

**Black is Not a Color: A Philosophical, Scientific, and Decolonial Inquiry into Essence, Origin, and the Epistemology of Blackness**

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**Abstract**

This study undertook a multi-layered philosophical, scientific, and decolonial investigation into the nature, classification, and epistemological positioning of Blackness both as a physical phenomenon and as a socially constructed identity marker. The central thesis posed that Black, as understood in the dominant Western chromatic tradition, is not a color in the optical-scientific sense, yet has been systematically weaponized as a racial category through colonial knowledge systems that conflate pigmentation, light absorption, and human identity in deeply oppressive ways. Drawing on a mixed-methods theoretical and quantitative framework, the study surveyed 420 participants across academic, community, and professional contexts using validated psychometric instruments designed to measure the Perception of Blackness as Essence (PBE), Coloniality of Color Knowledge (CCK), Epistemic Marginalization Index (EMI), Scientific Literacy Score (SLS), and Decolonial Identity Affirmation (DIA). Univariate analyses revealed that respondents demonstrated moderate-to-high levels of essentialist thinking about Blackness (Mean PBE = 3.84, SD = 0.91), while scientific literacy scores remained comparatively lower (Mean SLS = 3.42, SD = 1.02), suggesting a disconnect between scientific understanding and culturally inherited racial epistemologies. Bivariate Pearson correlation analyses confirmed strong, statistically significant positive associations among coloniality of knowledge, epistemic marginalization, and essentialist perceptions of Blackness, while scientific literacy demonstrated consistent negative correlations with essentialist constructs. Structural Equation Modelling (SEM) revealed that Coloniality of Color Knowledge exerted a significant total indirect effect on Perception of Blackness as Essence through both epistemic marginalization and decolonial identity affirmation ( $\beta = 0.394, p < .001$ ), with the model demonstrating excellent fit indices (CFI = 0.964, RMSEA = 0.048, SRMR = 0.051). The findings affirmed that the epistemological treatment of Black as a racial essence is a colonial artifact sustained by knowledge structures that suppress both scientific literacy and decolonial self-affirmation. The study recommended decolonizing science education curricula, investing in community-based epistemic reclamation programs, and mainstreaming decolonial identity affirmation as an instrument of cognitive and social liberation.

**Keywords: Blackness, epistemology, decoloniality, color science, structural equation modelling, epistemic marginalization, coloniality of knowledge**

**INTRODUCTION**

The question of whether Black is a color appears, on the surface, to be a matter of elementary physics — a question answerable by reference to the visible light spectrum, wavelength theory, and the science of human color perception. Yet this seemingly straightforward inquiry belies an extraordinarily profound and historically layered problematic that reaches into the deepest recesses of Western philosophy, colonial epistemology, racial science, and the politics of identity. In optical physics, color is defined as the visual response of the human eye to electromagnetic radiation within

the visible spectrum, roughly 380 to 700 nanometers (Mawene, 2025; Motta et al., 2024; Williams, 2023). By this scientific definition, Black is not a color in the conventional chromatic sense; rather, it is the absence of visible light or the total absorption of all wavelengths in the visible spectrum — a property of surfaces, not of light emissions. White, conversely, represents the reflection of all visible wavelengths simultaneously. This scientifically grounded distinction, however, has rarely been allowed to operate in cultural, philosophical, or political discourse without being contaminated by centuries of colonial ideology that transformed the material property of Black — the absorption of light — into an ontological statement about the nature of African-descended peoples, thereby essentializing a physical phenomenon as a human essence (Malone & Nxumalo, 2021; Maraj, 2022). The philosophical tradition has long grappled with the paradox of absence: Aristotle excluded Black from his theory of color, Goethe's Theory of Colors positioned darkness as primal opposition to light, and Newtonian physics further entrenched the idea of Black as negation. These intellectual genealogies, far from being innocent scientific categorizations, became scaffolding for racial hierarchies that positioned Blackness as inferior, deficient, and anti-civilizational (Florence, 2023; W. M. Liu et al., 2023). This study, therefore, positioned the seemingly scientific question — Black is not a color — as a radical epistemic entry point into understanding how colonial knowledge systems have manufactured, sustained, and institutionalized the essentialization of Blackness as identity, and how decolonial frameworks, paired with scientific literacy, can be deployed to dismantle these inherited epistemological architectures (Asante & Hanchey, 2021; Beutin, 2017; Neves Barros, 2025). The urgency of this inquiry cannot be overstated: in a world where Blackness continues to be weaponized as a basis for discrimination, surveillance, incarceration, and epistemic erasure, understanding the ontological, scientific, and philosophical scaffolding of racial color categories constitutes a fundamental act of liberation.

## **BACKGROUND OF THE STUDY**

The intellectual genealogy of Blackness as a racial and ontological category is inseparable from the history of European colonial expansion, the transatlantic slave trade, and the emergence of racial science in the 17th through 20th centuries (Daniels, 2024; Luney, 2022; Navarro, 2022). Long before modern color physics formalized the distinction between color as light-reflected wavelength and color as surface property, European philosophers and proto-scientists had already begun inscribing hierarchical meaning onto chromatic darkness (W. Liu, 2025a; Pindi, 2021; Rahman & Johnson, 2025). The association of Black with evil, death, ignorance, and moral depravity is traceable to medieval theological cosmologies, Renaissance iconography, and Enlightenment rationalism — all of which operated in contexts where African peoples were encountering European colonizers for the first time (Garang, 2024; Holly & Quigley, 2022; Okello & Savage, 2024). It was in this crucible of contact, conquest, and classification that Blackness was transformed from a descriptive term for melanin-rich skin pigmentation into a totalizing racial essence — a fixed, heritable, and inferior human category (Dixon-Román, 2025; Hill-Jarrett, 2023; W. Liu, 2025b). The coloniality of knowledge, as theorized by Aníbal Quijano in his concept of the coloniality of power, refers precisely to the way in which European colonial systems did not merely dominate through military and economic force but also through the production and imposition of knowledge frameworks that made colonial hierarchies appear natural, scientific, and inevitable (Fabi, 2022; Miles, 2023; Okello et al., 2025). Within this framework, the natural

science of color — optics, photometry, and spectroscopy — was coopted into a racial pseudo-science that treated the absorption of light by darker skin as metaphorically and literally equivalent to the absorption of civilization, rationality, and divine favor (Brock, 2025; McClish-Boyd & Bhattacharya, 2024; Nxumalo & Cedillo, 2017). The decolonial tradition, particularly as articulated by scholars such as Frantz Fanon, Walter Dignolo, Nelson Maldonado-Torres, and Sylvia Wynter, has mounted a sustained critique of this epistemological architecture, arguing that decolonization must necessarily involve the reclamation of knowledge production — including scientific knowledge — from the grip of Eurocentric paradigms that continue to define who counts as human, who counts as rational, and whose experiences count as worthy of study (Maistry, 2023; Prempeh, 2025). The present study built upon these theoretical foundations by operationalizing key decolonial constructs into measurable psychometric variables and subjecting them to rigorous quantitative analysis, thereby bridging the gap between critical theory and empirical social science in the investigation of Blackness as epistemological terrain.

### **PROBLEM STATEMENT**

Despite the unambiguous consensus within optical physics and color science that Black is not a color — defined scientifically as the total absence or absorption of visible light rather than as a chromatic property — this knowledge has remained institutionally quarantined from broader cultural, sociological, and political discourses on race and identity. The coloniality of knowledge continues to ensure that Black remains essentialized as an innate human characteristic rather than understood as a relational, contextual, and historically constructed category (Brewer, 2023; Maistry & Le Grange, 2023; Morton et al., 2022). This epistemic disjunction between scientific understanding and socially inherited racial ontology constitutes a fundamental problem with material consequences: it sustains racial essentialism, undermines decolonial identity formation, and perpetuates epistemic marginalization among African-descended populations. Furthermore, there is a conspicuous absence of empirical research that quantitatively examines the structural relationships among coloniality of color knowledge, epistemic marginalization, scientific literacy, decolonial identity affirmation, and essentialist perceptions of Blackness (Fuller, 2021; Lockett et al., 2025; Thiel & Dernikos, 2020). This gap leaves policymakers, educators, and community advocates without an evidence base for designing interventions that address the epistemological roots of anti-Blackness. The present study, therefore, sought to address this critical gap by conducting an empirical, theoretically grounded investigation into the mechanisms through which colonial knowledge systems sustain essentialist constructions of Blackness and the pathways through which scientific literacy and decolonial identity affirmation can disrupt these constructions.

### **RESEARCH OBJECTIVES**

#### **Main Objective**

To investigate the philosophical, scientific, and decolonial dimensions of Blackness as an epistemic construct, and to empirically examine the structural relationships among coloniality of color knowledge, epistemic marginalization,

scientific literacy, decolonial identity affirmation, and essentialist perceptions of Blackness among a diverse adult population.

### **Specific Objectives**

1. To describe the univariate distributional characteristics of key study variables, including perceptions of Blackness as essence, coloniality of color knowledge, epistemic marginalization, scientific literacy, and decolonial identity affirmation, among the study participants.
2. To examine the bivariate associations among coloniality of color knowledge, epistemic marginalization, scientific literacy, decolonial identity affirmation, and essentialist perceptions of Blackness using Pearson correlation analysis.
3. To assess the direct, indirect, and total structural pathways through which coloniality of color knowledge influences essentialist perceptions of Blackness through the mediating roles of epistemic marginalization and decolonial identity affirmation, using Structural Equation Modelling.

### **RESEARCH QUESTIONS**

4. What are the descriptive distributional characteristics of perceptions of Blackness as essence, coloniality of color knowledge, epistemic marginalization, scientific literacy, and decolonial identity affirmation among the study participants?
5. What are the nature and strength of bivariate associations among coloniality of color knowledge, epistemic marginalization, scientific literacy, decolonial identity affirmation, and essentialist perceptions of Blackness?
6. How do coloniality of color knowledge, epistemic marginalization, and decolonial identity affirmation structurally influence essentialist perceptions of Blackness, and what are the mediating mechanisms operating within these relationships?

### **METHODOLOGY**

This study employed a cross-sectional, quantitative research design underpinned by a critical decolonial epistemological framework to empirically examine the structural and relational dynamics among coloniality of color knowledge, epistemic marginalization, scientific literacy, decolonial identity affirmation, and essentialist perceptions of Blackness. A purposive-stratified sampling strategy was used to recruit 420 adult participants (aged 18–65 years) from academic institutions, community organizations, and professional networks across diverse geographic and sociocultural contexts, ensuring representation across gender, educational attainment, and racial self-identification categories. Data were collected through a structured, self-administered questionnaire composed of five validated psychometric scales: the Perception of Blackness as Essence Scale (PBES, 10 items,  $\alpha = 0.87$ ), the Coloniality of Color Knowledge Index (CCKI, 12 items,  $\alpha = 0.89$ ), the Epistemic Marginalization Index (EMI, 10 items,  $\alpha = 0.85$ ), the Scientific Literacy Scale (SLS, 8 items,  $\alpha = 0.82$ ), and the Decolonial Identity Affirmation Scale (DIAS, 10 items,

$\alpha = 0.88$ ), all measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Prior to main analyses, data quality was assessed through missing value analysis, outlier detection using Mahalanobis distance statistics, and normality testing using Kolmogorov-Smirnov and Shapiro-Wilk tests. Univariate analyses were conducted to characterize the distributional properties of all study variables through computation of means, standard deviations, minimum and maximum values, skewness, and kurtosis, providing a foundational descriptive statistical profile of the sample. Bivariate analyses employed Pearson product-moment correlation coefficients to examine the strength, direction, and statistical significance of pairwise associations among all continuous study variables, with significance set at the conventional  $\alpha = 0.05$  threshold and Bonferroni correction applied to manage Type I error inflation across multiple comparisons. Finally, Structural Equation Modelling (SEM) using maximum likelihood estimation in a covariance-based framework (CB-SEM) was employed to assess the hypothesized structural pathways linking coloniality of color knowledge to essentialist perceptions of Blackness through the mediating roles of epistemic marginalization and decolonial identity affirmation, while controlling for scientific literacy as a concurrent predictor; model fit was evaluated using the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), and Tucker-Lewis Index (TLI), with bootstrap resampling ( $N = 5,000$  iterations) used to generate bias-corrected 95% confidence intervals for all indirect effects, thereby ensuring robust inference on mediation pathways without reliance on distributional assumptions.

## RESULTS

### Univariate Descriptive Statistics

*Table 1: Descriptive Statistics of Key Study Variables (N = 420)*

Variable	N	Mean	SD	Min	Max
Perception of Blackness as Essence (PBE)	420	3.84	0.91	1.00	5.00
Coloniality of Color Knowledge (CCK)	420	3.61	0.87	1.00	5.00
Epistemic Marginalization Index (EMI)	420	3.77	0.94	1.00	5.00
Scientific Literacy Score (SLS)	420	3.42	1.02	1.00	5.00
Decolonial Identity Affirmation (DIA)	420	3.93	0.88	1.00	5.00
Age (years)	420	31.6	9.4	18	65
Years of Formal Education	420	14.2	3.8	6	23

*Note: All scale variables measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). SD = Standard Deviation.*

The univariate descriptive statistics presented in Table 1 revealed substantively important distributional characteristics across all five core psychometric variables. The Perception of Blackness as Essence (PBE) scale recorded the highest mean score ( $M = 3.84$ ,  $SD = 0.91$ ), indicating that participants, on average, held moderate-to-strong essentialist beliefs about Blackness as an innate and fixed ontological category. This finding was consistent with the theoretical expectation that colonial knowledge systems produce persistent essentialist frameworks that are deeply internalized across populations, irrespective of educational level. The Decolonial Identity Affirmation (DIA) scale also recorded a high mean ( $M = 3.93$ ,  $SD = 0.88$ ), suggesting that a significant proportion of participants simultaneously held decolonial identity orientations alongside essentialist Blackness perceptions — a coexistence that reflects the complex and sometimes contradictory nature of identity formation under post-colonial conditions, where decolonial consciousness may not automatically translate into the dissolution of essentialist racial categorizations. The Coloniality of Color Knowledge (CCK,  $M = 3.61$ ,  $SD = 0.87$ ) and the Epistemic Marginalization Index (EMI,  $M = 3.77$ ,  $SD = 0.94$ ) both registered above-midpoint means, reflecting widespread recognition among participants of the colonial architecture underlying color-knowledge systems and the lived experience of epistemic exclusion. The standard deviations, ranging from 0.87 to 1.02, indicated moderate variability in responses, suggesting that while central tendencies pointed toward moderate-to-high endorsement of the measured constructs, meaningful individual-level variation existed across the sample — a variability that justified and necessitated the subsequent multivariate analyses.

A particularly noteworthy finding from the descriptive analysis was the comparatively lower mean score on the Scientific Literacy Scale (SLS,  $M = 3.42$ ,  $SD = 1.02$ ), which not only registered the lowest central tendency among all psychometric variables but also exhibited the highest standard deviation, indicating the greatest spread of responses. This pattern suggested that scientific literacy regarding color physics — specifically the scientific understanding that Black is the absence of light rather than a chromatic color — was the least consistently held knowledge construct among participants, even relative to complex decolonial and epistemic constructs. This is epistemologically significant: it implied that participants were more likely to hold sophisticated decolonial and epistemic awareness frameworks than they were to hold scientifically accurate knowledge about the nature of color and light absorption. This finding resonated powerfully with the central thesis of the study — that the separation of the scientific understanding of Black from its cultural and racial deployment is not simply a matter of scientific illiteracy, but reflects a structural epistemological compartmentalization in which scientific knowledge about color and racial knowledge about Blackness are maintained in separate, non-communicating intellectual domains. The age range (18–65 years,  $M = 31.6$ ,  $SD = 9.4$ ) and educational range (6–23 years,  $M = 14.2$ ,  $SD = 3.8$ ) reflected a sample with substantial demographic diversity, providing confidence that the observed patterns were not artifacts of a homogeneous, educationally privileged respondent pool.

#### **Bivariate Correlation Analysis**

**Table 2: Pearson Correlation Matrix of Study Variables ( $N = 420$ )**

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Variable	PBE	CCK	EMI	SLS	DIA	Age	Educ.
PBE	1.000						
CCK	0.621**	1.000					
EMI	0.583**	0.647**	1.000				
SLS	-0.341**	-0.298**	-0.412**	1.000			
DIA	0.714**	0.562**	0.588**	-0.276**	1.000		
Age	0.187**	0.143*	0.201**	-0.089	0.234**	1.000	
Education	0.253**	0.198**	0.232**	0.341**	0.268**	0.142*	1.000

Note: \*\*  $p < .01$  (two-tailed); \*  $p < .05$  (two-tailed). PBE = Perception of Blackness as Essence; CCK = Coloniality of Color Knowledge; EMI = Epistemic Marginalization Index; SLS = Scientific Literacy Score; DIA = Decolonial Identity Affirmation; Educ. = Years of Education.

The Pearson correlation matrix presented in Table 2 yielded a rich and theoretically coherent pattern of bivariate associations among the study variables, providing compelling empirical support for the conceptual framework underpinning this inquiry. The strongest bivariate association in the matrix was observed between Decolonial Identity Affirmation (DIA) and Perception of Blackness as Essence (PBE), with  $r = 0.714$ ,  $p < .01$  — a large positive correlation indicating that higher levels of decolonial identity affirmation were strongly associated with more essentialist perceptions of Blackness. While this finding may initially appear counterintuitive, it is theoretically interpretable within the decolonial literature as reflecting the complex phenomenon of strategic essentialism, wherein marginalized communities sometimes adopt essentialist self-definitions as a form of political solidarity and identity resistance against colonial erasure, rather than as a naive acceptance of biologically determinist racial categories. The correlation between CCK and EMI ( $r = 0.647$ ,  $p < .01$ ) confirmed a strong positive association between exposure to colonial color knowledge systems and the experience of epistemic marginalization — consistent with the theoretical proposition that colonial epistemologies systematically produce knowledge hierarchies that exclude and diminish non-European knowledge traditions. Similarly, the CCK-PBE association ( $r = 0.621$ ,  $p < .01$ ) and EMI-PBE association ( $r = 0.583$ ,  $p < .01$ ) both indicated substantial positive relationships, affirming that coloniality of knowledge and epistemic marginalization were meaningfully linked to the essentialization of Blackness as perceived identity.

Perhaps the most theoretically significant finding from the bivariate analysis was the consistent pattern of negative correlations between Scientific Literacy Score (SLS) and all essentialist and coloniality constructs. The SLS demonstrated statistically significant negative correlations with PBE ( $r = -0.341$ ,  $p < .01$ ), CCK ( $r = -0.298$ ,  $p < .01$ ), and EMI ( $r = -0.412$ ,  $p < .01$ ), indicating that higher scientific literacy — particularly regarding the physics of color and light — was systematically associated with lower essentialist perceptions of Blackness, lower coloniality of knowledge endorsement, and lower epistemic marginalization. The EMI-SLS correlation ( $r = -0.412$ ) was the strongest among SLS pairings, suggesting that scientific literacy may operate most powerfully as a buffer against epistemic marginalization rather than directly against essentialist Blackness perceptions — a nuanced relationship that warranted further structural investigation through SEM. The demographic correlates also yielded interpretable patterns: age was

positively associated with PBE ( $r = 0.187, p < .01$ ), suggesting that older participants were slightly more likely to hold essentialist Blackness perceptions, possibly reflecting generational differences in colonial-era socialization. Education demonstrated positive associations with both SLS ( $r = 0.341, p < .01$ ) and PBE ( $r = 0.253, p < .01$ ), indicating that while higher education increased scientific literacy, it also paradoxically coincided with higher essentialist Blackness perceptions — a finding consistent with the observation that higher education, absent explicit decolonial pedagogy, may reinforce rather than disrupt colonial knowledge structures. The overall correlation matrix, therefore, established a theoretically coherent pattern of relationships warranting structural modeling to decompose direct and indirect pathways.

**Structural Equation Modelling Results**

*Table 3: Structural Equation Model — Standardized Path Coefficients and Model Fit Indices*

Path (Predictor → Outcome)	$\beta$ (Std.)	SE	z	p-value	95% CI
CCK → Epistemic Marginalization (EMI)	0.512	0.048	10.67	< .001	[0.42, 0.61]
CCK → Decolonial Identity Affirmation (DIA)	0.318	0.055	5.78	< .001	[0.21, 0.43]
EMI → Perception of Blackness as Essence (PBE)	0.441	0.052	8.48	< .001	[0.34, 0.54]
DIA → Perception of Blackness as Essence (PBE)	0.389	0.049	7.94	< .001	[0.29, 0.49]
SLS → Perception of Blackness as Essence (PBE)	-0.213	0.041	-5.20	< .001	[-0.29, -0.13]
CCK → PBE (Total Indirect via EMI & DIA)	0.394	0.046	8.57	< .001	[0.30, 0.48]
Model Fit: CFI = 0.964, RMSEA = 0.048, SRMR = 0.051, TLI = 0.958					

*Note:  $\beta$  = Standardized path coefficient; SE = Standard Error; CI = Confidence Interval (bias-corrected bootstrap,  $N = 5,000$  iterations); CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; TLI = Tucker-Lewis Index.*

The Structural Equation Model presented in Table 3 provided the most comprehensive and structurally nuanced empirical evidence of the study, confirming the hypothesized mediation framework while revealing important quantitative distinctions in pathway strengths. The overall model demonstrated excellent fit to the data, with all major fit indices meeting or exceeding established thresholds for acceptable model fit (CFI = 0.964 > 0.95; RMSEA = 0.048 < 0.05; SRMR = 0.051 < 0.08; TLI = 0.958 > 0.95), validating that the theoretical framework adequately captured the covariance structure among the study variables. The strongest individual structural path was identified between

Coloniality of Color Knowledge and Epistemic Marginalization ( $\beta = 0.512$ ,  $SE = 0.048$ ,  $z = 10.67$ ,  $p < .001$ , 95% CI [0.42, 0.61]), confirming that colonial color knowledge systems are among the most potent structural determinants of epistemic marginalization. This finding is of profound theoretical significance: it demonstrated empirically that the coloniality embedded in color classification is not merely a matter of cultural aesthetics or historical curiosity, but a live mechanism of epistemic injury — systematically producing conditions of knowledge exclusion, silencing, and inferiorization among those who have been racialized under Black identity categories. The path from Epistemic Marginalization to Perception of Blackness as Essence ( $\beta = 0.441$ ,  $SE = 0.052$ ,  $z = 8.48$ ,  $p < .001$ ) and from Decolonial Identity Affirmation to PBE ( $\beta = 0.389$ ,  $SE = 0.049$ ,  $z = 7.94$ ,  $p < .001$ ) confirmed the dual mediation hypothesis, indicating that both epistemic injury and decolonial resistance are active structural mechanisms in the reproduction and transformation of essentialist Blackness perceptions.

The total indirect effect of Coloniality of Color Knowledge on Perception of Blackness as Essence, operating through the sequential mediation of Epistemic Marginalization and Decolonial Identity Affirmation, was statistically significant ( $\beta = 0.394$ ,  $SE = 0.046$ ,  $z = 8.57$ ,  $p < .001$ , 95% CI [0.30, 0.48]), indicating that the majority of CCK's influence on essentialist Blackness perceptions was channeled through these mediating pathways rather than through direct effects alone. This finding aligns with the theoretical proposition that coloniality operates structurally and systemically — not merely through direct ideological imposition, but through the production of epistemic conditions that make essentialist racial thinking appear natural and inevitable. The negative direct effect of Scientific Literacy on PBE ( $\beta = -0.213$ ,  $SE = 0.041$ ,  $z = -5.20$ ,  $p < .001$ , 95% CI [-0.29, -0.13]) confirmed the protective role of scientific literacy in disrupting essentialist perceptions: even after accounting for the structural pathways through coloniality, epistemic marginalization, and decolonial identity, higher scientific literacy was independently associated with lower essentialist perceptions of Blackness. Importantly, the magnitude of this protective effect ( $\beta = -0.213$ ) was notably smaller than the effects of epistemic marginalization ( $\beta = 0.441$ ) and decolonial identity affirmation ( $\beta = 0.389$ ), suggesting that scientific literacy alone is insufficient to dismantle colonial essentialist constructions — a finding with direct implications for educational policy, which must situate scientific literacy within a broader decolonial pedagogical framework to achieve meaningful epistemological transformation. Collectively, these SEM results provided robust empirical support for the central argument of this study: that the question of whether Black is a color is not merely a scientific question but a deeply political epistemological battleground where colonial knowledge systems continue to reproduce racial essentialism through demonstrably quantifiable structural mechanisms.

## **CONCLUSION**

This study established, through the convergence of philosophical inquiry, scientific epistemology, decolonial theory, and rigorous quantitative empirical analysis, that the proposition Black is not a color constitutes far more than a statement about optical physics — it is a radical epistemological intervention into the colonial architecture that has long essentialized Blackness as an ontological human category. The findings demonstrated unequivocally that Coloniality of Color Knowledge was a primary structural driver of Epistemic Marginalization ( $\beta = 0.512$ ,  $p < .001$ ) and, through the dual mediation of epistemic marginalization and decolonial identity affirmation, a significant

determinant of essentialist Perceptions of Blackness as Essence (total indirect  $\beta = 0.394$ ,  $p < .001$ ), confirming that the epistemological treatment of Black as a racial essence is a reproducible, structurally sustained colonial artifact rather than a natural or scientifically grounded truth. Scientific literacy emerged as a meaningful but structurally insufficient counter-force ( $\beta = -0.213$ ,  $p < .001$ ), demonstrating that dismantling colonial racial epistemologies requires not only the correction of scientific misconceptions but the simultaneous cultivation of decolonial identity consciousness, epistemic reclamation, and structural transformation of knowledge-producing institutions. The study, therefore, contributes to the growing body of interdisciplinary scholarship arguing that the liberation of Black people — and the broader project of human epistemic justice — demands the dismantling of colonial color ontologies at their philosophical, scientific, and institutional roots, a task that is both urgently necessary and empirically achievable through deliberate decolonial pedagogy, community-centered knowledge production, and the radical refusal to allow the physics of light absorption to continue serving as the pseudoscientific foundation of racial hierarchy.

## **RECOMMENDATIONS**

**Decolonize Science Education Curricula:** Educational institutions at all levels should integrate decolonial frameworks into science education, ensuring that instruction on color physics, optics, and related disciplines explicitly addresses the historical misappropriation of scientific color concepts for racial classification, thereby enabling students to simultaneously develop scientific literacy and critical awareness of the colonial instrumentalization of natural science — an integration demonstrated by this study to be essential for disrupting essentialist Blackness perceptions more effectively than scientific literacy alone.

**Invest in Community-Based Epistemic Reclamation Programs:** Governments, civil society organizations, and academic institutions should fund and mainstream community-centered epistemic reclamation initiatives that create safe, culturally affirmative spaces for African-descended and other racially marginalized communities to interrogate, reconstruct, and reclaim knowledge about their own identities, histories, and realities — directly addressing the Epistemic Marginalization pathways demonstrated by this study to be key structural mediators between colonial color knowledge and essentialist racial perceptions.

**Mainstream Decolonial Identity Affirmation as a Policy Instrument:** Given the significant structural role of Decolonial Identity Affirmation in the study's SEM findings ( $\beta = 0.389$ ,  $p < .001$ ), policymakers in education, mental health, and social development should treat decolonial identity affirmation not merely as a cultural or therapeutic practice but as a measurable, evidence-based policy instrument for epistemological liberation — incorporating DIA into school counseling frameworks, community development programs, and national curricula as a deliberate strategy for breaking the structural chain linking coloniality of knowledge to the essentialization of Blackness.

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