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The Effects of an Online Training on Cultural Competence, Acknowledgment of White Privilege, Ethnocultural Empathy, and Racial Attitudes in White College Students

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ABSTRACT

The current study examined the short- and long-term efficacy of a cultural competence training aimed to help White college students understand structural discrimination, acknowledge their racial privilege, and understand and accept others' viewpoints and experiences. White students at a predominantly White US university ($n = 112$) completed a 3-h online cultural competence training, or a control exercise administered over a 3-week period. The training provided information about constructs related to prejudice, stereotypes, and discrimination; promoted awareness of privilege and oppression; and provided skills for effective cross-racial interactions. Results showed the cultural competence training afforded short-term improvement in participants' cultural competence, increases in their acknowledgment of White privilege, and increases in ethnocultural empathy for participants in the experimental condition. Latent linear growth models demonstrated improvements in cultural competence and acknowledgment of White privilege through two follow-up posttests. There were no changes in explicit and implicit racial attitudes. Implications of these findings for the future design and application of these types of training programs are discussed.

1 | Introduction

As the world becomes more diverse and interdependent, it is imperative that college students leave their university with an understanding of others' viewpoints, experiences, and values. To fully understand the experiences of others, students must also be knowledgeable about the structural and institutional discrimination that affects minoritized group members. Providing students with this knowledge may increase their identification of discrimination, leading them to be more likely to take antiracist action and endorse a commitment to racial justice (Cooley et al. 2019; Dessel et al. 2017; Langrehr and Blackmon 2016; Pinterits et al. 2009; Uluğ and Tropp 2021). Further, such knowledge among White students may mitigate negative discriminatory experiences that college students of color face, such as microaggressions from their peers (Blume et al. 2012; Bravo et al. 2023; Farber et al. 2021; Moreno et al. 2023; Smith et al. 2007; Van Dyke and Tester 2014), which are particularly common at predominantly White institutions (PWIs) (e.g., Harwood et al. 2012; Karkouti 2016; Lett and Wright 2003; Vaccaro 2010). Although college students of all racial identities can benefit from gaining this information, White students who make up the majority of students at American PWIs may particularly be well-served as it allows them to play a unique role in challenging racism based on their position as a racially privileged group member. The current study examined the short- and long-term efficacy of a cultural competence training aimed to help White college students understand structural discrimination, acknowledge their racial privilege, and understand and accept others' viewpoints and

experiences. While previous social psychological trainings have shown efficacy in improving attitudes toward individuals from minoritized backgrounds (e.g., Devine et al. 2012), we contend that improving cultural competence, including increasing recognition of one's privilege and systemic racism and increasing ethnocultural empathy in Whites should also be important goals.

1.1 | Cultural Competence

For White people, cultural competence involves: (1) learning about one's attitudes toward people of color, (2) increasing knowledge about the experiences of people of color, and (3) gaining skills for effective communication with people of color (Arredondo and Toporek 2004; Colvin-Burque et al. 2007; Sue et al. 1992). In Sue et al.'s (1992) tripartite model, the first component consists of an individual's understanding of their own and others' racial attitudes and beliefs toward outgroup members (Glockshuber 2005; Minami 2008). The second component focuses on understanding outgroup members' viewpoints, experiences, and values (Sue et al. 2019). Third, the skills component incorporates the development and implementation of communication that is culturally appropriate and acknowledges and respects racial differences (Sue et al. 1982). This model is consistent with developmental frameworks in which long-term attitude and behavioral change is obtained through cognitive, intrapersonal, and interpersonal change (Bennett 2001; Kegan 1982; King and Baxter Magolda 2005). Specifically, this model suggests that change in these three areas impacts understanding of cultural differences (i.e., cognitive), acceptance of cultural differences (i.e., intrapersonal), and ability to interact with others from diverse backgrounds (i.e., interpersonal). Together, these changes can lead to positive intergroup attitudes and behaviors (King and Baxter Magolda 2005).

Improving cultural competence increases awareness of bias and inequality, leading White people to be aware of the racial privilege that provides greater opportunities and benefits for White Americans (Donnelly et al. 2005). When White people explore their racial privilege, they are more likely to work to dismantle current inequitable social systems (Langrehr and Blackmon 2016; Pinterits et al. 2009) and confront instances of prejudice (Dessel et al. 2017), in part due to greater awareness of societal and interpersonal prejudice (Case 2007; Case et al. 2014). Awareness of White privilege can induce changes in daily behavior (Conway et al. 2017), including being more likely to make attributions to discrimination (i.e., labeling police officers' violence against Black men as discrimination; Cooley et al. 2019) and greater collective action intentions (Uluğ and Tropp 2021).

Such awareness of, and knowledge about, others' experiences with discrimination has frequently been examined as an impetus for empathy. Greater intergroup empathy is associated with less prejudice toward marginalized groups (Bäckström and Björklund 2007; Pettigrew and Tropp 2006; Pratto et al. 1994), greater concern for the group's well-being (e.g., Batson et al. 2002), less anxiety felt toward a marginalized group member during interactions (e.g., Pettigrew and Tropp 2006), and decreased stereotyping (Batson and Ahmad 2009), making it a key affective mechanism in positive intergroup attitude and behavioral change.

Finally, improving White students' awareness of their attitudes toward people of color, their knowledge about the experiences of people of color, and the skills for interacting with people of color may improve explicit and implicit racial attitudes toward individuals from minoritized groups. Although studies investigating the reduction of pro-White implicit bias have yielded mixed results (see Calanchini et al. 2021; FitzGerald et al. 2019; Lai et al. 2014), social psychological theories have asserted that implicit processing changes over time with conscious effort and an awareness of bias in the self (Devine et al. 2012; Devine and Monteith 1993; Plant and Devine 2009). Research shows, however, that people may be unable to detect their own biases. That is, individuals tend to see others' biases more clearly than their own (Bell et al. 2019; Pronin et al. 2002). Further, those who are the most biased may be the least aware of what constitutes bias despite endorsing egalitarian values (Fetz and Müller 2020). Thus, while many prejudice reduction interventions focus on making people aware of their own use of stereotypes or implicit biases (e.g., Czopp et al. 2006; Devine et al. 2012), bringing awareness to interpersonal and structural discrimination and discussing the prevalence and effects of various forms of prejudice may be more effective at promoting attitude change (c.f. Applebaum 2019; Gonzalez et al. 2014; Kernahan and Davis 2010; Zestcott et al. 2016).

1.2 | Current Research

The current study sought to replicate and extend previous work that demonstrated the initial efficacy of a training for White college students designed to improve cultural competence and increase participants' acknowledgment of their privilege and systemic racial discrimination (Robey and Dickter 2022). This training is rooted in the social psychological literature demonstrating that effective interventions target conscious processing (Devine et al. 2012) and incorporates a developmental framework that focuses on cognitive, intrapersonal, and interpersonal change as a developmental process that leads to cultural competence (Bennett 2001; Kegan 1982; King and Baxter Magolda 2005). Finally, as attitude and behavior change results from individuals being aware of their prejudices but wanting to view themselves as people with egalitarian values (Fetz and Müller 2020), our intervention focuses on framing bias not only in terms of the individual but also as rooted in a broader system of institutional and systemic discrimination.

While effective trainings emphasizing cultural competence in higher education tend to focus on structured coursework and workshops that address broad topics like multiculturalism or diversity (Dogra 2001; Maxwell and Chesler 2022; Patterson et al. 2018; Repo et al. 2017; Tormala et al. 2018), in-person classes and trainings require extensive resources, vary by the quality of instruction and group interaction, and can marginalize students from minoritized backgrounds (Sue 2013). The current training is online, with some materials partly based on a 1-day, in-person training focused on promoting cultural competence (Ong et al. 2018). The current race-focused training was

designed to be completed online to allow anonymity, convenience, and greater disclosure on potentially sensitive topics (Keum and Miller 2018). Additionally, the online, automated nature of the present training means that it is less costly in terms of finances and staff than in-person classes or trainings (Rooney 2016).

A previous study revealed the initial efficacy of this training. In four 1-h sessions, each administered 1 week apart, White college students demonstrated significant increases in cultural competence and acknowledgment of White privilege from assessments before and directly after the fourth training (Robey and Dickter 2022). In the current study, we decreased the number of sessions to three 1-h sessions and tested whether its positive effects held 1 month after the training was completed. Demonstrating prolonged changes in cultural competence is necessary, as past research has found that many prejudice-reduction training and interventions do not show continued effects even 1 week later (e.g., Lai et al. 2016). Further, to demonstrate the causal effects of the training on cultural competence and attitude change, the present study included a control group that completed training sessions on a topic not related to cultural competence or intergroup relations. Finally, novel to the present study, we assessed intergroup empathy as well as explicit and implicit attitudes to determine if the cultural competence training impacted attitudes and intergroup affect.

In the current study, our first hypothesis was to replicate previous work demonstrating that the training improves short-term cultural competence and acknowledgment of White privilege in White college students from baseline to directly after training completion. Second, we aimed to extend this previous work by demonstrating that ethnocultural empathy, in addition to explicit and implicit racial attitudes, would be improved as a result of the training. Third, we hypothesized that participants who received the training would demonstrate improvements in cultural competence, acknowledgment of White privilege, ethnocultural empathy, and attitudes lasting 4 weeks after the training, but that individuals in a control group would not. As greater cultural competence among White individuals is associated with a host of positive outcomes for racial attitudes and intergroup interactions (Kernahan and Davis 2007; Ličen et al. 2019; Yang et al. 2020; You and Matteo 2013), we believe it is imperative to improve racial attitudes and behaviors by promoting awareness of racial bias in the self and society, with a focus on cultivating an understanding of interpersonal and structural prejudice.

2 | Methods

2.1 | Participants

White college students ($N = 123$) participated for partial credit in their Introduction to Psychology course at a medium-sized, public university in the Southeastern United States. We aimed for a target sample size of 100, which was chosen to be consistent with studies with similar methodology and participant characteristics (i.e., Devine et al. 2012; Robey and Dickter 2022), and oversampled based on expected attrition. The ethical standards of the Institutional Protection of Human Subjects Committee, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards, were met. Electronic informed consent was obtained from all participants.

Participants were excluded if they failed any attention checks ($n = 1$), did not identify as monoracial White ($n = 1$), or were accidentally given materials for both conditions by a research assistant ($n = 1$). Additionally, eight participants did not have data from Session 1 and were excluded. Data analyses were conducted with the remaining 112 participants who had been randomly assigned to the experimental ($n = 54$) or control ($n = 58$) condition. All participants self-identified as monoracial White. The study was composed of 64 females (57.14% of analytic sample), 44 males (39.29% of analytic sample), 2 nonbinary participants (1.79% of analytic sample), and 2 participants who did not disclose their gender identity (1.79% of analytic sample). On average, participants were 18.80 ($SD = 0.93$) years of age.

2.2 | Measures

2.2.1 | Cultural Competence

To assess cultural competence, the Awareness Knowledge and Skills-General (ASK-G) scale (Domenech Rodríguez et al. 2018) was administered. The 36-item measure includes four subscales to measure awareness of others (e.g., "I refrain from using certain words and phrases that I know may be offensive."), awareness of oneself (e.g., "My culture has an impact on the way I see the world."), knowledge (e.g., "I am familiar with important customs of a cultural group other than my own."), and proactive skills development (e.g., "I confront racist comments in public settings made by strangers."). Participants indicated their agreement with these items on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Reliability in the current sample across the four time points was acceptable ($\alpha s = 0.80$, 0.88, 0.87, and 0.88). All items were averaged, and the overall mean was calculated. Higher scores indicate higher levels of cultural competence.

2.2.2 | White Privilege

To assess perceptions of one's White privilege, the 5-item White Privilege Scale (Swim and Miller 1999) was used. Participants indicated their agreement with these items on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). An example item is "My skin color is an asset to me in my everyday life." Reliability in the current sample across the four time points was acceptable ($\alpha s = 0.88$, 0.92, 0.91, and 0.91). Items were appropriately reverse-coded and averaged; an overall mean was calculated. Higher scores indicate higher acceptance of one's privilege in our society as a White person.

2.2.3 | Intergroup Empathy

Participants completed the Scale of Ethnocultural Empathy (SEE; Wang et al. 2003), a 31-item scale to measure intergroup empathy. An example item is "I try to understand what it would feel like to be a person of a racial or ethnic background other

than my own." Participants indicated their agreement on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Reliability in the current sample across the four time points was acceptable (αs = 0.84, 0.87, 0.90, and 0.90). Higher scores indicate greater empathy toward members of racial or ethnic outgroups.

2.2.4 | Explicit Attitudes

Participants' explicit attitudes toward Black and White individuals were measured via Feelings Thermometers about each group (Forscher et al. 2017). Participants indicated on a scale of 0 (*Very cold*) to 100 (*Very warm*) how positive or negative they viewed each group at each time point. Higher scores indicated more positive explicit attitudes toward each social group.

2.2.5 | Implicit Attitudes

Participants' implicit racial attitudes were measured using the Implicit Association Test (IAT; Greenwald et al. 1998), which assesses associations between target pairs (i.e., Black vs. White racial groups). The IAT consists of seven blocks that depict face stimuli (i.e., Black and White faces) and word stimuli (e.g., pleasant and unpleasant) into racial categories (i.e., Black and White) and valence categories (i.e., bad and good). Participants are instructed to categorize the stimulus as quickly as possible using two response keys. Participants first sort the face stimuli into racial groups and the word stimuli into valence categories in two individual blocks. They then sort all stimuli into combined blocks (Blocks 3 and 4), where both racial and valence categories are present. In Block 5, the valence categories are switched (e.g., bad on the left side changes to the right side). In Blocks 6 and 7, the combined trials are again presented, but with the new valence category placement. Whether Black or White is paired first with Good or Bad is counterbalanced between participants. For each trial, the stimulus words appeared until a response and incorrect answers yielded a red "X" on the screen which stayed there until they made the correct response. Following a correct response, there was a 250 ms intertrial interval.

IAT scores across timepoints were calculated using Greenwald et al.'s (2003) revised method. Trials with latencies longer than 10,000 ms and less than 400 ms were eliminated. The mean reaction time of the incongruent conditions was subtracted from that of the congruent conditions and divided by their respective pooled standard deviations. These values yielded a *d* score; more positive scores were associated with stronger associations between Black-bad and White-good.

2.3 | Cultural Competence Training

Participants were randomly assigned to the cultural competence or control training. In the cultural competence training, the purpose of the training and the learning objectives were presented at the beginning of each session. The objectives included learning basic definitions, becoming aware of privilege and oppression, making space for other's experiences, finding common ground, communicating respect, and owning one's missteps, among others.

2.3.1 | Session 1: Knowledge

The definitions of key terms pertinent to building knowledge (i.e., race, ethnicity, culture, intersectionality, racism, prejudice, discrimination, microaggressions, stereotypes, privilege, and safe space), adapted from Safe Passage for U (Ong et al. 2018), were presented to participants. Checks for understanding were added throughout to ensure the material was absorbed (e.g., "Which of the following correctly defines the term intersectionality?"). Students were given feedback with the correct answers and could elect to check their scores on their "checks for understanding" at the end of the session. Next, participants read an article entitled *Time for justice: Tackling race inequalities in health and housing* (Brookings Institute 2022). This reading provided information on institutional racism as it applies to housing segregation and health inequity, giving clear data demonstrating these inequalities and covering the reasons for them. Checks for understanding were used (e.g., "Which of the following is an example of implicit bias in healthcare?") as were open-ended questions for reflection (e.g., "Reflect on how the effects of multigenerational institutionalized racism can be passed through the generations.").

2.3.2 | Session 2: Awareness

Participants first read "Herd Invisibility: The Psychology of Racial Privilege" (Phillips and Lowery 2018), which explains the psychology of racial privilege and details the ways in which Whites act to maintain their privilege. Next, they watched a YouTube clip of "How Stereotypes Affect Us and What We Can Do—Claude Steele" (Steele 2015) in which Steele describes stereotype threat and his social psychological research in this area. Finally, participants read "White Privilege: Unpacking the Invisible Knapsack" (McIntosh 1998). Checks for understanding of the material as well as reflections of the material and self-identity were added at the end of each component. This combination of various media was chosen to help reinforce awareness and knowledge (Berk 2009; Rackaway 2012).

2.3.3 | Session 3: Skills

Videos were created by research assistants from underrepresented backgrounds who scripted and modified scenarios based on in-person role-play exercises in Safe Passage for U (Ong et al. 2018) that reflected typical negative cross-racial interactions. Role plays reflected subtle but harmful acts of prejudice, most often microaggressions. Examples include interactions based on apathy from peers following a description of a student from an underrepresented racial group who was asked to talk on behalf of their race in class (i.e., tokenism), assumptions around language abilities for international students, and racial stereotypes. Student actors were hired to

represent same-sex (two women or two men) cross-racial interactions (one individual from an underrepresented racial minority on campus, including Asian, Black, and Hispanic actors paired with one of several White actors). Scenes were memorized and filmed in typical settings (classrooms, outside, and hallways) around campus. Each section included an introduction to the role play, a video of an interaction going poorly between students, reflection questions, and then the same interaction improved using the designated skill. See Table 1 for a list of all skills. The skills section ended with additional reflection questions and a prompt to incorporate the skill into their life.

2.4 | Control Training

Materials in the control condition were similar in terms of type of media (i.e., research articles, popular articles, videos), types of questions (i.e., multiple choice, short answer), and length of session. The control topic was climate change, which we chose because there were a variety of educational materials available and the topic is unrelated to cultural competence, privilege, etc.

2.5 | Procedure

Participants visited our lab for five sessions. They were seated in front of a computer with noise-canceling headphones in groups of one to three other students. Computer stations were separated by privacy screens. All measures and tasks were completed online using Qualtrics software or Inquisit (for the IAT). See Figure 1 for the timeline. In Session 1, participants were given the above measures (pretest), were randomly assigned to a condition, and presented with the Knowledge training or control materials. In Session 2, participants continued their training with the Awareness training or control materials. In Session 3, participants received the Skills Training or control materials and then completed all measures in Posttest 1. Each of the first three training sessions took place approximately 1 week apart from one another. Approximately 14 days later, participants completed all measures again in Posttest 2 in Session 4. Another 14 days later (Session 5), participants completed all measures in Posttest 3. Following Session 5, participants were debriefed.

TABLE 1 | Skills taught in the third training session for the experimental group.

1. Become aware of the areas in which we experience privilege and oppression and how these aspects of our identities impact our world views.
2. Make space for others' voices and experiences.
3. Ask appropriate questions to connect with others.
4. Find common ground and communicate respect with those who hold beliefs different from our own.
5. Check our assumptions.
6. Make others aware of invisible preconceptions.
7. Appropriately recover from our missteps.
8. Own our missteps (i.e., statements and behaviors).

3 | Results

3.1 | Analysis Plan

To replicate the results from Robey and Dickter (2022), paired-samples *t*-tests were conducted with participants in the experimental condition on measures of cultural competence (ASK-G) and White privilege. To extend these results, paired-samples *t*-tests were conducted with ethnocultural empathy, explicit attitudes, and implicit attitudes measures. To examine whether performance on these measures improved across the four timepoints in the experimental but not control condition, latent linear growth models (LGM) examining the effects of each outcome over time by experimental condition were conducted in Mplus 8.8 (Muthén and Muthén 1998–2024). Specifically, a linear growth model was estimated for each outcome variable, and the intercept and slopes of these outcomes were regressed onto dummy-coded condition variable (0 = control condition, 1 = experimental condition) to determine if the baseline intercept (test of randomization) and growth over time differed across conditions. For significant effects, follow-up multigroup models were conducted to investigate growth patterns within each condition. Additionally, we examined correlations between intercepts and slopes to determine whether individuals with higher or lower initial scores on outcomes changed more over time. To evaluate overall model fit, we used model fit criteria suggested by Hu and Bentler (1999) including the Comparative Fit Index (CFI) > 0.95, Tucker–Lewis Index (TLI) > 0.95, Root Mean Square Error of Approximation (RMSEA) < 0.06, and Standardized Root Mean Square Residual (SRMR) < 0.08. Parameters were estimated using maximum likelihood estimation and missing data were handled using full information maximum likelihood. Statistical significance was determined by 95% bias-corrected bootstrapped confidence intervals (CIs) that did not contain 0. Descriptive statistics for all measures at each time point are depicted in Table 2.

3.2 | Experimental Group Analyses

3.2.1 | Cultural Competence

Analyses revealed a significant increase in the ASK-G total from pretest ($M = 3.63$, SD = 0.35) to posttest 1 ($M = 3.79$, SD = 0.47), $t(44) = 3.48$, $p < 0.001$, $d = -0.518$. Improvements were also

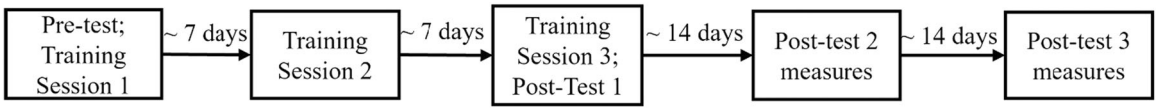

FIGURE 1 | Study timeline.

TABLE 2 | Descriptive statistics of study outcomes across time by experimental condition.

	Experimental group				Control group			
	Pretest	Post 1	Post 2	Post 3	Pretest	Post 1	Post 2	Post 3
Cultural competence (ASK-G)	3.63 (0.05)	3.79 (0.08)	3.79 (0.06)	3.85 (0.07)	3.69 (0.04)	3.74 (0.06)	3.79 (0.06)	3.78 (0.06)
White privilege	3.44 (0.11)	3.90 (0.12)	3.79 (0.12)	3.92 (0.14)	3.61 (0.14)	3.61 (0.16)	3.63 (0.16)	3.61 (0.18)
Ethnocultural empathy	3.91 (0.06)	4.10 (0.07)	4.02 (0.08)	4.19 (0.08)	3.94 (0.05)	4.03 (0.06)	4.02 (0.07)	4.08 (0.07)
Explicit attitudes toward White people	73.15 (3.12)	76.05 (3.19)	78.79 (2.70)	78.03 (3.19)	85.26 (2.52)	85.57 (2.26)	85.36 (2.25)	84.31 (2.29)
Explicit attitudes toward Black people	71.40 (3.00)	74.90 (2.98)	77.93 (2.88)	77.21 (3.24)	85.62 (2.34)	85.51 (2.32)	86.30 (2.26)	84.90 (2.36)
Implicit attitudes	0.29 (0.08)	0.30 (0.17)	0.27 (0.07)	0.16 (0.10)	0.31 (0.07)	0.023 (0.07)	0.28 (0.05)	0.27 (0.06)

revealed in the awareness of self subscale ($M_{pre} = 3.34$, $SD_{pre} = 0.91$; $M_{post} = 3.58$, $SD_{post} = 0.93$), $t(44) = 2.53$, $p = 0.015$, $d = 0.377$, the skills development subscale ($M_{pre} = 2.77$, $SD_{pre} = 0.52$; $M_{post} = 2.93$, $SD_{post} = 0.73$), $t(44) = 2.15$, $p = 0.037$, $d = 0.311$, and the knowledge subscale ($M_{pre} = 3.93$, $SD_{pre} = 0.43$; $M_{post} = 4.09$, $SD_{post} = 0.50$), $t(44) = 3.27$, $p = 0.002$, $d = 0.487$. The awareness of others subscale did not show a significant change, $t(44) = 1.02$, $p = 0.312$, $d = 0.152$.

3.2.2 | White Privilege

The paired sample *t*-test revealed a significant increase in acknowledgment of White privilege from pretest ($M = 3.44$ $SD = 0.76$) to posttest 1 ($M = 3.90$, $SD = 0.79$), $t(44) = 4.76$, $p < 0.001$, $d = 0.710$.

3.2.3 | Ethnocultural Empathy

There was a significant increase in ethnocultural empathy from pretest ($M = 3.91$, $SD = 0.43$) to posttest 1 ($M = 4.10$, $SD = 0.50$), $t(43) = 3.92$, $p < 0.001$, $d = 0.591$.

3.2.4 | Explicit Attitudes

There was no difference in explicit attitudes toward Black individuals between pretest and posttest 1, $t(40) = 1.57$, $p = 0.124$, $d = 0.242$, nor White individuals, $t(40) = 1.45$, $p = 0.154$, $d = 0.227$.

3.2.5 | IAT

There was no difference in implicit attitudes between pre- and posttest 1, $t(32) = 0.11$, $p = 0.455$, $d = 0.910$.

3.3 | LGM Results

Results from the LGM models are summarized in Table 3, and all outputs are available at: https://osf.io/xpfyg/. Results are presented separately for each outcome.

3.3.1 | Cultural Competence

The LGM provided an excellent fit to the data based on most fit indices: $\chi^2(9) = 21.18$, $p = 0.011$, CFI = 0.953, TLI = 0.948, RMSEA = 0.110 (90% CI = [0.049, 0.171]), SRMR = 0.303. Findings revealed no significant experimental effect on the intercept, suggesting randomization was met. Focusing on the slope, there was a significant experimental effect ($b = 0.051$, 95% CI = [0.014, 0.086]), suggesting a significant difference in the growth in ASK-G scores across conditions. Multigroup models revealed a significant growth within the experimental condition ($b = 0.071$, 95% CI = [0.045, 0.097]), but not for the control condition ($b = 0.020$, 95% CI = [−0.004, 0.046]).

TABLE 3 | LGM results of study outcomes across time by experimental condition.

	b	95% CI
Cultural competence (ASK-G) findings[a]		
ASK-G intercept	**3.711**	**3.635, 3.790**
ASK-G slope intercept	0.022	−0.002, 0.048
Intercept correlation with slope	—	—
Condition → ASK-G intercept	−0.059	−0.189, 0.065
Condition → ASK-G slope	**0.051**	**0.014, 0.086**
White privilege findings		
White privilege intercept	**3.567**	**3.305, 3.817**
White privilege slope	0.021	−0.033, 0.075
Intercept correlation with slope	**0.033**	**0.003, 0.062**
Condition → White privilege intercept	−0.017	−0.345, 0.308
Condition → White privilege slope	**0.097**	**0.015, 0.186**
Ethnocultural empathy findings		
Ethnocultural empathy intercept	**3.974**	**3.879, 4.064**
Ethnocultural empathy slope	**0.035**	**0.012, 0.061**
Intercept correlation with slope	0.008	−0.001, 0.017
Condition → Ethnocultural empathy intercept	−0.043	−0.201, 0.114
Condition → Ethnocultural empathy slope	0.034	−0.006, 0.071
Explicit attitudes toward White individuals findings		
Explicit attitudes toward White individuals intercept	**84.790**	**80.479, 88.700**
Explicit attitudes toward White Individuals Slope	0.221	−0.601, 1.023
Intercept correlation with slope	−4.317	−18.861, 8.822
Condition → Explicit attitudes toward White individuals intercept	**−11.005**	**−17.617, −4.202**
Condition → Explicit attitudes toward White individuals slope	0.723	−0.549, 2.318
Explicit attitudes toward Black individuals findings[a]		
Explicit attitudes toward Black individuals intercept	**84.631**	**80.383, 88.663**
Explicit attitudes toward Black individuals slope	0.508	−0.247, 1.140
Intercept correlation with slope	—	—
Condition → Explicit attitudes toward Black individuals intercept	**−11.986**	**−18.720, −5.379**
Condition → Explicit attitudes toward Black individuals slope	0.702	−0.637, 2.601
Implicit racial attitudes findings[a]		
Implicit racial attitudes intercept	**0.295**	**0.181, 0.396**
Implicit racial attitudes slope	−0.003	−0.047, 0.42
Intercept correlation with slope	—	—
Condition → Implicit racial attitudes intercept	−0.015	−0.165, 0.141
Condition → Implicit racial attitudes slope	−0.003	−0.072, 0.060

Note: For all models, Condition was coded as: 0 = control condition, 1 = experimental condition. Significant effects are in bold typeface for emphasis and were determined by unstandardized 95% bias-corrected bootstrapped confidence intervals (based on 10,000 bootstrapped samples) that did not contain 0.

[a]Model was estimated with the variance of the slope set at 0 due to a small negative residual variance of the slope latent factor. Within such models, correlations between intercepts and slopes are not estimated.

3.3.2 | White Privilege

The LGM provided an excellent fit to the data based on most fit indices: $\chi^2(7) = 19.11$, $p = 0.007$, CFI = 0.970, TLI = 0.957, RMSEA = 0.124 (90% CI = [0.059, 0.193]), SRMR = 0.049. Findings revealed no significant experimental effect on the intercept, suggesting randomization was met. Focusing on the relationship between intercept and slope, we did find a significant positive relationship ($b = 0.033$, 95% CI = [0.003, 0.062]), such that individuals with higher White privilege scores at baseline showed steeper increases in White privilege. Focusing on the slope across conditions, there was a significant experimental effect ($b = 0.097$, 95% CI = [0.015, 0.186]), suggesting a significant difference in the growth in White privilege scores across conditions. Multigroup models revealed a significant growth within the experimental condition ($b = 0.134$, 95% CI = [0.0467, 0.203]), but not the control condition ($b = 0.019$, 95% CI = [−0.036, 0.071]).

3.3.3 | Ethnocultural Empathy

The LGM provided a poor fit to the data based on most fit indices: $\chi^2(7) = 39.14$, $p < 0.001$, CFI = 0.922, TLI = 0.888, RMSEA = 0.202 (90% CI = [0.143, 0.266]), SRMR = 0.224. Findings revealed no significant experimental effect on the intercept, suggesting randomization was met. Focusing on the slope, there was a nonsignificant experimental effect ($b = 0.034$, 95% CI = [−0.006, 0.071]).

3.3.4 | Explicit Attitudes

The LGM for White individuals provided an excellent fit to the data based on most fit indices: $\chi^2(7) = 11.68$, $p = 0.112$, CFI = 0.988, TLI = 0.983, RMSEA = 0.078 (90% CI = [0.000, 0.155]), SRMR = 0.107. Findings revealed a significant experimental effect on the intercept for explicit attitudes toward White individuals, suggesting that individuals in the control condition had more favorable views of White individuals than those in the experimental condition at baseline (see Table 3). Focusing on the slope, there was a nonsignificant experimental effect ($b = 0.723$, 95% CI = [−0.549, 2.318]). The LGM for explicit attitudes toward Black individuals also provided an excellent fit to the data based on most fit indices: $\chi^2(9) = 13.77$, $p = 0.131$, CFI = 0.987, TLI = 0.986, RMSEA = 0.079 (90% CI = [0.000, 0.140]), SRMR = 0.089. Findings revealed a significant experimental effect on the intercept, suggesting that individuals in the control condition had a more favorable view of Black individuals than those in the experimental condition at baseline (see Table 1). Focusing on the slope, there was a nonsignificant experimental effect ($b = 0.702$, 95% CI = [−0.637, 2.601]).

3.3.5 | IAT

The LGM provided an excellent fit to the data based on most fit indices: $\chi^2(9) = 5.25$, $p = 0.812$, CFI = 1.00, TLI = 1.00, RMSEA = 0.000 (90% CI = [0.000, 0.067]), SRMR = 0.059. Findings revealed no significant experimental effect on the intercept, suggesting randomization was met. Focusing on the slope, there was a nonsignificant experimental effect ($b = -0.003$, 95% CI = [−0.072, 0.060]).

4 | Discussion

The present study assessed the efficacy of an online training designed for White college students to improve cultural competence, increase acknowledgment of White privilege, increase ethnocultural empathy, and improve explicit and implicit racial attitudes immediately after training and up to 1 month after training was completed. Results indicated that, in the students who received the training, cultural competence, acknowledgment of White privilege, and ethnocultural empathy improved from pretest to the first posttest. Further, latent linear growth analyses revealed that both cultural competence and White privilege acknowledgment, but not ethnocultural empathy, improved across the four time points in the experimental but not the control condition. Neither explicit nor implicit attitudes changed as a function of the training. These results have important theoretical implications for our understanding of social psychological constructs related to intergroup attitudes and behaviors.

Improving long-term cultural competence and acknowledgment of White privilege in the current participants may lead to future antiracist actions. That is, previous research found that thinking about one's racial privilege led White people to be more likely to work to dismantle current inequitable social systems (Langrehr and Blackmon 2016; Pinterits et al. 2009; Uluğ and Tropp 2021), engage in daily behavioral changes such as confronting prejudice (Dessel et al. 2017), and identify discrimination (Cooley et al. 2019). In our study, directly following the training, participants improved in the degree to which they engaged in advocacy and social justice actions (e.g., joining an advocacy group, attending social action events such as protests, confronting racist comments in public settings), as assessed by the skills subscale of the cultural competence measure. Future research should examine whether these skills lead to more positive intergroup interactions with members of minoritized groups.

Counter to hypotheses, neither explicit nor implicit attitudes changed as a result of the training. These null findings may be explained by the relative strength of racial attitudes that have been ingrained over the course of a lifetime. Indeed, racial attitudes are resistant to change and may only occur with conscious effort (e.g., Devine et al. 2012). Further, although some of the training focused on understanding one's own bias, most of the current training was aimed at building awareness of system inequality and racial privilege, as well as providing skills for improved intergroup interactions. As awareness of bias in the self is thought to be a precursor to attitude change (e.g., Plant and Devine 2009), the current training's lack of focus on the self may have been insufficient to change attitudes. Future research may attempt to add components of training that focus on the self (Devine et al. 2012) to the current training. Additionally, the research suggests that diversity trainings that include interactions with others and human instructors is more effective in changing affective outcomes than computer-led trainings without social interaction (see Kalinoski et al. 2013).

Additional future work is warranted, particularly in the context of study limitations. First, future research should seek to replicate the findings at other universities, particularly at schools that have more diversity or at minority-serving institutions; approximately 60% of students at the university from which the data were collected are White. That is, students in the present sample may have limited opportunity to develop and practice newly developed skills due to fewer opportunities for interracial interactions, ultimately offering less opportunity for growth compared to White students at minority-serving institutions. Further, due to the small sample size of the current study, it was not possible to examine which variables were potential mediators. For example, we suspect that changes in White privilege and ethnocultural empathy (from pretest to posttest 1) likely mediated the effect of the training on antiracist skills. Future research with a larger sample should test this assertion. Finally, a possible limitation of the current study may be the content difference between the experimental and control conditions. That is, although the format, engagement level, and length of these two trainings were similar, the control condition involved participants learning about and reflecting on material that likely induced fewer or less negative emotional responses and did not require participants to reflect on their own biases. Thus, it is possible that engaging with more emotionally-laden content was responsible for changes in the dependent variables. Finally, there were baseline differences between participants in the experimental condition and the control condition for the explicit feelings thermometers measures; although this is a potential limitation, the fact that this difference was found for explicit attitudes toward both Black and White individuals suggests that there was no difference pertinent to the research questions.

As diversity trainings have become common practice across academic and organizational spaces, creating millions of dollars in spending just within the federal government (Kaminsky 2024), it has become evident that many trainings lack empirical evaluation (Dobbin and Kaley 2016). Yet, the present findings offer further evidence for an easy-to-implement, online training that significantly impacts White students' cultural competence, reinforcing the notion that diversity training is simply education (Lai et al. 2023). We encourage future research to examine the utility of this training in other contexts (e.g., organizations). Further, although the current training utilizes a cultural competence framework, incorporating other theoretical frameworks is warranted. For example, future trainings can incorporate (1) cultural humility frameworks that emphasize a lifelong commitment to learning rather than promoting a finite, achievable level of competence (e.g., Fisher-Borne et al. 2014) and (2) structural competence frameworks that encourage an understanding of the structural factors involved in inequality (Metzl and Hansen 2014). Incorporating these perspectives into trainings that focus on increasing knowledge, changing attitudes, and developing skills may be fruitful in providing holistic, robust, long-term benefits. Additionally, although the current results suggest that improvements in cultural competence and acknowledgment of privilege occurred a month after training, this does not suggest that these effects held past this point. Additional training to reiterate information learned and to reinforce skills may be needed to hold or improve the results of the training; research has also suggested that longer diversity trainings are more effective than trainings that are less than 4 h (Kalinoski et al. 2013).

In conclusion, this study demonstrated that a 3-h online training administered over a 3-week period improved White college students' cultural competence, increased their acknowledgment of White privilege, and increased ethnocultural empathy in the short-term, while maintaining improvements in cultural competence and acknowledgment of White privilege in the long-term. There were no changes in explicit and implicit racial attitudes. These findings suggest that a training that educates students on structural discrimination, helps to acknowledge their racial privilege, and provides an understanding and acceptance of others' viewpoints and experiences may improve cultural competence, but not self-report or behavioral measures of bias.

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