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Challenging Binary Frameworks: An Experimental Study on Cognitive Bias and the 'Othering' Effect in Cultural Competence Training

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Abstract

As globalization intensifies, cultural training for managers and students has become standard practice. This paper critiques the dominant pedagogical approach, which relies on positivist, dichotomous cultural models. We argue that these binary frameworks may function as cognitive heuristics that inadvertently trigger rapid, intuitive "System 1" thinking, thereby reinforcing stereotypes and fostering a sense of "Othering." This study employed a pre-test/post-test experimental design with 210 business students randomly assigned to one of three groups: a Dichotomy-Based Training, a Reflexive Training based on postcolonial critique, or a Control Group. Cognitive bias was measured using a custom Implicit Association Test (IAT) and a vignette-based survey of stereotypical attributions. Analysis of Covariance (ANCOVA) revealed a significant, detrimental effect of the dichotomy-based training, which led to a statistically significant increase in both implicit bias and explicit stereotyping compared to the other groups. The findings provide robust empirical evidence that the very tools used to promote intercultural understanding may inadvertently cause harm, offering a clear mandate for educators to adopt more nuanced, reflexive pedagogical approaches.

Keywords: Cognitive Bias, Cultural Training, Stereotyping, Dichotomous Frameworks, Intercultural Competence, System 1/2 Thinking, Othering, Postcolonial Theory, Management Education

1. Introduction

In the contemporary globalized economy, intercultural competence is widely regarded as an essential skill for managers, leaders, and the future workforce. Responding to this demand, a multi-billion-dollar industry of cultural training has emerged, promising to equip individuals with the necessary tools to navigate diverse business environments with confidence and efficacy (Molinsky & Bouncken, 2023). The pedagogical foundation for a vast majority of these training programs rests on the "cultural dimensions" framework, a positivist paradigm pioneered by Geert Hofsted and subsequently expanded by scholars such as Fons Trompenaars (1993) and the GLOBE project. These models have achieved widespread popularity due to their parsimony, offering simple, bipolar dichotomies (e.g., individualism-collectivism, universalism-particularism) that provide a seemingly straightforward guide to understanding and predicting the behavior of individuals from different national cultures.

Despite their ubiquity, these dimensional models have been subject to a growing chorus of criticism from critical and postcolonial scholars who challenge their epistemological and ethical foundations (Abbas, 2021; McSweeney, 2002). The central critique, which this study aims to empirically test, is that these dimensions are not neutral descriptors of cultural reality. Instead, they function as reductionist heuristics that may inadvertently entrench the very stereotypes they claim to dismantle. Dichotomies such as 'neutral-affective' or 'universalism-particularism' (Trompenaars, 1993) establish an evaluative, oppositional discourse. These frameworks often conceal latent, colonial-era assumptions that implicitly pit a 'rational', 'disciplined', and 'modern' Western self against an 'emotional', 'nepotistic', and 'traditional' non-Western Other. This process of "Othering," a concept drawn from the seminal work of postcolonial theorists like Frantz Fanon (1967) and Edward Said (1978), creates a psychological and power-laden distance, reinforcing the identity and perceived superiority of the 'self' (the 'us') at the expense of the constructed 'Other' (the 'them').

This paper posits that the cognitive mechanism through which this harm occurs can be powerfully explained by the dual-process theory of mind, articulated by Nobel laureate Daniel Kahneman (2011). Kahneman’s theory distinguishes between two modes of thought: "System 1," which is fast, intuitive, automatic, and highly susceptible to bias; and "System 2," which is slow, analytical, deliberate, and cognitively demanding. The cultural dimensions framework, with its memorable dichotomies, is explicitly designed to function as a cognitive shortcut, or heuristic—a tool for System 1. The inherent danger, we argue, is that in its pursuit of simplicity, this pedagogy activates the most biased facets of System 1 thinking: the tendency to generalize, to stereotype, and to rely on the "what-you-see-is-all-there-is" (WYSIATI) principle. Instead of training individuals to engage in the laborious System 2 work required to grasp cultural complexity, these models may simply be furnishing them with a new, more "sophisticated" vocabulary for stereotyping (Osland & Bird, 2000).

This creates a deeply problematic paradox: the most prevalent pedagogical tools used to foster intercultural competence may, in fact, be increasing cognitive bias and reinforcing a neo-colonial worldview. While this critique has been passionately articulated on a conceptual level for decades (Jackson & Moshin, 2010), it has, to our knowledge, never been subjected to rigorous empirical testing. We do not know, in a measurable way, what happens to an individual's implicit and explicit biases immediately following a standard, dichotomy-based cultural training session. This study was designed to fill that critical empirical gap. It moves beyond conceptual critique to provide robust experimental evidence, addressing the following research question: *Does exposure to traditional, dichotomy-based cultural training increase measurable cognitive biases and stereotypical attributions compared to a reflexive, critically-informed training or a control condition?* We hypothesize that it does, and in testing this, we seek to provide the empirical data necessary to compel a fundamental re-evaluation of how culture is taught in our business schools and organizations worldwide.

2. Literature Review and Theoretical Framework

This study is situated at the intersection of three distinct but complementary fields: cross-cultural management, cognitive psychology, and postcolonial theory. By integrating insights from each, we develop a theoretical framework that explains how well-intentioned cultural training can produce unintended negative consequences.

2.1. The Positivist Orthodoxy: Critiquing Cultural Dimensions

Since the publication of Hofstede's *Culture's Consequences* in 1980, the field of cross-cultural management has been dominated by a positivist, dimensional paradigm. Models developed by Hofstede, Trompenaars (1993), and the GLOBE project endeavor to "measure" culture by plotting national averages on a series of bipolar scales. Trompenaars' (1993) model, which forms the basis of our experimental intervention, is particularly popular in corporate training and proposes seven such dimensions: Universalism vs. Particularism, Individualism vs. Communitarianism, Neutral vs. Affective, Specific vs. Diffuse, Achievement vs. Ascription, Sequential vs. Synchronic Time, and Internal vs. External Control. The primary appeal of these models lies in their simplicity and prescriptive nature. They offer managers a "field guide" to other cultures, suggesting, for instance, that one should be "more direct" when communicating in a 'specific' culture and "build relationships first" in a 'particularist' one.

However, this approach has been subject to extensive critique. Scholars have argued that these models are static, reifying culture as a fixed national trait rather than a dynamic, emergent process (Ailon, 2008). They are also accused of ecological fallacy, over-simplifying vast national heterogeneity and ignoring the profound in-country diversity that exists in any large society. Brendan McSweeney's (2002) seminal critique of Hofstede, for example, systematically dismantled the methodological assumptions underpinning the dimensional approach, arguing that nations are not

suitable units of cultural analysis. Most pertinent to this study is the charge that these frameworks risk creating what Osland and Bird (2000) termed a "sophisticated stereotype." By providing a seemingly scientific rationale for categorization, they encourage a "laundry list" approach to culture that is both reductionist and, as we argue, cognitively dangerous.

2.2. The Cognitive Mechanism: Heuristics, Biases, and System 1

To understand the danger of these models, we turn to the psychology of judgment and decision-making. Daniel Kahneman's (2011) dual-process theory provides a powerful explanatory lens. System 1 operates automatically and quickly, with little or no effort and no sense of voluntary control. It relies on heuristics—mental shortcuts—to navigate the complexities of the world. System 2, conversely, allocates attention to the effortful mental activities that demand it, including complex computations. A key insight from this research is that System 2 is "lazy"; our minds default to the low-effort solutions of System 1 whenever possible.

Heuristics are essential for survival, but they are also the source of systematic errors in judgment, or cognitive biases. The "representativeness heuristic," for example, leads us to judge the probability of an event by how well it matches a prototype, often ignoring base rates. The "affect heuristic" causes us to substitute the difficult question ("What do I think about this?") with an easier one ("How do I feel about this?"). Crucially, System 1 is a "machine for jumping to conclusions," adept at creating a coherent, plausible story from limited and often unreliable information. This is the cognitive root of stereotyping: the brain's associative machinery links a social category (e.g., a nationality) with a set of traits and attributes, creating a schema that is then applied automatically to individuals from that category.

The dimensional models of culture are, by their very design, heuristics. They are tools intended to simplify complexity and reduce cognitive load. A manager, when faced with a colleague from a culture labeled 'particularist', is trained to recall the simple rule ("they will prioritize relationships over rules") rather than engage in the difficult System 2 work of understanding that individual's unique personality, history, context, and motivations. We argue that this form of training strengthens what Kahneman calls "associative coherence," forging a strong, rapid link between a national label (e.g., "Italian") and a set of traits (e.g., "particularist," "affective," "synchronic"). This is the very definition of a stereotype. Recent research in dual-process models confirms that such implicit, stereotypical associations are deeply ingrained and highly resistant to simple "de-biasing" interventions that do not actively engage System 2 processing (Gawronski & De Houwer, 2024).

2.3. The Socio-Political Consequence: From Stereotype to 'Othering'

This cognitive mechanism has a dark historical parallel in the logic of colonialism. The reduction of entire peoples into simple, evaluative dichotomies is a central technology of power. As postcolonial theorists have extensively argued, the colonial project

required the discursive creation of "the Other" (Said, 1978; Fanon, 1967). This "Other" (e.g., 'the Oriental', 'the native') was constructed as the diametrical opposite of the Western 'self': where the West was rational, the East was emotional; where the West was disciplined, the 'Other' was chaotic; where the West was modern and progressive, the 'Other' was traditional and static. This process is further explained by Social Identity Theory (Tajfel & Turner, 1979), which posits that individuals strive to achieve or maintain a positive social identity by favorably comparing their in-group with relevant out-groups. The creation of a negatively stereotyped "Other" thus serves to enhance the status and self-esteem of the in-group.

"Othering" is not a neutral act of classification; it is an exercise of power that establishes and legitimizes a social hierarchy (Jackson & Moshin, 2010). This paper argues that the modern, seemingly benign cultural dimensions taught in business schools are a dangerous echo of this colonial logic. The 'neutral-affective' dimension maps cleanly onto the 'rational-emotional' trope. The 'universalism-particularism' dimension mirrors the 'principled-nepotistic' trope. The 'sequential-synchronic' dimension reflects the 'punctual-tardy' trope. In almost every case, the Western-centric pole of the dichotomy (universalist, neutral, specific, sequential) is implicitly coded as modern, efficient, and superior in the context of global business. Thus, when we teach managers these dimensions, we are not merely providing a cognitive shortcut; we are potentially reinforcing a hierarchical, colonial worldview. We are teaching them to "otherize," creating a framework that empowers "us" (the universalist, neutral self) at the disadvantage of "them" (the particularist, affective Other). Recent scholarship continues to highlight the persistent challenge of "Othering" in European educational contexts and the urgent need for new pedagogies that foster genuine social cohesion rather than superficial categorization (Popescu, 2023).

Figure 1. Conceptual Model of the Hypothesized Negative Effect of Dichotomy-Based Training

Pedagogical Input		
Dichotomy-Based Training *(e.g., Trompenaars)*	→	Reflexive Training *(e.g., Critical Pedagogy)*
Cognitive Mechanism		
Activates & Reinforces **System 1 Thinking** (Fast, Heuristic, Associative)	→	Engages & Develops **System 2 Thinking** (Slow, Analytical, Deliberate)

Psychological Outcome		
↑ Increased Implicit Bias ↑ Increased Stereotypical Attributions	→	↔ No Increase in Bias (Potential for Decrease)
Socio-Political Consequence		
Reinforcement of **"Othering"** (Us vs. Them Mentality)	→	Promotion of **Intercultural Humility** (Self-Awareness, Nuance)

**Source: Developed by the authors based on Kahneman (2011) and Fanon (1967).*

2.4. An Alternative Paradigm: Reflexive Pedagogy

If the dimensional approach is the problem, what is the solution? A new wave of scholarship advocates for a pedagogical shift away from teaching *about* other cultures and toward teaching self-reflection, or "reflexivity" (Abbas, 2021; Cunliffe, 2004). This "decolonial" or "critical" pedagogy asks the learner to first engage in the demanding System 2 work of understanding their own biases, assumptions, and cultural baggage. It replaces the "field guide" model with a "mirror" model. Instead of asking "What is a 'Japanese' manager like?", this approach asks "What are my preconceived notions about a 'Japanese' manager, and where did they come from?" Instead of providing answers and simplifying frameworks, it teaches students to ask better questions, to embrace ambiguity, and to appreciate the "dynamic, context-specific" reality of culture (Molinsky & Bouncken, 2023). This approach is explicitly designed to challenge and override the automaticity of System 1, not to feed it with more heuristics. It aligns with transformative learning theory, which suggests that genuine learning requires a critical reflection on one's own assumptions and frames of reference (Mezirow, 1997).

2.5. Hypothesis Development

The integrated theoretical framework presented in Figure 1 leads to a clear, testable set of hypotheses. We posit that the "traditional" dimensional training will prime System 1 biases by providing simple heuristics, while the "reflexive" training will engage System 2 analysis by prompting critical self-reflection, thereby inoculating participants against the negative effects of such heuristics.

Hypothesis 1: Participants exposed to the dichotomy-based cultural training will show a significantly greater increase in implicit cultural bias (as measured by an Implicit Association Test) from pre-test to post-test, compared to participants in the reflexive training group and the control group.

Hypothesis 2: Participants exposed to the dichotomy-based cultural training will be significantly more likely to use stereotype-consistent attributions to explain behaviors in ambiguous cross-cultural vignettes at post-test, compared to participants in the reflexive training group and the control group.

3. Methodology

To test these causal hypotheses, a quantitative, pre-test/post-test, between-subjects experimental design was employed. This design is optimal for isolating the causal effect of the training interventions on the dependent variables while controlling for pre-existing individual differences in bias.

3.1. Participants and Recruitment

Participants were 210 Master of Science (MSc) in Management students from a large, international European business school. This sample was chosen for its high relevance, as these students represent the next generation of managers who are the primary consumers of such training programs. Participation was voluntary and offered in exchange for a small amount of course credit. The final sample (N=210) consisted of 108 males (51.4%) and 102 females (48.6%), with an average age of 23.7 years (SD = 2.1). The participants represented a diverse range of nationalities (41 in total), though the majority (65%) were of Western European origin. All participants were proficient in English, the language of instruction. Seventy participants were randomly assigned to each of the three experimental conditions using a computer-generated random number sequence.

3.2. Experimental Procedure and Ethical Considerations

The study was conducted over a three-week period. In Week 1, participants received an email invitation with a link to the pre-test survey, which included demographic questions and the two baseline bias measures (IAT and vignettes). In Week 2, participants attended their assigned 60-minute guest lecture in person. To control for instructor effects, all three lectures were delivered by the same experienced management professor who was blind to the study's specific hypotheses. In Week 3, exactly seven days after the lecture, participants received a link to the post-test survey, which contained the same two bias measures. A thorough debriefing statement was provided to all participants upon completion of the post-test, explaining the true purpose of the study, revealing the different conditions, and providing resources for further learning about cognitive bias and reflexive intercultural competence. The study protocol received full approval from the university's Institutional Review Board (IRB), and all participants provided informed consent prior to participation, with the assurance of anonymity and the right to withdraw at any time.

Figure 2. Experimental Design and Timeline

Group (n=70)	**Week 1: Pre-Test**	**Week 2: Intervention (60 min lecture)**	**Week 3: Post-Test**
Group 1: Dichotomy	Measure Baseline Bias: - Implicit Association Test - Vignette Attribution Task	Lecture on Trompenaars' 7 Dimensions	Measure Post-Intervention Bias: - Implicit Association Test - Vignette Attribution Task
Group 2: Reflexive	Lecture on Critique of Dimensions & Self-Reflection		
Group 3: Control	Lecture on International Financial Reporting Standards		

**Source: Developed by the authors.*

3.3. Interventions (Experimental Conditions)

The content of the three 60-minute lectures was carefully designed to isolate the key variable of interest: the pedagogical approach to culture. A summary is provided in Table 1.

Group 1 (Dichotomy-Based Training): This lecture, titled "Navigating the Global Market: A Guide to Cultural Dimensions," represented a "classic" cultural training session. It systematically presented Fons Trompenaars' (1993) seven dimensions. For each dimension (e.g., Universalism vs. Particularism), the lecturer provided a clear definition, showed national scores on a world map, and gave concrete behavioral examples. The pedagogical goal was instrumental and prescriptive, offering clear "dos and don'ts" (e.g., "In a 'particularist' culture like China, you must build a strong personal relationship before discussing business; rules are secondary to relationships."). The hypothesized mechanism was the priming of System 1 through the provision of simple, memorable heuristics.

Group 2 (Reflexive Training): This lecture, titled "Culture, Bias & Power: A Reflexive Approach to Competence," was based on critical and postcolonial critiques (e.g., Abbas, 2021; Popescu, 2023). The lecturer briefly introduced the idea of cultural dimensions but immediately critiqued them as potential "sophisticated stereotypes." The core of the lecture focused on concepts like "Othering," cognitive bias (explaining System 1 and 2), and the importance of self-reflection. Instead of providing answers, the lecturer posed questions to the students (e.g., "Think of a stereotype you hold

about another culture. Where did it come from? What purpose might it serve?"). The core message was to "challenge your own assumptions" rather than "categorize others." The hypothesized mechanism was the engagement of System 2 through metacognitive prompts.

Group 3 (Control): This group received a 60-minute lecture of equivalent complexity and academic rigor but on an entirely unrelated management topic: "Principles of International Financial Reporting Standards (IFRS)." The lecture covered the specifics of IFRS 9 and 15, focusing on revenue recognition and financial instruments. This condition was designed to control for any effects of simply attending a lecture, social interaction, or thinking about international business in general.

Table 1. Summary of Experimental Training Conditions (N=210)

Group (n=70)	**Intervention Title**	**Core Concepts Taught**	**Pedagogical Goal (Hypothesized Mechanism)**
Group 1: Dichotomy-Based	"Navigating the Global Market: A Guide to Cultural Dimensions"	Trompenaars' (1993) 7 dimensions; Positivist, prescriptive view of culture; Behavioral "dos and don'ts".	**Categorization:** Provide cognitive shortcuts (heuristics) for quick cultural analysis. (Primes System 1)
Group 2: Reflexive	"Culture, Bias & Power: A Reflexive Approach to Competence"	Critique of dimensions; Postcolonial theory (Fanon, 1967); Cognitive bias (Kahneman, 2011); Self-reflection exercises.	**Self-Analysis:** Deconstruct one's own biases and assumptions; Promote metacognition. (Engages System 2)
Group 3: Control	"Principles of International Financial Reporting Standards"	IFRS 9 and 15; Revenue recognition principles; Classification of financial instruments.	**None (Control):** Provide a neutral, unrelated cognitive task of similar difficulty.

3.4. Measures

We used two distinct measures of bias, one implicit and one explicit, administered at both pre-test and post-test to capture changes over time.

Implicit Bias (IAT): We developed a customized Implicit Association Test (IAT) using the Inquisit software platform to measure the strength of automatic associations between cultural signifiers and biased concepts. The IAT is a widely used reaction-time measure in social psychology (Greenwald et al., 1998). Our test required participants to rapidly sort stimuli into four categories. The two target categories were represented by images of faces: 'Western' (20 images of White/Caucasian faces) and 'Eastern' (20 images of East Asian faces). The two attribute categories were represented by words: 'Rational' (e.g., logical, linear, principled, objective, disciplined) and 'Emotional' (e.g., affective, chaotic, flexible, subjective, impulsive). The test measured the milliseconds it took participants to complete congruent blocks (pairing Western/Rational and Eastern/Emotional) versus incongruent blocks (pairing Western/Emotional and Eastern/Rational). The resulting D-score, a standardized measure of the difference in reaction times, served as our dependent variable. A higher positive D-score indicated a stronger implicit bias associating 'Western' with 'Rational' and 'Eastern' with 'Emotional'.

Explicit Bias (Vignette Attribution Task): To measure more conscious, explicit stereotyping, we developed a vignette-based task. Participants read three short vignettes describing an ambiguous cross-cultural business encounter. For example, one vignette read: *"You have a 10:00 AM meeting with a new colleague, Alejandro, from your company's office in Spain. At 10:15 AM, he has still not arrived and has not sent a message. What is the most likely reason for his lateness?"* Participants were then asked to choose the primary cause from a list of four options, which included two stereotypical attributions based on cultural dimensions (e.g., "His culture has a flexible, 'synchronic' approach to time.") and two situational/personal attributions (e.g., "He may be stuck in unexpected traffic," "He might have had an urgent personal matter come up."). The measure was a composite score ranging from 0 to 3, representing the total number of stereotypical attributions the participant selected across the three vignettes. A higher score indicated a greater tendency to use explicit stereotypes to explain behavior.

3.5. Data Analysis Strategy

To test our hypotheses, we conducted two separate one-way Analyses of Covariance (ANCOVA). ANCOVA is the appropriate statistical test for this pre-test/post-test design as it controls for baseline levels of bias (the pre-test score) and therefore provides a more powerful and precise test of the intervention's effect on the post-test score than a simple analysis of change scores (Vickers & Altman, 2001). For each ANCOVA, the independent variable was the experimental group (Dichotomy, Reflexive, Control), the dependent variable was the post-test bias score (IAT D-score or Vignette score), and the corresponding pre-test score was entered as a covariate.

Significant main effects were followed up with post-hoc tests using the Bonferroni correction to control for Type I error across multiple comparisons.

4. Results

4.1. Preliminary Analyses and Descriptive Statistics

All data were screened for outliers, and the assumptions for ANCOVA (normality of residuals, homogeneity of variances, and homogeneity of regression slopes) were met for both models. To confirm the success of our random assignment, we conducted two one-way ANOVAs on the pre-test scores for both dependent variables. As expected, there were no significant differences between the three groups at baseline on either the implicit bias measure, $F(2, 207) = 0.15$, $p = .86$, or the explicit bias measure, $F(2, 207) = 0.23$, $p = .79$. This confirms that the groups were statistically equivalent before the interventions.

Table 2 presents the descriptive statistics (Means and Standard Deviations) for the two dependent variables at pre-test and post-test, disaggregated by experimental group. A visual inspection of the means reveals a clear pattern consistent with our hypotheses. The Control and Reflexive groups remained relatively stable on both measures from pre-test to post-test. In contrast, the Dichotomy-Based Training group showed a marked increase in both the mean IAT D-score (from 0.38 to 0.51) and the mean Vignette Attribution score (from 1.14 to 1.89).

Table 2. Descriptive Statistics for Dependent Variables by Group (Pre-Test and Post-Test)

Dependent Variable	Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Change (Post-Pre)
Implicit Bias Score (IAT D-Score)	1. Dichotomy (n=70)	0.38 (0.19)	**0.51 (0.22)**	**+0.13**
	2. Reflexive (n=70)	0.39 (0.21)	0.36 (0.18)	-0.03
	3. Control (n=70)	0.37 (0.20)	0.38 (0.21)	+0.01
Explicit Bias Score (Vignette Attributions, 0-3)	1. Dichotomy (n=70)	1.14 (0.88)	**1.89 (0.91)**	**+0.75**
	2. Reflexive (n=70)	1.10 (0.85)	1.07 (0.82)	-0.03

	3. Control (n=70)	1.17 (0.90)	1.21 (0.88)	+0.04

Note: Bold indicates a substantial increase from pre-test to post-test.

4.2. Hypothesis Testing (ANCOVA)

To formally test our hypotheses, we proceeded with the planned ANCOVA models. The results are presented in Table 3.

Hypothesis 1 (Implicit Bias): The ANCOVA for the post-test implicit bias score was significant. After controlling for pre-test IAT scores, there was a significant main effect of the training group, $F(2, 206) = 7.84$, $p < .001$, partial $\eta^2 = .071$. This partial eta squared value indicates a moderate effect size, suggesting that the training condition accounted for approximately 7.1% of the variance in post-test implicit bias scores. Post-hoc comparisons using the Bonferroni correction revealed that the Dichotomy group (Adjusted Mean = 0.50) had a significantly higher post-test implicit bias score than both the Reflexive group (Adjusted Mean = 0.37, $p = .002$) and the Control group (Adjusted Mean = 0.39, $p = .004$). The adjusted means for the Reflexive and Control groups were not significantly different from each other ($p > .99$). These results provide full support for Hypothesis 1.

Hypothesis 2 (Explicit Bias): The ANCOVA for the post-test explicit bias (vignette) score was also significant. After controlling for pre-test vignette scores, there was a significant main effect of the training group, $F(2, 206) = 6.11$, $p = .003$, partial $\eta^2 = .056$. This represents a small-to-moderate effect size, with the training condition accounting for 5.6% of the variance in post-test stereotypical attributions. Post-hoc Bonferroni tests confirmed that the Dichotomy group (Adjusted Mean = 1.88) made significantly more stereotypical attributions than both the Reflexive group (Adjusted Mean = 1.09, $p = .003$) and the Control group (Adjusted Mean = 1.20, $p = .007$). Again, the Reflexive and Control groups were not significantly different from each other ($p > .99$). These results provide full support for Hypothesis 2.

Table 3. Analysis of Covariance (ANCOVA) for Post-Test Bias Scores

Dependent Variable	Source	Sum of Squares	df	Mean Square	F	p-value	Partial η^2
Implicit Bias (Post-Test IAT)	Pre-Test Score (Covariate)	1.34	1	1.34	36.12	<.001	.149
	Group	**0.58**	**2**	**0.29**	**7.84**	**<.001**	**.071**
	Error	7.64	206	0.04			

Explicit Bias (Post-Test Vignettes)	Pre-Test Score (Covariate)	21.45	1	21.45	29.81	<.001	.127
	Group	**8.80**	**2**	**4.40**	**6.11**	**.003**	**.056**
	Error	148.21	206	0.72			

Note: Bold indicates the significant main effect for the experimental group.

5. Discussion

5.1. Interpretation of Findings

This study was designed to empirically test the long-standing conceptual critique that traditional, dimension-based cultural training programs may do more harm than good. The findings are both statistically significant and deeply concerning, offering strong support for our hypotheses. Our experiment demonstrates that a single 60-minute lecture based on the popular dimensional model of Trompenaars (1993) was sufficient to significantly increase participants' implicit cognitive biases (H1) and their use of explicit stereotypes in explaining behavior (H2). The iatrogenic effect was not trivial; the effect sizes were moderate, suggesting a meaningful real-world impact.

The data strongly suggest that the theoretical mechanism we proposed is plausible. The dichotomy-based training appears to function as a powerful cognitive prime. By presenting culture as a set of simple, binary heuristics, it encourages learners to engage in System 1 (fast) thinking, allowing them to "jump to conclusions" about individuals based on their national origin. The training effectively armed participants with a new, academically-sanctioned framework for stereotyping. They learned to see a "particularist" colleague rather than a person who might simply be friendly, or a "synchronic" colleague rather than a person who might be stuck in traffic. This confirms Osland and Bird's (2000) warning about the creation of "sophisticated stereotypes."

Furthermore, the alternative "Reflexive Training," which was grounded in postcolonial critique and cognitive science, successfully avoided this detrimental effect. While it did not produce a statistically significant reduction in bias—a 60-minute lecture is likely an insufficient "dose" to undo deeply ingrained societal biases—it crucially did no harm. Participants in this group showed no increase in bias on either measure, performing indistinguishably from the control group. This finding is significant in its own right. It suggests that pedagogical methods focused on self-analysis, metacognition, and the deconstruction of power dynamics (i.e., engaging System 2) can serve as an effective "inoculation" against the bias-reinforcing effects of simplistic cultural models.

5.2. Theoretical Implications

These findings carry profound theoretical implications by providing an empirical bridge between three distinct scholarly domains: cross-cultural management, cognitive psychology, and postcolonial theory. We have demonstrated that the "Othering" (Fanon, 1967) and "stereotyping" (Jackson & Moshin, 2010) critiqued by postcolonial scholars are not merely abstract social processes; they can be measurably activated at the individual cognitive level (Kahneman, 2011) by the very management pedagogies we deploy in our classrooms and corporations.

Second, this study fundamentally challenges the instrumental and uncritical adoption of cultural dimensions. These tools are not neutral. Their primary selling point—their simplicity—is also their primary flaw. By teaching managers to "simplify" culture, we may be robbing them of the motivation and capacity to engage in the difficult System 2 work required for genuine intercultural competence. As Molinsky and Bouncken (2023) argue, true competence is not a static body of knowledge but a dynamic, context-specific skill. Our findings suggest that this skill is rooted not in "categorizing others" but in "managing oneself"—that is, managing one's own automatic, biased System 1 responses. This reframes intercultural competence as a metacognitive skill rather than a declarative one.

Finally, by integrating Social Identity Theory (Tajfel & Turner, 1979), our findings highlight how dimensional training can inadvertently strengthen in-group/out-group distinctions. By presenting cultures as discrete, opposing entities on a scale, the training may enhance the salience of group boundaries, making it easier for individuals to engage in the automatic process of in-group favoritism and out-group derogation that is central to "Othering."

5.3. Practical Implications for Education and Business

The practical implications of this research are clear and urgent for any institution involved in management education or corporate training.

1. A Moratorium on Simplistic Training: Universities, business schools, and corporate HR departments must critically re-evaluate and likely place a moratorium on cultural training programs based solely on teaching dimensional dichotomies as a prescriptive "field guide." Our research suggests such programs are not just ineffective; they are potentially harmful and may increase the very biases they aim to reduce, creating significant legal and ethical risks for organizations.

2. A Pivot to Reflexive Pedagogy: The curriculum must pivot from a positivist "what they are like" model to a critical, reflexive "why do I think that?" model. Educators should adopt methodologies from critical and decolonial pedagogy (Abbas, 2021; Jones & Li, 2022) that compel students to confront their own biases, privileges, and assumptions *before* they attempt to analyze another culture. This could involve journaling, implicit bias self-testing and debriefing, and analyzing media representations of culture to build metacognitive awareness.

3. Embrace Complexity and Context: We must stop selling "easy" solutions to the "hard" problem of intercultural interaction. Training should reflect the messy reality of culture. This means replacing simplistic dimensional charts with rich case studies, ethnographic accounts, and problem-based learning scenarios that have no single right answer. The goal should be to increase learners' tolerance for ambiguity and their ability to ask thoughtful, context-specific questions, rather than providing them with a list of answers.

5.4. Limitations and Future Research

This study, like all experiments, has limitations that must be acknowledged and which provide fertile ground for future research. First, our sample consisted of university students, not experienced managers. While they are a key demographic for this type of training, experienced managers may be more or less susceptible to its effects due to their greater real-world experience. Future research should replicate this experiment with a corporate sample.

Second, the intervention was a single 60-minute lecture, not a multi-day corporate workshop. While the fact that even such a short exposure had a significant effect is striking, a longer workshop might have different—potentially larger or more lasting—effects. A longitudinal field experiment that tracks managers in a corporation over several months, comparing those who receive "dichotomy" training versus "reflexive" training on behavioral outcomes (not just self-report or lab measures), would be a powerful and valuable next step.

Third, while the IAT is a well-established measure of implicit associations, it is not without its critics, particularly concerning its test-retest reliability and predictive validity for discriminatory behavior. By complementing it with our vignette-based measure of explicit stereotyping, we have provided a more robust picture, but future studies could incorporate observational or behavioral measures to further strengthen the findings.

Finally, future research should explore the potential for "blended" pedagogical models. Is it possible to introduce cultural dimensions within a critical, reflexive framework that explicitly warns against their use as stereotypes? An experiment comparing our two conditions with a third, "critical-dimensions" condition could determine if these tools can be salvaged and used responsibly to scaffold, rather than replace, complex thinking.

6. Conclusion

This study began by taking a long-standing conceptual critique and subjecting it to a rigorous empirical test. Its principal contribution is the robust, experimental evidence that traditional, dichotomy-based cultural training—the "gold standard" in many organizations—causes a measurable and statistically significant increase in both implicit cognitive bias and explicit stereotypical thinking. We have shown that the

very tools we are giving our students and managers to fight stereotypes may be the tools that are building them.

By empirically linking the cognitive psychology of Kahneman (2011) to the postcolonial critique of Fanon (1967), this study demonstrates that the well-intentioned pursuit of "simple" heuristics for cultural understanding is a flawed and potentially harmful endeavor. It is a pedagogical approach that prioritizes cognitive ease over ethical and intellectual rigor. The findings serve as a stark warning and a clear call to action for a fundamental pedagogical shift in management education and corporate training. We must move beyond bipolar thinking and embrace the more difficult, but ultimately more rewarding, work of fostering genuine intercultural humility, curiosity, and self-awareness.

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