Task that was replicated was the most conservative version resulting in participants selecting for empathy 41% of the time (significantly less than 50%, but not by much), my replication may suggest that selecting for empathy under those circumstances is not avoided. In essence, this version of the Empathy Selection Task reduced the required number of words per response and had participants only respond to one affect (anger – negative). As a result, participants were more likely to empathize due to reduced effort and my results simply portray the uncertainty of statistics.

Experiment 2 did find that Asian participants, but not White participants, were significantly more likely to select empathy when viewing a face that was from their racial in-group compared to when viewing faces from their racial out-group. This difference between Asian and White participants may shed some light into a multitude of factors that play into one's motivation to empathize. One, in Canada, it is socially understood that the White majority have some level of privilege attributed to their Whiteness, and that this group has received some benefit due to their race. Meanwhile, racial minorities have continuously been oppressed based on their race. As a result, other races may feel less motivated (or simply unable) to empathize with the White majority considering the dynamic between Oppressed and the Privileged. In addition, "White guilt," may also cause White participants to be more motivated to empathize with every group, including their racial out-group, resulting in this discrepancy between White participants and Asian participants. Regardless, this study provides evidence for a potential valid

implicit measure of state cognitive empathy, and motivation to engage in cognitive empathy that can be used in future research. The impact of being able to rely on implicit measures of empathy rather than self-reported measures may allow researchers to achieve even greater validity in their research pertaining to empathy. Additionally, this research builds upon previous literature suggesting reduced levels of state empathy towards members of the racial out-group, and how this reduced empathy manifests in reduced motivation to empathize with the racial out-group.

Future Directions

Integrating implicit measures of empathy into our research can allow us to examine how these attitudes can manifest. Regarding the limitations of study 1, it remains unclear if the Intergroup Emotional Go/NoGo task can detect the intergroup dynamics involved in affective state empathy. Further research should aim to examine this measure using clearer in-group and out-group categories, perhaps limiting the racial categories to only two. Regarding study 2, the results suggest that there is significant in-group favouritism regarding empathy choice when responding to the racial in-group vs. the racial out-group. However, this was only the case for the Asian participants and not the White participants. This suggests that there may be some factors that moderate this intergroup effect when it comes to one's motivation to engage in cognitive empathy. As already mentioned, "White guilt," and communal diversity are a couple of examples that may have a role in the results of my study. However, future study is required to examine what moderating factors affect this intergroup effect. Such research will help to determine what situational factors may cause someone to be more or less likely to engage in cognitive empathy with someone of a different race.

With respect to situational factors, these measures, especially in the context of intergroup dynamics, are focused on examining state empathy. This research resulted in changes in

performance and thus theoretically empathy by changing the target of the empathic response. These changes in performance can be attributed to minimal changes in situation, by changing the target of the empathic response. Future research can build upon this study by examining if this intergroup effect can be reduced. Additionally, findings from such studies can offer greater validity to these measures, potentially offering some credence to the use of these measures to investigate the efficacy of empathy building workshops. Moreover, further research is required to examine how these internal experiences of empathy may manifest in behaviour. Multiple studies have results that suggest that empathy, in conjunction with some mediating factors, can lead to prosocial behaviour (Pang et. al., 2022; Decety et. al., 2016; Xiao et. al., 2021). While this research offers insight into the internal experience of feeling and understanding of how others feel, it is important to examine if these levels of trait and state empathy, both cognitive and affective, result in changed behaviour.

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Appendices

Appendix A: Images Presented in Study 1

Stimuli Presented in the Intergroup Emotional Go/NoGo Task

Target Concepts

White Scared Faces

Asian Scared Faces

Black Scared Faces

Hispanic Scared Faces

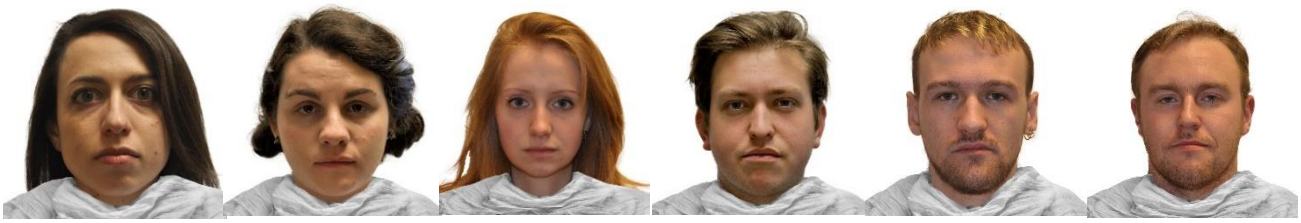
White Happy Faces

Asian Happy Faces

Black Happy Faces

Hispanic Happy Faces

White Calm Faces



Asian Calm Faces

Black Calm Faces

Hispanic Calm Faces

Appendix B: Example of Intergroup Emotional Go/NoGo Instruction (In-Group Male Happy No-Go Condition (White Participant))

Introduction instructions (Example)

"Welcome to the Emotional Go/NoGo Experiment!

Instructions: On each trial, a face displaying an emotional expression will be presented on screen. You must press the '1' key with the index finger of your dominant hand as fast as you can whenever you see a face displaying the target emotional expression. Do NOT press any key when you see a face displaying any other emotion other than the target emotion. At the start of each block, you will be told which emotional expression is the target emotional expression.

Press the '1' key when you are ready to continue!"

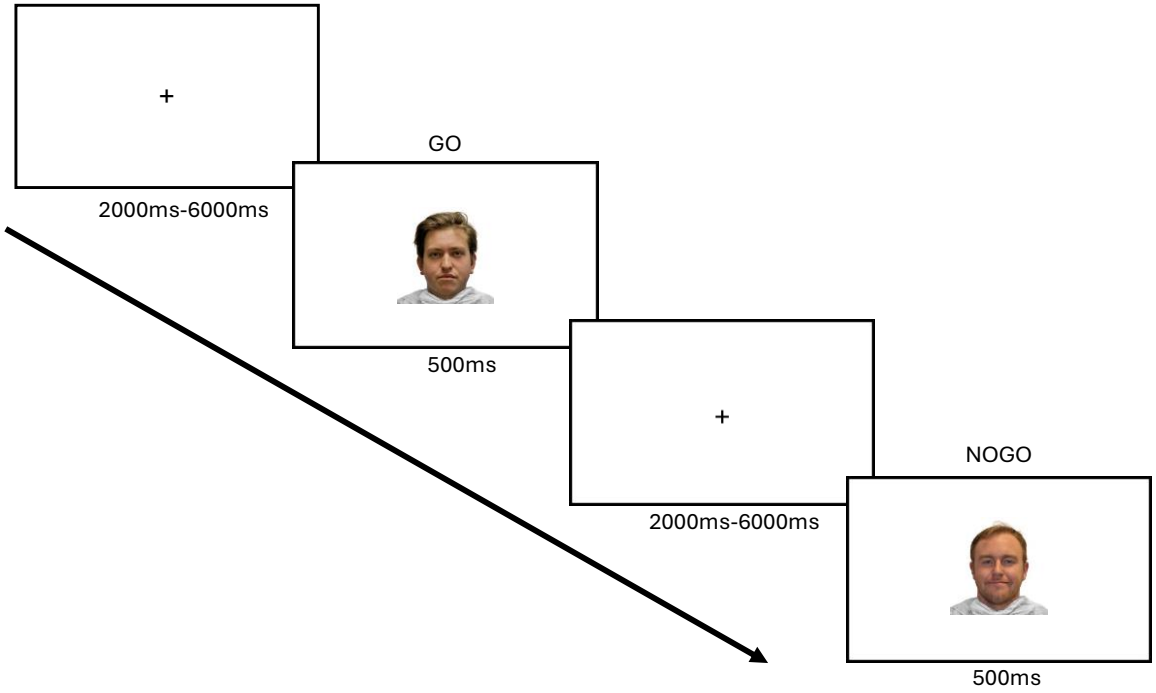
Block instructions (Example)

"Well done! Take a break. Read the instructions below when you are ready.

Instructions: Press the '1' key as fast as you can whenever you see a HAPPY face. Do NOT press for any other faces; only the HAPPY faces.

Press the '1' key to begin!"

Appendix C: Example of Intergroup Emotional Go/NoGo Procedure (In-Group Male Happy No-Go Condition (White Participant))



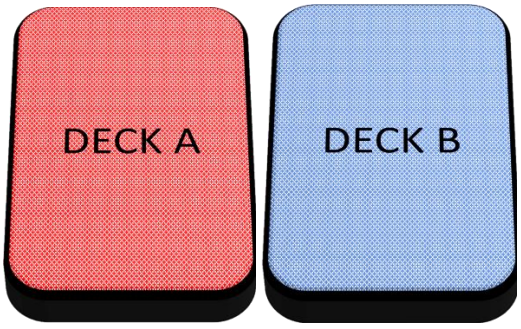
Appendix D: Images Presented in Study 2

Stimuli Presented in the Intergroup Empathy Selection Task

White Faces

Asian Faces

Deck Images

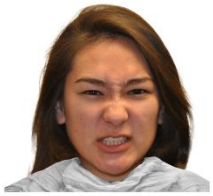


White Face with Instructions (Describe [LEFT] Feel [RIGHT])

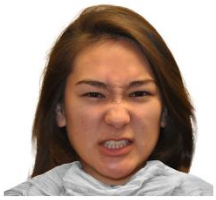
"Look at the person in the picture, and try to identify the emotion of this person. Objectively focus on the external facial expression of this person. Please write 3 keywords describing the objective facial expression of this person."

"Look at the person in the picture, and try to feel what this person feels. Empathically share in the internal emotional experience of this person. Please write 3 keywords describing the subjective emotional experience of this person"

Asian Face with Instructions (Describe [LEFT] Feel [RIGHT])



"Look at the person in the picture, and try to identify the emotion of this person. Objectively focus on the external facial expression of this person. Please write 3 keywords describing the objective facial expression of this person."



"Look at the person in the picture, and try to feel what this person feels. Empathically share in the internal emotional experience of this person. Please write 3 keywords describing the subjective emotional experience of this person"

Appendix E: Example of Intergroup Empathy Selection Task Procedure