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The Relationship between Emotional Competence and Implicit Social Cognition

Krista A. Quinn

Tyndale University

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Dr. Nancy Ross

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Abstract

The contribution of emotional intelligence towards healthy interpersonal interaction has been well documented (Lopes et al., 2004, Lopes et al., 2005, Schutte et al., 2001, Vescio et al., 2003). Presumably, holding implicit bias against others interferes with positive interpersonal interactions with both diverse individuals and diverse communities. This research study addressed the question “Is there a correlation between emotional intelligence and implicit social cognition?” It was hypothesized that individuals with greater levels of emotional intelligence would demonstrate less implicit bias against Black people, women, and homosexuals. To test this hypothesis, participants completed measures of their emotional intelligence and implicit bias. As hypothesized, the results indicated that emotional intelligence was negatively correlated with implicit race bias. However, the results indicated that only interpersonal emotional intelligence is correlated with implicit gender bias, and implicit sexuality bias was not correlated with emotional intelligence at all. Further research is required in order to understand whether there is a causal relationship between emotional intelligence and implicit bias.

The Relationship between Emotional Competence and Implicit Social Cognition

In the past, the concepts of feeling and thinking have been considered separate from one another because of their distinct classifications (Forgas, 2000). However, in more recent years, psychologists have recognized there is an interaction between affect and cognition (Oatley & Jenkins, 1992), and it has become clear that emotions affect a person's thought processes and vice versa (Forgas, 2000). The focus of this study is to expand understanding of the relationship between emotional intelligence and implicit social cognition. This study addressed the question: Is there a correlation between emotional intelligence and implicit social cognition?

Emotional Intelligence

Emotional intelligence (EI) can be defined by two dimensions: being able to effectively interact with one's own emotions, and being able to effectively interact with others' emotions (Brasseur et al., 2013). Emotional intelligence has an impact on many aspects of life, including psychological well-being, physical health, social relationships, and professional success; individuals who have higher emotional intelligence are found to have greater success in these areas (Brasseur et al., 2013). Since EI has an important influence in multiple areas, many researchers have studied and debated the ways in which it should be measured (Bar-On 1997; Mayer et al., 2004; Mikolajczak, 2009; Salovey & Mayer, 1995; Salovey & Mayer, 1997). The discussion of how EI should be measured centres around whether EI should be conceptualized as a trait or an ability (Petrides & Furnham, 2001).

In 1990, Salovey and Mayer proposed the first theoretical understanding of EI. Their first theory included factors such as flexibility and motivation, which had previously been considered concepts outside of intelligence (Petrides & Furnham, 2001). By 1997, Salovey and Mayer had

revised their theory to be based on abilities in emotional and cognitive terms (Petrides & Furnham, 2001). Subsequently, during the end of the 20th century and the beginning of the 21st century, many personality and social psychologists began to develop their own measurement tools based on how they believed EI should be conceptualized (Petrides & Furnham, 2001). There is still no consensus today. Some believe EI is trait-based and thus stable over a person's lifetime (Bar-On 1997; Salovey & Mayer, 1995); some believe it to be ability-based and that it can change for an individual (Mayer et al., 2004; Śmieja et al., 2014); others believe it is a mixture of a trait and ability (Mikołajczak, 2009). Typically, those who believe that EI is trait-based would measure EI with a self-report method based on tendencies, while those who believe that EI is ability-based would measure EI with something similar to other intelligence tests based in right and wrong answers; thus, the measurement type used often reflects the conceptualization of EI upon which the tool is based (Petrides & Furnham, 2001). However, this is not always the case. For example, the Profile of Emotional Competence (PEC), which will be explored later, is based on a trait *and* ability theory of EI, but uses a self-report method.

Trait Theory

The primary foundation for trait EI is that peoples' beliefs about their feelings are what should be measured, instead of the feelings themselves (Petrides & Mavrovel, 2018). Thus, instead of testing skills and abilities, proponents of trait EI development ask questions about individuals' emotional perceptions that have more to do with their personality, than the skills they possess (Petrides & Mavrovel, 2018). Furthermore, Petrides et al. (2016) explained that trait EI theorists believe that trait EI is a stable and consistent predictor of personality and behaviour for the duration of a person's life.

Many who endorse trait EI argue that ability EI, which focuses on cognitive abilities, cannot be an accurate form of measurement of EI since emotional experiences are subjective (Petrides & Mavrovel, 2018). Therefore, trait EI theorists believe that ability EI measurements cannot be accurately scored, and even if they are scored, the results are not interpretable (Petrides & Mavrovel, 2018). Psychologists who endorse trait EI think that ability EI theorists have relabelled personality traits as cognitive abilities (Petrides & Mavrovel, 2018).

Trait EI tests are consistently created as self-report questionnaires and rating scales (Petrides et al., 2007). One of the first measurements was the Trait Meta-Mood Scale (TMMS), developed by Salovey and Mayer (1995). They established the first theory of EI and developed the TMMS, which was used to measure people's *tendencies* in how they perceived, understood, and regulated emotions (Salovey et al., 1995). The TMMS had 48 items that measured attention to emotions, clarity of emotions, and repair of emotions, all on a five-point Likert scale. Each of the three domains was found to have good internal reliability (Salovey et al., 1995). The TMMS was used by Fitness and Curtis (2005) to study the relationships between emotional intelligence and empathy, attributional complexity, and self-control. They found that empathy, attributional complexity, and self-control were all positively correlated with EI, and that EI scores were negatively correlated with flawed reactions to interpersonal conflict (Fitness & Curtis, 2005). Particularly of note is the positive relationship between EI and attributional complexity, which is the level of complexity that individuals attribute to others' behaviours. Specifically, attributional complexity was related to the "attention to emotions" component of EI. Thus, those who are more likely to consider the causes of others' behaviours to be complex are also more likely to pay attention to inner feelings and emotional states.

Another well-known measurement of trait EI is the Emotional Quotient Inventory (EQ-i) which was developed by Bar-On (1997). The EQ-i is considered unique because it does not measure successful understanding and management of emotions, but measures future success in this area (De Weerdts & Rossi, 2012). The EQ-i was found to have good internal reliability, with an average internal consistency coefficient of 0.76 (Bar-On, 1997). In Bar-On's development of his theory of EI, he recognized a relationship between emotional intelligence and positive psychology (Bar-On, 2010). Positive psychology involves the study of strengths that aid a person in prospering in their lives (Bar-On, 2010). Some of the factors that positive psychologists study include forgiveness, altruism, and compassion (Gable & Haidt, 2005); each of which is involved in social interaction. Bar-On (2010) identified that EI has a significant impact on human performance, happiness, well-being, and search for meaning in life. Thus, if EI affects all these areas, and is indeed related to positive psychology, then it may also be related to factors like forgiveness, altruism, and compassion.

Trait emotional intelligence measurement tools are valuable, as they consider the subjective yet stable nature of one's experiences with one's own emotions (Petrides et al., 2016). Furthermore, reliable and valid methods have been developed to test trait EI by Salovey & Mayer (1995) and Bar-On (1997), and also involve objective criteria (Mikolajczak, 2009).

Ability Theory

Ability emotional intelligence "includes the abilities to accurately perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth" (Mayer & Salovey, 1997, p.5). Salovey and Mayer (1990) originally proposed a model

that was based on traits, but later arrived at the above definition as an explanation for EI. Therefore, they decided a four-branch model based on abilities was better suited to explain EI (Mayer et al., 2004). This model included the following abilities: perceiving emotions, using emotions to assist cognition, understanding emotions, and managing emotions.

Advocates of ability EI measurements regard trait EI measurements as inaccurate since they rely on self-reports, which are often susceptible to the influence of social desirability or purposeful distortion (Mikolajczak, 2009). Furthermore, ability EI theorists argue that trait EI theories and measurements do not accurately conceptualize emotional intelligence and “fail to map onto the term emotional intelligence” (Mayer et al., 2004, p. 197). Mayer et al. (2004) stated that even some trait EI theorists, such as Bar-On (2000), recognized that their tools measured more than just EI. On the other hand, proponents of ability EI, like Mayer et al. (2004), believe that their theory of ability EI is akin to general intelligence and therefore can be properly measured like any other intelligence; it can be operationalized, it has closely related abilities with correlations similar to other intelligences, and it should improve as an individual develops into an adult.

In regards to testing ability emotional intelligence, although trait EI theorists argue there cannot be “right” and “wrong” answers to questions about emotions, ability EI theorists considered the possibility that objective answers were possible (Mayer et al, 1999). They believed that by using a method of consensus, evaluations by experts, or a combination of both, optimal answers that are more correct than others can be identified. Thus, they developed first the Multifactor Emotional Intelligence Scale (MEIS) (Mayer et al., 1999), and then the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (Mayer et al., 2002). Mayer et al.

(1999) established that ability EI meets the aforementioned standards to be considered an intelligence through the MEIS, but developed their ideas and model further in the MSCEIT (Mayer et al., 2002).

The MSCEIT measures all four branches of the model that Mayer et al. (2004) developed through eight different tasks. It has been found to have a high level of reliability (Matthews et al., 2002). Furthermore, though it involves four different abilities, it has one-factor solutions, meaning it can be considered a unified skill. However, four-factor solutions also indicate that the four branches are distinct (Mayer et al., 2004). As previously stated, the MSCEIT tests an individual's capabilities in emotion perception, using emotions to assist cognition, understanding emotions, and emotion regulation. Lopes et al. (2005) discovered that emotion regulation, as measured by the MSCEIT, corresponded with interpersonal sensitivity and prosocial tendencies. Lopes et al. (2005) inferred that though they cannot assume causality based on their findings, it is possible that teaching people better emotion regulation could improve their social interactions.

Another ability measure of EI is the Test of Emotional Intelligence (TIE), which is also based on the four-branch model of Mayer et al. (2004). The TIE was developed by Śmieja et al. (2014) as they desired to create an ability measure that assessed EI abilities instead of beliefs, that was ecologically valid, and that was based on the scoring of experts. The average reliability of the TIE was 0.88, which is a good level of internal consistency (Śmieja et al., 2014). Their ability EI measurement was also found to be independent of personality traits, as analyzed in comparison to the Neuroticism Extraversion Openness-Five Factor Inventory (NEO-FFI). They argued that this demonstrated that the TIE is unique from trait EI tests (Śmieja et al., 2014) and could be considered a valid alternative to the MSCEIT.

Both the MSCEIT and TIE are reliable measures of ability EI and are more accurate at measuring emotional intelligence as a literal type of intelligence that meets the standards of intelligences. However, many appreciate the perspectives of both trait and ability EI advocates, and so it is valuable to consider an option that incorporates the strengths of both views.

Trait and Ability Theory

It has been demonstrated that both trait and ability emotional intelligence measures have strengths and weaknesses. Trait EI measures have been considered inaccurate by ability EI supporters, yet they reflect the subjective and stable nature of individuals' perceptions of their own emotional intelligence. Additionally, they may not be as inaccurate as other self-report measures, because trait EI relates to external objective criteria, such as neurobiological correlates and work-performance (Mikolajczak, 2009). Ability EI measures have been criticized for their inability to determine objective questions and answers related to EI, yet they have proven capable of doing so and remain valid measures of EI (Mayer et al., 2004). Arguably, both perspectives have value and contribute to the ongoing research into emotional intelligence.

Mikolajczak (2009) proposed a tripartite model that incorporated both trait and ability EI as separate concepts in relation to one another. Her model includes three parts: knowledge, abilities, and dispositions. These three concepts are related to one another, yet are distinct. Each concept does not necessarily translate into one another, as demonstrated by Lumley et al. (2005). This means that someone, for example, could have the knowledge necessary for managing their own emotions, but not put it into practice. It is a model that is in a hierarchical structure, with knowledge as the base and which must be present for skills and abilities to be practiced, and skills and abilities must be there for a consistent disposition to be developed (Mikolajczak,

2009). This is also a logical structure for the development of emotional intelligence. A benefit of this model is that it includes components of both trait and ability EI theories and can remove some of the confusion between the two spheres of thought.

There is also evidence to support the idea that EI knowledge can be taught and EI skills can be developed. Nelis et al. (2011) found that an intervention consisting of 18 hours of EI training significantly improved participants' EI. The training involved lectures, group discussions, and role-playing activities. The initial 18 hours were followed by emails to remind participants of what they had learned and provided practical exercises to maintain their progress. Participant's EI increases remained stable over a six-month period.

This theory of EI is arguably superior to trait EI theory, which does not allow for consideration of how people can become more emotionally intelligent as they mature, as well as to ability EI theory, which does not recognize the subjectivity of peoples' emotional experiences. The three part model is a promising theory of EI as it adequately explains both individual differences in trait EI, as well as how everyone is able to practice and grow in their EI ability. People are born with different, innate levels of EI; some individuals are naturally more in tune to their own, and others, emotions. Yet everyone, no matter what level of natural EI they are born with, have the potential to grow and increase their EI. Proponents of the tripartite model recognize this and have worked to develop a measurement that corresponds.

The Profile of Emotional Competence. The Profile of Emotional Competence (PEC) was developed by Brasseur et al. (2013). Mikolajczak (2009), who created the three-level model of EI, was also part of establishing the PEC. The PEC focuses on the trait level of the three-level

model, but also recognizes the growth aspect of the ability level. Brassler et al. (2013) used the term “competence” because they believed that competencies can be taught and improved upon.

The PEC was used by Nozaki (2015), who noted that positive relationships with others necessitate interpersonal emotional competence (EC), and studied the correlation between EC and extrinsic emotional regulation of ostracized persons. Extrinsic emotional regulation entails altering the emotional state of other individuals, and Nozaki (2015) studied whether participants attempted to improve the psychological state of confederates who were being “ignored” while playing a virtual game. Nozaki (2015) found that participants with better EC were more willing to attempt to relieve the discomfort of an ostracized person. The PEC was used to measure emotional intelligence in the present study, and the author will be using the phrases “emotional intelligence” and “emotional competence” interchangeably.

Implicit Social Cognition

Social cognition involves the ways people interpret and interact with others (Frith, 2008), and this research specifically involved implicit social cognition. Implicit social cognition pertains to cognitive processes that affect an individual’s social interactions without their awareness of the influences; these processes are related to constructs such as attitudes and stereotypes (Greenwald & Banaji, 1995). People consistently are influenced by attitudes, stereotypes, and biases that are based on social attributes like race, gender, or sexuality, which lead to unfair judgements founded on irrelevant information (Yamaguchi & Beattie, 2019). When these biases are implicit, they are even more dangerous; if someone is unaware of their implicit biases, they can do nothing to assess their effect and rectify them. The following section will focus on discussing the implicit attitudes, stereotypes, and biases individuals can hold.

Implicit Attitudes

An attitude can be defined as “a predisposition to experience, to be motivated by, and to act toward, a class of objects in a predictable manner” (Smith, Bruner, & White, 1956, p. 33). Thus, an implicit attitude causes someone to have a predisposition to act a certain way towards something, often someone, without even realizing why. These attitudes can have a large effect on individuals’ actions without their awareness (Greenwald & Benaji, 1995).

An example of an implicit attitude is the “halo effect” (Greenwald & Benahi, 1995). The halo effect was originally named by Thorndike (1920). The halo effect occurs when an individual is seen to have more positive attributes than they actually have because of the positive attributes they possess (Thorndike, 1920). For example, an attractive girl would be seen as kinder and happier than a less attractive girl, even if she is not any kinder or happier than the girl who is less attractive. Usually, it is positive physical characteristics that lead to the inaccurate assumption that the person has other positive attributes (Greenwald & Benaji, 1995). The concept of the halo effect was confirmed by Dion et al. (1972). These researchers demonstrated that attractive people were rated to be kinder, more engaging, more social, and happier. Thus, people hold implicit attitudes that attractive people have more positive characteristics.

The “mere exposure” effect is another example of an implicit attitude; Zajonc (1968) noted that there is a correlation between the number of times someone encounters an object and how much they like it. Bornstein and D'Agostino (1992) recognized that the mere exposure effect was due to an implicit attitude when they determined that people misattributed their easy recognition of a stimulus as liking the stimulus. This principle can be applied to individuals; if someone consistently spends time with people of a specific race, gender, or sexuality, then they

may not feel the same automatic liking for people that are different from those they normally spend time with. This inference is supported by the phenomenon of the own-race-bias (ORB). The ORB is the tendency for people to more easily recognize and distinguish between faces of their own race than those of other races (Slone et al., 2000). Furthermore, Brigham (1993) found that individuals with greater levels of prejudice have fewer interracial interactions than individuals with less prejudice. Thus, it is possible that people have more implicit positive attitudes about their own race, in part because they spend more time with people of their own race.

Implicit Stereotypes

Stereotypes are different from attitudes, although both are beliefs about an individual's characteristics: a stereotype is defined as "a socially shared set of beliefs about traits that are characteristic of members of a social category. Whereas an attitude implies a consistent evaluative response to its object, a stereotype may encompass beliefs with widely diverging evaluative implications" (Greenwald & Benaji, 1995, p.14). Like attitudes, stereotypes can be implicit. Implicit stereotypes occur when former encounters with a subject affect future judgements of the same subject without identifying the reason why. Stereotypes can lead to inaccurate conclusions and potentially negative results when the individual is unaware of why they came to those conclusions (Greenwald & Benaji, 1995).

Studies of common stereotypes include beliefs about race, gender, and sexuality — the same topics the author will be studying in their research on implicit social cognition. In one study by Devine (1989), a group of White participants was presented with words that were typically associated with Black Americans, among a series of other words that they were asked

to study. Devine (1989) discovered that in a second task that was irrelevant to the first part of the study, the greater the percentage of words associated with Black Americans in the previously presented list, the greater the level of hostility noted by the participants, as they rated a male of unspecified-race. This suggested the priming for participants to think about Black Americans activated racial stereotyping; even when the subjects said they did not believe the two tasks were related, they implicitly related Black American-related stimuli with hostility (Devine, 1989). The particular stereotype that Black people are more violent has especially negative consequences because it contributes to what is termed “Shooter Bias” (Correll et al., 2002). Correll et al., (2002) performed four studies wherein participants played a videogame and were asked to shoot armed targets. They found that participants shot Black targets more quickly and more often than other targets, implying they thought Black targets were more likely to be armed and violent, even if it was an implicit bias.

In regards to research on gender stereotyping, Goldberg (1968) found that people regarded essays more positively if they believed it was written by a man, rather than a woman. This finding could illustrate a stereotype that men are frequently deemed as more successful than women (Greenwald & Benaji, 1995). In support of this hypothesis, Leben et al. (2001) learned that children consider typically masculine jobs to have a higher status than typically feminine jobs. Furthermore, they recognized that there was an interaction between age and job ratings as young children respected male typical jobs more than female typical jobs, and this gap increased as children grew older.

There are also stereotypes based on a person’s sexuality. A common stereotype about gay and lesbian individuals is that they are more sexually promiscuous than heterosexuals, and this

stereotype was studied by Pinsof and Haselton (2017). Madon (1997) learned that gay men were considered more melodramatic, and Geiger, Harwood, & Hummert (2006) reported that lesbian women were considered more aggressive. Evidently, stereotypes about race, gender, and sexuality exist, and people may or may not be aware of these perceptions that they hold of others.

Stereotypes can have detrimental effects on individual members of the stereotyped group. An example of this is stereotype threat, which occurs when a person is in danger of being “judged by, treated and seen in terms of, or self-fulfill a negative stereotype about one’s group” (Spencer et al., 1999, p. 6). A gender stereotype threat can be increased by telling an individual that a task will reveal gender differences, and be decreased by telling them that the task is unrelated to gender. Spencer et al. (1999) found that women underperformed on difficult math tests due to stereotype threat. Since women are perceived as having weaker abilities in the area of mathematics, when stereotype threat is high, they perform worse than men of equivalent math ability perform; when stereotype threat is eliminated, this disparity between men’s and women’s performances is also eliminated.

Implicit Biases

Some people mistakenly think of implicit bias as a conscious preference for one’s ingroup. However, implicit bias is *unconscious* discrimination against a group or person of a particular group and not necessarily one’s ingroup (Greenwald & Benaji, 1995). According to Greenwald and Krieger (2006) these biases are based on negative attitudes and stereotypes leading people to believe that another group is better. Thus, attitudes based on the halo effect lead to biases against unattractive people, and stereotypes about people of colour, women, or

sexual minorities lead to biases against them. A prevalent bias occurs in dominant racial groups against minority races; this has been noted in North American culture, White individuals are favoured over Black individuals (Mattan et al., 2019).

For years now it has been recognized that many people are biased towards their ingroup members and biased against outgroup members. (Allport et al., 1954; Sumner, 1906). Allport (1954) believed that outgroup biases were secondary to the formation of positive feelings about one's ingroup. In other words, a person's attachment to, and comfort within, their ingroup comes before feelings of animosity towards an outgroup. Allport (1954) also argued that one's appreciation for one's ingroup does not necessitate animosity towards an outgroup. On the other hand, Sumner (1906) believed that loyalty to one's ingroup requires hostility towards the outgroup. According to Sumner (1906), "The relation of comradeship and peace in the wegroup and that of hostility and war towards others-groups are correlative to each other" (p. 12). Although they disagreed about whether animosity towards an outgroup was necessary, Allport (1954) and Sumner (1906) agreed that it is common for individuals to prefer their own group members over outgroup members.

One example of this tendency is the own gender preferences that children hold when they are as young as five years old (Dunham et al., 2016). Dunham et al. (2016) found evidence that boys and girls alike hold own-gender biases explicitly and implicitly. Another example was studied by Banse et al. (2001). They learned that homosexual individuals displayed more positive attitudes towards homosexuals than heterosexuals. However, sometimes a bias is so prevalent and pervasive that the prejudice influences the thinking of a minority group and causes them to hold implicit biases against their ingroup members. For example, the famous doll study

by Clark and Clark (1947) provided evidence of a pro-White bias among Black children, as they preferred to play with a White doll over a Black doll. These results have been replicated in recent years (Sturdivant & Alanis, 2020).

Implicit social cognition effects

A number of variables can impact implicit effects. Distracting an individual or adding more time pressure has been found to increase implicit effects (Greenwald & Benaji, 1995). On the other hand, paying more attention to the effects of implicit cognition and the source of the cognitive processes diminishes the implicit effects (Greenwald & Benaji, 1995). Interestingly, experimenters themselves can play a role in drawing attention to the bias. Berry (2015) learned that individuals conveyed less implicit prejudice against gay people when the experimenter was a gay male.

When persons consider their own biases towards others, the “better-than-average” effect affects their personal examination. The better-than-average effect is the phenomenon in which many people think of themselves as above average in various spheres of life (Howell & Ratliffe, 2017). Howell and Ratliff (2017) highlighted that this impacts an individual’s beliefs about the biases and prejudices they hold. Participants regarded themselves as having fewer biases than others, and furthermore, were defensive when their results indicated that they held biases that were socially consistent with social norms. Thus, the better-than-average effect may play a role when biases are implicit.

Based on all of this information on implicit social cognition, including attitudes, stereotypes, and biases, it can be concluded that they affect a person’s social interactions even

when individuals are unaware of the origin of the effect. Thus, it is vital that implicit social cognition can be measured in order to understand how they influence people.

Implicit Association Test. Implicit social cognition can be difficult to measure since it is outside of one's awareness. In spite of this complication, many measurement tools have been developed to assess implicit attitudes, stereotypes, and biases (Bar-Anan & Nosek, 2014). The most well-known and influential method is the Implicit Association Test (IAT) developed by Greenwald et al. (1998). The IAT uses response times and error rates of categorization tasks to evaluate implicit bias. Beattie (2013) believed the implicit bias revealed in these results has societal consequences in that a person's hidden beliefs can translate into predictable behaviours in social situations.

The foundation of the IAT is that it assesses how quickly someone responds to matching categorizations that are frequently associated, such as positive words and flowers, versus categorizations that are not usually associated, such as positive words and insects (Greenwald et al., 1998). The result was that people responded much more quickly when positive words and flowers were matched than positive words and insects, which revealed a significant relationship (Greenwald et al., 1998). This concept was then translated to assess biases by matching positive words and White individuals versus positive words and Black individuals, and vice versa for negative words. Greenwald et al. (1998) discovered that there were implicit attitudinal preferences for White people.

One advantage of the IAT is that it makes it difficult to purposely change one's answers. This means that someone who may want to appear less biased than they are would not be able to control their results. Therefore, this method can reveal people's biases that they may not admit to

holding, or that they may not even be aware that they hold (Greenwald et al., 1998). In one study, Greenwald et al. (1998) found that of 19 White participants who explicitly stated they did not prefer White over Black people, 18 participants had a White preference result. Gabriel et al. (2007) also used the IAT and demonstrated that participants were able to pretend they had positive attitudes explicitly, but were unable to fake their implicit attitudes. Since the IAT can detect implicit biases that people do not explicitly reveal, the IAT will be used in the current research study to measure implicit social cognition.

The IAT also demonstrates that biases affect people even when the information is irrelevant. Yamaguchi and Beattie (2019) determined that race and gender biases were involved in categorization even when race and gender information was not relevant to their present task. Furthermore, Phelps et al. (2000) demonstrated that the results of the IAT accurately reflect how a person reacts emotionally to individuals different from themselves. Phelps et al. (2000) measured amygdala activity of White participants while they were shown images of Black and White people. They found there was a positive correlation between the amount of amygdala activity when a White participant viewed a Black individual's face and their IAT result of bias against Black people. Since the amygdala is an important area for experiencing fear, the results of this study indicate that IAT scores reveal implicit feelings seen in neural activity (Phelps et al., 2000).

The Relationship Between Emotional Intelligence and Implicit Social Cognition

Individuals with higher EI scores tend to have better social relationships. Lopes et al. (2004) discovered that there was a correlation between managing emotions (as measured by the MSCEIT subscale) and higher quality communication with their friends. As explained earlier,

Lopes et al. (2005) determined that people with higher scores in the managing emotions subscale also had more prosocial tendencies. Furthermore, Schutte et al. (2001) found individuals with higher EI scores were better at empathic perspective-taking, have better social skills, and have more intimate relationships. This reflects a correlation between EI and social cognition. Particularly relevant is that individuals with higher EI are better at understanding other people's perspectives (Schutte et al., 2001)

Empathy and the ability to take on another person's perspective is a unique skill that can reduce prejudices and stereotypes (Vescio et al., 2003). Vescio et al. (2003) identified that when people were asked to take on the perspective of African Americans, this reduced their stereotypical assumptions about African-Americans, and increased their positive intergroup attitudes toward them. Since people with higher levels of EI have more empathy, and are more adept at "other perspective-taking" it is logical to believe that people with higher levels of EI, and therefore empathy, will be likely to have more positive attitudes and less bias towards groups other than their own. This is supported by evidence from Beckford (2016) who identified that individuals that held more empathy for Black people had a more positive implicit attitude towards Black people.

In connecting emotional intelligence with positive psychology, Bar-On (2010) pointed to factors like altruism and compassion. It is possible that individuals who are more altruistic and compassionate would be more likely to have positive feelings towards people who are of different races, genders, or sexual orientations than they are.

Additionally, it was mentioned previously that Nozaki (2015) learned that those who had stronger EC were more likely to attempt to assuage the sadness or discomfort of the ostracized

individual. Unfortunately, minorities such as people of colour and sexual minorities, are more likely to be ostracized or discriminated against (Acevedo-Polakovich et al., 2016; Williams et al., 2018). It follows that if EC is positively correlated with understanding another's perspective and helping those who are ostracized, then people with higher levels of EC will have more positive intergroup attitudes than others.

It is possible that implicit bias can be considered in a similar manner to how the tripartite theory of EI. The tripartite theory suggests that EI involves knowledge about emotions, application of this knowledge, and traits that represent typical behaviour when dealing with emotions (Mikolajczak, 2009). Similarly, implicit bias, or implicit bias reduction more accurately, involves knowledge about other people and groups, application of this knowledge, and traits that represent typical behaviour when dealing with diverse people. Thus, reduced implicit bias could also be viewed as something that some individuals are naturally better at, as well as an ability that everyone can cultivate and develop.

The Present Study

Although emotions and cognition were not always considered related, recent studies show emotional intelligence interacts with social cognition (Forgas, 2000; Oatley & Jenkins, 1992). Emotional intelligence is positively related to better social interactions (Lopes et al., 2004; Lopes et al., 2005; Schutte et al., 2001). Emotional intelligence is negatively related to holding stereotypes and prejudices (Vescio et al., 2003) and positively related to helping ostracized persons (Nozaki, 2015). Thus, it is possible that EI is negatively correlated with implicit social cognition, including negative attitudes, stereotypes, and biases.

I hypothesized that individuals with higher levels of emotional intelligence would show less implicit bias. Participants' feelings concerning White versus Black individuals, men versus women in careers, and straight versus gay individuals were all measured. I predicted that participants with higher EI would (1) have less of a preference for White people over Black people; (2) have less of a preference for men in careers over women; and (3) have less of a preference for straight people over gay people.

Method

Participants

Although 137 participants began this study, only 64 fully completed all aspects of the study due to the online nature of the study and length of the tasks involved. The majority of participants left the study when they were asked to switch from using SurveyMonkey.com to instead use the official IAT website. Only the 64 participants who completed the study were included in the hypothesis testing results. The resulting sample of 64 consisted of participants aged 18 to 58 years old, but fifty-two (81.25%) of the participants were between 18 and 24 years old. The average age of the sample was 22.86 and the median and modal age were both 21. The gender division was somewhat uneven with 21 members (32.81%) of the sample being male and 42 members (65.63%) of the sample being female; however, this reflects the gender distribution of the student portion of the sample, and gender differences in EI or implicit bias are not the focus of this study. Fifty-four (84.38%) of the participants identified as heterosexual, eight (12.5%) identified as bisexual, one identified as homosexual (1.56%), and one preferred not to share their sexuality. The majority of the sample identified their origins as European (54.69%), with the rest of the sample (45.31%) identifying their origins as either North American

Aboriginal origins, other North American origins, Caribbean origins, Latin, Central, and South American origins, African origins, or Asian origins. Ethnic origins were measured using categories employed by Stats Canada. Unfortunately, since they assess ethnic origins using language which was unfamiliar to the sample, some people misidentified their ethnic origins (e.g. choosing 'North American Origins' because as a white Canadian, they did not see themselves as having 'European origins').

The participants were also asked about the socioeconomic and religious background in which they were raised. Most of the sample (71.88%) fell close to, or within, the middle-class range for socioeconomic status (SES), which is considered anywhere between \$45 000 and \$120 000 according to Statistics Canada (Hogan, 2019). Only seven participants (10.93%) said they were raised in a home with a household income of less than \$45 000 and only two (3.13%) said their household income had been more than \$125 000. Nine participants said they were unsure of their childhood home's household income. Fifteen (23.43%) of the participants grew up in an urban setting, 35 (54.68%) grew up in a suburban setting, and 14 (21.88%) grew up in a rural setting. Participants were primarily raised in a religious environment, with only five participants (7.81%) saying they were not raised religious; 58 participants (90.63%) identified the religion they were raised with as Christianity.

Finally, participants were also asked a few questions about their current religious views. Christianity was also the current religion of the majority of participants, with 57 participants (89.06%) selecting it as the religion they identified with at the time of the study. They were also asked to share whether they considered themselves religiously conservative or religiously liberal. Twenty-one participants (32.81%) were more liberal than conservative, 19 (29.69%) were

balanced between the two perspectives, and 24 (37.50%) were more conservative than liberal. Religious conservatives can be considered to refer to people who are more orthodox in their faith and adhere to more traditional interpretations of the Bible, while religious liberals are less orthodox and do not hold to as strict Biblical interpretations. While no definitions for these terms were provided to the participants, discussions of differences between religious conservatives and liberals are frequent at Christian institutions like Tyndale University, where the majority of the participants were students. No participants reached out to the researchers to question what these terms meant.

Apparatus

Informed Consent

An Informed Consent form was used to ensure that participants were aware of what they were being asked to do before agreeing to participate. Before beginning, the participants had to confirm they were aged 18 or older. Then, the consent form outlined the research study, its purpose, its potential benefits and risks, and how they would be compensated for their time. Furthermore, it explained that their results would be confidential, and they could choose to withdraw from the study at any time without consequence. See Appendix A for a copy of the form.

General Demographics Survey

A General Demographic Survey was used to measure the distinct demographics of each participant. This survey included questions about the participant's age, gender, sexuality, ethnicity, and general background information. See Appendix B for a copy of the General Demographics Survey.

Personal Beliefs Survey

The Personal Beliefs Survey was designed to collect data on the participant's various explicitly held social beliefs. They were asked to indicate their attitudes concerning the rights of individuals based on race, gender, and sexuality on a five-point Likert scale. Likert scales indicate degrees of agreement, and for the Personal Beliefs Survey, participants indicated whether they *strongly disagreed*, *slightly disagreed*, *neither agreed nor disagreed*, *slightly agreed*, or *strongly agreed*.

An example statement is, "I choose to believe Black people should have all the same rights and opportunities as White people." See Appendix C for a copy of the Personal Beliefs Survey.

Profile of Emotional Competence

The PEC that was developed by Brasseur et al. (2013) was used to measure participants' emotional intelligence. The PEC measures five different subscales in two different domains. In the domain of intrapersonal EI, the PEC measures identification, expression, comprehension, regulation, and utilization of emotions. In the domain of interpersonal EI, the PEC measures identification, listening, comprehension, regulation, and utilization of emotions. Brasseur et al. (2013) found the PEC to have a two-factor solution of 0.85 which demonstrated that the two domains were distinct from one another. Furthermore, Brasseur et al. (2013) demonstrated that the PEC has convergent validity with the Trait Emotional Intelligence Questionnaire - Short Form (TEIQue-SF), which indicated that the PEC accurately measured trait EI. This test was also demonstrated to be reliable; the reliability of each of the subscales ranged from 0.60 to 0.83, both domains had a Cronbach's alpha above 0.84, and the total score had an alpha greater than 0.88

(Brasseur et al., 2013). The PEC was chosen as the measure for EC because it made it possible to analyze the domains of intrapersonal and interpersonal EC separately from one another.

The PEC also makes use of a Likert scale to measure how accurately each item described them. Participants were asked to choose whether the phrase described them *never, occasionally, sometimes, frequently, or always*.

Example items include “As my emotions arise I don't understand where they come from” (intrapersonal EC) and “I can tell whether a person is angry, sad or happy even if they don't talk to me” (interpersonal EC). See Appendix D for a copy of the Profile of Emotional Competence.

Implicit Associations Tests

The Implicit Association Test (IAT) was developed by Greenwald et al. (1998). It was used to analyze the participant's social cognition outside of their awareness in the form of implicit biases, by measuring their response times and error rates in response to categorization tasks. For example, in one task, the words good and White would be in one group, and the words, bad and Black in the other group. The participant was asked to sort words that are either good or bad, as well as images of people who are White or Black, into these two categories as quickly as possible. Then in the next task, the word pairings would be switched so good and Black are in one group and bad and White are in the other. The response times of each task were then compared to determine preferences. Presently, it is the most well-known and best validated method to measure implicit cognition (Bar-Anan & Nosek, 2014).

The IAT measurement tool has been demonstrated to have predictive validity for studying implicit biases; in fact, a meta-analysis found that the IAT's predictive validity was greater than explicit measures of biases (Greenwald et al., 2009). Cunningham et al. (2001) established that

the IAT has convergent validity by finding that the IAT has a significant relationship with the Modern Racism Scale. They also found the measure to have acceptable inter-item reliability levels since their study produced a mean Cronbach's alpha of 0.78 for the IAT. Additionally, Cunningham et al. (2001) reported that the IAT had stable test-retest reliability.

Currently, there are implicit association tests that have been developed by Project Implicit (2011) to test more specific attitudinal preferences about race, gender, and sexual orientation, which were used for this study. The IAT test for race measures one's automatic preference for White or Black individuals, typically revealing that Americans prefer White people. The IAT test for gender measures the degree to which the participant associates males and females with careers versus family. The results of this test often indicate a link between men and careers and a link between women and family. The IAT test for sexuality measures one's automatic preference for straight or gay people, frequently revealing that people prefer straight people over gay people. See Appendix E for information about the IAT process and Appendix F for instructions for the race, gender, and sexuality IATs.

Procedure

This study was reviewed and approved by the Tyndale University Research Ethics Board before participant recruitment and participation began.

Participants were recruited through convenience sampling. The majority of the participants were accessed through advertising at Tyndale University. Students in Psychology classes at Tyndale University were recruited via announcement forums on course web pages. Other participants learned of the research through postings on social media and word-of-mouth.

The participants completed all surveys and measurements online through SurveyMonkey.com, aside from the IAT which was completed through the official IAT website. This platform allowed anyone to participate from a remote location; they were advised to perform their tasks in a quiet space where they would be able to focus. Before beginning, the participants were informed of the purpose of the study. An online Informed Consent form provided participants with information about the study, its purpose, and the fact that they could withdraw any time without any consequences at all.

After signing the consent form, participants proceeded to complete a measure of EI, which was the Profile of Emotional Competence. Following this, the participant performed three IATs that measured their racial, gender and sexuality preferences. Since the participants had to complete these measures on the official IAT website, participants were required to screen capture their results and upload the image of their results to SurveyMonkey.com.

Upon completion of these measurement tools, the participants completed two surveys, the first being a General Demographics Survey, and the second being a Personal Beliefs Survey.

Completing the entire process took about an hour and a half on average for each participant. Participants from Tyndale University who were in Psychology classes were compensated with one percent extra credit for one course, while all other participants were compensated with one entry into a prize draw for a \$50 Amazon Prime gift card.

Results

Descriptive Statistics of Key Variables

The key variables for this study included global EC, interpersonal EC, intrapersonal EC, and the implicit bias preference results from the IAT tests. Although explicit bias was not

necessary for the investigation of the primary hypothesis, it was considered a key variable in order to understand the extent to which participants might hold explicit attitudes about race, gender, and sexuality.

The ten subscales of the PEC together make up a person's global EC. Both interpersonal and intrapersonal EC are also considered global scores but only include five of the ten subscales. Please see Table 1 for descriptive statistics of the three global EC scores. For all three global scores, the mean EC for this sample was above the middle of the range. Each of the global EC scores had excellent internal reliability, with Cronbach's alpha ranging from 0.88 to 0.92.

Table 1

Descriptive Statistics of Global Emotional Competence Scores

	Mean	SD	Min.	Max.	N	α
Global EC	3.50	0.46	2.46	4.54	100	0.92
Interpersonal EC	3.60	0.51	2.00	4.60	100	0.89
Intrapersonal EC	3.40	0.54	2.20	4.84	100	0.88

Note. Participants could receive a score between 1 and 5, with 1 being an extremely low EC score and 5 being extremely high. A score of 3 would be a middle of the range EC score.

Participants ranged greatly in their subscale scores (See Tables 2 and 3 for interpersonal and intrapersonal subscale scores, respectively). The sample's mean score for listening was the highest of the interpersonal subscale scores, as well as of all subscale scores. Utilization of other's emotions was the lowest mean EC subscale score. In regards to intrapersonal subscale scores, the mean score for understanding one's own emotions was the highest, and the mean score for regulating one's emotions was the lowest. The alphas for these subscales were lower than the global scales, but acceptable. The lowest was 0.65, which is still minimally acceptable.

Table 2

Descriptive Statistics of Interpersonal Emotional Competence Scores

	Mean	SD	N	α
Identification of others' emotions	3.91	0.58	100	0.65
Understanding of others' emotions	3.80	0.63	100	0.75
Listening to others' emotions	3.95	0.65	100	0.67
Regulation of others' emotions	3.38	0.70	100	0.74
Utilization of others' emotions	2.99	0.84	100	0.83

Note. Participants could receive a score between 1 and 5, with 1 being an extremely low EC score and 5 being extremely high. A score of 3 would be a middle of the range EC score.

Table 3

Descriptive Statistics of Intrapersonal Emotional Competence Scores

	Mean	SD	N	α
Identification of own emotions	3.45	0.74	100	0.68
Understanding of own emotions	3.55	0.68	100	0.75
Expression of own emotions	3.44	0.71	100	0.61
Regulation of own emotions	3.14	0.82	100	0.80
Utilization of own emotions	3.44	0.66	100	0.69

Note. Participants could receive a score between 1 and 5, with 1 being an extremely low EC score and 5 being extremely high. A score of 3 would be a middle of the range EC score.

The IAT scores held different meanings for each different test. For race bias, a score of -3 means a strong preference for Black people over White people, a score of 0 means no preference, and a score of +3 means a strong preference for White people over Black people. For gender bias, a score of -3 means a strong association between women and career and men and family, a score of 0 means no association, and a score of +3 means a strong association between men and career and women and family. For sexuality bias, a score of -3 means a strong preference for gay people over straight people, a score of 0 means no preference, and a score of +3 means a strong preference for straight people over gay people.

All mean implicit bias scores for this sample indicated a bias in the expected direction; a bias against Black people, a bias against women in careers, and a bias against homosexuals. The descriptive statistics for the three IAT scores can be found in Table 4. The highest mean bias score was the race IAT score. However, the standard deviations for all of these scores were large, so there was great variability in the implicit biases people held for each of the three categories.

Table 4

Descriptive Statistics of Implicit Bias Based on Race, Gender, and Sexuality

	Mean	SD	N
Implicit race bias	1.19	1.64	63
Implicit gender bias	0.97	1.29	61
Implicit sexuality bias	1.07	1.46	61

Note. Participants could receive a score between -3 to +3, with both of these extremes indicating a strong bias; however, a positive score indicates bias against the typically oppressed or stereotyped group, and a negative score indicates bias against the group with power. A score of zero indicates no bias.

Participants indicated their levels of explicit bias in response to statements about equal rights and opportunities for Black people, women, and homosexuals. The means and standard

deviations for these explicit bias scores are located in Table 5. There was less variability in explicit bias scores for this sample, especially concerning race; in fact, there was no variation at all concerning explicit bias against Black people. All participants said they believed Black people should have equal rights and opportunities. This is in great contrast with the mean race IAT score, which was the highest of the three IAT scores. Only three individuals indicated that they did not strongly agree that women should have equal rights and opportunities, and they indicated they slightly agreed.

Table 5

Descriptive Statistics of Explicit Bias Based on Race, Gender, and Sexuality

	Mean	SD	N
Explicit race bias	5.00	0.00	63
Explicit gender bias	4.95	0.21	63
Explicit sexuality bias	4.48	0.91	63

Note. Participants identified their explicit bias along a five-point Likert score, with 1 indicating extreme explicit bias and 5 indicating no explicit bias.

It is important to note that there were two cases where participants apparently flipped the scale in their responses to these questions on explicit bias. One participant selected answers that indicated extreme explicit bias but their selections were contradicted in verbal comments they added for clarification in a comments section that followed their responses. The responses for this case were recoded so that their selections were consistent with their comments. It was unclear whether the second individual had selected their answers incorrectly so their data were removed from questions regarding explicit bias.

The sample had the greatest variability within their explicit bias regarding sexuality; 21 participants did not strongly agree that homosexual people deserve equal rights and opportunities. Furthermore, some of these participants (four) even disagreed with that statement. This likely reflects the majority of the sample's adherence to the Christian religion.

Investigation of Primary Hypothesis

Pearson correlations were computed to test the hypothesis that individuals with higher levels of emotional intelligence would show less implicit bias, the results of which are summarized in Table 6.

Table 6

Correlation Statistics of Global EC Scores with Implicit Association Test Results

	Global EC		Interpersonal EC		Intrapersonal EC	
	r	n	r	n	r	n
IAT race	-0.32**	63	-0.29**	63	-0.28*	63
IAT gender	-0.19	61	-0.30**	61	-0.03	61
IAT sexuality	0.05	61	0.01	61	0.08	61

Note.

** is significant at the 0.01 level (1-tailed)

* is significant at the 0.05 level (1-tailed)

Global emotional competence was negatively related to implicit bias in race, $r(n=63)=-0.32$, $p=0.01$, but not gender, $r(n=61)=-0.19$, $p=0.07$, nor sexuality, $r(n=61)=0.05$, $p=0.35$. See Figure 1 for a scatterplot of the relationship between global EC and implicit race bias. Thus, as hypothesized, participants with a higher global EC score demonstrated that they held less of a preference for White people over Black people. However, having higher global EC was not related to less implicit bias regarding gender or sexuality.

Figure 2

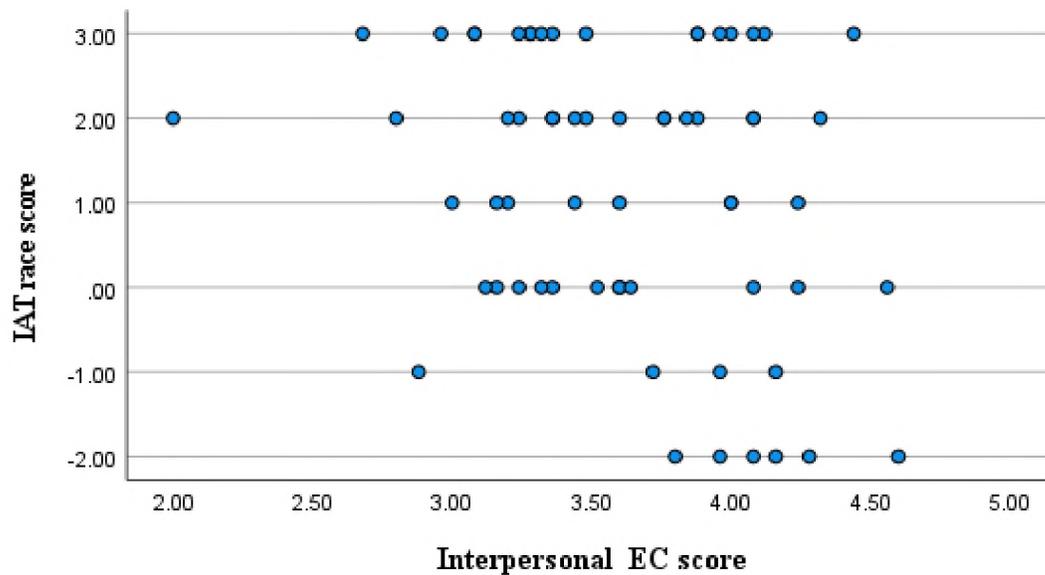
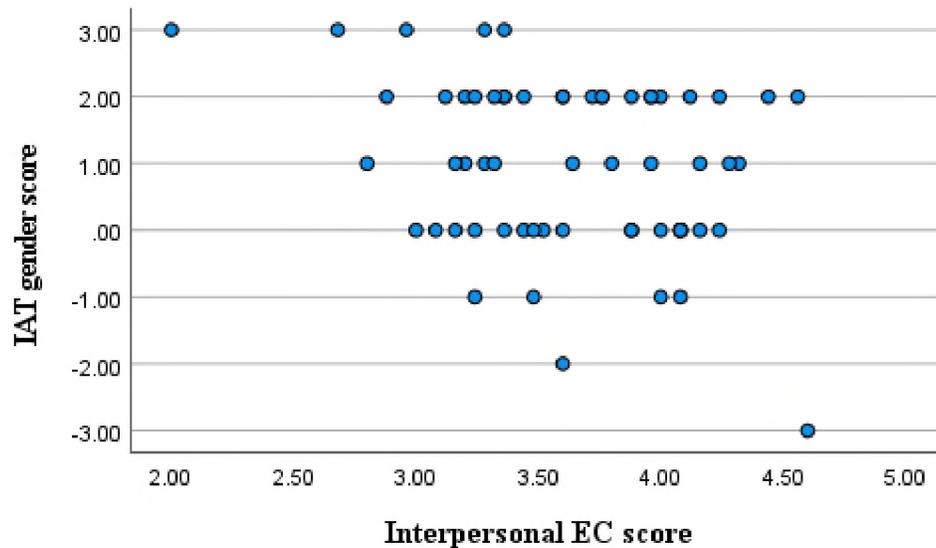
Race Implicit Association Test Score by Interpersonal EC Score

Figure 3

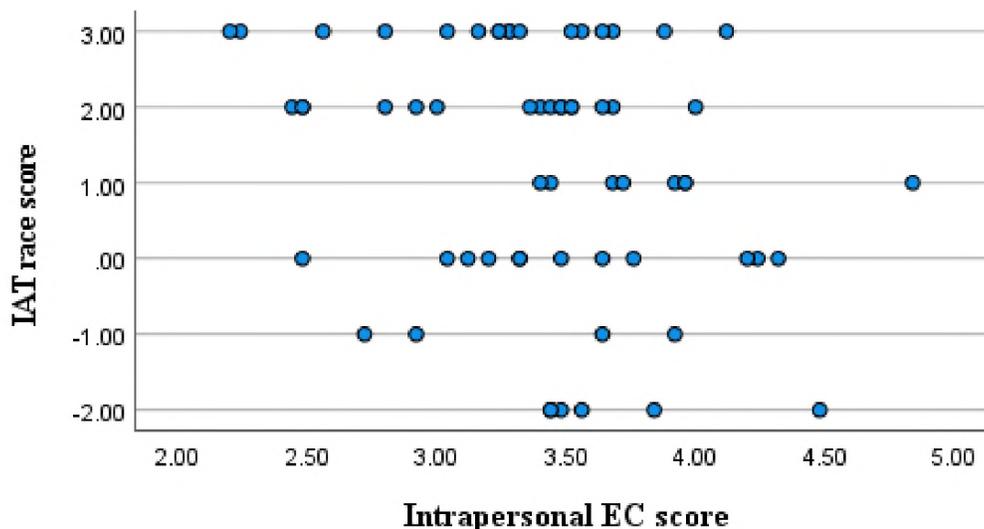
Gender Implicit Association Test Score by Interpersonal EC Score

Intrapersonal emotional competence refers to a person's ability to accurately process and manage *their own emotions*. Intrapersonal EC was negatively related to implicit bias in race, $r(n=63)=-0.28$, $p=0.01$, but not gender, $r(n=61)=-0.03$, $p=0.40$, nor sexuality, $r(n=61)=0.08$,

$p=0.26$. Participants with a higher intrapersonal EC score held less implicit bias against Black people. See Figure 4 for a graph of the relationship between intrapersonal EC and implicit race bias. Implicit gender bias and implicit sexuality bias were not related to intrapersonal EC scores.

Figure 4

Race Implicit Association Test Score by Intrapersonal EC Score



Further analyses were explored to see whether these relationships remained the same when participants who had expressed explicit bias against Black people, women, or gay people, were removed from the sample. No participants indicated explicit bias against Black people. The three cases who selected anything less than “strongly agree” that women should have equal rights and opportunities were removed, and the Pearson correlation between EC and implicit bias against women was run again. Similarly, the 21 cases who selected anything less than “strongly agree” that homosexuals should have equal rights and opportunities, were removed when the relationship between EC and implicit bias against homosexuals was analyzed again. Results from the first analyses were confirmed by these analyses; relationships found between EC and implicit bias remained after the removal of cases of explicit bias.

In order to better understand how implicit bias might connect with aspects of EC, the correlations between implicit bias and the 10 subscales of EC were computed. The correlations between all EC subscales and IAT scores can be found in Table 7. None of the subscales were significantly related to implicit sexuality bias, but six subscales were significantly correlated with implicit race bias, and three subscales were significantly related to implicit gender bias.

Table 7

Correlation Statistics of EC Subscales with Implicit Association Test Scores

	Race IAT		Gender IAT		Sexuality IAT	
	r	n	r	n	r	n
Identification of own emotions	-0.22*	63	-0.03	61	0.11	61
Identification of others' emotions	-0.23*	63	-0.12	61	0.10	61
Understanding of own emotions	-0.17	63	0.00	61	0.12	61
Understanding of others' emotions	-0.34**	63	-0.10	61	-0.02	61
Expression of own emotions	-0.27*	63	-0.07	61	0.03	61
Listening to others' emotions	-0.23*	63	-0.19	61	-0.01	61
Regulation of own emotions	-0.20	63	0.13	61	0.04	61
Regulation of others' emotions	-0.25*	63	-0.30**	61	-0.04	61
Utilization of own emotions	-0.17	63	-0.25*	61	0.00	61
Utilization of others' emotions	-0.04	63	-0.38**	61	-0.01	61

Note.

** is significant at the 0.01 level (1-tailed)

* is significant at the 0.05 level (1-tailed)

Implicit race bias was negatively correlated to two intrapersonal EC subscales; identification of own emotions $r(n=63)=-0.22$, $p=0.04$ and expression of own emotions, $r(n=63)=-0.27$, $p=0.02$. Implicit race bias was also negatively related to four interpersonal EC subscales, including identification of others' emotions, $r(n=63)=-0.23$, $p=0.04$, understanding of others' emotions, $r(n=63)=-0.34$, $p=0.01$, listening to others' emotions, $r(n=63)=-0.23$, $p=0.04$, and regulation of others' emotions, $r(n=63)=-0.25$, $p=0.01$. Thus, those with less implicit bias against Black people were significantly more likely to be capable of intrapersonal EC skills like identification of own emotions and expressing emotions, as well as interpersonal EC skills like identification of, understanding of, listening to, and regulation of others' emotions. As many of the relationships between EC subscale scores and race IAT scores resemble one another, individual scatterplots are not included here, but matrix scatterplots of these relationships can be found in Appendix G (Figure 5, Figure 6, Figure 7, Figure 8, Figure 9, and Figure 10).

Implicit gender bias was related to fewer EC subscales, but was negatively correlated with regulation of others' emotions, $r(n=61)=-0.30$, $p=0.01$, utilization of own emotions, $r(n=61)=-0.30$, $p=0.03$, and utilization of others' emotions, $r(n=61)=-0.38$, $p=0.00$. Participants with less implicit bias against women in careers were significantly more likely to be good at EC skills like regulation of others' emotion, and utilization of both one's own and others' emotions. Matrix scatterplots of the relationships between EC subscale scores and gender IAT scores are also located in Appendix H, along with matrix scatterplots of the relationships between EC subscale scores and sexuality IAT scores.

Additional Hypotheses Investigation

Additional analyses were performed to investigate whether participants of different races, genders, and sexualities differed in their EC and IAT scores. Since one type of bias measured through the IAT pertained to Black/White bias, the ethnic origins indicated by participants in the demographic survey were interpreted in that light so that European origins was interpreted to include White people, and non-European origins was interpreted to include non-White people. Independent sample t-tests were run to test the hypotheses that non-European origins, female, and/or non-heterosexual participants differed significantly from European origins, male, and/or heterosexual participants respectively, in their IAT and EC scores. Unsurprisingly, no significant differences were found in EC scores between groups based on race, gender, or sexuality. (See Appendix H for tables of the means and standard deviations of the global EC scores based on race (Table 8), gender (Table 9), and sexuality (Table 10)). However, more notably, non-European origin participants did not have significantly lower IAT scores than European origin participants. The mean IAT scores of European origin and non-European origin participants are located in Table 11. Although the differences were insignificant, it is interesting to note that the mean IAT score for race was slightly less for participants of non-European origins ($M=1.19$) than for participants of European origins (1.28), $t(61)=0.517$, $p=0.60$. Nonetheless, those of European origins and those of non-European origins generally received similar scores across all three IAT tests.

Table 11

Mean and Standard Deviations of IAT Scores based on Race

	European origins			Other origins		
	Mean	SD	N	Mean	SD	N
Race IAT	1.28	1.64	35	1.19	1.55	27
Gender IAT	1.12	1.24	33	0.85	1.32	27
Sexuality IAT	0.91	1.44	33	1.19	1.47	27

Note. Participants could receive a score between -3 to +3, with both of these extremes indicating a strong bias; however, a positive score indicates bias against the typically oppressed or stereotyped group, and a negative score indicates bias against the group with power. A score of zero indicates no bias.

Women received significantly different scores from men on the gender IAT, but not from the race or sexuality IATs. See Table 12 for the mean IAT scores for men and women. However, contradictory from what might be expected, the gender IAT score for women ($M=1.30$) was significantly higher than for men ($M=0.45$), $t(57)=-2.55$, $p=0.01$. Thus, interestingly, women held more implicit bias against women in careers than men did.

Table 12

Mean and Standard Deviations of IAT Scores based on Gender

	Male			Female		
	Mean	SD	N	Mean	SD	N
Race IAT	1.25	1.59	20	1.20	1.60	41
Gender IAT	0.45	1.28	20	1.30	1.20	39
Sexuality IAT	0.80	1.70	20	1.10	1.30	39

Note. Participants could receive a score between -3 to +3, with both of these extremes indicating a strong bias; however, a positive score indicates bias against the typically oppressed or stereotyped group, and a negative score indicates bias against the group with power. A score of zero indicates no bias.

Non-heterosexual participants differed significantly from heterosexual participants in the degree of bias they held against gay people. The IAT sexuality scores of non-heterosexual participants ($M=-0.13$) were significantly lower than those of heterosexual participants ($M=1.18$). People of other sexualities were less likely to have an implicit bias against gay people; in fact, since their mean score was less than zero, this is indicative of slight implicit bias against straight people. See Table 13 for the means and standard deviations of the IAT scores based on sexuality.

Table 13

Mean and Standard Deviations of IAT Scores based on Sexuality

	Heterosexual			Other sexuality		
	Mean	SD	N	Mean	SD	N
Race IAT	1.29	1.52	52	0.78	1.92	9
Gender IAT	1.16	1.12	51	0.13	1.89	8
Sexuality IAT	1.18	1.34	51	-0.13	1.64	8

Note. Participants could receive a score between -3 to +3, with both of these extremes indicating a strong bias; however, a positive score indicates bias against the typically oppressed or stereotyped group, and a negative score indicates bias against the group with power. A score of zero indicates no bias.

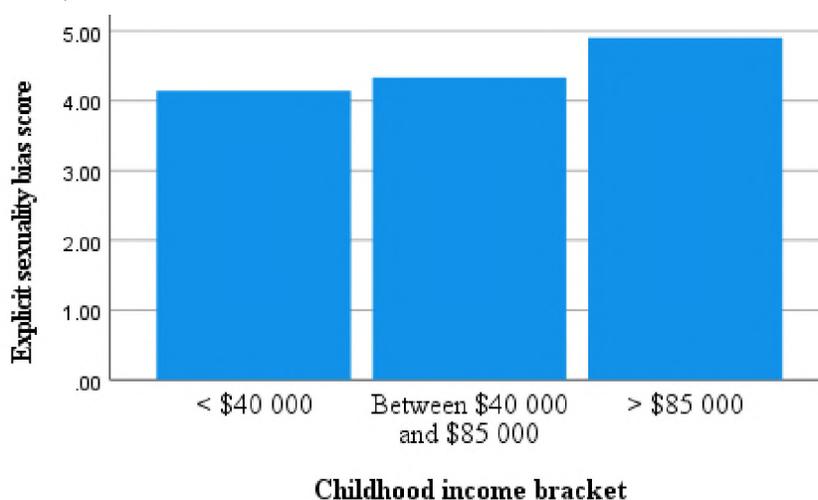
Further analyses were performed to see whether EC, implicit and/or explicit bias were related to key demographic or background characteristics. Pearson correlations were used to evaluate whether religious conservatism was significantly related to the key variables. Religious conservatism was not related to any global EC scales. However, higher religious conservatism was related to more implicit gender bias, $r(n=60)=0.38$, $p=0.01$ and implicit sexuality bias, $r(n=60)=0.26$, $p=0.05$. Furthermore, higher religious conservatism was related to more explicit gender bias, $r(n=63)=-0.28$, $p=0.03$, and explicit sexuality bias $r(n=63)=0.44$, $p=0.00$. Therefore, in the cases of both implicit and explicit bias, religious conservatives held more bias against

women in careers and homosexuals. However, it should be noted that since only three people indicated any explicit bias against women in careers, this significant relationship is based on only three data points, and thus is not very reliable. See Appendix I for Table 14, Table 15, and Table 16 and Figure 11, Figure 12, Figure 13, and Figure 14, all of which are related to these findings.

To analyze whether childhood home income was relevant to these findings, a series of one-way ANOVAs were run after dividing the income groups into three categories. In order to get roughly equivalent group sizes that were reflective of Statistics Canada's definitions of SES, participants whose childhood home income was less than \$40 000 were group 1 (N=22), participants whose income was between \$40 000-85 000 were group 2 (N=12), and participants whose income was greater than \$85 000 were group 3 (N=21). Income was not significantly related to most key variables, except for explicit sexuality bias, $F(2, 51)=4.20$, $p=0.02$. Those with a lower childhood income were more likely to hold explicit bias against homosexuals. See Figure 15 for an illustration of the mean explicit bias score for each childhood income bracket.

Figure 15

Mean Explicit Sexuality Bias Scores Based on Childhood Income Bracket

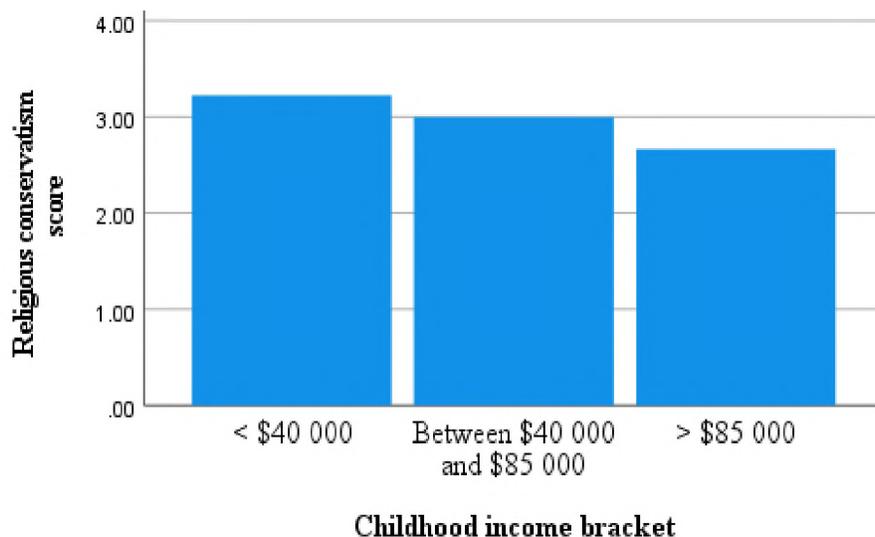


Note. Participants identified their explicit bias along a five-point Likert score, with 1 indicating extreme explicit bias and 5 indicating no explicit bias.

The relationship between explicit sexuality bias and income was a curious one and so further exploration was required. A one-way ANOVA was performed to investigate whether childhood home income and religious conservatism were related since the relationship between explicit sexuality bias and religious conservatism had already been established. Although insignificant, $F(2, 52)=1.46$, $p=0.24$, the pattern does show that those in lower-income brackets during their childhood tended to indicate greater religious conservatism, while those in higher income-brackets during their childhood tended to indicate less religious conservatism. See Figure 16 for the mean religious conservatism scores based on childhood income brackets.

Figure 16

Mean Religious Conservatism Scores Based on Childhood Income Bracket



Note. Participants indicated their level of religious conservatism along a five-point Likert scale, with 1 indicating extremely religiously liberal and 5 indicating extremely religiously conservative. A score of 3 indicated a balance between religiously liberal and conservative.

The relationship between implicit and explicit bias was analyzed in order to understand whether participants' implicit bias reflected their explicit attitudes. Pearson correlations were run to explore whether a person's implicit race bias was significantly related to their explicit race bias, whether a person's implicit gender bias was significantly related to their explicit gender

bias, and whether a person's implicit sexuality bias was significantly related to their explicit sexuality bias. A correlation could not be run between implicit and explicit race bias because no participants indicated any explicit race bias. Implicit gender bias was not related to explicit gender bias $r(n=59)=0.13$, $p=0.35$. Implicit sexuality bias was not related to explicit sexuality bias $r(n=59)=-0.14$, $p=0.30$. Thus, none of the IAT scores were significantly related to a person's explicit attitudes towards the very same group. Table 17 summarizes the results of these Pearson correlations.

Table 17

Correlation Statistics of IAT Scores and Explicit Bias Scores Results

	Explicit race bias		Explicit gender bias		Explicit sexuality bias	
	r	n	r	n	r	n
IAT race	N/A	61	0.08	61	-0.06	61
IAT gender	N/A	59	-0.13	59	-0.19	59
IAT sexuality	N/A	59	0.00	59	-0.14	59

Note. A correlation could not be run using the explicit race bias variable because there was no variation at all within this variable. No significant relationships were found between the other variables.

Discussion

Three hypotheses were tested under the primary hypothesis that individuals with higher EC scores would have lower IAT scores. Hypothesis (1) was that participants with higher EI would have less of a preference for White people over Black people. This hypothesis was supported by the findings that implicit race bias had a significant negative correlation with global EC, interpersonal EC, and intrapersonal EC. Hypothesis (2) was that participants with higher EI would have less of a preference for men in careers over women. Results showed that implicit gender bias was significantly related to interpersonal EC, but not global EC or intrapersonal EC,

and thus this hypothesis was only somewhat supported by the study's findings. Hypothesis (3), which was that participants with higher EI would have less of a preference for straight people over gay people, was not supported by the results, as none of the EC scores were related to implicit sexuality bias.

The lack of any relationships between EI and implicit bias against homosexuals has multiple potential explanations. One reason could be that the majority of the sample (89.06%) identified themselves as Christian. Many Christians hold the viewpoint that homosexuality is a sin, and therefore unacceptable. A connected possible explanation is that the bias participants held against homosexuals is not due to emotion, but is instead related to their principles. To them, their belief that homosexuals are not equal to heterosexuals is a marker of their values. Thus, if EI is somehow reducing implicit bias in other cases, it may not have the same impact here because of deeply held personal values. However, it is revealing to note that when the correlations were run again after removing cases of participants with explicit sexuality bias, which should presumably include people with consciously held beliefs about homosexuals, there was still no significant correlation between EC and implicit sexuality bias. Therefore, among individuals who claim no explicit bias against homosexuals, their implicit bias against homosexuals is not related to EI in the same way as the other types of implicit bias in the sample.

Another viable reason for the absence of support for this hypothesis is the role of other-perspective taking. Individuals with higher EI are more capable of understanding others' perspectives (Schutte et al., 2001); furthermore, it has been demonstrated that the ability to take on others' perspectives reduces prejudices and stereotypes (Vescio et al., 2003). However, in order for someone to imagine the perspective of a person belonging to an outgroup, they require

knowledge of that person's background and culture. One of the best ways to increase knowledge and understanding of an outgroup's culture is through personal interaction with a member of that outgroup. The likelihood that participants in this study had never interacted with Black people or women is very low, but it is more possible that these participants had never interacted with gay people, or at least not to their knowledge. Perhaps EI did not play a role in reducing implicit sexuality bias for these participants because other-perspective taking, an ability related to EI, is more difficult for those with minimal experience interacting with homosexual individuals.

Certain aspects of EI seem to be more closely tied to implicit bias. One of the strongest relationships was between understanding of others' emotions and implicit race bias. This makes sense as the ability to understand another's emotions is comparable to empathy, and being empathetic towards Black individuals has been found to reduce stereotypical assumptions (Vescio et al., 2003) and increase positive implicit attitudes toward Black people (Beckford, 2016). It can also be speculated that being adept at identifying others' emotions and listening to others' emotions contributes to increased empathy (it is worth noting that understanding others' emotions was highly correlated with both identifying others' emotions and to listening to others' emotions). It is logical that an individual who is capable of recognizing what others are feeling and patiently listens to others talk about their feelings might grow in their understanding of others. Thus, people who are observant of others' emotions and are good listeners are also more empathetic and proficient in other perspective-taking, and consequently, hold less implicit bias against Black people.

Identification of one's own emotions and expression of one's own emotions were the intrapersonal EC subscales related to lower implicit race bias. Although the connection between

capabilities in these areas and reduced implicit race bias is less straightforward, hypothetically this connection may exist because a person who is able to recognize their internal states and communicate openly about them is more likely to recognize the unfair biases they hold and do something about them. For example, a person who is competent at identifying their own emotions is more likely to realize they feel discomfort when a Black person approaches them. Since they are highly aware of their emotions, they are able to acknowledge this reaction and reflect on their unconscious attitudes concerning Black people, perhaps learning something from the experience that an emotionally unaware person would not. In order to reduce one's own implicit bias, one must be aware of their emotional reactions, as implicit biases are, in some ways, emotional reactions. Similarly, an individual who expresses their feelings is an open communicator, and provides opportunities for discussion. Being honest about their own emotions is a starting place for healthy communication. Returning to the previous example, if the person who recognized they were uncomfortable around a Black person expressed this reaction to someone who was able to explain how stereotypes and negative attitudes led to this prejudiced reaction, they would have the opportunity to learn why their reaction was unfair. The capacity for listening to others' emotions may also play a role in this scenario as a better listener would be able to gain more insight in this scenario.

One interpersonal EI subscale was connected to both lower implicit race bias and lower gender bias; regulation of others' emotion. Lopes et al. (2004) demonstrated that the management of emotions was positively related to higher quality communication. Perhaps this ability of regulating others' emotions supports the open and healthy communication that reduces biases as suggested in the previous example. Another role that emotion regulation may play in

reducing implicit bias is that of experience. Having more experience at regulating the emotions of others would increase one's knowledge of others' needs. This increased accuracy in knowing what others need could boost the individual's capacity for other perspective-taking. Consistent with this line of thinking, Nozaki (2015) found that people with higher EI were more likely to try to regulate the emotions of someone who had been ostracized.

Lower implicit gender bias was also associated with being better at utilizing one's own emotions and utilizing others' emotions. In regards to how utilizing one's own emotions could decrease implicit gender bias, learning from experience could be a factor. One of the statements that measured this ability was "I try to learn from difficult situations or emotions." A person who takes difficult experiences, such as being called out for implicit gender bias, and attempts to learn from that situation, is likely to learn their implicit bias is unfair and prejudiced. Utilizing others' emotions could contribute to reduced implicit bias because a person high in this capability is aware of what influences the emotions of those around them. A statement that measured this ability on the PEC was "If I wanted, I could easily make someone feel uneasy," and if someone is conscious of what factors make someone uneasy, they could eliminate these factors and help someone feel more comfortable too. Therefore, those high in utilization of others' emotions may have more awareness of what causes discomfort or other negative emotions in disparaged groups, like women in the workplace, thereby creating more empathy in them for those people.

The results of this study provided evidence that higher EI is related to less implicit bias against Black people and that higher interpersonal EI is related to less implicit bias against women. If EI is viewed as an ability instead of a trait, then EI can be taught, learned, and practiced. Nelis et al. (2011) provided support for the argument that EI can be increased through

EI training sessions. It follows then, that teaching EI could help reduce race and gender bias. Since certain EI abilities were more closely connected with reduced implicit bias, it would make sense to focus on teaching these abilities. I would argue the focus should be on teaching other perspective-taking, which is connected to identifying, listening to, and understanding others' emotions, and healthy, open communication, which is connected to expression of one's own emotions and listening to others' emotions.

Additional hypotheses were investigated alongside the primary hypotheses in order to understand some of the other facts that could influence a person's level of implicit bias. One potential factor is whether the person is a minority themselves or part of a group that is usually discriminated against. For the purposes of this study, the participants considered minorities were non-Europeans, women, and non-heterosexual individuals. When participants of European origins were compared with participants of non-European origins in regards to their IAT scores, there were no differences in any of the IAT tests, including the race IAT. This finding reflects similar results that have demonstrated that implicit race bias influences the thinking of everyone, including the disparaged group, such as the results of the doll studies (Clark & Clark, 1947; Sturdivant & Alanis, 2020).

When it came to comparing the IAT scores of men and women, it was found that women had even more bias against women in careers than was held by men. This could arguably be due to sampling error as the majority of this study's participants were female. However, another explanation could be that women are more likely to think about the stereotype that women are meant to work in the home and not in a career. This bias does not affect a male's day to day life in the same way it affects a woman's; since thoughts related to this bias are more relevant to a

woman's day-to-day choices, the stereotype may be more readily activated for women. Furthermore, a woman could have experienced stereotype threat while completing the gender IAT. It is possible that when women were completing the gender IAT, stereotype threat was high because they were reminded of perceived gender differences in workplace abilities. Thus, they became anxious about defending their potential to have careers, resulting in difficulty completing the IAT as accurately as they may have otherwise.

The last minority group included any participant who identified as something other than straight. This group was very small, yet their results indicated far less bias against their ingroup. In fact, non-heterosexual participants indicated slight bias against heterosexuals, which is unique from the other minority groups who indicated bias against their ingroups. Perhaps this is due to sampling error because of the very small number of non-heterosexual participants. The small percentage of the sample being non-heterosexual reflects the proportions of the general population and maybe being such a small percentage of the population has caused non-heterosexual individuals to form a tight-knit community of which they are very defensive. While this is a possible explanation, due to the extremely small group of non-heterosexual participants, it is unwise to make any inferences from this portion of the sample.

Another demographic characteristic found to be related to implicit bias was that of religious conservatism. Religious conservatives were more likely to hold implicit gender bias and implicit sexuality bias, as well as explicit gender and sexuality bias, than religious liberals. This is indicative of how religious conservatives typically hold to more traditional interpretations of the Bible, which lead them to adhere to more traditional gender role expectations and to disapprove of homosexual behaviour on religious grounds. This is supported by participants'

explanations, which they were invited to provide, to clarify their position following the questions about rights and opportunities for women and homosexuals. Individuals who identified as religiously conservative supplied statements such as, “I’m a Christian, so I hold the belief that homosexuality is a sin” and “My only reasoning for thinking woman shouldn't have the same opportunities as men, is the wording from scripture that say a wife shouldn't be in a position of authority over her husband.” Individuals who identified as religiously liberal offered explanations like, “We are all created by God and in his image therefore we are all equals no matter our differences.” Evidently, one’s religious views influenced their responses to the explicit bias questions, and potentially their implicit bias levels.

Participants’ childhood income brackets were correlated with both religious conservatism and explicit sexuality bias. Individuals raised in homes with a lower income were more likely to indicate religious conservatism and believe that homosexuals do not deserve the same rights and opportunities as heterosexuals. As this study was purely correlational, it is unclear which of these variables influenced which, or if there exists an unstudied variable that is the cause of these results. One interpretation is that children raised in homes with less income are also raised to be religiously conservative and thus believe that homosexuality is morally wrong. Alternatively, children raised in homes with less income are raised to be biased against homosexuals and therefore they identify as religiously conservative. Maybe religious conservatism is the variable influencing both of the others; it is possible that religiously conservative families tend to make less money because of the jobs they choose (such as pastors) and also teach that homosexuality is immoral. There are many interpretations of this finding and further study would be required to make sense of this correlation.

One final point of consideration is the lack of correlation found between implicit bias and explicit bias. This could be a result of the questions that were used to measure explicit bias. The participants were asked whether they chose to believe Black people, women, and homosexuals deserve equal rights and opportunities. These questions do not reflect all aspects of explicit bias. For example, a participant could believe Black people deserve equal rights, yet simultaneously believe Black people are more violent than White people. However, other studies also have found that a person's explicit attitudes regarding their biases are not reflected in their IAT results (Greenwald et al., 1998; Gabriel et al., 2007). This is possibly because of the issue of social desirability. Participants may not have wanted to seem xenophobic and so they pretended to hold more positive attitudes towards minorities than they really did, but they were unable to feign positive attitudes during the IAT, as found by Gabriel et al. (2007). The participants also could have truly believed they were less biased than they actually were, similar to what Howell and Ratliff (2017) found when studying the better-than-average effect on biases. Alternatively, maybe some of the participants' implicit biases reflect attitudes that they were taught or that they learned from their environment, and that they are actively trying to change but have not been successfully changed yet.

Limitations to the Study

One of the most significant limitations of this study is that it is based on a biased sample. The majority of participants were students from Tyndale University, making it a largely Christian demographic, primarily made up of students aged approximately 18 to 22. Furthermore, the sample had more participants of European origins than anywhere else, more women than men, and far more heterosexual participants than gay or bisexual participants. Although these

demographic characteristics were not as pertinent to the primary hypotheses testing since the focus was on the relationship between EI and implicit bias, it would be beneficial to have a more balanced sample. It would be helpful for examining whether differences in EI and implicit bias exist between distinct demographics. Additionally, these results cannot be generalized to groups other than university-aged, heterosexual Christians.

Another limitation of this study is that the data are purely correlational. While it makes some intuitive sense to infer that emotional intelligence is the causal variable, and implicit biases are affected by EI, this cannot be confirmed in this study. The possibility exists that a person's implicit biases influence their EI knowledge and abilities, or that other variables play a role in producing this relationship. Therefore, this study is limited by both its sample and its methodology.

Further Research Directions

Replicating the present study with a broader demographic would be of benefit. Furthermore, a larger sample generally would be advantageous. This study took place at a small, private, Christian university and it would be beneficial for this study to be replicated at a university with a larger population, like 15 0000 students. Additionally, the university should be public and not specifically Christian, in order to include people of more diverse backgrounds and beliefs. If possible, it would also be valuable to perform this study with a population from an older age bracket in order to examine these relationships in individuals who have more life experience.

More importantly, it would be valuable to investigate whether increased EI is the cause of decreased implicit bias. An experimental version of this study could have participants take the

Profile of Emotional Competence and the IAT tests before completing a course that teaches EI knowledge and skills, potentially with an emphasis on teaching other perspective-taking and healthy, open communication. Then, after the completion of the EI program, participants would retake the PEC and the IATs. These results would help clarify (1) whether teaching EI skills and knowledge indeed increases a person's EI, as has been found before and (2) whether increasing a person's EI causes them to hold less implicit bias.

Another area for future investigation is the role that experience with outgroup members plays in the relationship between EI and implicit bias. It is possible that EI is indirectly related to implicit bias through experience with outgroup members. High EC subscale scores, such as identification of others' emotions and understanding of others' emotions, may only be related to a lower implicit bias score if an individual has personal experience with interacting with the outgroup that their implicit bias score is measuring. Personal experience with an outgroup offers opportunities for an individual to gain perspective concerning the experiences and emotions of the outgroup, and this mediating role of personal experience with an outgroup was a potential explanation for the lack of relationship between EI and implicit sexuality bias. Since the sample was largely Christian, many of the participants potentially lacked past interaction with gay people, or at least do not realize they have interacted with gay people. Because gay people are aware of the attitude many Christians hold concerning homosexual behaviour, many Christians may be missing out on the opportunity to hear from and learn from gay individuals. Gay people are likely uncomfortable voicing their sexuality and being candid about their experiences to members of a community who are outspoken about their beliefs about homosexuals. Further research into the role of personal interaction with outgroup members would provide more insight

into the relationship between EI and implicit bias, especially concerning the lack of relationship between EI and implicit sexuality bias.

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Appendix A

Consent Form

Fall 2020

You are being invited to participate in a research study. Please read this consent form so that you understand what your participation will involve.

The Relationship Between Emotional Competence and Implicit Social Cognition

INVESTIGATORS: This research study is being conducted by Krista Quinn and will be supervised by Dr. Nancy Ross from the department of psychology at Tyndale University. It is a single site research project.

PURPOSE OF THE STUDY: This research study is designed to explore the relationship between emotional intelligence and social beliefs. We will ask questions about your emotional intelligence and your beliefs about various social characteristics. Participants must be at least 18 years old.

WHAT PARTICIPATION MEANS: If you volunteer to participate in this study, you will be asked to do the following things:

You will be asked to complete a short emotional competence scale called the Profile of Emotional Competence (PEC; Brasseur et al., 2013).

You will be asked to complete three Implicit Association Tests (IAT; Greenwald et al., 1998). These tests are sorting tasks and your responses will be timed. Each IAT will have seven sections and will produce a measure of your preferences for different traits.

You will be asked to complete a General Demographics Survey and a Personal Beliefs Survey.

Your participation is expected to take approximately an hour and a half to two hours.

POTENTIAL BENEFITS: This study could help you to understand yourself better by thinking about different aspects of your personality through self-reflection. You may learn more about the way you handle your own emotions or the emotions of others, and also about how you perceive other people in your social life.

POTENTIAL RISKS: The potential risks for this study are low. It is always possible when you learn new things about yourself that you might not like everything you discover. It could cause discomfort or unpleasant emotions while reflecting on any negative personality traits or opinions you may possess. You may also become stressed by the Implicit Associations Tests as they require focus and quick responses.

COMPENSATION: Participants who are enrolled in a Psychology or Sociology class at Tyndale University will be compensated with two percent extra credit in one Psychology or Sociology course. All other participants will be compensated with one entry in a draw for a \$50 Amazon gift card.

CONFIDENTIALITY: All surveys and scales will be kept confidential. Your responses will be given a randomly assigned number for organizational purposes, and your name will not be attached to any of the permanent records. Your information will only be used for statistical purposes and in conjunction with others' data. It will not be isolated for any purpose.

VOLUNTARY PARTICIPATION AND WITHDRAWAL: You are not required to participate in this study. Your participation is entirely voluntary and you do not need to respond to any or all questions. You may decide to stop at any time and you may choose whether your data will be used in this research study or not up until the time it is stored permanently and your name has

been removed. Your withdrawal will not have any consequences and will not affect your relationship with any of the investigators or Tyndale University.

LEGAL RIGHTS: Your consent does not mean that you are giving up any of your legal rights.

QUESTIONS ABOUT THE STUDY: If you have questions about the research, you may contact either or both of the following:

Krista Quinn

Nancy Ross: nross@tyndale.ca

This study has been reviewed by the Tyndale University Research Ethics Board. If you have questions regarding your rights as a participant in this study please contact:

Research Ethics Board: reb@tyndale.ca

SECONDARY USE OF DATA: If you are willing, your data may be reanalyzed by other researchers and for other purposes. Your results will be anonymized and remain confidential.

Do you consent to this potential future secondary use of your data?

Yes No

CONFIRMATION OF AGREEMENT: Your signature below indicates that you have read the information in this agreement. Your signature indicates that you agree to participate in the study and have been told that you are able to ask questions of the investigators, and that you can change your mind and withdraw your consent to participate at any time. You have been told that by signing this consent agreement you are not giving up any of your legal rights.

Signature of Participant

Date

Appendix B

General Demographics Survey

Please complete this survey with your information. Please keep in mind that all your responses will be kept confidential and will not be judged.

1. How old are you? _____

2. What is your gender?

- Male
- Female
- Non-binary
- Prefer not to say
- Other: _____

3. What is your sexual orientation?

- Heterosexual
- Bisexual
- Homosexual
- Prefer not to say
- Other: _____

4. What is your ethnicity?

- North American Aboriginal origins
- Other North American Origins
- European origins
- Caribbean origins

- Latin, Central, and South American origins
- African origins
- Asian origins
- Oceania origins
- Mixed origins (please specify)

5. What is the approximate household income of the home you grew up in?

- Up to \$40 000
- \$40 000 - \$60 000
- \$60 000 - \$85 000
- \$85 000 - \$125 000
- Over \$125 000

6. What type of area did you grow up in?

- Urban
- Suburban
- Rural

7. What religion were you brought up with?

- Christian
- Jewish
- Islam
- Buddhism
- None
- Other: _____

8. What religion do you identify with today?

- Christian
- Jewish
- Islam
- Buddhism
- None
- Other: _____

9. Please indicate whether you consider yourself to be liberal or conservative in regards to your religious beliefs (not necessarily politically).

**Extremely
liberal**
1

**More
liberal**
2

**Somewhat liberal
and conservative**
3

**More
conservative**
4

**Extremely
conservative**
5

Appendix C

Personal Beliefs Survey

Please complete this survey with your information. Please keep in mind that all your responses will be kept confidential and will not be judged.

In the last section of this study, your implicit biases towards different types of people were measured. Now please tell us about the beliefs you are aware that you consciously choose to hold about these same types of people.

For the following statements, please circle the number that correlates with your opinion.

1=strongly disagree 2=slightly disagree 3=neither agree nor disagree 4=slightly agree 5=strongly agree

I choose to believe...

- 1. Black people should have all the same rights and opportunities as White people.**

1 2 3 4 5

- 2. Women should have all the same rights and opportunities as men.**

1 2 3 4 5

- 3. Homosexual individuals should have all the same rights and opportunities as heterosexual individuals.**

1 2 3 4 5

Appendix D

Profile Of Emotional Competence

The questions below are designed to provide a better understanding of how you deal with your emotions in daily life. Answer each question spontaneously, taking into account the way you would typically respond. There are no right or wrong answers as we are all unique on this level.

For each question, you will have to give a score on a scale from 1 to 5, with 1 meaning that the statement does not describe you at all or you never respond like this, and 5 meaning that the statement describes you very well or that you experience this particular response very often.

	Never	Occasionally	Sometimes	Frequently	Always
As my emotions arise I don't understand where they come from.	1	2	3	4	5
I don't always understand why I respond in the way I do.	1	2	3	4	5
If I wanted, I could easily influence other people's emotions to achieve what I want.	1	2	3	4	5
I know what to do to win people over to my cause.	1	2	3	4	5
I am often at a loss to understand other people's emotional responses.	1	2	3	4	5
When I feel good, I can easily tell whether it is due to being proud of myself, happy or relaxed.	1	2	3	4	5
I can tell whether a person is angry, sad or happy even if they don't talk to me.	1	2	3	4	5
I am good at describing my feelings.	1	2	3	4	5
I never base my personal life choices on my emotions.	1	2	3	4	5

	Never	Occasionally	Sometimes	Frequently	Always
When I am feeling low, I easily make a link between my feelings and a situation that affected me.	1	2	3	4	5
I can easily get what I want from others.	1	2	3	4	5
I easily manage to calm myself down after a difficult experience.	1	2	3	4	5
I can easily explain the emotional responses of the people around me.	1	2	3	4	5
Most of the time I understand why people feel the way they do.	1	2	3	4	5
When I am sad, I find it easy to cheer myself up.	1	2	3	4	5
When I am touched by something, I immediately know what I feel.	1	2	3	4	5
If I dislike something, I manage to say so in a calm manner.	1	2	3	4	5
I do not understand why the people around me respond the way they do.	1	2	3	4	5
When I see someone who is stressed or anxious, I can easily calm them down.	1	2	3	4	5
During an argument I do not know whether I am angry or sad.	1	2	3	4	5
I use my feelings to improve my choices in life.	1	2	3	4	5
I try to learn from difficult situations or emotions.	1	2	3	4	5
Other people tend to confide in me about personal issues.	1	2	3	4	5
My emotions inform me about changes I should make in my life.	1	2	3	4	5

	Never	Occasionally	Sometimes	Frequently	Always
I find it difficult to explain my feelings to others even if I want to.	1	2	3	4	5
I don't always understand why I am stressed.	1	2	3	4	5
If someone came to me in tears, I would not know what to do.	1	2	3	4	5
I find it difficult to listen to people who are complaining.	1	2	3	4	5
I often take the wrong attitude to people because I was not aware of their emotional state.	1	2	3	4	5
I am good at sensing what others are feeling.	1	2	3	4	5
I feel uncomfortable if people tell me about their problems, so I avoid it.	1	2	3	4	5
I know what to do to motivate people.	1	2	3	4	5
I am good at lifting other people's spirits.	1	2	3	4	5
I find it difficult to establish a link between a person's response and their personal circumstances.	1	2	3	4	5
I am usually able to influence the way other people feel.	1	2	3	4	5
If I wanted, I could easily make someone feel uneasy.	1	2	3	4	5
I find it difficult to handle my emotions.	1	2	3	4	5
The people around me tell me I don't express my feelings openly.	1	2	3	4	5
When I am angry, I find it easy to calm myself down.	1	2	3	4	5

	Never	Occasionally	Sometimes	Frequently	Always
I am often surprised by people's responses because I was not aware they were in a bad mood.	1	2	3	4	5
My feelings help me to focus on what is important to me.	1	2	3	4	5
Others don't accept the way I express my emotions.	1	2	3	4	5
When I am sad, I often don't know why.	1	2	3	4	5
Quite often I am not aware of people's emotional state.	1	2	3	4	5
Other people tell me I make a good confidant.	1	2	3	4	5
I feel uneasy when other people tell me about something that is difficult for them.	1	2	3	4	5
When I am confronted with an angry person, I can easily calm them down.	1	2	3	4	5
I am aware of my emotions as soon as they arise.	1	2	3	4	5
When I am feeling low, I find it difficult to know exactly what kind of emotion it is I am feeling.	1	2	3	4	5
In a stressful situation I usually think in a way that helps me stay calm.	1	2	3	4	5

Appendix E

Preliminary Information For Implicit Association Tests

Preliminary Information

On the next page you'll be asked to select an Implicit Association Test (IAT) from a list of possible topics . We will also ask you (optionally) to report your attitudes or beliefs about these topics and provide some information about yourself.

We ask these questions because the IAT can be more valuable if you also describe your own self-understanding of the attitude or stereotype that the IAT measures. We would also like to compare differences between people and groups.

Data Privacy: Data exchanged with this site are protected by SSL encryption. Project Implicit uses the same secure hypertext transfer protocol (HTTPS) that banks use to securely transfer credit card information. This provides strong security for data transfer to and from our website. IP addresses are routinely recorded, but are completely confidential. We make the anonymous data collected on the Project Implicit Demonstration website publicly available. You can find more information on our [Data Privacy page](#).

Important disclaimer: In reporting to you results of any IAT test that you take, we will mention possible interpretations that have a basis in research done (at the University of Washington, University of Virginia, Harvard University, and Yale University) with these tests. However, these Universities, as well as the individual researchers who have contributed to this site, make no claim for the validity of these suggested interpretations. If you are unprepared to encounter interpretations that you might find objectionable, please do not proceed further.

I am aware of the possibility of encountering interpretations of my IAT test performance with which I may not agree. Knowing this, [I wish to proceed](#)

Found at: <https://implicit.harvard.edu/implicit/canada/takeatest.html>

APPENDIX F

Implicit Association Test Instructions

Race IAT

Implicit Association Test

Next, you will use the 'E' and 'I' computer keys to categorize items into groups as fast as you can. These are the four groups and the items that belong to each:

Category	Items
Good	Delight, Enjoy, Happy, Triumph, Laughing, Pleasure, Cherish, Friend
Bad	Rotten, Gross, Disgust, Bothersome, Negative, Hurtful, Dirty, Scorn
African Americans	
European Americans	

There are seven parts. The instructions change for each part. Pay attention!

Gender - Career IAT

Implicit Association Test

Next, you will use the 'E' and 'I' computer keys to categorize items into groups as fast as you can. These are the four groups and the items that belong to each:

Category	Items
Male	Ben, Paul, Daniel, John, Jeffrey
Female	Rebecca, Michelle, Emily, Julia, Anna
Career	Career, Corporation, Salary, Office, Professional, Management, Business
Family	Wedding, Marriage, Parents, Relatives, Family, Home, Children

There are seven parts. The instructions change for each part. Pay attention!

Sexuality IAT

Implicit Association Test

Next, you will use the 'E' and 'I' computer keys to categorize items into groups as fast as you can. These are the four groups and the items that belong to each:

Category	Items
Good	Celebrate, Delight, Appealing, Magnificent, Glad, Pleased, Excellent, Pleasure
Bad	Angry, Detest, Sickening, Humiliate, Evil, Scorn, Selfish, Tragic
Gay people	  Gay People, Homosexual, Gay
Straight people	 Straight, Straight People, Heterosexual

There are seven parts. The instructions change for each part. Pay attention!

Found at: <https://implicit.harvard.edu/implicit/canada/selectatest.jsp>

Appendix G

Matrix Scatterplots of EC Subscale Scores and IAT Scores

Figure 5

Scatterplots of Race IAT Scores and Intrapersonal IAT Scores

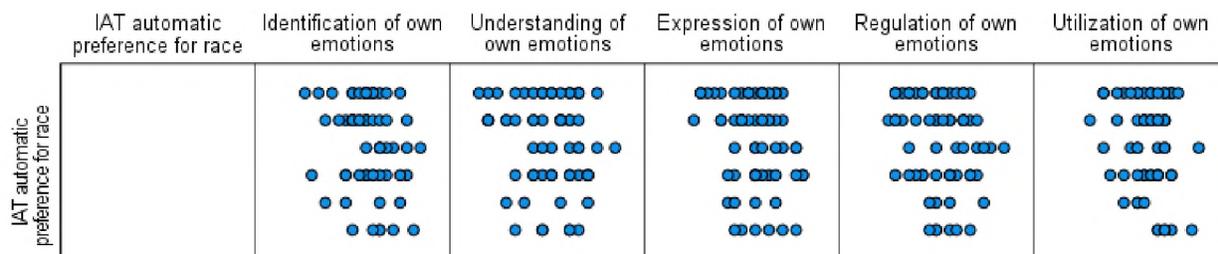


Figure 6

Scatterplots of Race IAT Scores and Interpersonal IAT Scores

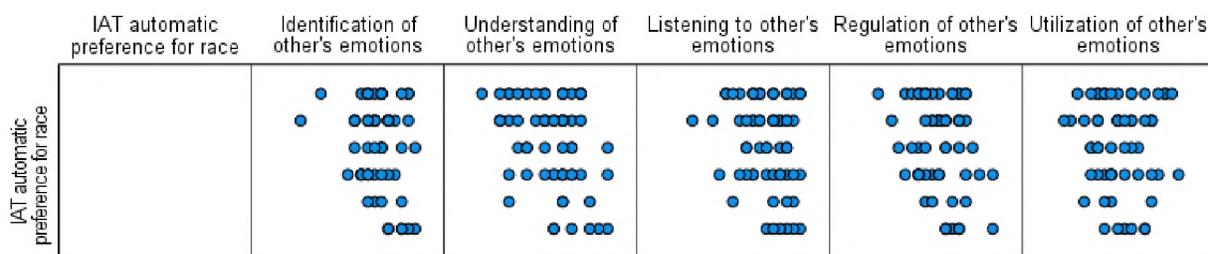


Figure 7

Scatterplots of Gender IAT Scores and Intrapersonal IAT Scores

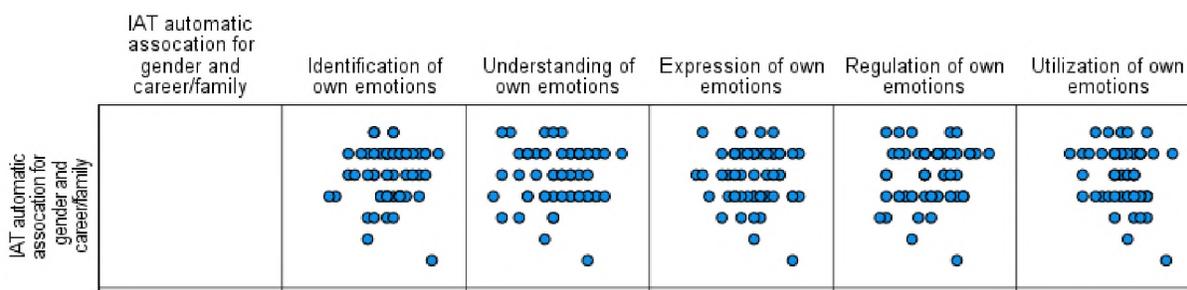


Figure 8

Scatterplots of Gender IAT Scores and Interpersonal IAT Scores

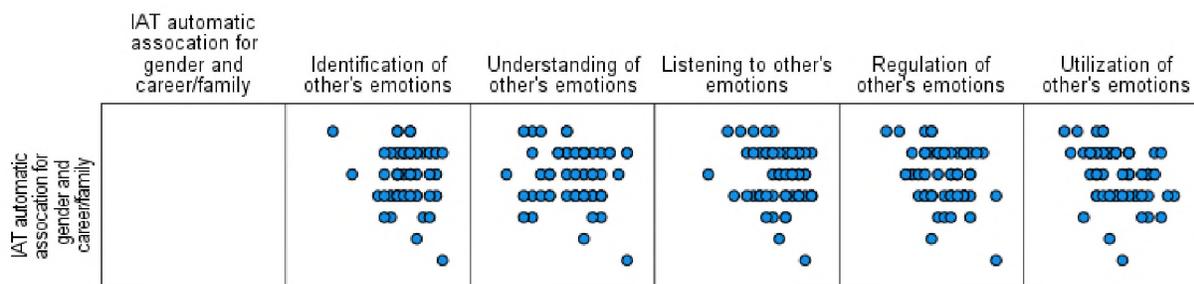


Figure 9

Scatterplots of Sexuality IAT Scores and Intrapersonal IAT Scores

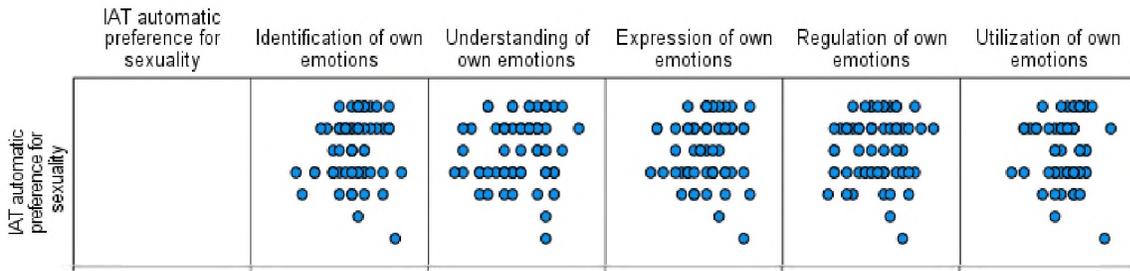
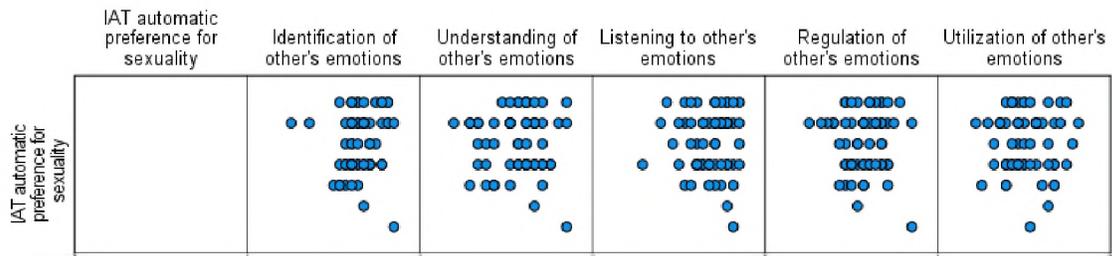


Figure 10

Scatterplots of Sexuality IAT Scores and Interpersonal IAT Scores



Appendix H

Means And Standard Deviations Of Emotional Competencies

Based On Race, Gender, And Sexuality

Table 8

Means and Standard Deviations of Emotional Competencies Based on Race

	European origins			Other origins		
	Mean	SD	N	Mean	SD	N
Global EC	3.47	0.48	35	3.52	0.45	29
Interpersonal EC	3.61	0.47	35	3.61	0.53	29
Intrapersonal EC	3.34	0.62	35	3.44	0.50	29

Note. Participants could receive a score between 1 and 5, with 1 being an extremely low EC score and 5 being extremely high. A score of 3 would be a middle of the range EC score.

Table 9

Means and Standard Deviations of Emotional Competencies Based on Gender

	Male			Female		
	Mean	SD	N	Mean	SD	N
Global EC	3.62	0.36	21	3.48	0.36	42
Interpersonal EC	3.67	0.42	21	3.61	0.56	42
Intrapersonal EC	3.56	0.41	21	3.35	0.59	42

Note. Participants could receive a score between 1 and 5, with 1 being an extremely low EC score and 5 being extremely high. A score of 3 would be a middle of the range EC score.

Table 10

Means and Standard Deviations of Emotional Competencies Based on Sexuality

	Heterosexual			Other sexuality		
	Mean	SD	N	Mean	SD	N
Global EC	3.54	0.45	54	3.44	0.56	9
Interpersonal EC	3.63	0.52	54	3.66	0.49	9
Intrapersonal EC	3.46	0.50	54	3.21	0.78	9

Note. Participants could receive a score between 1 and 5, with 1 being an extremely low EC score and 5 being extremely high. A score of 3 would be a middle of the range EC score.

Appendix I

Correlation Statistics Of Religious Conservatism And Key Variables

Table 14

Correlation Statistics of Religious Conservatism and IAT Scores

	IAT Race		IAT Gender		IAT Sexuality	
	r	n	r	n	r	n
Religious conservatism	0.09	62	0.38**	60	0.26*	60

Note.

**significant at the 0.01 level (2-tailed)

*significant at the 0.05 level (2-tailed)

Figure 11

Correlation Statistics of Religious Conservatism Scores and IAT Gender Scores

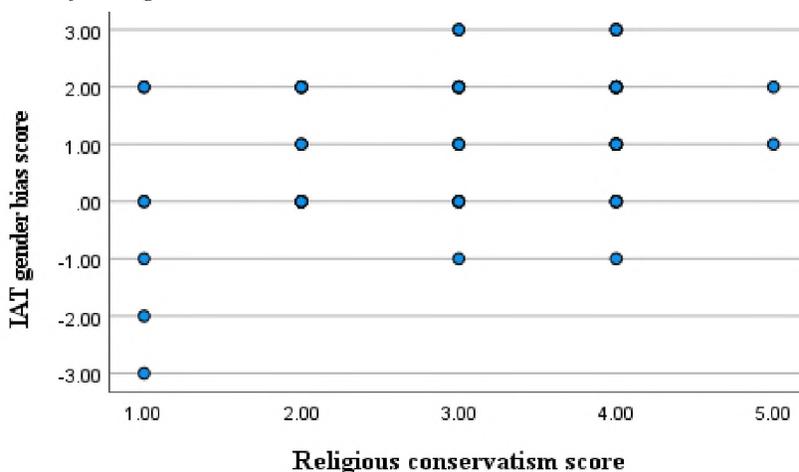


Figure 12

Correlation Statistics of Religious Conservatism Scores and IAT Sexuality Scores

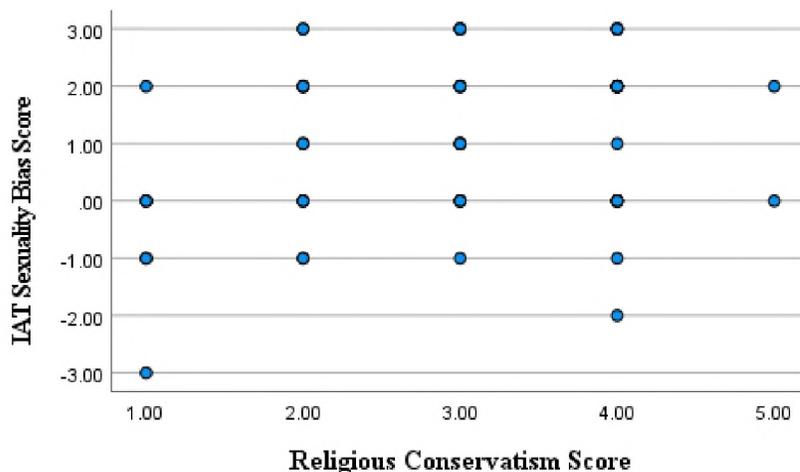


Table 15

Correlation Statistics of Religious Conservatism and Explicit Bias

	Explicit race bias		Explicit gender bias		Explicit sexuality bias	
	r	n	r	n	r	n
Religious conservatism	N/A	63	-0.28*	63	-0.44**	63

Note.

**significant at the 0.01 level (2-tailed)

*significant at the 0.05 level (2-tailed)

Figure 13

Correlation Statistics of Religious Conservatism Scores and Explicit Gender Bias

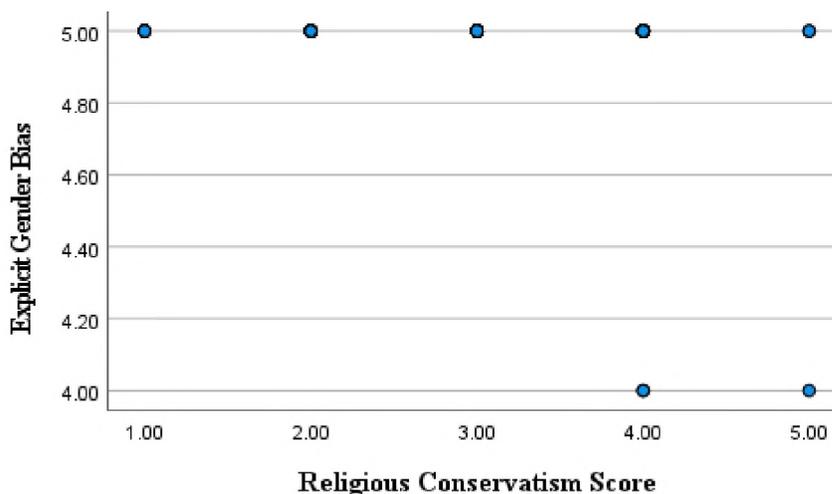


Figure 14

Correlation Statistics of Religious Conservatism Scores and Explicit Sexuality Bias

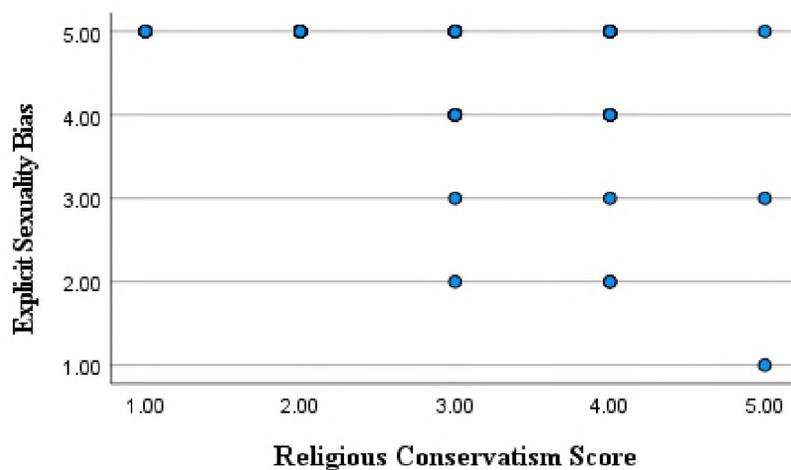


Table 16

Correlation Statistics of Religious Conservatism and Global Emotional Competence Scores

	Global EC		Interpersonal EC		Intrapersonal EC	
	r	n	r	n	r	n
Religious conservatism	-0.05	64	-0.13	64	-0.04	64

Note. No significant correlations were found between religious conservatism and EC.