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WASHINGTON UNIVERSITY IN ST. LOUIS

Division of Psychological & Brain Sciences
Social & Personality Psychology

A Personalized Intervention to Increase Regulatory Capacity for Anti-Racist Action
by
Jennifer F. Beatty

A thesis presented to
The Graduate School
of Washington University in
partial fulfillment of the
requirements for the degree
of Master of Arts

August 2022
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Jennifer Beatty

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ABSTRACT

A Personalized Intervention to Increase Regulatory Capacity for Anti-Racist Action

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Master of Arts in Psychological and Brain Sciences

Social and Personality Psychology

Washington University in St. Louis, 2022

Calvin K. Lai, Chair

Many White Americans are motivated to be anti-racist but fall short. Often, they become defensive when confronted with their involvement in perpetuating racism. To address this, we designed an experiment to test a personalized, social modeling intervention that targets obstacles to responding constructively to being confronted about racism. In our multi-faceted intervention, participants learned from videos of role models who effectively managed a confrontation after doing something racist. After each video, participants wrote personalized reflections applying what they learned. In a registered sample of 391 White Americans, the intervention increased the personal acknowledgment of racial bias, changed relevant bias-related beliefs and motivations, and decreased defensiveness to bias feedback. The intervention did not change internal motivation to respond without prejudice, self-efficacy for bias regulation, and engagement to read more about racial bias. Together, these findings suggest that this multi-faceted intervention may empower White Americans with social and emotional skills to be anti-racist.

1. Introduction

The history of racial inequality and discrimination in society has been long-standing. The systemic oppression and marginalization of Black people are not arbitrary. Some historical analysts argue that American society resembles a caste system that establishes a hierarchy that ranks Black people the lowest in terms of competence, respect, and beauty (Graff, 2015; Warner, 1936; Wilkerson, 2020). These rankings are not just historically held but are also psychologically internalized within individuals' thoughts and behaviors. Data collected on the Stereotype Content Model, which organizes social perceptions on a continuum of warmth and competence, consistently find that individuals perceive Black people as low on competence and respect (Fiske, 1998). Black individuals face a myriad of racial inequality based on stigmatization resulting in adverse outcomes compared to White individuals in a variety of domains such as in business (Bertrand & Mullainathan, 2004), public health (Beck et al., 2020; Burgess et al., 2007; FitzGerald & Hurst, 2017; Hartnett & Brantley, 2020; Williams & Wyatt, 2015), education (Engberg, 2004; Mickelson, 2003; Okonofua, Walton, & Eberhardt, 2016; Travers et al., 2014; Warikoo et al., 2016), criminal justice (Rucker & Richeson, 2021), and overall mental health (Schwartz, 2014). Although the widespread explicit endorsement of racial inequality has decreased over time (Gaertner & Dovidio, 1986, 2012), American racism is still pervasive (Eberhardt, 2019), and individuals remain unaware of the biases they hold (Pronin et al., 2002). Considering this sordid history, White Americans often have goals to be perceived as egalitarian in interracial interactions (Bergsieker et al., 2010). Despite these egalitarian goals, White Americans often still express racial bias. This is most evident in the extensive reports of racial

discrimination by Black Americans', indicating that racial bias remains pervasive and consequential (Bleich et al., 2019; Broman et al., 2000; Chae et al., 2012).

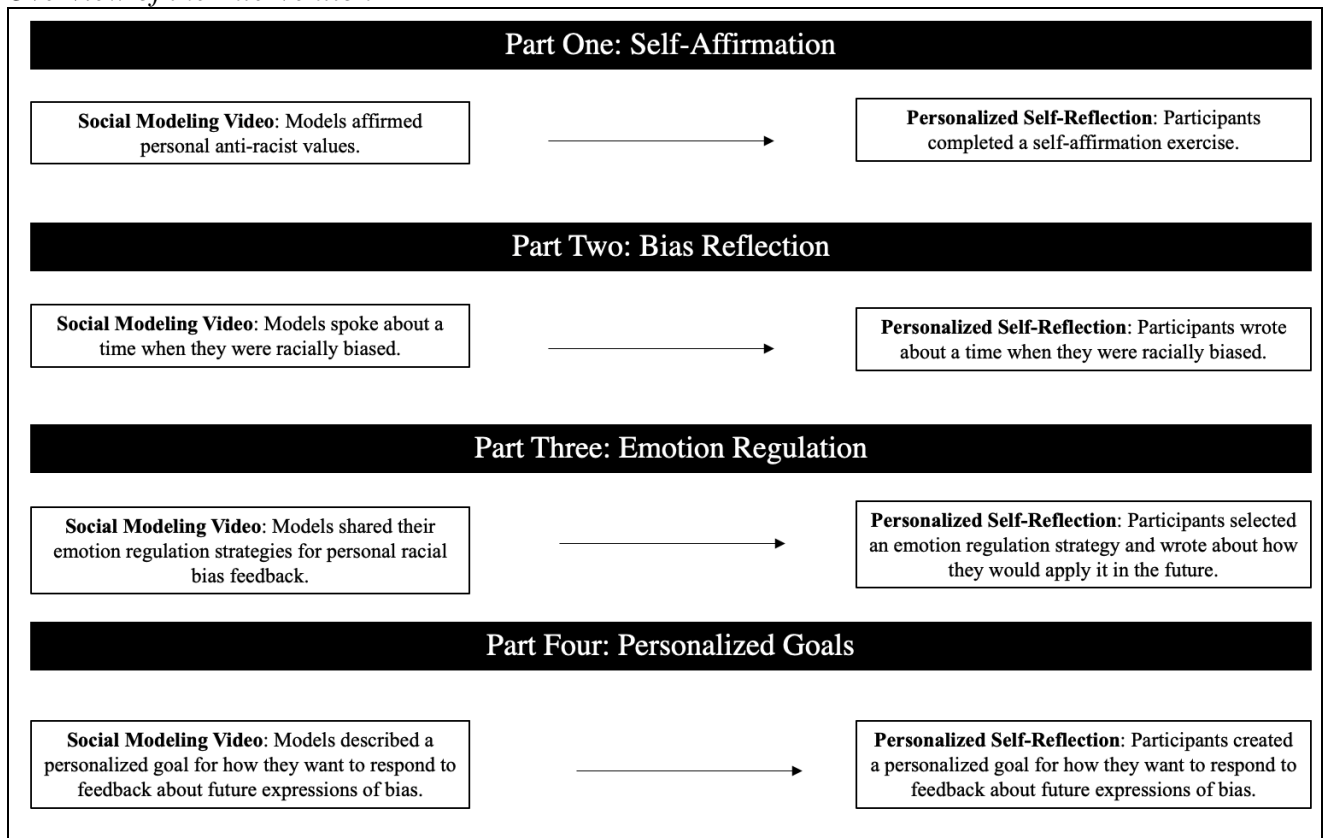
Many White Americans are motivated to be anti-racist but become defensive when confronted with their involvement in perpetuating racism (Ford et al., 2022; Howell et al., 2017). This defensiveness stems from the psychological need to present oneself in a way that is acceptable to the self (Cramer, 1998; Swann Jr., 2012). For individuals who hold egalitarian values and are motivated to be racially unbiased, confrontations with how they perpetuate racism feel threatening. These confrontations challenge their self-presentation goals and provoke defensiveness (Ford et al., 2022). This defensive response can subvert anti-racist efforts by shifting attention from the problem at hand, mitigating racism towards the stigmatized person, to managing the emotional reactivity of the person expressing racism (Ford et al., 2022).

As defensive reactions to bias confrontation are counterproductive for addressing racial inequity, approaches are needed to reduce defensive responses to being confronted with bias so that people pursue anti-racist action instead. Personal and prevalent threatening information, like increased bias awareness, amplifies defensive responses (Good & Abraham, 2007; Pohan & Mathison, 1998). Recent evidence suggests that interventions can mitigate defensive responses through education (Vitriol & Moskowitz, 2021). Before individuals received feedback that they were biased, researchers told individuals that bias is common and controllable. This brief educational intervention successfully reduced defensiveness about accusations of bias but had limited impacts on general awareness about bias and unknown impacts on other bias-related beliefs and motivations.

While reducing defensiveness is critical for anti-racist action, beliefs that bias and bias-related emotions are controllable may inform future attempts to regulate bias. Additionally, internal and external motivation to respond without prejudice may also influence persistence in bias regulation efforts. As a result, approaches need to understand if bias awareness can be raised with other beliefs about bias and related emotions while decreasing defensiveness. The current intervention study takes a more intensive and personalized approach to assess expanded outcomes for how people constructively respond to bias confrontations. By increasing the intensity of the intervention, the goal was to decrease defensiveness, raise bias awareness, and affect other related beliefs and motivations about bias regulation.

The Intervention

Figure 1.
Overview of the Intervention



To address defensive responses to bias feedback, we tested a novel intervention to increase peoples' capacity to constructively respond when confronted with feedback about their bias (see Figure 1 for an overview). Confronting personal biases can feel challenging, so the intervention used a multifaceted approach across several steps. To increase bias awareness with openness and engagement, the intervention featured four videos of social models sharing examples of personal value affirmation, concrete bias reflections, emotion regulation strategies, and personalized goals for future instances of bias regulation. After each video, individuals completed self-reflection activities to shift beliefs and motivations about bias, better understand their emotions, and directly apply the intervention lessons without provoking defensiveness.

The intervention also uses activities that invoke self-affirmation, or the affirmation of core personal values, to buffer against a threat to one's sense of self that may come with an awareness of personal bias. Clarifying values before experiencing a threat may also help to reduce defensiveness in emotionally difficult learning experiences (Cohen et al., 2009; Cohen & Sherman, 2014; Critcher et al., 2010). Self-affirmation is the first reflection exercise that the participants complete, so it may specifically buffer against the bias feedback that participants receive later in the experiment.

The intervention aimed to raise the recognition of one's own biases as a critical step to effective bias regulation (Monteith, 1993; Monteith et al., 2010). The more people understand their biases and the contexts in which they primarily operate, the better-equipped individuals can intervene and regulate their biases (Monteith, 1993; Monteith et al., 2010; Perry et al., 2015). Simply identifying inconsistencies in values and biased attitudes may lead to a durable reduction in prejudice (Grube et al., 1994). Even in the absence of recognizing inconsistency, raising awareness of bias can help with bias regulation efforts (Monteith, 1993; Monteith et al., 2010).

Although bias awareness has increased using multiple interventions, the magnitude of the effect varies (Devine et al., 2012; Monteith, 1993; Monteith et al., 2010; Vitriol & Moskowitz, 2021).

Intervention participants watched documentary videos of people reflecting on their personal biases. The documentary videos provided relatable examples that prevent personal identity threats and increase personal bias awareness. The theoretical effectiveness of the videos relied on social modeling, the process by which individuals learn how to do something that may be difficult or complex by watching others engage in a similar action (Bandura, 1989, 2012). Social models also communicate social norms about what behaviors are desired and acceptable in a broader context (Paluck & Shepherd, 2012). Therefore, social models may be a helpful tool to help individuals engage in this process of personalized feedback that may feel difficult or threatening.

Given that self-persuasion has effectively changed beliefs and behaviors (Aronson, 1999; Greenberg et al., 2018), the intervention had participants reflect on concrete examples of personal bias (e.g., times in which one had personally expressed bias). Using concrete examples may be an effective path for motivating self-persuasion because individuals are generating examples of bias that are personally relevant and precise. The concept of bias can often be abstract (e.g., statements like “most people have bias”). Real-world, concrete examples can enhance the comprehension of abstract concepts. (Micallef & Newton, 2022). Individuals also remember concrete information longer than abstract information (Anderson, 1983). As a result, concrete examples of personal biases may also provide information about broader social or emotional contexts (e.g., “I noticed I made a racially insensitive remark after my friend shared a frustrating experience with someone of a different race”). These contextual insights may

engender self-persuasion for personal bias management (e.g., “How can I balance being supportive of my friend’s emotional experience and stay aligned with my values?”).

The intervention also capitalizes on personalized learning approaches that customize teaching to each person’s individual preferences and needs. Personalized learning has been successful in domains such as therapy (Hartmann et al., 2015) and professional development (Fung et al., 2015) to catalyze learning from one’s skills, experiences, and abilities (Wozniak, 2020). So, we applied personalized learning to learning about bias regulation. When individuals personally reflect on times that they were biased before receiving external feedback about biases (i.e., being confronted by others, a score from an Implicit Association Test), they may be more inclined to reflect on the veracity of the feedback rather than feeling defensive. This approach to thinking about difficult feedback may be useful in a domain like bias regulation, where feedback may feel threatening to peoples’ appearance goals and personal values (Cramer, 1998).

To increase individuals’ capacity to respond constructively to bias confrontations, the intervention features adaptive emotion regulation strategies. Emotion regulation is how individuals manage their emotional experiences (Gross, 1998, 2015). Typically, individuals can have hedonic emotion regulation goals to increase positive emotion and decrease negative emotion. They may also have instrumental emotion regulation goals that use either positive or negative emotions to help them reach a broader goal (Tamir, 2016). In the context of bias regulation, hedonic motives may impede anti-racist goals (Ford et al., 2022). As a result, more engaged emotion regulation strategies (e.g., response modulation or emotional acceptance) may be more adaptive than others (e.g., situation modification) to support instrumental goals of bias regulation (Ford et al., 2022).

In the final portion of the intervention, individuals develop personalized goals for responding to bias confrontations by pairing mental contrasting (Oettingen & Gollwitzer, 2010) with implementation intentions (Gollwitzer, 1999; Gollwitzer & Brandstätter, 1997). Mental contrasting involves envisioning the best possible outcome to a goal and obstacles that may impede goal attainment (Oettingen & Gollwitzer, 2010). While envisioning the best possible outcome in the future is energizing for goal pursuit, considering the current obstacles can provide a more realistic landscape for goal attainment. After setting a goal for how they wish to respond to feedback about bias in the future, participants use mental contrasting to create motivation and a realistic pathway forward. Individuals then create an implementation intention to pair with their goal. Implementation intentions are if-then plans that help individuals automate the link between their valued goals and actions (Gollwitzer, 1999). Personalized goals are effective in many domains for individuals determining behavior changes, envisioning the ideal outcome from the behavior changes, anticipating personal obstacles that might subvert their efforts, and creating a plan for overcoming those obstacles (Gollwitzer, 1999; Oettingen et al., 2005; Oettingen & Reininger, 2016). Since this approach has supported behavior change in implicit bias regulation (Stewart & Payne, 2008), the intervention uses implementation intentions to empower individuals to plan for how they can effectively respond to feedback about their bias in the future.

The primary goal of this multi-faceted intervention is to increase personal acknowledgment of racial bias and develop an ability to respond constructively to future feedback about bias. We hypothesize the intervention to affect a range of bias-related beliefs, motivations, and reactions. Specifically, we expect the intervention to decrease defensiveness to bias feedback. We also expect the intervention to increase bias awareness, beliefs in the malleability of bias and

emotions after bias confrontations, motivations to respond without prejudice, self-efficacy beliefs about regulating bias, and engagement to learn more about bias.

1.1 Awareness of Bias: Understanding Racial Biases and Bias Regulation

Although ethnic and racial diversity is increasing within the United States (Craig et al., 2018), prejudice remains pervasive, and intervention is needed. Prejudices are aversive or hostile feelings towards someone who belongs to a social group (Allport, 1954; Dovidio, Glick, & Rudman, 2005; Tajfel, 1982). In the framework of aversive racism, some White people's responses to Black people may be driven more by discomfort and unease than explicit hostile feelings (Gaertner & Dovidio, 1986, 2000). Although prejudices can be explicit, they do not have to be. Implicit prejudices are concealed and less deliberate, intentional, or endorsed (Banaji, Nosek, & Greenwald, 2004). Some people may be unaware of a racial bias, or they may be *unwilling to acknowledge* or admit them. Recognizing biases is a critical first step to understanding how to manage and reduce them (Monteith, 1993). The current project targets biases that individuals may be aware of but are unwilling or uncomfortable acknowledging to themselves.

1.1.1 Bias Regulation

There is often a gap between peoples professed egalitarian values and expressed biased behavior (Devine et al., 2012; Monteith, 1993; Monteith et al., 2010). Targeted bias regulation interventions can help address these discrepancies between values and behavior. Individuals can regulate their bias when they first notice a discrepancy between their values and biased behaviors (e.g., crossing the street as a Black man approaches). After this, they might experience negative affect in response to this discrepancy and engage in retrospective reflection to better understand

why the behavior occurred. From this, they can generate a mental cue for control to interrupt the behavior in the future (Monteith et al., 2010). Another approach to bias regulation builds on the process model of emotion regulation (Gross, 2015). In this framework, bias regulation often begins with identifying the need to regulate, selecting an effective regulation strategy, and implementing the strategy (Ford et al., 2022). These strategies can either be disengagement-focused (i.e., avoidance or defensiveness) or engagement-focused (i.e., reappraisal, response modulation). The strategy selection is consequential not just for effective emotion regulation but also for constructive anti-racist responses.

Beyond these theories, believing in a personal ability to control bias may impact effective bias regulation. Evidence suggests that people who believe bias to be more malleable than fixed are more likely to have positive intergroup experiences (Rattan & Georgeac, 2017). Previous work on self-efficacy beliefs also suggests that individuals who believe in their agency are more motivated and engaged in challenging processes (Bandura, 1978, 1989, 2012). Self-efficacy may be impacted by numerous factors, including mastery experiences. Mastery experiences provide direct evidence for the belief about whether a goal may be personally achievable (Bandura, 1978, 1989, 2012). Bias regulation is a particularly demanding goal and understanding individuals' efficacy beliefs about bias management can be a critical component for motivating continual bias regulation.

1.2 Learning about Bias: Social Models, Self-Persuasion, & Personalization

1.2.1 Social Models

To amplify the intervention impact, the documentary videos featured relatable social models sharing personal examples so that the participants could learn how to translate the lessons to their

values and goals. Social modeling is within a larger framework of Social Learning Theory, which we used as an approach to teaching people about effective bias regulation. Social Learning Theory posits that new behavioral patterns can be learned and reinforced by observing others and imitating them (Bandura, 1969; 2012), including learning about personal bias and bias regulation. Under the umbrella of this theory, social modeling, specifically, involves learning attitudes and behaviors from observing similar people for behavior cues and social norms (Bandura, 1969, Bandura, 2012; Crandall & Warner, 2005; Paluck & Green, 2009). This process can enable individuals to learn how to do something that may be difficult or complex through observation and personal application (Bandura, 1989, 2012). This process of learning from others has been successful in domains such as education (Paluck & Shepherd, 2012; Walton & Carr, 2012; Walton & Cohen, 2011), business leadership (Brown & Treviño, 2014), and healthcare (Melnyk, 2007). Many White individuals have had little experience reflecting on their racial biases (Ferri & Connor, 2014; Tatum, 1992). Using social models to increase bias awareness may be uniquely beneficial as their reflections about race may show White individuals how to properly reflect on their racial biases. After learning from social models, participants engaged in personalized, self-determined activities for promoting anti-racist action (Deci & Ryan, 2008; Johnson & Cureton, 2019; Legault et al., 2011). External pressure to reduce prejudice can feel restrictive and lead to a backlash. When individuals have autonomy in learning about their personal biases, they may develop intrinsic and sustainable motivations for pursuing anti-racist action.

1.2.2 Self-Persuasion

The intervention also used self-persuasion tactics to help individuals learn about personal biases and convince themselves that racial bias needs to be regulated. Self-persuasion is when

individuals generate personalized reasons and motivations to engage in specific behaviors (Aronson, 1999). In contrast with direct persuasion efforts, self-persuasion tends to be more personalized, long-lasting, and motivating for attitude and behavior change (Aronson, 1999). Through this mechanism, individuals can learn valuable insights about past behaviors and mistakes through guided self-generated, personal reflections. Proponents of Social Learning Theory speculate that reflecting on failure is critical for improvement (e.g., Bandura, 2012). In the intervention, individuals engaged in self-persuasion by generating personal examples of when they had failed to be egalitarian to motivate themselves to address their own biases. Self-persuasion may then increase bias awareness and a capacity to respond constructively to future feedback about racial biases. Self-persuasion approaches are also in other aspects of the intervention. After social models reflect on engaged emotion regulation strategies to use when learning about their bias, participants select a strategy that personally resonates with them and then write about how they would implement that strategy in the future. In the final portion of the intervention, participants also created a personalized goal for how they wish to respond to feedback about their bias in the future by reflecting on personal obstacles that may interfere with their goal before creating a plan to meet their goal.

1.2.3 Personalization

In our intervention, individuals develop personalized goals and planned future behavior using mental contrasting and implementation intentions (Ajzen, 2012; Gollwitzer, 1999; Gollwitzer & Brandstätter, 1997). In the current intervention, social models spoke about personal goals for how they want to receive feedback about their racial biases. We adapted a learning strategy called WOOP from research on mental contrasting and implementation intentions for participants to self-persuade and generate specific implementation intentions for receiving racial

bias feedback (Oettingen et al., 2005; Oettingen & Gollwitzer, 2010; Oettingen & Reininger, 2016). WOOP is a concise acronym that is easy for participants to remember and use in the future. In this acronym, W stands for wish, O stands for an ideal outcome, O stands for obstacle, and P stands for a plan. Generating personalized goals with the WOOP template for responding to feedback about future expressions of bias may positively impact emotional reactivity and motivation for bias regulation.

1.3 Buffering against the Threat to Learning about Personal Bias: Self-Affirmation & Emotion Regulation

1.3.1 Self-Affirmation

One of the personalized reflection activities participants complete in the intervention is a self-affirmation exercise intended to help buffer against the threat of acknowledging racial biases.

Self-affirmation theory posits that people are highly motivated to have self-integrity or live aligned with their values. Affirming the self before racial bias confrontations may help mitigate threats to the ego and self-concept (Cohen & Sherman, 2014; Critcher et al., 2010).

Acknowledging racial bias is a potential threat to the ego and self-concept because it may challenge self-integrity (Cramer, 1998; Swann Jr., 2012) and provoke defensiveness (Ford et al., 2022). In this context, acknowledging a racial bias, particularly when someone holds egalitarian values, can feel like a betrayal of who that person strives to be. As a result of this admission, individuals may experience threats in the form of shame, embarrassment, and a disconnection from their self-concept. The experience of these self-conscious emotions may also spur defensiveness and avoidance. Admitting racial biases may illicit shame, which causes individuals to feel like bad people, and spurs defensiveness (Tangney, 2012). While it may be challenging to acknowledge racial biases, self-affirmation can help center eudaimonic goals (meaningful goals)

rather than hedonic goals (goals that increase positive affect) (Howell, 2017). In the long run, acknowledging and managing personal biases may elicit an increased sense of self-integrity than evading biases through avoidance or defensiveness.

1.3.2 Emotion Regulation

Throughout the intervention, participants reflect on constructive emotion regulation strategies to manage feedback about bias. Individuals use emotion regulation strategies to manage their emotional experiences (Gross, 1998, 2015). In general, individuals often seek to increase positive emotions and decrease negative emotions (Gross, 1998, 2015), which means that individuals may often avoid confrontations of their personal biases because of the increase in negative affect (Ford et al., 2022; Monteith et al., 2010). As a result, constructive emotion regulation is critical for successful bias regulation. In response to an increase in negative emotions, individuals may use disengaged emotion regulation strategies, like defensiveness or avoidance in bias confrontations. In response to this negative affect, individuals may downregulate negative emotions by denying information about their racial bias (Ford et al., 2022). These disengaged attempts to downregulate negative emotion are counterproductive to anti-racist engagement. By denying racial biases through avoidance or defensiveness, individuals will interrupt the process of bias feedback. When individuals deflect or deny their racial bias, they may be unable to recognize their bias in the future or unmotivated to change it.

In the context of bias regulation, engaged emotion regulation strategies help individuals meet broader egalitarian goals, despite present emotional discomfort (Ford et al., 2021). More engaged emotion regulation strategies in this context would be emotional acceptance, certain forms of reappraisal, problem-solving, and mindfulness (Aldao, Nolen-Hoeksema, & Schweitzer, 2010; Hu, Zhang, Wang, Mistry, Ran, & Wang, 2014). Engaged emotion regulation strategies can

effectively support bias regulation, particularly when individuals feel negative emotions from bias confrontations. The social models shared examples of engaged emotion regulation before participants reflected on how they would use a chosen strategy in the future.

This current intervention approach aims to change the emotional capacity of White individuals to regulate personal biases. Beliefs about emotion regulation and bias regulation may be similar.

Individuals who perceive themselves to have the self-efficacy to manage their own bias-related emotions may become more empowered to regulate bias-related emotions in the future. Prior research suggests that individuals who see their emotions as more malleable may be better equipped to regulate their emotional experiences (Dweck, 2012; Gutentag et al., 2020).

Additionally, the belief that emotions can change after being biased can shape the motivation to regulate emotions during and after being confronted with personal biases (Gutentag et al., 2020).

1.4 Study Overview

Considering the key components, this personalized intervention aims to motivate White

Americans to anti-racist action using principles from research on social learning, self-determined reasoning, and emotional reactivity. The individuals featured in the intervention videos modeled crucial components for successful bias regulation: awareness of bias, emotional acceptance, and personal responsibility (Ford et al., 2022). These videos were edited together for the personalized intervention.

1.4.1 Part One- Self-Affirmation

In the first video, individuals reflected on the difficulty of talking about race and why people tend to avoid those conversations. In the video, the individuals also affirm anti-racist values by expressing why the topic talking about racial equality is so personally meaningful and important to them. After watching the video, participants completed a self-affirmation exercise.

1.4.2 Part Two- Bias Reflection

In the second video, individuals talked about a time when they were racially biased. They described these stories and explained how they felt afterwards. Once participants watched the video, they wrote about a time when they were personally racially biased.

1.4.3 Part Three- Emotion Regulation

In the third video, the social models spoke about their emotion regulation strategies to understand and manage their emotional reactivity after racial bias confrontations. After watching, participants selected a regulation strategy that resonated with them and wrote about how they could use that strategy in the future.

1.4.4 Part Four- Personalized Goals

Finally, participants saw the last video about personalized goals with implementation intentions for responding to future instances of racial bias. Participants then completed their own personalized goals for responding to bias confrontations.

2. Method

2.1 Participants

We recruited 391 White US adults through the undergraduate psychology participant pool at Washington University in St. Louis. The sample was 65% female and 73% liberal. We aimed to collect a planned sample of 341 participants (164 participants per condition). This sample size would yield 95% power to detect mean differences of Cohen's $d = .40$ and 80% power to detect mean differences of Cohen's $d = .31$. Due to a miscommunication, we collected more data than planned for a final sample of 391 participants.

We focused on White adult participants since the social models featured in the documentary videos were also White adults. While this intervention may also be effective for participants from other racial groups, the types of stories generated may differ in important ways based on different historical and social contexts. Participants were not aware of these inclusion criteria. To obtain the social modeling videos, we reached out to individuals to see if they would be willing to be interviewed and share their experiences of a time when they were confronted about being racially biased and responded constructively to it. The interviews were conducted over a year and resulted in four intervention videos. We pre-registered the study before data collection (https://osf.io/aphjs/?view_only=87db30ceab2b426b92e29660b7badd91). Other than the planned sample size, there were no changes to the pre-registration.

2.2 Procedure

After consenting, participants were randomized to either the intervention or control condition. In both conditions, participants watched four videos and completed four exercises before

completing the outcome variables. After the videos and exercises, all participants completed adapted measures of bias awareness (Perry et al., 2016), self-efficacy beliefs about bias, external and internal motivation to respond without prejudice (Plant & Devine, 1998), theories about the malleability of prejudice (Carr et al., 2012), theories of the malleability of emotion after being biased (Tamir et al., 2007), defensiveness to IAT feedback (Howell et al., 2017), positive and negative emotions to IAT feedback, and a behavior task to measure engagement to read more about racial bias.

2.3 Materials

2.3.1 Intervention Condition

In the intervention condition, participants were told, “You are about to watch a series of videos and answer questions. In the videos, you will see people sharing their experiences with racial bias”. We underscored each video with music to increase engagement and emotional connection with the material. After participants watched the first video, they completed a value affirmation task (Cohen et al., 2009; Cohen & Sherman, 2014) and were told, “We are interested in learning more about you as a person. You will be answering several questions about your ideas, beliefs, and life. There are no right or wrong answers. Please read over this list of personal values carefully and think about each of the values. Then select two or three values that are **most** important to you.”

After participants completed the values affirmation exercise, they watched the second video about the stories of bias. Participants then saw the following instructions for the next exercise, “We'd like you to take a moment to reflect on a time when something similar has happened to you. There may have been a time when you were confronted about your racial bias by someone else, or when you noticed that something you thought, felt, or did was biased. We would like you

to write about that time here. In a paragraph or two, please write about a specific instance when you realized that you were racially biased". All participants in the intervention condition complied with these instructions and wrote about when they were biased (100%). As a manipulation check, this compliance would suggest that the intervention videos modeled sufficient examples of stories so that participants had enough guidance to generate personal examples.

After this, participants saw the third intervention video about emotion regulation strategies. After participants watched that video, they selected a strategy from the video that resonated the most with them. The participants chose between the following options: (1) pausing to regulate an emotional reaction, (2) talking to trusted friends and/or family, and (3) personal self-reflection for increased self-awareness. Participants then chose to either write about why they selected the strategy, or they could write about a different strategy that they would use to regulate their emotions during bias confrontations. Participants also shared one way that they could see themselves implementing that strategy.

Participants then saw the final video in the intervention condition about personalized goals for responding to future instances of racial bias. Participants answered the following questions after seeing examples in the video. Wish – What is one wish you have for how you respond to feedback about your racial bias? Outcome – What is the best outcome of fulfilling this wish? How would fulfilling this wish make you feel? Obstacle – What is it within you that holds you back from fulfilling your wish? What is your main inner obstacle? Plan – Make an if-then plan. What can you do to overcome your obstacle? Name one action or one thought to overcome your obstacle. In the study design, participants came up with their reasons, both negative (Obstacle) and positive (Outcome), which also tends to be more self-persuasive (Aronson, 1999).

2.3.2 Control Condition

In the control condition, participants watched four videos unrelated to social science and completed reflection exercises unrelated to racial bias. The intervention and control conditions were matched in the overall length of the experience.

At the beginning of the control condition, participants were told that, “You are about to watch a series of videos and answer questions. In the videos, you will learn information about infrastructure systems in American society. We’ve compiled these videos because we think that the information is interesting and important. We ask that you pay attention to these videos because we will ask you questions about what you remember. We ask that you watch each video in its entirety”. The participants then watched the first control video. The video explained how freight trains are both environmentally and economically efficient compared to trucks/planes. After the video, they answered a comprehension question about the video before completing a control version of a value affirmation task (Cohen et al., 2009; Cohen & Sherman, 2014). For the task, they were told, “We are interested in learning more about you as a person. You will be answering several questions about your ideas, beliefs, and life. There are no right or wrong answers. Please read over this list of personal values carefully and think about each of the values. Then select two or three values that are **least** important to you.” In the control exercise, participants reflected on why someone else might choose those values as being important to them.

After participants completed the exercise, they watched the second control video. This video explained strategies employed to reduce traffic congestion. After watching, participants then completed a comprehension question about the video and a control self-reflection exercise with

the following instructions: “We are interested in student's academic experiences on campus. Tell us about the classes you are taking this semester, why you are taking them, and something specific that you have learned this semester. Write about your academic experiences this semester in a paragraph or two”.

After this, participants saw the third control video. This video explained how wildfires start. To match the emotion regulation exercise in the intervention condition, we asked participants to think about regulating the emotions of a friend with the following instructions: “Imagine that you have a friend who came to you to share that they just lost valuable possessions in a fire. What might you say to them to help them feel better? What advice might you give them to help them regulate their emotions in the moment? In a few sentences, write about what you might say or do to help your friend feel better.”

Finally, participants saw a video was about how firefighters control the spread of wildfires. Participants then set a personalized academic goal using the WOOP template. Participants answered the following questions after seeing examples in the video. “Wish – What is one wish you have for the semester? Outcome – What is the best outcome about fulfilling this wish? How would fulfilling this wish make you feel? Obstacle – What is it within you that holds you back from fulfilling your wish? What is your main inner obstacle? Plan – Make an if-then-plan. What can you do to overcome your obstacle? Name one action or one thought to overcome your obstacle.”

2.3.3 Measures

2.3.3.1 Awareness, Beliefs, and Motivations about Bias and Emotions

2.3.3.1.1 Bias Awareness

We assessed agreement to the following four statements: “Even though I know it’s not appropriate, I feel like I hold unconscious negative attitudes toward Black people”, “I worry that I act in an unintentionally prejudiced way when talking to Black people”, “Even though I like Black people, I still worry that I have unconscious biases toward Black people”, and “I worry that I may act in a subtly prejudiced way toward Black people”. Agreement was measured on a 7-point scale ranging from (1) "Strongly disagree" to (7) "Strongly agree", with higher scores indicating greater awareness of personal bias. The scale of four items had good reliability ($\alpha = .88$).

2.3.3.1.2 Beliefs about the Malleability of Prejudice

We measured lay beliefs about the malleability of bias using an adapted measure from the Theories of Prejudice Scale (Carr et al., 2012). We assessed agreement to the following six statements: "People have a certain amount of prejudice, and they can’t really change that." (reverse-scored), "People’s level of prejudice is something very basic about them that they can’t change very much." (reversed scored; 18), “No matter who somebody is, they can always become a lot less prejudiced”, “People can change their level of prejudice a great deal”, “People can learn how to act like they’re not prejudiced, but they can’t really change their prejudice deep down” (reverse-scored), “As much as I hate to admit it, you can’t teach an old dog new tricks. People can’t really change how prejudiced they are.” (reverse-scored). Agreement was measured on a 7-point scale ranging from (1) "Strongly disagree" to (7) "Strongly agree", with higher scores indicating greater beliefs that prejudice was malleable rather than fixed. The scale of six items had good reliability ($\alpha = .86$).

2.3.3.1.3 Beliefs about the Malleability of Emotions After Being Biased

We adapted a Theories of Emotion scale (Tamir et al., 2007) to assess how individuals see the malleability of their emotions after learning that they have been biased. Our scale contained the following five items about emotion malleability after bias confrontations and confidence in emotion regulation: “You can learn to change your emotions after being racially biased”, “If you want to, you can change the emotions that you have after being racially biased”, “The truth is, you have very little control of your emotions after being racially biased” (reverse-coded), “No matter how hard you try, you can’t really change the emotions you have after being racially biased” (reverse-coded) and “I feel confident in my ability to manage my emotions after situations where I have been racially biased”. Agreement was measured on a 7-point scale ranging from (1) "Strongly disagree" to (7) "Strongly agree", with higher scores indicating a greater belief that emotions related to bias awareness are malleable rather than fixed. The scale of five items had good reliability ($\alpha = .85$).

2.3.3.1.4 External and Internal Motivation to Respond without Prejudice

In order to assess differences in external and internal motivation, we administered an adapted External and Internal Motivation to Respond Without Prejudice Scale (Plant & Devine, 1998). We adapted the scales to replace language of effort (i.e., I try, or I attempt) with motivation (i.e., I am motivated). We assessed external motivation with the following five items: “Because of today’s PC (politically correct) standards, I am motivated to appear non-prejudiced toward Black people”, “I am motivated to hide any negative thoughts about Black people in order to avoid negative reactions from others”, “If I acted prejudiced towards Black people, I would be concerned that others would be angry with me”, “I am motivated to appear non-prejudiced toward Black people in order to avoid disapproval from others” and “I am motivated to act non-prejudiced toward Black people because of pressure from others”. The scale of five items had

good reliability ($\alpha = .87$). We also assessed internal motivation with the following five items: “I am motivated to act in a non-prejudiced way toward Black people because it is personally important to me”, “According to my personal values, using stereotypes about Black people is OK” (reverse-coded), “I am personally motivated by my beliefs to be non-prejudiced toward Black people”, “Because of my personal values, I believe that using stereotypes about Black people is wrong” and “Being non-prejudiced toward Black people is important to my self-concept”. Agreement was measured on a 6-point scale ranging from (1) "Strongly disagree" to (6) "Strongly agree", with higher scores indicating a greater belief that emotions related to bias awareness are malleable rather than fixed. The scale of five items had fair reliability ($\alpha = .74$). There was no neutral option in either of the Likert scales.

2.3.3.1.5 Self-Efficacy Beliefs about Bias Regulation

To assess individuals’ belief in their capacity to regulate racial biases, we created a scale that adapted the components of self-efficacy to specific questions about bias regulation. We assessed this measure using the following five questions: “I believe in my own ability to recognize my racial biases”, “I believe in my ability to control my racial biases”, “I have the ability to maintain motivation for regulating my racial biases”, “I believe that with hard work, I can change any personal racial biases that I hold” and “When I am confronted about my racial biases, I know that I will be able to change my behavior in the future”. Agreement was measured on a 7-point scale ranging from (1) "Strongly disagree" to (7) "Strongly agree", with higher scores indicating a greater self-efficacy belief about bias regulation. The scale of five items had fair reliability ($\alpha = .78$).

2.3.3.2 Reactions to Information about Bias

2.3.3.2.1 Open-Ended Emotional Responding to IAT feedback

Participants completed a Race Implicit Association Test (IAT) with seven blocks where they associated White and Black faces with Good and Bad words. While their score on the IAT is not the measure of interest, individuals completed an IAT so that they could receive universal, false feedback on their score to engender defensiveness, replicating previous methodology (J. L. Howell & Ratliff, 2017; Vitriol & Moskowitz, 2021). After completing the IAT, all participants were deceived and saw the following feedback, “Your responses indicate a strong automatic preference for White People over Black People” along with additional information about the IAT. Participants then elaborated on their emotional experience after seeing their IAT score. To assess emotional awareness, they completed the following open-ended question: “How are you **feeling** right now about your score from the Implicit Association Test? In a few sentences write about your experience.”

2.3.3.2.2 Emotion Responses to IAT feedback

To better understand the range of emotional experiences after seeing this IAT score, participants completed ten one-item Likert questions about different emotions. We asked participants agreement levels to the following statements: “I feel guilty about my IAT score”, “I feel happy about my IAT score”, “I feel proud of my IAT score”, “I feel embarrassed by my IAT score”, “I feel excited about my IAT score”, “I feel upset about my IAT score”, “I feel angry about my IAT score”, “I feel ashamed of my IAT score”, “I feel inspired by my IAT score” and “I feel sad about my IAT score”. Agreement was measured on a 7-point scale ranging from (1) "Strongly disagree" to (7) "Strongly agree", with higher scores indicating a greater endorsement of the emotion. We aggregated the positive and negative emotion words into two separate scales. The scale for the six negative emotions had excellent reliability ($\alpha = .94$). The scale for the four positive emotions had good reliability ($\alpha = .84$).

2.3.3.2.3 Defensiveness about IAT feedback

Our study seeks to reduce participants' defensiveness when learning they possess concealed racial bias. To measure defensiveness directly, participants completed the following four-item scale from previous work (J. L. Howell & Ratliff, 2017; Vitriol & Moskowitz, 2021). "The IAT does not reflect anything about my thoughts or feelings unconscious or otherwise", "Whether I like my IAT score or not, it captures something important about me" (reverse-coded), "The IAT reflects something about my automatic thoughts and feelings concerning this topic" (reverse-coded) and "I feel defensive about my IAT score". The final item was our new addition to the original scale to measure defensiveness on face validity. Agreement was measured on a 7-point scale ranging from (1) "Strongly disagree" to (7) "Strongly agree", with higher scores indicating greater levels of defensiveness. The scale had fair reliability ($\alpha = .67$).

2.3.3.2.4 Engagement to learn more about bias and bias reduction

We operationalized engagement to learn more about Bias and Bias reduction as a behavioral measure of "pages read" on a series of curated articles about bias and bias reduction strategies. We operationalized this measure in two ways, as a dichotomous variable indicating whether the participant read past the first page as well as a continuous variable indicating the number of pages read (ranging from 0 to 10).

2.3.4 Exploratory Measures

We also collected political ideology and religiosity as exploratory measures of individual differences. The measure of political ideology asked participants to rate themselves as either: strongly conservative, moderately conservative, slightly conservative, moderate/neutral, slightly liberal, moderately liberal, or strongly liberal. The measure of religiosity asked participants to

rate themselves as: not at all religious, somewhat religious, moderately religious, or very religious.

3. Results

Table 1 provides the overview of condition differences on each measure.

3.1 Awareness, Beliefs, and Motivations about Bias and Emotions

3.1.1 Bias Awareness and Belief Malleability

Overall, the intervention increased participants awareness of their racial biases. Participants in the intervention condition reported greater awareness of bias relative to participants in the control condition, $t(378.39) = 6.69, p < 0.001, d = .68, 95\% CI = [.47, .88]$. The intervention also changed participants beliefs about bias malleability and emotional malleability after being biased. Relative to the control condition, participants in the intervention showed an increased belief that biases can change $t(379.13) = 3.61, p < 0.001, d = .37, 95\% CI = [0.16, 0.56]$ and an increased belief that the emotions someone experiences after being biased can be change $t(374.29) = 5.70, p < 0.001, d = .58, 95\% CI = [0.37, 0.78]$.

3.1.2 Self-Efficacy Beliefs about Bias Regulation

Although the intervention changed general beliefs about bias malleability, the intervention did not change overall beliefs about the ability to regulate one's own racial bias. There was no significant difference in self-efficacy between the intervention and control group $t(383.09) = 0.16, p = 0.87, d = 0.02, 95\% CI = [-0.18, 0.21]$. In the pre-registration, we planned to analyze the self-efficacy scale as a composite. Given that this was a novel scale created for this study, we also conducted exploratory analyses to evaluate each of the items separately to better understand the intervention effect. There were no significant differences between conditions for the following items: "I believe in my own ability to recognize my racial biases", "I have the ability

to maintain motivation for regulating my racial biases”, and “When I am confronted about my racial biases, I know that I will be able to change my behavior in the future”. However, there were two items that were significantly different between the intervention and control condition. There were group differences for the item, “I believe in my ability to control my own biases” such that the individuals in control condition endorsed a higher agreement ($M = 5.30, SD = 1.07$) than the intervention ($M = 5.58, SD = 1.11$) condition, $t(388.64) = -2.52, p = 0.01, d = 0.25, 95\% CI = [0.06, 0.45]$. This item emphasizes current capability around bias control. On the other hand, individuals in the intervention endorsed the following item more ($M = 6.09, SD = 0.99$) than the control condition ($M = 5.84, SD = 1.01$), “I believe that with hard work, I can change any personal racial biases that I hold” $t(388.80) = 2.49, p = 0.01, d = 0.25, 95\% CI = [0.05, 0.45]$. This item emphasizes malleability of bias through effort, which aligns with earlier findings about bias malleability. The items that were not significant indicate a confidence and certainty in current ability to regulate bias. After experiencing this intervention, participants may have felt more humble in their current *ability* to regulate their biases with certainty but more *motivated* to regulate them in the long-run.

3.1.3 External and Internal Motivation to Respond without Prejudice

After watching videos of social models share the importance of bias awareness and regulation in the intervention, intervention participants also showed higher levels external motivation to respond without prejudice $t(388) = 1.99, p < 0.05, d = .20, 95\% CI = [0.002, 0.40]$, compared to control participants. There was not a significant difference between the intervention and the control group for an internal motivation to respond without prejudice $t(385.53) = .93, p = 0.35, d = 0.09, 95\% CI = [-0.10, 0.29]$. We may be limited in the conclusions that can be drawn from this population due to ceiling effects. For these items, out of a scale of 6, the intervention group

scored high (46% selected between 5 or 6 on the aggregate scale, $M = 5.65$, $SD = .50$) and the control group also scored high (45% selected between a 5 or 6 on the aggregate scale, $M = 5.60$, $SD = .54$).

3.1.4 Reactions to Bias Feedback

3.1.4.1 Defensiveness, Negative Affect and Positive Affect

There were also significant group differences in defensive responding to new feedback about bias. In response to IAT feedback, the intervention group showed decreased levels of defensiveness, compared to the control group $t(385.34) = -2.55$, $p = 0.01$, $d = .26$, 95% CI= [0.06, 0.46]. There were also group differences in negative emotions to IAT feedback, such that individuals in the intervention condition felt worse after receiving their IAT feedback, $t(376.77) = 2.66$, $p = 0.008$, $d = .27$, 95% CI=[0.07, 0.47]. There were no significant difference between the groups in positive emotions about IAT feedback $t(384.68) = -0.61$, $p = 0.54$, $d = 0.06$, 95% CI= [-0.17, 0.26].

3.1.4.2 Engagement to Learn More about Bias

While engagement can be operationalized in a multitude of ways, this intervention tested a novel behavior measure of engagement as the willingness to read articles about bias and bias regulation at the end of a sixty-minute study. On this measure of engagement, overall the scores were low ($M = 0.11$; $SD = .16$, $M = 0.11$; $SD = .04$) and there was no significant difference between the intervention group and the control group although the intervention group did have a slightly higher level of engagement $t(338.95) = 0.12$, $p = 0.92$, $d = 0.009$, 95% CI= [-0.19, 0.21].

Table 1.*Outcomes by Condition*

Variable	Intervention Mean (SD)	Control Mean (SD)	<i>t</i>	<i>p</i>
Awareness & Beliefs about Bias & Emotions				
Bias Awareness	4.72 (1.28)	3.77 (1.51)	6.69	< 0.001***
Beliefs about Bias Malleability	5.66 (0.90)	5.30 (1.05)	3.61	< 0.001***
Beliefs about Emotion Malleability after being Biased	5.80 (0.76)	5.31 (0.92)	5.70	< 0.001***
Self-Efficacy for Bias Regulation	5.73 (0.69)	5.75 (0.78)	-0.16	0.87
Motivations to Respond Without Prejudice				
External Motivation to Respond without Prejudice	4.37 (1.14)	4.15 (1.12)	1.99	< 0.05*
Internal Motivation to Respond without Prejudice	5.66 (0.50)	5.61 (0.54)	0.93	0.35
Reactions to Bias Feedback				
Defensiveness	3.55 (0.99)	3.82 (1.08)	-2.55	< 0.01**
Negative Emotions to IAT feedback	5.09 (1.24)	4.73 (1.49)	2.66	< 0.01**
Positive Emotions to IAT feedback	2.27 (1.05)	2.34 (1.16)	-0.61	0.54
Engagement	0.11 (0.05)	0.11 (0.04)	0.10	0.92

3.2 Relationships between Key Outcomes

Table 2 is a matrix of the correlations between all the outcome variables. Overall, there were non-existent, small, or moderate correlations between the outcome variables, suggesting that each outcome was capturing distinct psychological constructs or processes.

3.3 Exploratory Moderation Analyses

Using a simple OLS regression model, we tested if defensiveness could be predicted from the interaction of the intervention condition and political ideology. The interaction was not significant ($b = -0.15$, $SE = 0.07$, $p = .062$), meaning that political ideology did not moderate the effect of the intervention on defensiveness. We also tested to see if defensiveness could be

predicted from the interaction of intervention condition and religiosity. This interaction was also not significant ($b = -0.22$, $SE = 0.11$, $p = 0.052$), meaning that religiosity also did not moderate the effect of the intervention on defensiveness.

Table 2.

Outcome Correlations

Variable	1	2	3	4	5	6	7	8	9
Awareness & Beliefs about Bias & Emotions									
1. Bias Awareness									
2. Beliefs about Bias Malleability	.05								
3. Beliefs about Emotion Malleability after being Biased	-.04	.47**							
4. Self-Efficacy for Bias Regulation	-.20**	.36**	.40**						
Motivations to Respond Without Prejudice									
5. External Motivation to Respond without Prejudice	.20**	-.14**	-.05	-.11*					
6. Internal Motivation to Respond without Prejudice	-.02	.40**	.20**	.40**	-.05				
Reactions to Bias Feedback									
7. Defensiveness	-.45**	-.02	.04	.15**	-.02	-.05			
8. Negative Emotions to IAT feedback	.19**	.08	.00	.08	-.01	.21**	-.04		
9. Positive Emotions to IAT feedback	-.08	-.15**	-.02	-.13*	.00	-.21**	-.09	-.46**	
10. Engagement	.02	.05	.04	.05	.01	.06	-.01	.06	-.00

*Note. * indicates $p < .05$. ** indicates $p < .01$.

4. General Discussion

In our multi-faceted intervention, participants learned from role models who constructively managed a confrontation after doing something racist. As predicted, the intervention increased awareness about racial bias, belief in the malleability of bias, and the belief in the malleability of emotions after being biased with moderate to large effect sizes. The intervention also reduced defensiveness and increased negative emotion (but not positive emotion) after bias confrontations. Unexpectedly, the intervention increased external motivation to respond without prejudice and did not change internal motivation to respond without prejudice. The intervention did not reliably change self-efficacy beliefs for bias regulation or engagement to read more about bias.

The intensive intervention, featuring social models and personalized reflection on racial biases, may be particularly useful for White individuals motivated to increase their regulatory capacity for bias confrontations. The findings of this intensive intervention had a large effect on increased bias awareness ($d = .68$) while still decreasing defensiveness ($d = .26$) and impacting other outcomes of interest. These effects, taken together, are distinct from previous findings from interventions with similar aims (Devine et al., 2012; Monteith, 1993; Monteith et al., 2010; Vitriol & Moskowitz, 2021). While bias awareness may be increased indirectly through lowered defensiveness (Vitriol & Moskowitz, 2021), there may be something uniquely valuable about increased awareness of bias awareness through this multifaceted intervention. Participants in the intervention condition did not just score higher on the Bias Awareness scale (Perry et al., 2016), they also wrote personalized reflections about expressions of bias they perpetuated. These specific stories then informed their subsequent bias regulation goals. The level of specificity and

personalization may be driving this robust effect and is important to consider for future interventions.

Participants in the intervention were also persuaded to see their own biases as malleable and understood their emotions after receiving bias feedback to be more malleable too. Incremental theories, or the belief that something can change, can shape the motivation and subsequent behaviors (Gutentag et al., 2020). This data would indicate that after the intervention, individuals have a stronger belief that bias and emotions after bias feedback can change, at least in general. Believing that bias and emotions can change after bias feedback may help to maintain motivation in the long run. Even if these behavior changes are difficult initially, holding a belief that change is possible may sustain attempts at behavior change, even in the face of failure. Although the intervention successfully changed beliefs that bias can change after perpetuating bias, this was not the same as an actual change in an individual's racial bias. While changing racial bias was not an outcome of interest for this intervention, future studies may look at how this intervention changes racial bias as well.

There were not significant differences between the intervention group and the control group for a belief in one's ability to manage their biases. There might be many plausible explanations for this null result, but one possibility may be embedded in Bandura's theory of self-efficacy. In this theoretical framework, a mastery experience is when an individual sets a goal, persists through challenges and eventually obtains the goal. There is an embedded time sequence in mastery experiences and experiencing success after persistence may be a critical component of increased self-efficacy (Bandura, 1978, 1989, 2012). Mastery experiences increase self-efficacy because they provide direct evidence to the belief about whether a goal may be personally achievable (Bandura, 1978, 1989, 2012). In the intervention, participants did not receive feedback about

how they responded to their IAT results. Participants also did not experience persistence or feedback about success in regulating bias. The lack of feedback may have limited their capability to have confidence in their bias regulation ability. Additionally, in the crux of the intervention, individuals reflected on personal failures in bias regulation and plans for successful bias regulation in the future, but they did not directly reflect on successful bias regulation attempts in the past. This experience may have left individuals hopeful for future bias regulation attempts, yet uncertain about their ability.

The intervention also increased external motivation to respond without prejudice. Higher levels of external motivation to respond without prejudice may be a counterproductive outcome, as individuals with this higher external motivation experience more intergroup anxiety or are more likely to express bias due to intergroup anxiety (Plant & Devine, 1998, 2003, 2008). Individuals who, after the intervention, are high on external motivation to respond without prejudice may be at risk of higher intergroup anxiety and would need to create goals to help address this problem. To mitigate the unintended increase in external motivation from the intervention, future versions of the intervention may remove some of the externally motivated language that social models used in the documentary videos.

At the same time, there were not significant differences between the intervention and control groups for internal motivation to respond without prejudice. It is difficult to conclude why there was a null effect. It could be due to the lack of effectiveness of the intervention, or it could be due to a ceiling effect of the internal motivation to respond without prejudice measure. Future iterations of this intervention should use a different population to see if this finding is robust.

In the intervention condition, participants reported lower defensiveness than the control condition after receiving threatening feedback about their implicit bias. After engaging in a long intervention where individuals learned that they could get better at regulating their biases, receiving universal feedback about high levels of implicit bias might feel demoralizing. Even though individuals in the intervention condition reported more negative affect after receiving their IAT score, they were also less defensive. Importantly, individuals in the intervention condition did not feel more positively in the intervention condition than individuals in the control condition (see Table 1). This null result is encouraging considering how this intervention may have backfired where individuals may feel more positively about their biases. Hearing about others' biases may have unintentionally made participants feel better about their biases through downward social comparison (e.g., "at least my bias isn't that bad") or may have normalized bias to be pervasive and uncontrollable. To better understand the mechanism for these effects, we are currently in the process of coding the qualitative data for emotion regulation strategies used after receiving their IAT feedback. The insights from that data might be able to clarify potential causal mechanisms for the effect of the intervention on defensiveness.

We developed a novel behavior task as a measure of engagement as a preliminary test to see how this intervention might impact subsequent behaviors. The data demonstrated little to no engagement with this engagement task to read more about bias. This result could indicate that the intervention does not reliably change engagement to learn more about bias. This result could also indicate that reading articles about bias may not be the most appropriate measure of engagement since people may be fatigued, particularly after a long intervention ($M = 66.71$ minutes, $SD = 14.51$ minutes). Unfortunately, this may be another example among many that behavioral tasks are not as reliable as we would like them to assess behavior (Forscher et al., 2019). Future

studies should include multiple sessions and examine engagement with either other follow-up tasks or collecting other reported behaviors through a methodology such as experience sampling.

4.1 Limitations and Future Directions

This intervention was multifaceted by design. Given that the intervention focused on generating large treatment effects by combining multiple mechanisms for change and a single control condition, this study cannot disentangle the mechanisms of the intervention. Although the intervention was effective, it is unclear which components drive isolated outcomes. Based on this evidence, there is a clearer understanding of how the various intervention components work together to change certain outcomes while not impacting others (see Table 1). The null effects are just as important to note as the significant effects of the intervention since the study was well-powered to find small to moderate effects. Future studies may test isolated components to develop a more parsimonious intervention.

In the intervention, we asked participants to reflect and self-report on the outcome measures. Given that bias regulation is impactful not only for the regulator but also for the target of bias, it is also valuable to understand how the effects of this intervention would impact others. In discussions about race, would individuals who have gone through the intervention seem less defensive? Directly assessing this would be an important direction in future work. Additionally, it would be useful to understand the long-term impact of this intervention. Many interventions that are effective in the short term may not be as effective over time (Paluck et al., 2021; Paluck & Green, 2009). There is evidence that longer interventions tend to have more long-lasting effects (Bezrukova, 2016). Would a longer version of this intervention, across repeated sessions,

have longer-lasting effects on attitudes and behaviors? Future iterations may include multiple sessions and longitudinal measurement of change over time.

Although we conducted this initial study with undergraduates, the videos of the social models featured adults who were not currently in college. The effectiveness of the intervention may be a more conservative test of the intervention since the role models may have been less relatable than young adults currently enrolled in college. Our findings suggest the intervention materials may translate well to White individuals who are not in college, given that the social models represent a range of ages and backgrounds. Future studies may test this theory with an in-person sample of adults ranging in age and context to test if this study generalizes beyond college students.

The sample collected through the undergraduate pool was also disproportionately liberal. The intervention may overestimate effects relative to a more politically diverse sample because the participants may be motivated to comply because of personal or political values. Alternatively, the intervention may underestimate these effects relative to a more politically diverse sample because the participants may have had less to learn from the intervention. These sampling characteristics are not representative of the broader population. Although there was a robust intervention effect, future work should assess how these findings might generalize to a more politically diverse population. Although this sampling characteristic is noteworthy, political ideology and religiosity did not moderate the relationship between the intervention and any outcome variable in exploratory analyses. This finding suggests that the intervention effects would be equally effective even in a more politically diverse sample.

4.2 Conclusion

The primary goal of this multi-faceted intervention was to increase personal acknowledgment of racial bias and develop an ability to respond constructively to future feedback about expressions of bias. The intervention increased bias awareness, the belief in the malleability of bias and emotions, and some motivations to respond without prejudice while reducing defensiveness about bias. While the initial study has promising results, future studies will need to refine the manipulation of self-efficacy, an internal motivation to respond without prejudice, and engagement. By focusing on understanding the implications of effective, constructive responding in the context of bias regulation, this intervention may help to support long-term anti-racist action.

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