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A Laboratory Evaluation of the Effects of Empathy Training on Racial Bias

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Abstract

The purpose of the current study was to evaluate the effects of behavioral procedures, including relational training and multiple exemplar training on empathic responding of individuals who display racial bias. In particular, this study used a multielement design with five adult participants to evaluate whether the presentation of relational frames of coordination and distinction between the participants' values and the values of a person belonging to a group for which a bias existed altered empathic responses toward people belonging to such groups. The results showed empathic responding was higher when relational frames of coordination were presented and lower when relational frames of distinction were presented. This study provides preliminary data suggesting that relational training may result in altered patterns of empathic responses toward people belonging to different racial groups for which a bias previously was observed.

Keywords Behavior analysis · Empathy · Racial bias · Relational frame theory

Empathy is a social behavior that involves identifying the mental state of another person and responding emotionally to their private experience (Elliot et al., 2011; Lawrence et al., 2004). There is no broadly agreed upon definition or conceptualization of empathy across psychological disciplines. In general, empathy refers both to one's affective experience of another's affective state and to one's understanding of it (Decety & Jackson, 2004). From a behavior analytic perspective, empathy may be defined (similar to emotions) as respondent behavior including physiological components (e.g., increased heart rate, chills).

Such respondent behavior may then be considered a pivotal behavior for other prosocial behaviors, such as helping others, sharing, cooperating, volunteering, and research has shown that empathy is positively correlated with a variety of prosocial behaviors (Eisenberg & Miller, 1987) and altruistic behavior (Batson, 2011). In addition, empathy has been shown to be negatively correlated with aggressive

and externalizing antisocial behaviors (Miller & Eisenberg, 1988). Empathy may also be an important behavior for success in maintaining relationships with others (e.g., Joireman et al., 2002; McDonald & Messinger, 2011). Individuals who are observed to have difficulty relating to others often also display difficulty with empathizing, including some individuals with antisocial personality disorders (Miller & Eisenberg, 1988). Furthermore, research on empathy has found that maladaptive social behavior, such as bullying and the stigmatization of group members, is negatively related to empathy (e.g., Batson et al., 1997; van Noorden et al., 2014).

Although some research has explored ways to teach empathy-related skills to children diagnosed with autism spectrum disorder (e.g., Sivaraman 2017), research in this area is limited. Moreover, relatively little research has documented procedures for specifically increasing empathy of typically developing adults. Batson et al. (1997) investigated how perspective taking can increase empathy toward members belonging to a stigmatized group. Participants were instructed to take the perspective of an individual belonging to the stigmatized group, and the results of the study indicated that participants' attitudes toward the group as a whole were subsequently more positive. Therefore, the study's findings suggest that bringing one's attention to the perspective of another person may change the perspective one has toward a group of people.

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Using the framework of relational frame theory (RFT), empathy has been described as relational framing developed through a history of reinforcement and as one of the behavioral repertoires that is supported by the development of flexible deictic relational repertoires of framing I–You, Here–There, and Now–Then relations (McHugh et al., 2019). In particular, empathy has been described as being supported by deictic relating of oneself to others in terms of frames of coordination (Vilardaga, 2009). In simple terms, identifying and responding to the ways in which we are similar to others may support our empathy toward them. This behavioral conceptual account of empathy is inherently pragmatic because it suggests that empathy consists of relational behaviors that can be taught and strengthened. Despite the potential utility of this analysis, relatively little empirical research has been done on it.

Although not directly addressing empathy, a small number of empirical studies have trained deictic relating and evaluated the effects it produced on other measures of perspective taking and theory of mind. Jackson et al. (2014) taught deictic relations to children with autism. Three children with autism were taught I–You, Here–There, and Now–Then relations across three levels of complexity: (1) simple; (2) reversed; and (3) double reversed. All three participants successfully acquired the relational responses and generalized to untrained probes within each level of complexity. The effects of training did not generalize to measures of five levels of Theory of Mind, including to performance on the commonly used *Unexpected Transfer Task,* also commonly referred to as the *Sally–Anne Task*. In addition, Barron et al. (2019) taught two children with autism Then–Later and Here–There relations. Multiple exemplar training within each relation resulted in generalization across a variety of untrained exemplars of those relations. These studies should be considered preliminary, but their results are encouraging because they suggest that deictic relating is trainable in clinical populations.

A small number of studies have evaluated procedures for training deictic relating in typically developing populations. Weil et al. (2011) taught three typically developing children deictic relating skills across I–You, Here–There, and Now–Then relations. Participants acquired the trained skills and performance on traditional Theory of Mind tests of perspective taking improved. Davlin et al. (2011) trained I–Them, Here–There, and Now–Then deictic relations, across simple, reversed, and double-reversed levels of complexity, in the context of children's stories. Multiple exemplar training resulted in acquisition of all three levels of complexity. Hooper et al. (2015) evaluated the effects of a perspective taking training that required participants to respond to frames of I–You, Here–There, and Now–Then across simple, reversed, and double reversed relational complexities on adult participants' performance

on a fundamental attribution error task. The results showed that participants who received the perspective taking training, as compared to those in the control group, demonstrated a reduction in fundamental attribution error. The studies described above are encouraging, but limited deictic training research has been done with typically developing adults, and less still has been done that has directly addressed empathy.

A recent laboratory study conducted by Persicke (2020) more directly addressed the conceptual analysis suggesting that empathy is supported by deictic relating in terms of coordination. Persicke's study evaluated how responding to relational frames of coordination and distinction/opposition between one's values and the values of others changed self-reported empathic responding. Participants were provided with scenarios of characters experiencing positive (e.g., getting an award) or negative (e.g., losing a job) events and were then asked to score how they felt upon learning about the character's experience on a 9-point Likert scale with 1 being very sad, angry, or frustrated and 9 being very happy or excited. Following this initial phase, participants were next provided with additional descriptions of the character's values that included information related to whether the character had values similar to or different/opposite from the participant's values. The additional descriptions were presented with the same scenarios from the initial phase and participants were asked to rate their own emotional reaction again. The results showed that participants self-reported higher levels of empathy when a character's values were in coordination with their own values (e.g., if the character in the scenario valued family in the same way as the participant). On the other hand, participants reported lower levels of empathy, and even counterempathy, when the character's values were different from/in opposition to their own values (e.g., if the character in the scenario did not value their career when the participant did value their career). Such findings support an RFT account of empathy, wherein one responds to the relation between oneself and someone else based on their individual perspective (Hayes et al., 2001), and suggest that empathic responding may be enhanced by identifying similarities between oneself and others. Furthermore, the results suggest that empathy may be increased via relational training and that values may play an important role in such training.

The term values has many meanings in the lay culture but it has a specific meaning, defined in functional analytic terms, in the acceptance and commitment therapy (ACT) literature. Values, *as stimuli*, can be defined as verbal stimuli that participate in complex, highly abstracted relational networks, likely often involving hierarchical relations (Tarbox et al., 2020). For example, the stimulus "supporting my family" may participate in a hierarchical relation with (i.e., "contain") other stimuli, such as "earning an income," "providing a home," "being a loving parent," and so on. Valuing,

as behavior, can be understood as the behavior of interacting with values stimuli in ways that alter one's own environment and then affect one's own behavior, often as augmentals or verbally mediated motivating operations (Tarbox et al., 2023). Presenting values stimuli in the same context as cues for perspective taking (i.e., deictic relating) in terms of similarity can create a context for relating oneself to another in terms of similar values. It follows that a transformation of function could occur, wherein what is positively reinforcing for the other may have transformed positive reinforcement functions for oneself.

The ability to increase empathy is valuable for a variety of socially significant problems, including racism. Racial bias is a specific form of bias relevant to attitudes toward racial/ethnic group members (Lai et al., 2016). Such attitudes are problematic because they lead to health-care disparities (Le Cook et al., 2009), educational disparities (Drake, 2017), employment/wage disparities (Holzer et al., 2006; Thomas et al., 2011), and police brutality (DeGue et al., 2016; Chaney & Robertson, 2013). From a behavior analytic perspective, race-related bias (i.e., covert or overt), may be a product of classical and operant conditioning, as well as observational learning and shaping (Matsuda et al., 2020). Furthermore, a behavioral account of bias posits that it is something that people *do*, rather than something people *possess* (De Houwer, 2019). From this perspective, what people do and the bias they display are a function of the social cues present within the environment (Barnes-Holmes et al., 2010).

An RFT account of bias postulates that race-related biases may result from deictic relations of I–You alongside relational frames of coordination and distinction (Edwards et al., 2017). For example, a white individual may relate to another white individual via a deictic frame of I–You alongside a frame of coordination. On the other hand, a white individual may relate to an Asian individual via a deictic frame of I–You alongside a frame of distinction. The relational framing of coordination versus distinction with others may influence how they perceive white versus Asian individuals. In particular, they may perceive Asian individuals more negatively as a result of relating them within a frame of distinction from themselves. It is noteworthy that the behavioral perspective of bias as behavior allows for the plausibility of it being malleable and changeable (De Houwer, 2019), and research from both outside (Todd et al., 2011) and within behavior analysis (Dixon et al., 2006; Dixon & Lemke 2007; Lillis & Hayes, 2007; Mizael et al., 2016; Mizael et al., 2021; Power, 2010) has demonstrated the efficaciousness of interventions in altering displays of race-related bias. Although these studies have promising findings, the involvement of empathy in racial bias and the role of relational framing on empathic behaviors toward individuals belonging to a group for which a bias was observed has not been evaluated.

Counterempathy refers to experiencing emotional responses that are discordant with another's emotional experience, for example experiencing joy while observing another person in distress or anger while observing another person's victory. Given that counterempathic responses are observed in racism (Cikara et al., 2014) and that race-related injustice and violence are problems of social significance, it appears necessary to identify effective methods for increasing empathy in individuals who display racial biases.

Furthermore, given that previous research by Persicke (2020) indicated self-reported empathy can be enhanced via relational training, it appears valuable and necessary to evaluate the effects of relational framing on self-reported empathy related to racial bias. The current study aimed to extend the behavioral research on empathic responding in individuals with racial biases. In particular, this study evaluated whether behavioral procedures, including relational framing and multiple exemplar training, would be efficacious in enhancing empathic responding of individuals who displayed a racial bias. Two independent studies were completed to evaluate whether the presentation of relational frames of coordination and distinction/opposition between an individual's values and the values of a person belonging to a group for which a bias was identified would alter empathic responding toward people belonging to such groups. Experiment 1 was a preliminary study and Experiment 2 was an extension of Experiment 1 that addressed the limitations and supported the replicability of Experiment 1.

Experiment 1

Method

Participants and Setting

Participants included two English-speaking adult Latina females. Participant 1 was 39 years old, reported to be of middle socioeconomic status (SES), and held a doctoral degree. Participant 2 was 31 years old, reported to be of middle SES, and held a bachelor's degree. Participants were identified for recruitment by reaching out to individuals from both within and outside of the researchers' networks (i.e., organizations the researchers were not affiliated with) who expressed willingness to participate in behavioral research being conducted by doctoral students and asking them if they would like to participate in a pilot study about empathy. Participants were included because they were found to display a mean summed empathy score of at least 4 points below their own race score toward a given racial group during the prescreening assessment (further explained below). They were not told specifying details about the study's

purpose and were told that the purpose of the study was to evaluate how one relates to and empathizes with others.

All sessions were completed online using Qualtrics technology (https://www.qualtrics.com), and the participants completed sessions on their own time by responding to questionnaires. Each questionnaire included three sessions (see Fig. 2). Participants completed questionnaires at locations of their choosing. The duration of time it took for participants to complete questionnaires was approximately 10–25 min, and two to four questionnaires were completed per month.

Materials

Six photos (three male and three female) of individuals described by a stock photo search engine as Asian, Black, Indigenous, Latinx, and white were used to create questionnaire variations. Photos were selected because they included the most neutral expressions and were displayed in black and white (imitating photo presentations in the race implicit association test [IAT]). A randomization tool was used to assign photos of individuals from each racial/ethnic group to scenarios to be presented within research sessions. Scenarios presented within research sessions (Table 1) were based on participants' reported values evaluated via a values assessment (Appendix B) and were also assigned using a randomization tool. Scenario variations (Table 1) were created by the researchers, and some scenarios were similar to those used in Persicke (2020). The Emotion Rating Scale (ERS) response (Persicke, 2020) was used to evaluate and measure participants' empathic responding. The ERS used by Persicke involved presenting a picture of a person and a scenario relating to that person, immediately followed by the ERS affect question "How does it make you feel that (person) (experience)?" (see Fig. 1).

Response Measurement and Data Collection

Participants' empathy scores (i.e., summed scores to the ERS affect question "How does it make you feel that [person] [experience]?") were the primary dependent measure. This question was scored on a 9-point Likert scale (1 = *very sad, angry, or frustrated* to 9 = *very happy or excited*; see Appendix A). The scoring method for participants' responses was the same as that used in Persicke (2020). In particular, participant's Likert ratings to the ERS affect question were scored as a positive integer (i.e., +1 through +4) for emotion ratings that were similar to the person's experience in the presented scenario. For example, a score of +2 was provided when participants identified that they felt sad (3 on the Likert scale) upon hearing about a person experiencing a negative emotion-evoking event (e.g., losing a job). A negative integer (i.e., -1 through -4) was scored for emotion ratings that were opposite to the person's experience

in the presented scenario. For example, a score of -2 was provided when participants stated that they felt happy (7 on the Likert scale) upon hearing about a person experiencing a negative emotion-evoking event (e.g., losing a job). Negative integer scores were considered to be counterempathic responding, wherein participants reported feeling emotionally opposite to the experience of the character (e.g., feeling happy after learning of the character's experience of losing their job). Table 2 provides information on scoring based on positive and negative emotion-evoking scenarios. Each questionnaire consisted of 15 empathy scenarios presented across three sessions (i.e., 5 empathy scenarios for the coordination condition session, 5 for the distinction condition session, and 5 for the control condition session; see Fig. 2). The summed ERS score for each session was graphically displayed as an individual data point.

Experimental Design and Procedure

A multielement design with a no-treatment control and final coordination phase was used to assess the effects of training frames of coordination and distinction on the empathic responding of participants. Internal validity was demonstrated through consistent differentiation between coordination, control, and distinction/opposition conditions. The experimental procedures were reviewed and approved by the Institutional Review Board (IRB) at Endicott College.

Consent

Participants completed an informed consent survey online using Qualtrics. The survey described that the purpose of the study was to assess how one relates to and empathizes with others and outlined the procedures of the study. Potential benefits and risks were also disclosed.

Values Assessment

Within the consent survey, participants were asked to complete a values assessment (see Appendix B). The values assessment required that participants select five values from the list provided and write down their selections in the space provided in order of importance. The purpose of this assessment was to identify what participants valued most in their lives in order to individualize empathic scenarios and narratives throughout the study. Each participant's top five reported values were used to identify scenarios related to those values (see Table 1). For example, if a participant's top five ranked values included (1) family; (2) health; (3) religion; (4) social equality; and (5) education, then all scenarios related to these values were used by randomly assigning (using https://www.random.org) them to photos of individuals to be presented during sessions.

Table 1 Empathy-Evoking Scenarios According to Values

Value	Positive Emotional Event (PE)	PE Variation 2	PE Variation 3	Negative Emotional Event (NE)	NE Variation 2	NE Variation 3
Relationships (R)	A person gets married. (PER1)	A person develops a new, meaningful friendship. (PER2)	A person reconnects with an old friend. (PER3)	A person gets stood up on a date. (NER1)	A person has a falling out with their best friend. (NER2)	A person's partner forgets their birthday or anniversary. (NER3)
Family (F)	A person receives a piece of jewelry that has been in the family for generations. (PEF1)	A person spends a holiday with their family. (PEF2)	A person goes on a family vacation. (PEF3)	A person has to move far away from their family members. (NEF1)	A person has a falling out with their family member. (NEF2)	A person is excluded from a family event. (NEF3)
Social Equality (SE)	A person is provided a housing opportunity and no longer has to worry about where to live. (PESE1)	A person's child gets a scholarship that allows them to go to college. (PESE2)	A person is given a seat at the table of their organization. (PESE3)	A person finds out they are being provided with fewer opportunities by their employer because of their age. (NESE1)	A person is denied a loan based on their sexual orientation. (NESE2)	A person is kicked out of a store because of their appearance. (NESE3)
Health (H)	A person's diet-related health issue is resolved. (PEH1)	A person begins a new medication that resolves their health issue. (PEH2)	A person finds a health specialist who can treat their condition. (PEH3)	A person is diagnosed with a diet-related illness. (NEH1)	A person is diagnosed with a mental health disorder. (NEH2)	A person is diagnosed with a chronic health condition. (NEH3)
Religion / Religious Affiliation (RA)	A person is well liked by their neighbors because of their religion. (PERA1)	A person falls in love with someone who shares their religion. (PERA2)	A person finds a religious community to be a part of. (PERA3)	A person is publicly ridiculed for their religion. (NERA1)	A person is excluded from an event because of their religion. (NERA2)	A person is not hired because of their religion. (NERA3)
Education (Ed)	A person graduates from college. (PEEd1)	A person passes a very important exam. (PEEd2)	A person receives an "A" in a difficult class. (PEEd3)	A person has to drop out of college. (NEEd1)	A person fails an important exam. (NEEd2)	A person fails an important class. (NEEd3)
Financial Status (FS)	A person buys a fancy new car. (PEFS1)	A person buys a new home. (PEFS2)	A person makes a good investment and makes a lot of money. (PEFS3)	A person's house gets broken into and all their valuables are taken. (NEFS1)	A person loses their wallet while on vacation. (NEFS2)	A person makes a bad investment and loses all of their savings. (NEFS3)
Professional Success / Career (C)	A person gets hired for their dream job. (PEC1)	A person gets a promotion. (PEC2)	A person is publicly recognized for their success in their career. (PEC3)	A person gets fired from their dream job. (NEC1)	A person is demoted. (NEC2)	A person has to leave their career to care for their family. (NEC3)

Fig. 1 Example of ERS Affect Question Presented Following Scenario

General Procedures

Sessions consisted of the participant accessing an online platform (i.e., Qualtrics), viewing photos of individuals belonging to given racial/ethnic groups, and reading scenarios about the pictured individuals experiencing various events related to previously identified values. After each

scenario was presented, participants were asked to answer the ERS question.

Prescreening

The prescreening assessment consisted of the presentation of five pictures, which were semirandomly selected male and female individuals of each of the following races/ethnicities (for a total of 25 pictures): Asian, Black, Indigenous, Latinx, and white. Participants were provided with scenarios that depicted Asian, Black, Indigenous, Latinx, and white individuals experiencing positive and negative events that related to the previously identified top five values (Table 1). For example, if participants identified professional success or a career as one of their top values, then they were presented with a scenario depicting a person (belonging to each of the aforementioned races/ethnicities) getting a promotion (i.e., positive event) or losing a job (i.e., negative event). The scenarios presented were randomly selected from a list of 30 available scenarios (6 scenarios per top five identified values; see Table 1). In particular, the 30 scenarios were inserted into a random list generator (https://www.random. org) and were selected using the randomization feature. Once 5 scenarios were randomly selected, they were randomly assigned to male and female photos. To do this, codes of male and female characters according to racial/ethnic groups (e.g., LF1 for Latinx Female Photo 1) were inserted into the random list generator and were selected using the randomization feature.

The purpose of this phase was to measure each participant's baseline levels of self-reported empathy toward individuals belonging to varying racial/ethnic groups based on participants' individual relational learning histories in order to identify and screen for whether a bias for any given group existed. No additional information about the people in the scenarios was provided. Thus, responding during this phase reflected the participants' empathic responding in the absence of additional relational cues provided by the experimenter.

Table 2 Emotion Rating Scale Scores

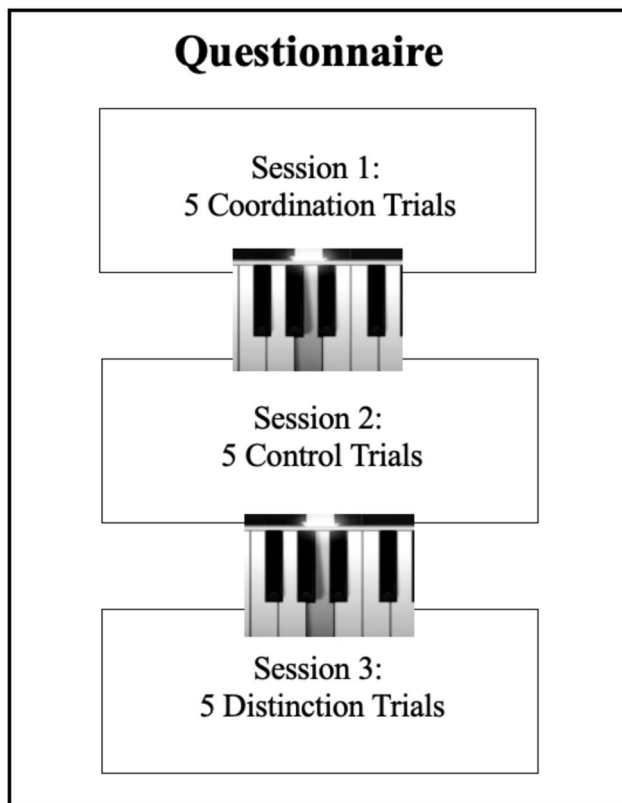| Likert Scale Response	Likert Scale Label	Score for Positive Emotion-Evoking Scenario	Score for Negative Emotion-Evoking Scenario
9	Very Happy/Excited	4	-4
8		3	-3
7	Happy/Excited	2	-2
6		1	-1
5	Neutral/Indifferent	0	0
4		-1	1
3	Sad/Angry/Frustrated	-2	2
2		-3	3
1	Very Sad/Angry/Frustrated	-4	4

Fig. 2 Example of Pilot Study Questionnaire Format in the Relational Framing Evaluation Phase. *Note.* All questionnaires in the relational evaluation phase consisted of three sessions. The order in which sessions of coordination, control, and distinction conditions were presented was randomized across all participants and questionnaires

The summed empathy score that was lowest for a particular group was identified as the race for which a bias was observed and was selected as the race/ethnicity to be targeted during the relational framing evaluation phase. Participants whose prescreening results did not have a summed score at least 4 points below the summed score for their own race/ethnicity or for any other given race/ethnicity did not continue to the relational framing evaluation phase. We selected 4 points lower than the score for one's own race/ethnicity as the criterion because it is about half of the total range possible on the ERS Likert scale, and we wanted to select a criterion that would represent a notable difference from the participants' own race/ethnicity summed empathy score.

Relational Framing Evaluation Phase

Following the prescreening assessment, participants began the relational framing evaluation phase in which they were presented with relational cues of coordination and distinction with their own values. In particular, participants were presented with additional information about what the person in each scenario valued. Adapted from Persicke

(2020), the following are examples of relational cues in the coordination and distinction conditions, respectively:

> The person you will learn about next is someone who is **similar** to you. Think about how someone similar to you would value family. What are some of the things that you would expect someone who is similar to you to do related to these values?
>
> The person you will learn about next is someone who is **different** from or the opposite of you. Think about how someone who is different from or the opposite of you would value family. What are some things you would expect someone who is different from or the opposite of you to do related to these values?

Following the presentation of the relational cue of either coordination or distinction/opposition, a text box was presented in which participants provided open-ended responses by typing in things they would expect someone who was the same as or different from them to do related to the presented value. For example, if participants were told that a character was similar to them in their value of family, they might have written that they would expect the character to attend family events or spend holidays with family members. The rationale for having participants provide these responses was to ensure they had attended to the relational cue (i.e., coordination, distinction/opposition). Experimenters checked to ensure that participants did indeed type something into the box (all participants did). A picture of an individual belonging to the race/ethnicity being targeted for relational framing evaluation followed. Participants were then asked to recall how the presented character related to them (i.e., similar or different). Then, information about the character experiencing a positive or negative emotion-evoking event related to the participant's values was presented, followed by the ERS question. Figure 3 displays an example of a trial in the relational framing evaluation phase.

A total of 15 scenarios presented across three sessions were provided during each relational framing evaluation questionnaire (see Fig. 2), 10 of which included relational cues (5 coordination and 5 distinction) related to the race/ethnicity being targeted during relational framing. The remaining 5 were pictures of the participant's race/ethnicity presented under prescreening conditions (i.e., without additional relational cues provided by the experimenter) and served as a control. A neutral activity of a piano playing music for 30 s was presented between sessions, and the order in which the relational information was provided was randomized across all participants and questionnaires.

Coordination Phase

Following the relational framing evaluation phase, participants completed a final coordination phase, wherein they

Fig. 3 Example of a Relational Framing Trial in the Distinction Condition

were presented with relational cues of only coordination with their own values for three consecutive sessions. A total of 15 scenarios (5 per session) with pictures of the race/ethnicity being targeted during relational framing were provided during this phase. Similar to the relational framing evaluation phase, a neutral activity of a piano playing music was presented between sessions, and scenarios were randomized across sessions.

Results

The prescreening results for Participants 1 and 2 are displayed in Fig. 4. The results of Experiment 1 are displayed in Fig. 5. For Participant 1, prescreening results were a summed empathy score of 14 for the Latinx race (own race) and a summed empathy score of 9 for the Asian race. In relational framing evaluation, the Asian race summed empathy scores during the coordination condition ranged from 10 to 16 ($M = 14$) and demonstrated differentiation from the summed empathy scores ($M = 12$) for the Latinx control race in relational framing sessions. In addition, summed empathy scores for the Asian race during the distinction condition ranged from 2 to 6 ($M = 4$). The Latinx race summed empathy score remained stable at 12 throughout the relational framing evaluation phase. In the final coordination condition, summed empathy scores for the Asian race ($M = 13$, range: 10–17) displayed an increasing trend.

For Participant 2, prescreening results were a summed empathy score of 10 for the Latinx race (own race) and a summed empathy score of 3 for the white race. In relational framing evaluation, the white race summed empathy scores during the coordination condition ranged from 8 to 9 ($M = 8$) and demonstrated differentiation from the summed empathy score for the Latinx control race in all sessions. In addition, the white race summed empathy scores during the distinction condition ranged from 1 to 3 ($M = 2$). The Latinx race summed empathy score ranged from 4 to 6 throughout the relational framing evaluation condition ($M = 5$). In the final coordination condition, summed empathy scores for the white race ranged from 6 to 7 ($M = 7$).

Discussion

This study evaluated the effects of the presentation of cues of coordination and distinction in relation to an individual's values on empathic responding toward individuals belonging to a group for which bias existed. Participants were asked to access an online platform and relate their own values to a character whose picture was presented alongside a scenario of the character experiencing an event related to the participant's top ranked values. The results showed that participants' empathic responding was higher when characters' values were in coordination with the participants' values and was lower when characters' values were in opposition to the participants' values.
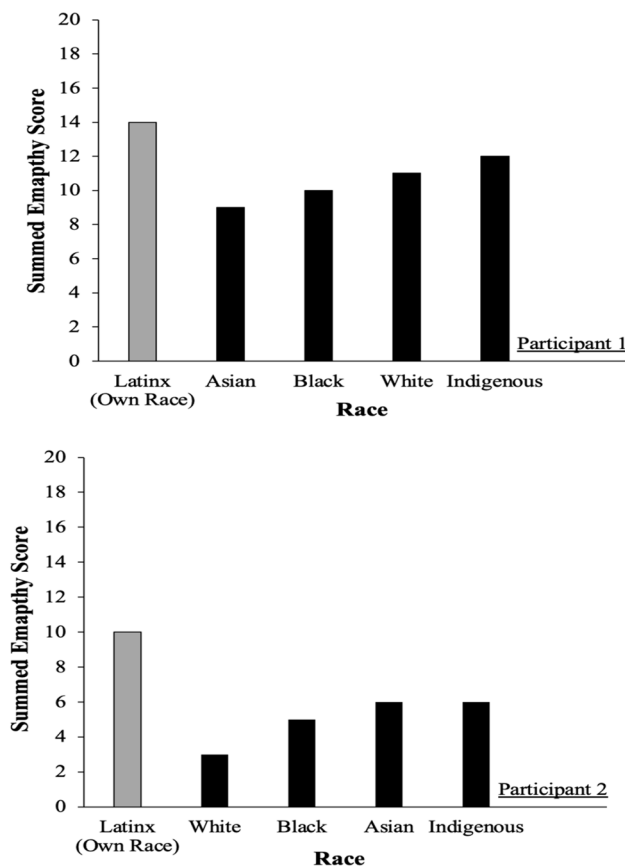
Fig. 4 Prescreening Results for Participants 1 and 2. Grey bars demonstrate the summed empathy score for the participants own race. Summed empathy scores for other races are ordered from lowest to highest score

It should be noted that the presentation of positive versus negative emotion-evoking scenarios was not counterbalanced. Therefore, some sessions could have had more positive or negative emotion-evoking scenarios presented. In addition, the presentation of males and females was not counterbalanced. Thus, some sessions included more females or males, and more males or females experiencing positive events or negative events. This poses a limitation, because participants' response patterns could be influenced by the unbalanced presentation of characters or scenarios. These limitations could be addressed by presenting an even number of trials per session and counterbalancing the presentation of males versus females experiencing positive versus negative events.

Furthermore, it is possible that idiosyncratic results occurred because stimuli and scenarios changed each session. Thus, a lack of experimental control existed, and how participants would have responded to the re-presentation of scenarios and stimuli is unknown. This limitation could be addressed by re-presenting the distinction stimuli in the final coordination condition sessions. Finally, participants were not debriefed, and social validity was not assessed. Debriefing participants by disclosing the study's purpose and findings could potentially be useful because

it may aid in participants applying the findings from the study to their real life. For example, by learning that empathic responding was higher when they believed characters were the same as them, participants may practice thinking about how others are similar to them when they wish to enhance their empathy. Evaluating social validity by administering a social validity questionnaire is important because it provides information on the perceived social importance and acceptability of the research (Wolf, 1978).

Experiment 2

The purpose of this study was to address the limitations of Experiment 1. In particular, the purpose was to extend Experiment 1 by (1) counterbalancing the presentation of male versus female characters experiencing positive and negative events; (2) re-presenting previous stimuli; (3) debriefing participants; and (4) evaluating social validity.

Method

Participants and Setting

Three English-speaking adults enrolled in a master's in applied behavior analysis program participated. Participant 3 was a 42-year-old white male who reported to be of middle SES. Participant 4 was a 38-year-old Black female who reported to be of middle SES. Participant 5 was a 29-year-old Asian female who reported to be of low SES. Participants were recruited by emailing an attached recruitment flyer to faculty members at the Graduate School of Education and Psychology at Pepperdine University to distribute to students. Participants were included because they were found to display a mean summed empathy score of at least 4 points below their own race/ethnicity score toward a given racial/ethnicity group during the prescreening assessment. Participants were not told specifying details about the study's purpose and were told that the purpose of the study was to evaluate how one relates to and empathizes with others.

Similar to Experiment 1, all questionnaires were completed online using Qualtrics (https://www.qualtrics.com), included three sessions, and participants completed questionnaires on their own time and at locations of their choosing. Unlike Experiment 1, the duration of time it took for participants to complete each questionnaire was approximately 25–60 min, and each participant completed one to seven questionnaires per week.

Materials

The use of the ERS response (Persicke, 2020) to evaluate and measure participants' empathic responding was identical to Experiment 1. The presentation of a picture of a

Fig. 5 Summed Empathy Scores for Participants 1 and 2. *Note.* Phases include relational framing evaluation and coordination. Arrows indicate the condition under which sessions were presented (i.e., coordination, control, and distinction). The dotted line represents zero on the y-axis
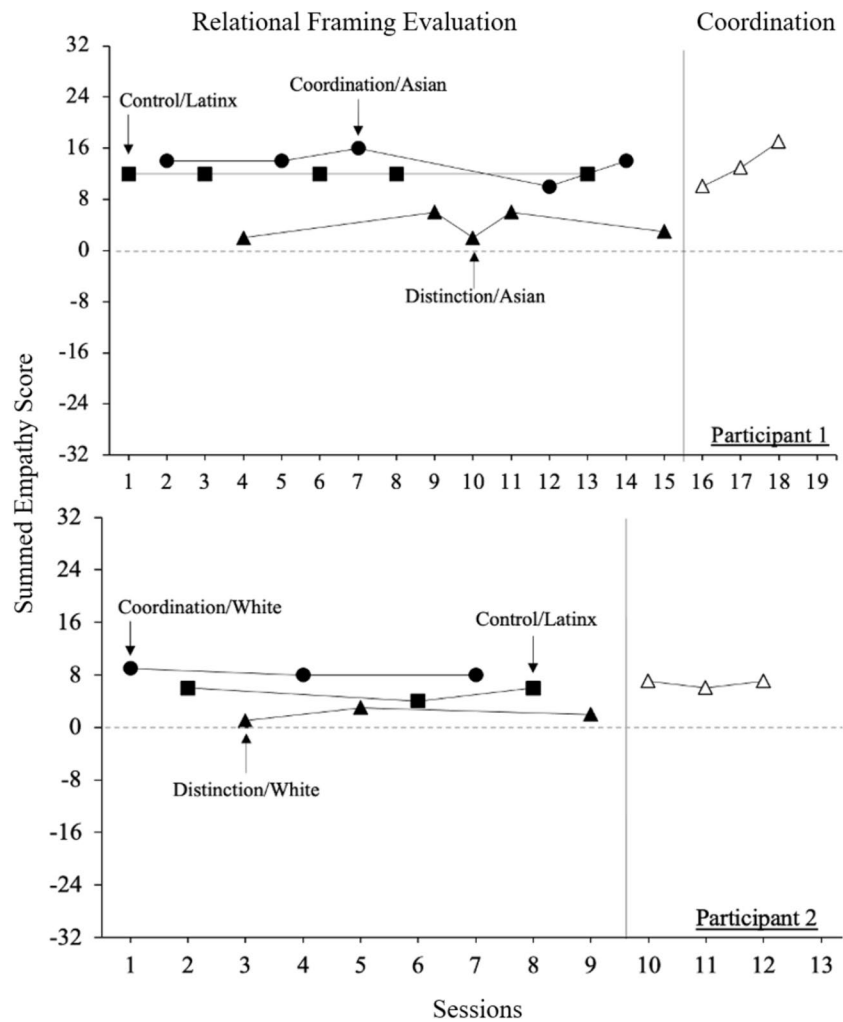
person and a scenario relating to that person immediately followed by the ERS affect question "How does it make you feel that (<u>person</u>) (<u>experience</u>)?" (Figure 1) was also identical to Experiment 1.

Response Measurement and Data Collection

The dependent measure was identical to that of Experiment 1. Unlike Experiment 1 (15 empathy scenarios), each questionnaire consisted of 24 empathy scenarios presented across three sessions. The 24 scenarios included eight photos (four males and four females) of people described to be experiencing positive or negative (two positive and two negative) emotion-evoking events for each of the coordination, distinction, and control conditions, respectively (see Fig. 6). The summed ERS score for each session was graphically displayed as an individual data point similarly to Experiment 1.

Experimental Design and Procedure

Identical to Experiment 1, a multielement design with a no-treatment control and final coordination treatment phase was used to assess the effects of presenting frames of coordination and distinction on the empathic responding of participants. A further replication was achieved through the final phase wherein the distinction condition stimuli (character/scenario combinations) were subjected to coordination conditions and demonstrated a repeated change in behavior. The experimental procedures were reviewed and approved by the Institutional Review Board (IRB) at Endicott College.

Consent

Like Experiment 1, participants completed an informed consent survey online using Qualtrics, which described that the purpose of the study was to assess how one relates to and empathizes with others. Potential benefits and risks were also disclosed as well as compensation for participation.
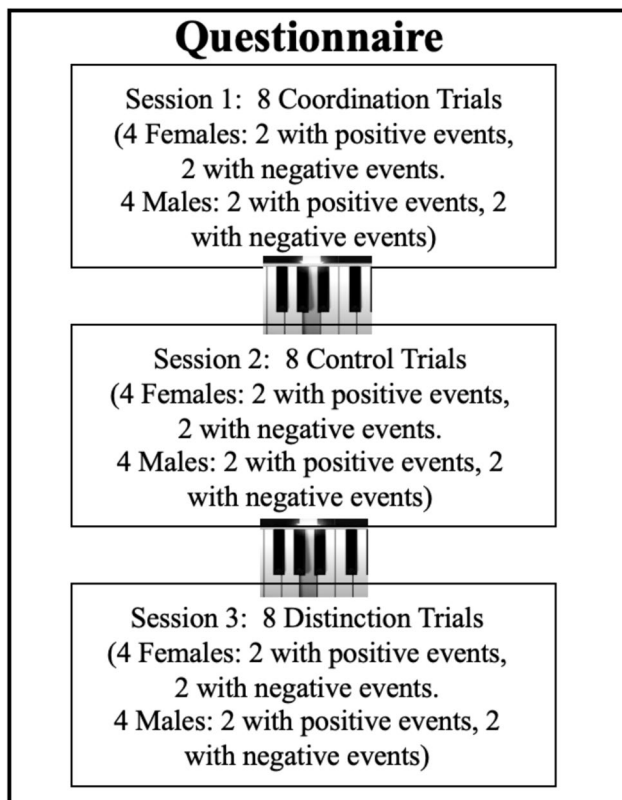
Questionnaire

Session 1: 8 Coordination Trials
(4 Females: 2 with positive events,
2 with negative events.
4 Males: 2 with positive events, 2
with negative events)

Session 2: 8 Control Trials
(4 Females: 2 with positive events,
2 with negative events.
4 Males: 2 with positive events, 2
with negative events)

Session 3: 8 Distinction Trials
(4 Females: 2 with positive events,
2 with negative events.
4 Males: 2 with positive events, 2
with negative events)

Fig. 6 Example of Experiment 2 Questionnaire Format in the Relational Framing Evaluation Phase. *Note*. All questionnaires in the relational framing evaluation phase consisted of three sessions. The order in which sessions of coordination, control, and distinction conditions were presented was randomized across all participants and questionnaires.

Values Assessment

The values assessment procedures were identical to Experiment 1.

General Procedures

General procedures were identical to those of Experiment 1, except that participants were compensated $15 per questionnaire upon completing participation in the study. Compensation was delivered via Venmo. The rationale for compensating participants in Experiment 2 was to aid in recruitment.

Prescreening

The prescreening assessment was the same as that used in Experiment 1 with two exceptions. First, the number of pictures semirandomly presented was increased to eight

to allow counterbalancing of male and female individuals of the following races/ethnicities (for a total of 40 pictures): Asian, Black, Indigenous, Latinx, and white. Second, positive versus negative events were counterbalanced to ensure that an even distribution of males and females were depicted experiencing positive and negative emotion-evoking events.

Relational Framing Evaluation Phase

The relational framing evaluation phase was identical to Experiment 1 except that instead of 15 scenarios (Experiment 1), a total of 24 scenarios were provided during the relational framing evaluation questionnaire (see Figure 6), 16 of which included relational cues (8 coordination and 8 distinction) related to the race/ethnicity being targeted during relational framing. The remaining 8 were pictures that mirrored each participant's own race/ethnicity (e.g., a white participant was shown eight pictures of white people). In addition, each session (i.e., coordination, distinction, and control) contained a semirandomized and balanced number of males and females experiencing positive or negative events. In particular, each session depicted two males or females experiencing positive events and two males or females experiencing negative events.

Coordination Phase

Following the relational framing evaluation phase, participants completed a final coordination phase wherein they were presented with relational cues of coordination with their own values for all stimuli that were previously presented under the distinction condition during relational framing evaluation. To do this, the distinction condition session stimuli (i.e., scenario/photo combinations) from each questionnaire in the relational framing evaluation phase were inserted into a randomizer (https://www.random.org). Once randomized, they were presented under coordination conditions. Similar to the relational framing evaluation phase, a neutral activity of a piano playing music was presented between sessions and scenarios were randomized across sessions.

Debriefing and Social Validity

A debriefing and social validity questionnaire (Appendix C) was provided to participants after completing the coordination phase. In the debriefing portion, participants were informed that the purpose of the study was to evaluate how empathy toward people of other races changed when they believed characters were similar to versus different or opposite from

themselves. Also disclosed were the study's findings of empathy scores being higher when presented with relational cues of coordination and lower when presented with relational cues of distinction/opposition. Finally, participants were encouraged to try thinking about how others are similar to themselves when they are lacking empathy towards others. The social validity portion asked eight questions—two for goals, two for procedures, and two for outcomes of the study.

Results

The prescreening results for Participants 3, 4, and 5 are displayed in Fig. 7. The results of Experiment 2 are depicted in Fig. 8. For Participant 3, prescreening results were a summed empathy score of 15 for the white race (own race) and 11 for the Black race. During relational framing, the Black race summed empathy scores during the coordination condition ranged from 16 to 27 ($M = 21$) and demonstrated differentiation from the summed empathy scores for the white control race ($M = 19$, range: 16–22) in the coordination condition relational framing sessions. In addition, summed empathy scores for the Black race during the distinction condition demonstrated counterempathic responding for three out of the four distinction condition relational framing sessions ($M = 1$, range: -4–13). In the final coordination condition, summed empathy scores for the Black race ranged from 17 to 22 ($M = 20$) and displayed an increasing trend.

For Participant 4, the prescreening results were a summed empathy score of 6 for the Black race (own race) and 2 for the Asian race. During relational framing evaluation, the Asian race summed empathy scores during the coordination condition ranged from 3 to 19 ($M = 9$) and demonstrated differentiation from the summed empathy scores for the Black control race ($M = 5$, range: 4–8) in coordination condition relational framing evaluation sessions. In addition, summed empathy scores for the Asian race during the distinction condition ranged from 0 to 8 ($M = 2$). In the final coordination phase, the Asian race summed empathy scores ranged from 3 to 6 ($M = 4$).

For Participant 5, the prescreening results were a summed empathy score of 15 for the Asian race and 11 for the Latinx race/ethnicity. During relational framing evaluation, the Latinx race/ethnicity summed empathy scores in the coordination condition ranged from 12 to 32 ($M = 18$) and demonstrated differentiation from the summed empathy scores for the Asian control race ($M = 15$, range: 9–28) in the relational framing evaluation sessions. In addition, summed empathy scores for the Latinx race/ethnicity during the distinction condition demonstrated counterempathic responding for two out of the nine distinction condition relational framing evaluation sessions ($M = 4$, range -2–10). In the final coordination phase, Latinx summed empathy scores ranged from 12 to 16 ($M = 14$).

Results of the social validity questionnaire (see Appendix C) found that all participants rated the goals, procedures, and
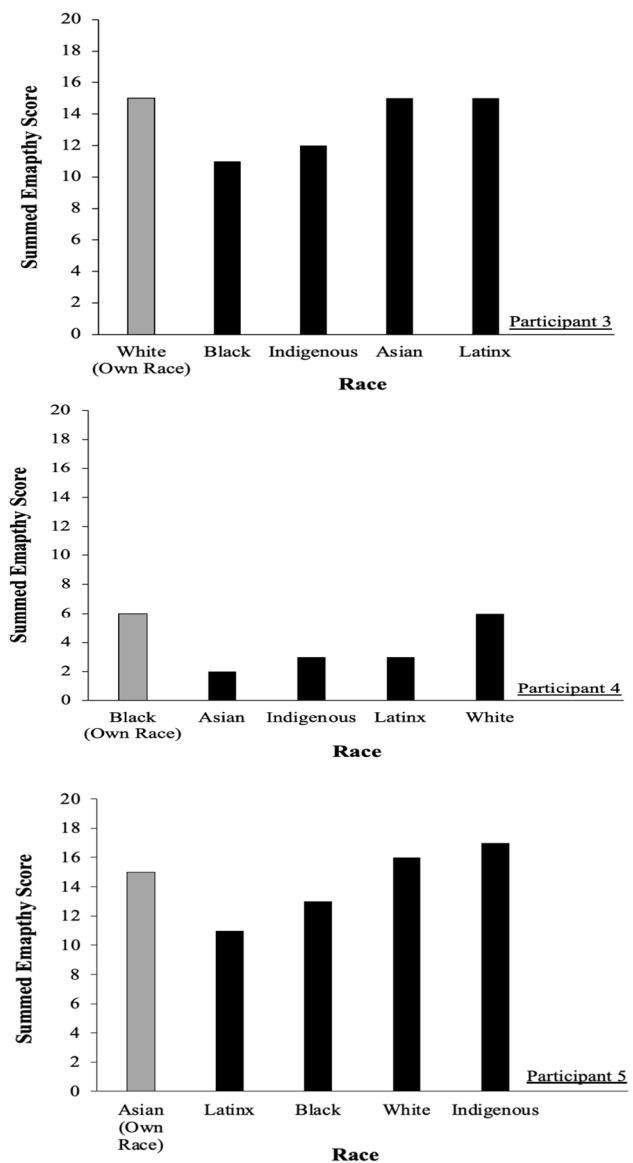

Fig. 7 Prescreening Results for Participants 3, 4, and 5. Grey bars demonstrate the summed empathy score for the participants own race. Summed empathy scores for other races are ordered from lowest to highest score

outcomes of the study to be socially valid. In particular, participants three and four scored "strongly agree" or "agree" for all six questions, and Participant 5 scored "strongly agree" for all six questions.

Discussion

Experiment 2 sought to address the limitations of Experiment 1 and further evaluate the effects of relational framing on self-reported empathic responding of individuals who display racial bias. In particular, the scenarios in the current study were counterbalanced and an even number of trials
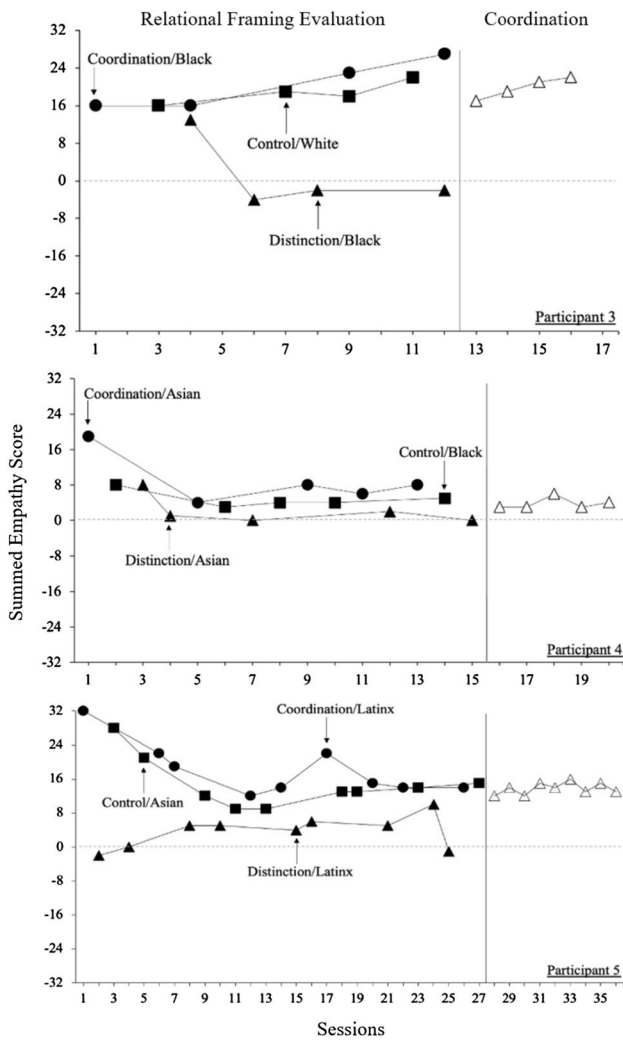
Fig. 8 Summed Empathy Scores for Participants 3, 4, and 5. *Note.* Summed empathy scores for relational framing evaluation and coordination phases under coordination, control, and distinction conditions (see arrows) for own race (closed squares) and training race (closed and open triangles). Open triangles in final coordination condition indicate re-presentation of distinction condition scenarios.s

per session of counterbalanced male versus female scenarios were provided (Fig. 6). In addition, we re-presented the same scenarios/stimuli presented in the distinction sessions during the final coordination condition. In doing this, it was demonstrated that the relational cues of distinction and coordination were likely involved in the alternation of empathy scores. Finally, we also included debriefing and evaluated social validity. Although it is unknown what effect the debriefing had on participants, it is notable that all participants rated the goals, procedures, and outcomes as socially valid. A potential limitation worth noting is that the social validity scale used has not been validated by other studies.

General Discussion

Experiments 1 and 2 evaluated whether the presentation of relational frames of coordination and distinction/opposition in relation to an individual's values with the values of a person belonging to a group for which bias is observed would alter self-reported empathic responding toward people belonging to such groups. The results of both experiments showed that the presentation of deictic relational cues of coordination and distinction/opposition between an individual's values and the values of a person belonging to a group for which a bias was observed was efficacious in altering patterns of self-reported empathic responses toward people belonging to such groups. These experiments are the first experimental behavioral studies, to our knowledge, to demonstrate the effects of relational framing on empathy-related behaviors observed in racial bias.

These findings are consistent with the findings of Persicke's (2020) research and contribute to the literature by demonstrating that relational framing may alter empathic responding of individuals who display racial bias. These findings also contribute to the literature by supporting an RFT account of racial bias by demonstrating that participants' empathy toward individuals belonging to another racial group was lower when a relational cue of distinction/opposition was presented versus higher when a relational cue of coordination was presented. It is interesting that similar response patterns were observed across all participants even though they included varying ages, socioeconomic statuses, races/ethnicities, and education levels. These results enhance the potential external validity of the analysis. However, given the small sample size, future research with larger sample sizes and diverse demographic information would need to be conducted before solid conclusions can be made. Future research should also consider controlling for social desirability and relationships with researchers within the recruitment process. In addition, future research including both ethnicity and race demographic information is warranted. The present study provided participants with the opportunity to self-select their race/ethnicity from the following options: Asian, Black, Indigenous, Latinx, and white. Given that race and ethnicity differ, future research should correctly differentiate between ethnicity and race and afford participants the opportunity to specify their race and ethnicity (i.e., open response).

It is worth noting that participants from Experiment 1 completed questionnaires across several months, whereas participants from Experiment 2 completed questionnaires within a few weeks. As such, temporal contiguity does not appear to influence responding in a notable way. It is also noteworthy that these studies only used asynchronous training and did not involve face-to-face contact with the researchers. Using an asynchronous platform demonstrates the efficiency of the intervention, because it

shows that relational framing can be used in online training that can be completed using a smartphone at any time and in any place. Although asynchronous training demonstrates efficiency, the implications of asynchronous training for generalization of the results are unclear. Future research could evaluate the generalization across novel settings and stimuli.

It is interesting that patterns of responding were identified according to the values presented in scenarios. For example, Participant 1 consistently scored higher empathy ratings when the scenarios presented related to the value of social equality. Therefore, it is likely that scenarios relating to values that were more important to participants resulted in higher empathy ratings when compared to scenarios relating to other, less important values. However, because scenarios were randomized across sessions and participants, this possible confound did not appear to result in variable data or alter the overall performance of participants. Future research could evaluate the effects of using fewer values with more scenario variations relating to such values. In addition, future research could evaluate the ranking of values and assess the impact of ranking order on empathic responding. Future research should also consider the role of intersectionality related to sex assigned at birth, gender identities, and race/ethnicity. Although we did not notice any consistent responding patterns according to the presentation of male versus female photos, or specific combinations of genders and races/ethnicities, it is possible that participants responded according to the intersection of two or more observable identities (i.e., race, gender, age) within the photos presented. In addition, the possibility of photos presented providing additional relational cues is worth considering. In other words, the inclusion of photos as stimuli may not be necessary, and the presentation of written scenarios alone that describe the character's race/ethnicity may function as stimuli with sufficient saliency.

Although three variations of positive and negative (for a total of six variations; Table 1) emotion-evoking events per each value were developed, it is possible that participants experienced habituation to them. In other words, after repeated exposure to a scenario, such as a person getting a promotion, it is possible that participants' emotional response ratings decreased as compared to the first time of being exposed to the scenario. For example, Participant 5 rated the scenario of someone going on a family vacation with the highest possible empathy rating (i.e., 9 on the ERS Likert scale) during the first coordination session. In the fifth coordination session, the same scenario of someone going on a family vacation was scored lower (i.e., 7 on the ERS Likert scale). However, given that participants' empathy scores across treatment conditions did not notably overlap, it is unlikely that this had a significant impact on responding. Future research should consider evaluating the effects of repeated exposure to scenarios and possibly evaluate the outcomes of using increased variations of scenarios according to values. In addition, it is unknown whether differentiated scoring for the same scenario was a result of habituation or something else, such as the presentation of a male versus female character experiencing such scenario or other stimuli/environmental variables within participants' environments at the time of completing questionnaires that exerted control over the participants' self-report behavior.

It is also worth noting that participants' top-ranked values could at times be in competition, which could influence responding, especially for some of the scenarios presented. For example, if participants valued their professional success/career and also their family, the professional success/career NE variation 3 (see Table 1) could result in responding to the higher ranked value as it includes both family and professional success/career information. Future research should consider isolating the values presented within scenario variations.

Another limitation of both Experiments 1 and 2 is the use of a self-report measure as the primary dependent variable. Although participants were overtly selecting a response on the ERS Likert scale, the limitations of self-report measures are worth considering. For example, participants may have tried to answer the questions on the questionnaire in a way that they thought would make them look good or would please the researcher. However, this is unlikely given that an inclusion criterion for participation was for participants to score at least 4 points lower for another race/ethnicity during the prescreening. Future research could include overt behavior measures, such as those used by Todd et al. (2011; e.g., approach and avoidance reactions). An additional limitation related to the dependent variable is that the ERS Likert scale was not validated psychometrically.

It should be noted that the prescreening assessment was not validated as a method for identifying bias. Although the prescreening assessment is not a validated measure for bias, the significant discrepancy observed between participants' scores across races suggested the presence of racial bias. For example, six other individuals who were recruited for the study completed the preassessment but did not display a notable (i.e., more than 4 points) lower empathy score for any given race (and thus were excluded from participation). Although we selected a score of 4 points lower as a cutoff value for the prescreening assessment, is unknown if the differential effects of relational training observed in the current study are limited to the cutoff value we selected. Thus, future research should evaluate whether such cut off value predicts differential effectiveness of training, and whether participants with weaker and stronger biases would demonstrate more or less amenable behavior change.

Although the outcomes of these studies showed that relational framing resulted in altered patterns of empathic responding, as noted by Lai et al. (2016), short-term malleability in bias does not guarantee long-term change. Therefore, future research should evaluate whether the effects of relational framing maintain postintervention. Moreover, studies have shown that increased awareness of or attention to intergroup commonalities

can inadvertently result in individuals overlooking and underestimating group inequalities (Saguy et al., 2009). Thus, although the presentation of relational cues of coordination was found to be efficacious for enhancing self-reported empathy, it is unknown whether the presentation of relational cues of coordination has any effect on awareness of inequalities across groups. Future research could evaluate the effects of relational framing on perceptions of group inequalities.

Furthermore, it should be considered that the relational cues of coordination and distinction/opposition presented within these studies also included deictic relational cues. In other words, the contextual cues included sameness, difference/opposition, and interpersonal (I–You) relations. Although it is hypothesized that these contextual cues were a mechanism involved in the altered patterns of empathy scores, it is unknown whether the relational cues of sameness and difference/opposition in relation to one's values specifically were responsible for the observed responding patterns. Future research could evaluate the effects of other cues of sameness and difference/opposition, for example cues in relation to one's life experiences or interests. Moreover, we used relational cues of distinction and opposition together as we replicated procedures from Persicke (2020); however, it is unknown if the presentation of relational cues of distinction or opposition in isolation would have similar effects. Future research could evaluate the effects of relational cues of distinction versus opposition.

Finally, a noteworthy variable to consider is whether addressing racial bias in white individuals exclusively is presently a priority. The goal of this study was to broadly evaluate and understand race-related bias from a behavior analytic perspective across populations who may display this repertoire. Thus, all participants who volunteered to participate and who met inclusion criteria, regardless of racial background, were included. This approach may be considered a strength, from the standpoint of being a less biased sample. However, given that only one white participant volunteered to participate, it is unknown the extent to which the results of the current study may generalize to other white people who display racial biases. In addition, given the history of systemic racism that supports white supremacy in the United States, decreasing racial bias in white people may be of highest priority. Therefore, future research should ensure that white participants are recruited.

The goal of this study was to contribute to Skinner's (1965) vision of a behaviorism that applies to all social problems. Racial bias is a complex, often covert behavioral repertoire, and is therefore experimentally difficult to evaluate. More behavior analytic research is needed in this area. It is hoped that this article offers a valuable contribution to the problem of racial bias and the goal of a behaviorism that improves complex social problems more generally.

Appendix A

Emotion Rating Scale

Instructions: Throughout the study, you will use this scale to answer questions about your own emotional experiences upon hearing events that characters experience. The scale below includes emotions ranging from very sad to very happy. You will be asked to identify your **own** emotions, not the emotions of the characters in the scenario. For example, if the character in the scenario is experiencing a happy event, but you do not feel any particular emotion when reading the scenario, you can indicate that you feel neutral/indifferent. There is no correct or incorrect answer, so please accurately report your own emotions as best you can.

9   Very Happy/Excited
8
7   Happy/Excited
6
5   Neutral/Indifferent
4
3   Sad/Angry/Frustrated
2
1   Very Sad/Angry/Frustrated

Appendix B

Values Assessment

Of the items listed below, please list the five most important to you in order of importance.
- Family
- Political Affiliation
- Social Equality
- Professional Success/Career
- Financial Status
- Education
- Nationality
- Ethnic Background
- Religion/Religious Affiliation
- Health
- Competition
- Relationships

Appendix C

Debriefing and Social Validity

Debrief

Thank you for participating in the study!

The purpose of this study was to evaluate how your empathy towards people of other races changed when you believed they were similar versus different from you.

We found that your empathy towards people of other races increased when you believed they were similar to you and decreased when you believed they were different from you. What's exciting to learn from this study is that we can enhance our empathy towards others by challenging ourselves to think about how they are similar to us!

In situations where you are not feeling very empathetic towards others, you can try thinking about how they are similar to you!

Social Validity

Having empathy towards people of other races is important to me.
Strongly Agree　　　*Agree*　　　*Neutral*　　　*Disagree*　　　*Strongly Disagree*

It is valuable to learn about ways to enhance empathy towards people of other races.
Strongly Agree　　　*Agree*　　　*Neutral*　　　*Disagree*　　　*Strongly Disagree*

The questionnaires administered were acceptable.
Strongly Agree　　　*Agree*　　　*Neutral*　　　*Disagree*　　　*Strongly Disagree*

I would recommend this study to others who want to learn about empathy.
Strongly Agree　　　*Agree*　　　*Neutral*　　　*Disagree*　　　*Strongly Disagree*

I can better consider how people of other races are similar to me after completing this study.
Strongly Agree　　　*Agree*　　　*Neutral*　　　*Disagree*　　　*Strongly Disagree*

Declarations

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