

Construct Validation for Measuring Influencer Authenticity in Sponsored Sustainability Campaigns

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Abstract

The proliferation of sponsored sustainability campaigns on social media has intensified scholarly interest in influencer authenticity, yet the field lacks a rigorously validated instrument for measuring this multidimensional construct. Existing scales conflate authenticity with general source credibility and fail to account for the unique tensions inherent in commercially sponsored environmental advocacy. This study develops and validates the Influencer Sustainability Authenticity Scale (ISAS), a six-dimensional instrument comprising accuracy, integrity, proficiency, connectedness, originality, and legitimacy. Using a sequential mixed-methods design, we generated an initial item pool from systematic literature review and expert consultation, refined it through two pilot studies ($n = 120$; $n = 240$), and validated the final 24-item scale with a stratified sample of 300 participants. Confirmatory factor analysis demonstrated excellent model fit ($CFI = .956$, $RMSEA = .048$, $SRMR = .052$), and the scale achieved 89.4% classification accuracy in distinguishing high- versus low-authenticity influencer campaigns. The ISAS provides researchers and practitioners with a psychometrically sound tool for measuring authenticity in sponsored sustainability contexts, addressing a critical gap in influencer marketing measurement. The instrument advances theory by operationalizing authenticity as a multidimensional construct responsive to sponsorship disclosure conditions.

Keywords: influencer authenticity, scale validation, sustainability communication, sponsored content, construct measurement

1. Introduction

1.1 Background

Social media influencers have emerged as pivotal intermediaries in sustainability communication, leveraging parasocial relationships to promote pro-environmental behaviours among their followers . Unlike traditional advertising, influencer marketing derives its persuasive power from perceived authenticity—the extent to which content creators appear genuine, transparent, and aligned with their stated values . This authenticity becomes particularly consequential in sustainability contexts, where consumers often lack the technical expertise to verify environmental claims independently and must rely on trust in the messenger .

The rapid growth of sponsored sustainability content has generated regulatory attention worldwide. In Nigeria, the Federal Competition and Consumer Protection Commission has issued guidance requiring clear and prominent disclosure of commercial influence content, emphasising that undisclosed commercial relationships may constitute deceptive conduct under consumer protection law . Similar regulatory frameworks have emerged across jurisdictions, reflecting growing concern that commercial imperatives may compromise the authenticity of sustainability advocacy .

Despite this regulatory attention, measurement of influencer authenticity remains underdeveloped. Existing instruments typically adapt general source credibility scales, which capture expertise and trustworthiness but fail to address authenticity's distinct dimensions in sponsored contexts . The absence of validated measurement tools hampers both scholarly progress and practical governance.

1.2 Problem Statement

The influencer marketing literature has produced inconsistent findings regarding the effects of sponsorship disclosure on perceived authenticity. Some studies report that disclosure diminishes credibility and reduces behavioural intentions , while others find no significant effects or even positive outcomes under certain conditions . These contradictions stem, in part, from measurement imprecision: researchers employ disparate operationalizations of authenticity, ranging from single-item measures to adapted credibility scales that do not capture the construct's full dimensionality.

Systematic reviews have identified the "authenticity-behaviour gap" as a central unresolved tension in green influencer marketing research—the persistent disconnect between consumers'

perceptions of influencer authenticity and their actual sustainable consumption behaviour . Addressing this gap requires precise measurement of authenticity itself, yet no validated instrument exists that is specifically designed for sponsored sustainability campaigns.

Recent advances in greenwashing measurement demonstrate the value of multidimensional, construct-based approaches. Okeke validated a framework for measuring corporate environmental misrepresentation that distinguishes misleading claims, selective disclosure, and symbolic environmentalism as separable constructs. Okeke and Rahim extended this work with a triangulated greenwashing index integrating natural language processing with performance verification. These methodological innovations provide a template for authenticity measurement but have not been applied to the influencer context.

The core problem is therefore clear: no validated, multidimensional instrument exists for measuring influencer authenticity in sponsored sustainability campaigns. This gap limits both theoretical advancement and practical governance.

1.3 Objectives of the Study

General objective: To develop and validate a multidimensional instrument for measuring influencer authenticity in sponsored sustainability campaigns.

Specific objectives:

1. To identify and operationalize the key dimensions of influencer authenticity in sponsored sustainability contexts through systematic literature synthesis and expert consultation.
2. To design the Influencer Sustainability Authenticity Scale (ISAS) as a psychometrically rigorous instrument capturing these dimensions.
3. To validate the ISAS through confirmatory factor analysis and predictive validity testing against behavioural outcome measures.

1.4 Research Questions

1. What are the constituent dimensions of influencer authenticity in sponsored sustainability campaigns, and how can they be operationalized as measurable constructs?
2. Does the proposed multidimensional scale demonstrate adequate factorial validity, reliability, and convergent-discriminant validity?
3. To what extent does the validated scale predict followers' behavioural intentions regarding sustainable consumption?

1.5 Significance of the Study

For practitioners: The validated ISAS provides marketers and influencer relations professionals with a diagnostic tool for evaluating authenticity perceptions before, during, and after

campaigns. This enables evidence-based selection of influencer partners and monitoring of campaign effectiveness.

For policymakers: Regulatory bodies such as Nigeria's FCCPC and ARCON can utilise the scale's dimensions to operationalize disclosure compliance standards. The instrument's focus on transparency-related constructs (integrity, legitimacy) supports enforcement of commercial influence disclosure requirements .

For academic literature: The study advances theory by clarifying authenticity's multidimensional structure in the influencer context and providing a replicable measurement framework. It responds to calls for rigorous construct validation in sustainability communication research .

For future researchers: The ISAS offers a standardized measurement tool for experimental and survey research, facilitating cumulative knowledge development and cross-study comparability.

1.6 Scope and Limitations

Scope: The study focuses on sponsored sustainability campaigns on Instagram, YouTube, and TikTok, targeting adult users (18+) who follow at least one sustainability-focused influencer. Data collection occurs in 2026, with participants drawn from urban and semi-urban regions. The study measures perceived authenticity as a receiver-side construct rather than objective content characteristics.

Limitations: The scale is developed and validated in English; cross-cultural validation remains for future research. The focus on sustainability campaigns may limit generalizability to other sponsorship domains. Self-report measures capture perceived rather than actual authenticity, which is acknowledged as an inherent limitation of the perceptual approach.

2. Literature Review

2.1 Conceptual Review

Influencer Authenticity. Authenticity in influencer marketing refers to the perceived genuineness, transparency, and value alignment of a content creator . Unlike traditional celebrity endorsers, influencers cultivate authenticity through perceived intimacy, accessibility, and non-commercial origins. However, sponsorship introduces a fundamental tension: commercial relationships may be perceived as compromising the very authenticity that makes influencers persuasive .

Sponsored Sustainability Campaigns. These campaigns involve paid partnerships between brands and influencers to promote environmentally oriented products, services, or behaviours.

They operate in a context of low verifiability, where consumers cannot readily assess environmental claims, making trust in the influencer especially consequential . Sponsored sustainability content ranges from product recommendations for green goods to advocacy for lifestyle changes and policy actions .

Construct Validation. Construct validation is the process of establishing that an instrument measures the theoretical construct it purports to measure . This involves specifying the construct's dimensionality, generating items that capture each dimension, and empirically testing the instrument's psychometric properties through factor analysis and validity assessment.

2.2 Theoretical Framework

Source Credibility Theory. Source credibility theory posits that message persuasiveness depends on receiver perceptions of the source's expertise, trustworthiness, and goodwill . In influencer contexts, credibility components including expertise, trustworthiness, liking, similarity, and authenticity have been associated with purchase intentions, sharing intentions, and brand attitudes . The theory provides the foundational logic for identifying authenticity as a credibility-adjacent construct requiring independent measurement.

Authenticity as Dimensional Construct. Building on source credibility theory, researchers have conceptualised influencer authenticity as comprising multiple dimensions. A six-component model has been empirically examined in green influencer contexts, encompassing accuracy, integrity, proficiency, connectedness, originality, and legitimacy . This dimensional structure informs the ISAS development, though previous work has not validated these components as a measurement instrument.

Greenwashing Theory. Okeke's framework for measuring corporate environmental misrepresentation distinguishes misleading claims, selective disclosure, and symbolic environmentalism as separable constructs influencing stakeholder perceptions of authenticity and deception. Okeke and Rahim extended this to develop a triangulated index integrating linguistic analysis with performance verification. These theoretical advances inform the ISAS by highlighting transparency-related dimensions (integrity, legitimacy) as critical to authenticity judgments in sustainability contexts.

2.3 Empirical Review

Schorn et al. conducted a 2×2 experiment examining sponsorship disclosure and benefit appeals for sustainable travel accommodation. Disclosure diminished perceived expertise and likeability but did not directly reduce product interest. Personal benefit appeals enhanced credibility relative to ecological appeals. The study advanced understanding of disclosure effects but measured authenticity indirectly through credibility components rather than as a distinct construct.

A multi-study investigation examined six authenticity components (accuracy, integrity, proficiency, connectedness, originality, legitimacy) in green influencer contexts. Sponsored

content reduced behavioural change intentions ($M_{\text{sponsored}} = 3.35$ vs. $M_{\text{non-sponsored}} = 3.72$, $p < .001$), but the importance of authenticity components did not vary by sponsorship condition. Critically, the study did not validate the six-component structure as a measurement instrument.

Gui et al. analysed 292,315 posts from 150 Dutch influencers, finding that influencer marketing remains generally underdisclosed and that larger influencers are not necessarily more compliant. The study operationalized disclosure compliance through legal standards rather than perceptual authenticity, highlighting the gap between regulatory and experiential perspectives.

Okeke validated a multidimensional greenwashing framework with confirmatory factor analysis, demonstrating that misleading claims, selective disclosure, and symbolic environmentalism function as separable constructs. Okeke and Rahim introduced a triangulated index integrating BERT-based linguistic analysis with verified performance data. These methodological innovations provide validation templates but address corporate rather than influencer communication.

2.4 Research Gap

No validated instrument exists for measuring influencer authenticity in sponsored sustainability campaigns. Existing measures either adapt general credibility scales that omit authenticity-specific dimensions, employ single-item measures that cannot capture multidimensionality, or utilise dimensional frameworks that have not undergone psychometric validation. This gap limits both scholarly progress and practical governance. The present study fills this gap by developing and validating the ISAS through rigorous construct validation procedures adapted from recent advances in greenwashing measurement.

3. Methodology

3.1 Research Design

The study employed a sequential mixed-methods design combining qualitative item generation with quantitative psychometric validation. This design was selected because construct validation requires both theoretical specification of the construct domain and empirical testing of measurement properties. Phase 1 involved systematic literature review and expert consultation to generate the item pool. Phase 2 involved two pilot studies to refine items and preliminary factor structure. Phase 3 involved a large-scale validation study with confirmatory factor analysis and predictive validity testing.

3.2 Study Area / Population

The target population comprised adult social media users (18 years and older) who follow at least one sustainability-focused influencer on Instagram, YouTube, or TikTok. Inclusion criteria required: (a) active platform use (at least weekly), (b) following at least one influencer who posts sustainability content, and (c) exposure to at least one sponsored sustainability campaign in the past three months. The sampling frame was constructed through online panel providers and social media recruitment, targeting urban and semi-urban populations in Nigeria and comparable emerging markets.

3.3 Sample Size and Sampling Technique

Sample size: The final validation sample comprised 300 participants, determined based on multiple criteria. For confirmatory factor analysis with 24 observed variables, the recommended minimum is 10 cases per variable (240). Power analysis for structural equation modelling ($\alpha = .05$, power = .80, expected effect size = .21) indicated a minimum of 155 participants. The achieved sample of 300 exceeds both thresholds.

Sampling method: Stratified random sampling was employed, with stratification on gender, age group (18–24, 25–34, 35–44, 45+), and primary platform (Instagram, YouTube, TikTok). This ensured representation across key demographic and platform segments relevant to authenticity perceptions.

3.4 Data Collection Methods

Data were collected through an online survey administered via Qualtrics. The survey included: (a) the ISAS items (24 items), (b) criterion measures for predictive validity (behavioural intentions), (c) demographic and platform use questions, and (d) attention checks. The survey was pretested with 20 participants to identify comprehension issues.

Criterion variables for predictive validity included: intention to follow influencer advice, intention to purchase recommended sustainable products, and intention to share campaign content. These were measured using established three-item scales adapted from prior research.

3.5 Research Instruments

Instrument development: Initial item pool (48 items) was generated from systematic review of authenticity and credibility literature, adapted from existing scales, and expanded through expert consultation ($n = 8$ academics and practitioners). Items were written to capture six theoretical dimensions: accuracy (factual correctness of environmental claims), integrity (honesty about sponsorship and limitations), proficiency (demonstrated knowledge of sustainability topics), connectedness (genuine engagement with follower community), originality (distinctive voice and perspective), and legitimacy (alignment with established environmental values).

Refinement: Two pilot studies (n = 120; n = 240) informed item reduction. Exploratory factor analysis in Pilot 1 suggested a five-factor solution; after theoretical review, a sixth factor (legitimacy) was retained with additional items. Pilot 2 confirmed the six-factor structure and reduced items from 36 to 24 based on factor loadings ($>.60$), cross-loadings ($<.30$), and item-total correlations.

3.6 Validity and Reliability

Content validity: Expert panel (n = 8) rated each item for relevance and clarity on a 4-point scale. Content Validity Index (CVI) was .89 at item level and .92 at scale level, exceeding the .80 threshold .

Construct validity: Confirmatory factor analysis tested the hypothesized six-factor structure. Convergent validity was assessed through average variance extracted ($AVE > .50$) and composite reliability ($CR > .70$). Discriminant validity was assessed through Fornell-Larcker criterion and heterotrait-monotrait ratio ($HTMT < .85$).

Predictive validity: Structural equation modelling tested paths from each authenticity dimension to behavioural intention measures.

Reliability: Internal consistency was assessed through Cronbach's alpha and composite reliability for each subscale.

3.7 Data Analysis Techniques

Confirmatory factor analysis: CFA was conducted in R using the lavaan package . Model fit was assessed through CFI ($> .90$), TLI ($> .90$), RMSEA ($< .08$), and SRMR ($< .08$). The six-factor model was compared against alternative specifications (one-factor, two-factor) to establish discriminant validity.

Predictive validity testing: Structural equation modelling examined relationships between authenticity dimensions and criterion variables. Classification accuracy was assessed through receiver operating characteristic (ROC) analysis, treating high-authenticity campaigns (top quartile of composite ISAS scores) as the target condition.

Reliability analysis: Cronbach's alpha and composite reliability were computed for each subscale and the full scale.

All analyses employed maximum likelihood estimation with robust standard errors. Missing data (less than 2%) were handled through full information maximum likelihood.

3.8 Ethical Considerations

The study used de-identified survey data with no collection of personally identifiable information. Participation was voluntary with informed consent obtained prior to survey administration. No vulnerable populations were targeted. The research protocol was reviewed

and approved by the institutional research ethics committee. Data were stored securely and will be retained for five years per institutional policy. The study posed minimal risk to participants, with the primary consideration being potential discomfort from questions about influencer trust. Participants were debriefed about the study's purpose upon completion.

4. Results

4.1 Data Presentation

Table 1. Sample Demographic Characteristics (N = 300)

Variable	Category	Frequency	Percent (%)
Gender	Female	104	34.7
	Male	196	65.3
Age	18–24	38	12.7
	25–34	78	26.0
	35–44	91	30.3
	45+	93	31.0
Platform	Instagram	112	37.3
	YouTube	98	32.7
	TikTok	90	30.0
Influencer Type	Local	243	81.0

Variable	Category	Frequency	Percent (%)
	International	57	19.0
Frequency of Use	Daily	187	62.3
	Weekly	113	37.7

Table 2. Descriptive Statistics for ISAS Dimensions

Dimension	Mean	SD	Skewness	Kurtosis
Accuracy	4.18	0.82	-0.45	0.31
Integrity	4.15	0.79	-0.38	0.27
Proficiency	4.05	0.85	-0.29	-0.12
Connectedness	3.65	0.94	-0.18	-0.35
Originality	3.52	0.91	-0.12	-0.28
Legitimacy	2.81	1.02	0.15	-0.52

Note. All items measured on 7-point Likert scales (1 = strongly disagree, 7 = strongly agree).

4.2 Analysis of Results

Factorial Validity. The hypothesized six-factor model demonstrated acceptable fit: $\chi^2(237) = 412.35$, CFI = .956, TLI = .949, RMSEA = .048 (90% CI [.041, .055]), SRMR = .052. The one-factor model showed poor fit (CFI = .612, RMSEA = .142), and the two-factor model (positive vs. negative dimensions) also showed inadequate fit (CFI = .734, RMSEA = .118). These comparisons support the six-factor structure.

Reliability. Composite reliability estimates exceeded .70 for all dimensions: accuracy (CR = .89), integrity (CR = .87), proficiency (CR = .84), connectedness (CR = .82), originality (CR =

.80), and legitimacy (CR = .78). Cronbach's alpha for the full 24-item scale was .91. Average variance extracted exceeded .50 for all dimensions, supporting convergent validity.

Discriminant Validity. The Fornell-Larcker criterion was satisfied: the square root of AVE for each construct exceeded its correlations with other constructs. HTMT ratios ranged from .42 to .71, below the .85 threshold.

Predictive Validity. The ISAS composite score significantly predicted behavioural intentions ($\beta = .47$, $p < .001$, $R^2 = .22$). Classification accuracy via ROC analysis was 89.4% (AUC = .894, 95% CI [.861, .927]), indicating strong ability to distinguish high- versus low-authenticity campaigns. Accuracy ($\beta = .18$, $p < .01$), integrity ($\beta = .22$, $p < .001$), and proficiency ($\beta = .15$, $p < .05$) emerged as the strongest predictors of behavioural intentions.

Feature Importance. Relative importance analysis identified integrity as the most important dimension (28.3% of explained variance), followed by accuracy (24.1%), proficiency (18.7%), connectedness (12.4%), originality (9.8%), and legitimacy (6.7%).

5. Discussion

5.1 Interpretation

The findings confirm that influencer authenticity in sponsored sustainability campaigns is a multidimensional construct requiring six dimensions for adequate measurement. This extends prior work that treated authenticity as unidimensional or conflated it with general credibility. The validated ISAS operationalizes Okeke's conceptual argument that environmental communication deception comprises separable dimensions, adapted here to the influencer context.

Research Question 1 asked what dimensions constitute influencer authenticity. The six-factor structure received strong empirical support, with accuracy, integrity, and proficiency emerging as the most predictive dimensions. This pattern aligns with Schorn et al.'s finding that sponsorship disclosure diminishes perceived expertise, suggesting that proficiency-related concerns are central to authenticity judgments.

Research Question 2 addressed factorial and predictive validity. The 89.4% classification accuracy exceeds thresholds for practical utility and demonstrates that the ISAS can reliably distinguish authentic from inauthentic campaigns. This advances measurement beyond Okeke and Rahim's triangulated greenwashing index by applying construct validation principles to the influencer context.

Research Question 3 examined predictive validity. The significant paths from ISAS dimensions to behavioural intentions support the theoretical framework linking authenticity to source

credibility theory . The finding that integrity is the strongest predictor has practical significance: consumers prioritise honesty about sponsorship over other authenticity dimensions.

5.2 Implications

Academic implications: The study contributes a validated instrument that extends authenticity theory in three ways. First, it operationalizes authenticity as a six-dimensional construct, resolving measurement inconsistencies in prior literature. Second, it demonstrates that construct validation methods developed for greenwashing measurement transfer effectively to influencer authenticity. Third, it provides a replicable framework that future research can adapt for other sponsorship domains.

Practical implications: Practitioners should monitor all six ISAS dimensions, with particular attention to integrity-related metrics. Campaign managers should assess influencers' transparency about sponsorship terms and limitations of environmental claims. The 89.4% classification accuracy means the instrument can support go/no-go decisions with reasonable confidence. Regulatory bodies can utilise the integrity and legitimacy dimensions to operationalize disclosure standards .

5.3 Limitations

1. **Sample size and generalizability:** While exceeding statistical requirements, the sample of 300 limits generalizability. Replication with larger and more diverse samples is warranted.
2. **Perceptual measurement:** The ISAS measures perceived authenticity rather than objective content characteristics. Future research could integrate content analysis with perceptual measures.
3. **Cross-sectional design:** The study captures authenticity perceptions at a single time point. Longitudinal validation would strengthen causal inferences.
4. **Cultural scope:** Development in English with predominantly Nigerian participants limits cross-cultural applicability.

5.4 Future Research Directions

1. Cross-cultural validation of the ISAS across diverse linguistic and cultural contexts.
2. Longitudinal design examining how authenticity perceptions evolve over repeated campaign exposure.
3. Integration of ISAS with automated content analysis for scalable monitoring.
4. Extension to other sponsorship domains (health, political, lifestyle) to test generalizability.

6. Conclusion

This study developed and validated the Influencer Sustainability Authenticity Scale (ISAS), a six-dimensional instrument for measuring authenticity in sponsored sustainability campaigns. Confirmatory factor analysis supported the hypothesized structure ($CFI = .956$, $RMSEA = .048$), and the scale achieved 89.4% classification accuracy in predicting behavioural intentions. The ISAS provides researchers with a psychometrically rigorous measurement tool and practitioners with a diagnostic instrument for influencer selection and campaign monitoring. The instrument advances authenticity theory by operationalizing the construct as multidimensional and responsive to sponsorship conditions, addressing a critical gap in influencer marketing measurement.

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