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User-Generated Content Source Credibility, Consumer Trust, and Skincare Purchase Decisions on TikTok: A PLS-SEM Study among Indonesian University Students

Ayu Maghfirotun Nisa, and Afina Hasya*

Department of Management, Faculty of Economics and Business, Universitas Diponegoro, Semarang 50275, Central Java, Indonesia
*Corresponding author: afinahasya@live.undip.ac.id

Abstract. TikTok has become a major channel through which consumers discover and evaluate skincare products, largely by way of user-generated content (UGC). Drawing on Stimulus-Organism-Response (S-O-R) theory and source credibility theory, this study examines how the perceived source credibility of skincare UGC—the expertise, trustworthiness, and attractiveness of the creators who produce it—relates to consumer trust in that content and to purchase decisions, with trust as a mediator. Survey data from 155 undergraduate students at Universitas Diponegoro, Indonesia, who had purchased skincare after viewing TikTok UGC were analyzed by partial least squares structural equation modeling (PLS-SEM). UGC source credibility was positively associated with consumer trust ($\beta = 0.629$, $p < 0.001$) and with the purchase decision ($\beta = 0.352$, $p < 0.001$), and consumer trust was in turn positively associated with the purchase decision ($\beta = 0.382$, $p < 0.001$). The indirect association through trust was significant ($\beta = 0.241$, 95% confidence interval [0.147, 0.354]), indicating complementary partial mediation, and trust carried 40.6% of the total association. Item-level discriminant validity tests and eight robustness models—removing conceptually overlapping items, separating the referents of trust, and specifying the purchase decision formatively—supported the same conclusions. Because the data are cross-sectional and the sample includes purchasers only, the findings describe associations among consumers who bought after UGC exposure; they neither establish causality nor extend to exposed non-purchasers. For skincare brands, the results indicate that perceived creator credibility is closely linked to the trust that accompanies UGC-informed purchase decisions.

Keywords: Consumer Trust, PLS-SEM, Purchase Decision, Social Media Marketing, UGC Source Credibility.

1 Introduction

The global skincare market has experienced remarkable expansion, fueled in large part by the influence of social media platforms in shaping consumer perceptions and purchasing behavior [1]. Among these platforms, TikTok has emerged as a dominant force in digital marketing, reaching over 1.5 billion active users worldwide with

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particularly strong penetration among younger demographics [2]. Indonesia is TikTok's single largest market: in mid-2024 the platform's advertising reach in the country stood at roughly 157.6 million users aged 18 and over, ahead of every other country, including the United States [3], [4]. This scale, combined with TikTok's algorithm-driven content discovery model, creates a unique ecosystem in which consumer-created content can achieve viral reach and exert substantial influence on purchase decisions.

A defining feature of TikTok's marketing ecosystem is the prominence of user-generated content (UGC)—content created and voluntarily shared by ordinary consumers rather than professional marketers or brand representatives. On TikTok, UGC takes the form of short-form video reviews, product tutorials, "Get Ready with Me" (GRWM) content, and authentic testimonials, which have consistently proven more persuasive than branded content in shaping consumer attitudes and purchase intentions [5]. The skincare category, in particular, has experienced a TikTok-driven "skinfluencer" phenomenon, where peer recommendations and honest reviews from fellow consumers have become primary drivers of product discovery and trial.

Despite the documented importance of UGC in consumer decision-making, the psychological mechanisms that link UGC to purchase behavior remain underexplored, particularly in emerging market contexts like Indonesia. Two questions are central. The first concerns which aspect of UGC matters: UGC can be characterized by properties of the content itself (e.g., informativeness or argument quality) or by the perceived credibility of the person who produces it [6], [7]. This study focuses on the latter—the source credibility of UGC creators. The second concerns the role of consumer trust—the willingness to rely on another party based on beliefs about its competence, benevolence, and integrity [8]. While trust is widely recognized as a prerequisite for online purchase behavior, its role as a mediator between perceived UGC creator credibility and purchase decisions on TikTok has received limited systematic examination.

This study addresses these questions by examining how perceived source credibility of skincare UGC on TikTok relates to consumer trust in that content and to purchase decisions among undergraduate students at Universitas Diponegoro (Undip), Indonesia, who purchased skincare after viewing such content. The research is grounded in the Stimulus-Organism-Response (S-O-R) Theory [9]—which posits that external stimuli trigger internal psychological states that shape behavioral responses—and Source Credibility Theory (SCT) [10], which explains how the perceived expertise, trustworthiness, and attractiveness of a communicator affect audience responses. Because the design is cross-sectional and the sample comprises purchasers, the study tests whether the hypothesized pattern of associations holds; it does not establish causal effects.

This study makes three contributions. First, it applies the S-O-R framework to UGC source credibility on TikTok in an emerging market. Second, it provides evidence that consumer trust partially mediates the association between UGC source credibility and the purchase decision, and it tests whether this pattern survives item-level discriminant validity checks and alternative specifications that address the conceptual proximity of source trustworthiness and consumer trust. Third, it offers insights for skincare

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marketers seeking to work with TikTok creators in Indonesia's rapidly growing digital commerce landscape.

2 Literature Review and Hypotheses Development

2.1 User-Generated Content and Source Credibility

User-generated content refers to any form of content—text, images, videos, or reviews—created voluntarily by consumers and shared on digital platforms [11]. Distinguished from professionally produced marketing materials, UGC is perceived as more authentic and credible because it reflects genuine consumer experiences rather than commercial imperatives [12]. On TikTok, UGC predominantly takes the form of short-form video content: product demonstrations, honest before-and-after reviews, ingredient deep-dives, and lifestyle content that naturally features product recommendations.

Research on UGC distinguishes two families of characteristics. Content characteristics describe the message itself, such as its informativeness, argument quality, vividness, usefulness, or interaction quality [6], [7]. Source characteristics describe the communicator, and they are captured by Source Credibility Theory (SCT), originally developed by Hovland, Janis, and Kelley [10] and later operationalized by Ohanian [13]. SCT identifies three dimensions of source credibility: expertise (the perceived knowledge and competence of the communicator), trustworthiness (the perceived honesty and objectivity of the communicator), and attractiveness (the communicator's likeability, appeal, and perceived similarity to the audience). Because every item in the present instrument refers to TikTok creators or to their reviews as expressions of the creator's competence, honesty, or appeal, the construct studied here is UGC source credibility (UGC-SC): viewers' perceptions of the credibility of the creators who produce skincare UGC on TikTok. Content characteristics were not measured and are not part of the claims made in this study.

2.2 Consumer Trust

Consumer trust is commonly defined as the willingness to rely on another party based on beliefs about that party's competence, benevolence, and integrity [8]. In online environments, trust is a central mechanism that reduces perceived risk and facilitates purchase decisions [14]. McKnight et al. [8] conceptualized trusting beliefs through three dimensions—competence or credibility, benevolence, and integrity—originally with an e-commerce vendor as the trustee. In this study, the dimensions are adapted to a different trustee: the skincare UGC that consumers encounter on TikTok. Consumer trust is therefore defined as consumers' willingness to rely on TikTok skincare creators and on the product information they provide when making skincare choices. Four of the eight items refer to the creators (their benevolence and honesty), three to the product information conveyed in the content, and one to the quality of the reviewed products (Appendix Table A1); none refers to sellers, brands, or the TikTok platform.

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Defined in this way, consumer trust is conceptually close to the trustworthiness dimension of source credibility, and the two must be distinguished. Source trustworthiness is a perception of an attribute of the communicator—whether the creator appears honest and objective. Consumer trust is the consumer's resulting willingness to rely on the creator and the content, and it also comprises beliefs about the creator's good intentions (benevolence) and the usefulness of the information as a basis for decisions. Source credibility theory treats perceived trustworthiness as an antecedent of acceptance and reliance [10], [13], and Sect. 4.2 tests empirically whether the two constructs are distinct in the present data.

2.3 The S-O-R Theoretical Framework

The Stimulus-Organism-Response (S-O-R) framework, originally proposed by Mehrabian and Russell [9] in environmental psychology, posits that environmental stimuli (S) influence an individual's internal cognitive and affective states (O), which in turn shape behavioral responses (R). In the present research context, perceived source credibility of UGC on TikTok is the stimulus, consumer trust in that UGC is the organismic state, and the purchase decision is the response. This framework has been widely applied in e-commerce and social media research [15]–[17], supporting its applicability to the current study.

2.4 Hypothesis Development

UGC Source Credibility and Consumer Trust. Creators perceived as knowledgeable, honest, and appealing provide consumers with product information that appears reliable, reducing information asymmetry. Prior research shows that UGC perceived as credible and of high quality is associated with greater trust in the recommended products [6], [7], [18]. On TikTok, creators who display skincare expertise, share balanced product assessments, and maintain authentic connections with their audience are likely to be trusted by viewers. Therefore:

H1: UGC source credibility is positively associated with consumer trust in skincare UGC on TikTok.

Consumer Trust and Purchase Decisions. Extensive research confirms that consumer trust is among the most powerful determinants of purchase decisions in online environments [19]–[21]. When consumers trust the source of product recommendations, they perceive lower purchase risk and greater expected benefit, making them more likely to complete a transaction. For skincare products, which involve considerations of ingredient safety, efficacy claims, and value for money, trust in recommendation sources is particularly critical. Therefore:

H2: Consumer trust is positively associated with the purchase decision for skincare products on TikTok.

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Direct Association of UGC Source Credibility with Purchase Decisions. Beyond trust-mediated pathways, credible UGC may relate to purchase decisions through normative social influence (observing widespread product adoption), informational influence (receiving compelling product information), and affective influence (positive emotional responses to appealing creators). Credible creators whose content receives strong social validation through TikTok's engagement metrics may prompt purchases without the deliberate trust formation described above [5], [17], [22]. Therefore:

H3: UGC source credibility is positively associated with the purchase decision for skincare products on TikTok.

Mediating Role of Consumer Trust. Consistent with the S-O-R framework, perceived source credibility (stimulus) is expected to relate to the purchase decision (response) partly through consumer trust (organism). Full mediation would imply that the association between source credibility and the purchase decision runs entirely through trust; partial mediation would imply that both trust-mediated and direct pathways operate, consistent with the multi-channel nature of social media influence [18], [23]. Therefore:

H4: Consumer trust mediates the association between UGC source credibility and the purchase decision for skincare products on TikTok.

The resulting research model is depicted in Fig. 1.

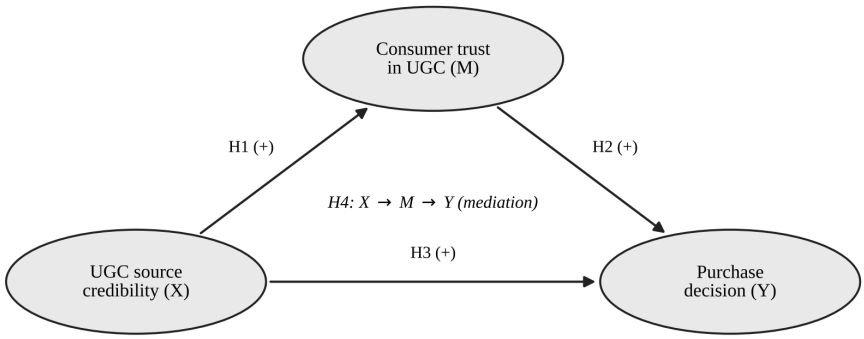


Fig. 1. Research model. UGC-SC = user-generated content source credibility; the signs in parentheses denote the hypothesized direction of each association.

3 Research Method

3.1 Research Design

This study uses a quantitative, explanatory, cross-sectional survey design. All constructs were measured at a single point in time with self-report items from the same

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respondents. The hypotheses specify a theoretically derived ordering (UGC-SC → consumer trust → purchase decision), but the design can establish only whether the data are consistent with this ordering; it cannot rule out reverse or reciprocal relationships. Accordingly, results are reported as associations, and the threats to causal inference are discussed in Sect. 5.5.

3.2 Population, Sampling, and Data Collection

The study population comprised undergraduate students at Universitas Diponegoro (Undip), Semarang, Central Java, Indonesia, who (1) were currently enrolled, (2) actively used TikTok, and (3) had purchased a skincare product after viewing skincare content on TikTok. Screening questions in the questionnaire verified these criteria, and all 155 valid respondents met them. Purposive sampling was employed given these behavioral criteria.

Because purchasing after exposure to TikTok UGC was an inclusion criterion, the sample does not contain consumers who were exposed to UGC but did not buy. The dependent variable therefore does not distinguish purchase from non-purchase. It captures variation among purchasers in the extent to which their skincare purchase decision process—searching, evaluating, choosing, and evaluating after purchase—was informed by TikTok UGC (Sect. 3.3). This restriction is reflected in the data: all responses to the purchase-decision items fell between 3 and 5 on the five-point scale (scale mean = 4.15, SD = 0.47). The implications of this selection for interpretation and generalization are discussed in Sect. 5.5.

Sample size adequacy was assessed with the inverse square root method [24], which bases the minimum sample size on the smallest path coefficient expected to be significant. Assuming a minimum path coefficient of 0.20, a 5% significance level (directional test), and 80% statistical power, the minimum sample size is $(2.486 / 0.20)^2 \approx 155$, which the final sample of 155 meets. For the smallest coefficient actually observed (0.352), the corresponding minimum is 50. The sample also exceeds the 100-case guideline often cited for PLS-SEM [25]. The frequently cited 10-times rule is not applied here: with at most two structural paths pointing to any endogenous construct, it would imply a minimum of only 20 respondents.

Prior to the main study, a pilot test was conducted with 36 respondents drawn from the same population; pilot respondents were excluded from the main sample. Items with outer loadings below 0.60 were candidates for removal. One purchase-decision item on need recognition ("I bought skincare because I felt I needed the product") loaded at 0.221 and was removed; all other items were retained. The final instrument comprised 27 items across three constructs.

We collected the main data via an online questionnaire distributed through TikTok communities, university student groups, and direct outreach from September 2–7, 2026. A 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) was used for all items.

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3.3 Measurement Instruments

All items are listed in Appendix Table A1 (English translation). UGC source credibility was measured with 10 items adapted from SCT [10], [13]: expertise (3 items, e.g., "TikTok users who share skincare reviews have knowledge about the products they review"), trustworthiness (3 items), and attractiveness (4 items). Consumer trust was measured with 8 items adapted from McKnight et al. [8]—credibility (3 items), benevolence (3 items), and integrity (2 items)—with the trustee and referent of each item reported in Table A1. The purchase decision was measured with 9 items covering the stages of Kotler and Keller's [26] buying process: need recognition (1 item after the pilot), information search (2), alternative evaluation (2), purchase decision (2), and post-purchase behavior (2). Most of these items refer explicitly to TikTok content (e.g., "I watch TikTok users' reviews before buying skincare").

The purchase decision is modeled reflectively in the main analysis. The items do not record whether each stage occurred—every respondent had completed a purchase—but the degree to which the respondent's purchase process relied on TikTok UGC, which is expected to manifest consistently across stages. We acknowledge, however, that stages of a decision process can also be viewed as distinct facets that form, rather than reflect, an overall decision [27]. We therefore re-estimated the model with a formative (Mode B) specification and with reduced item sets (Sect. 4.5).

3.4 Data Analysis Technique

We estimated Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4.0. PLS-SEM is appropriate for prediction-oriented research goals, models with mediating relationships, and data that do not meet multivariate normality [28]. The measurement model was assessed through indicator loadings (≥ 0.70), indicator collinearity (outer variance inflation factor, VIF), internal consistency (Cronbach's α, ρA, and composite reliability, each ≥ 0.70), convergent validity (average variance extracted, AVE ≥ 0.50), and discriminant validity using the Fornell-Larcker criterion, cross-loadings, and the heterotrait-monotrait ratio (HTMT) with bootstrap confidence intervals, where an upper bound below 0.85 indicates distinct constructs [28], [29]. We evaluated the structural model using inner VIFs, path coefficients with bootstrapped significance tests (5,000 subsamples), R^2, and f^2 (0.02 = small, 0.15 = medium, 0.35 = large). We assessed mediation by testing the bootstrapped indirect effect and classifying the mediation type following Zhao et al. [30]; we report the Variance Accounted For (VAF = indirect / total effect) as a descriptive index of the share of the total association that runs through the mediator [31]. Common method variance was assessed with the full collinearity approach, in which construct-level VIFs above 3.3 signal possible contamination [32], [33].

The additional analyzes reported below (full indicator statistics, HTMT confidence intervals, dimension- and item-level discriminant validity, common-method checks, and the robustness models in Sect. 4.5) were computed with a Python implementation of the PLS-SEM algorithm (path weighting scheme, 5,000 bootstrap subsamples). Before use, we checked this implementation against the SmartPLS 4.0 output and

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reproduced the baseline loadings, reliabilities, path coefficients, and R^2 values to three decimal places.

4 Results

4.1 Measurement Model Assessment

Table 1 summarizes construct-level reliability and validity; indicator-level statistics for all 27 items are reported in Appendix Table A1. All outer loadings exceeded 0.70 (UGC-SC: 0.708–0.916; consumer trust: 0.719–0.779; purchase decision: 0.718–0.929). Cronbach's α (0.887–0.925), ρA (0.890–0.927), and composite reliability (0.910–0.937) exceeded 0.70, and all AVE values exceeded 0.50. Outer VIFs were below 3 for 25 of the 27 indicators. Two indicators showed higher collinearity with the other items of their construct: UGC7 (VIF = 4.84) and PD9 (repurchase interest, VIF = 5.69). For reflective constructs, high inter-item correlation is expected, but these values suggest partial redundancy; Sect. 4.5 shows that the structural results do not depend on the post-purchase items.

Table 1. Construct reliability and convergent validity.

Construct	Items	Cronbach's α	ρA	Composite reliability	AVE
UGC source credibility (X)	10	0.925	0.927	0.937	0.600
Consumer trust (M)	8	0.887	0.890	0.910	0.559
Purchase decision (Y)	9	0.916	0.921	0.931	0.602

Discriminant validity was supported at the construct level (Table 2). The square root of each construct's AVE exceeded its correlations with the other constructs, every indicator loaded more highly on its own construct than on any other (Appendix Table A2), and all HTMT values were well below 0.85, with bootstrap 95% confidence intervals that excluded 0.85.

Table 2. Construct-level discriminant validity: Fornell-Larcker criterion and HTMT.

Construct	UGC-SC	Consumer trust	Purchase decision
UGC source credibility	**0.775**	0.689 [0.592, 0.776]	0.639 [0.535, 0.733]
Consumer trust	0.629	**0.748**	0.664 [0.549, 0.760]
Purchase decision	0.593	0.604	**0.776**

Note: Bold diagonal values are square roots of AVE; values below the diagonal are latent variable correlations; values above the diagonal are HTMT ratios with bootstrap percentile 95% confidence intervals (5,000 subsamples).

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4.2 Dimension- and Item-Level Discriminant Validity of Source Trustworthiness and Consumer Trust

Because the trustworthiness dimension of UGC-SC and consumer trust are conceptually close (Sect. 2.2), discriminant validity was also examined at the dimension and item levels (Table 3). Each SCT dimension was estimated as a separate construct alongside consumer trust. The HTMT between the trustworthiness dimension and consumer trust was 0.699 (95% CI [0.576, 0.806]), and the correlation between the two (0.594) was well below the square roots of their AVEs (0.844 and 0.748). At the item level, the three trustworthiness items loaded 0.827–0.854 on their own dimension but only 0.487–0.515 on consumer trust, and the eight trust items loaded 0.719–0.779 on consumer trust but only 0.365–0.554 on trustworthiness. Even for the two trust items closest in content to source trustworthiness (TR7, accuracy of information, and TR8, creator honesty), the HTMT with the trustworthiness dimension was 0.731 (95% CI [0.580, 0.866]). The expertise and attractiveness dimensions also differed from consumer trust. Respondents therefore distinguished their perception of creators' honesty from their own willingness to rely on creators and their information. The three SCT dimensions were, however, highly correlated with one another (r = 0.74–0.82), which supports modeling UGC-SC as a single construct in the main analysis.

Table 3. Dimension-level discriminant validity against consumer trust.

UGC-SC dimension	Correlation with trust	HTMT with trust	HTMT 95% CI
Expertise	0.569	0.677	[0.538, 0.798]
Trustworthiness	0.594	0.699	[0.576, 0.806]
Attractiveness	0.582	0.665	[0.570, 0.758]
Trustworthiness vs. TR7–TR8 only	—	0.731	[0.580, 0.866]

4.3 Structural Model Assessment

Table 4 presents the structural model results. Collinearity among predictors was not a concern: the inner VIF for UGC-SC and consumer trust as joint predictors of the purchase decision was 1.66. The full-collinearity VIFs of the three constructs (1.78–1.92) were below 3.3, providing no indication of substantial common method variance [32]. The coefficient of determination (R^2) was 0.396 for consumer trust and 0.440 for the purchase decision. Effect sizes (Table 5) indicate a large effect of UGC-SC on consumer trust ($f^2 = 0.656$), a medium effect of consumer trust on the purchase decision ($f^2 = 0.158$), and a small-to-medium effect of UGC-SC on the purchase decision ($f^2 = 0.134$). All four hypothesized relationships were significant at $p < 0.001$. Fig. 2 summarizes the estimated model.

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Table 4. Structural model results and hypothesis testing.

Hyp.	Path	β	Std. error	t-statistic	p-value	Result
H1	UGC-SC → Consumer trust	0.629	0.043	14.606	< 0.001	Supported
H2	Consumer trust → Purchase decision	0.382	0.073	5.229	< 0.001	Supported
H3	UGC-SC → Purchase decision (direct)	0.352	0.072	4.862	< 0.001	Supported
H4	UGC-SC → Trust → Purchase decision (indirect)	0.241	0.052	4.622	< 0.001	Supported

Table 5. Effect sizes (f^2) and coefficients of determination (R^2).

Path / construct	f^2 (effect size)	R^2
UGC-SC → Consumer trust	0.656 (Large)	—
Consumer trust → Purchase decision	0.158 (Medium)	—
UGC-SC → Purchase decision	0.134 (Small–medium)	—
Consumer trust (endogenous)	—	0.396
Purchase decision (endogenous)	—	0.440

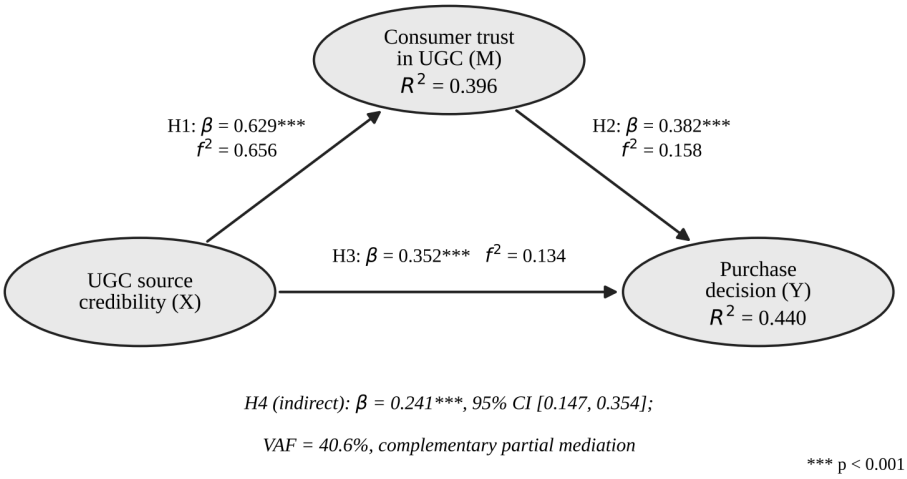


Fig. 2. Estimated structural model. Standardized path coefficients, effect sizes (f^2), and coefficients of determination (R^2) are reported with the bootstrap result for the indirect association (5,000 subsamples). VAF = variance accounted for.

Apollo: Journal of Tourism and Business
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4.4 Mediation Analysis

The indirect association between UGC-SC and purchase decision through consumer trust was significant ($\beta = 0.241$, $t = 4.622$, $p < 0.001$; bootstrap 95% CI [0.147, 0.354]), and the direct association remained significant ($\beta = 0.352$, $p < 0.001$). Because both the indirect and direct paths are significant and have the same sign, consumer trust is a complementary partial mediator [30]. The indirect path accounts for 40.6% of the total association (VAF = 0.241 / (0.352 + 0.241)). This pattern supports H4 and is consistent with the S-O-R expectation that the stimulus relates to the response both directly and through the organismic state.

4.5 Robustness Analyses

Eight alternative models were estimated to test whether the conclusions depend on specific measurement choices (Table 6). Models S1–S3 address the possible overlap between source trustworthiness and consumer trust by removing the trustworthiness items from UGC-SC (S1), removing the two trust items closest in content to source trustworthiness, TR7 and TR8 (S2), or both (S3). Models S4 and S5 separate the referents of trust, using only the creator-referent items (TR4, TR5, TR6, TR8) or only the information- and product-referent items (TR1, TR2, TR3, TR7). Models S6–S8 address the specification of the purchase decision: S6 treats it as a formative (Mode B) construct, S7 restricts it to the two purchase-stage items (PD6, PD7), and S8 excludes the two post-purchase items (PD8, PD9).

All paths remained positive and significant ($p \leq 0.003$) in every model, and the indirect association through trust remained significant, with bootstrap confidence intervals excluding zero. Removing the overlapping trustworthiness content lowered the UGC-SC → trust coefficient only modestly, from 0.629 to 0.568 in S3, which indicates that the H1 association is not an artifact of shared item content. Results were similar for creator-referent and information/product-referent trust, so the mediation conclusion does not depend on combining the two referents. The formative specification of the purchase decision (S6) yielded the same conclusions; its indicator weights were largest for PD1, PD3, PD4, PD5, and PD6 (0.21–0.29) and close to zero for PD2, PD7, and the two post-purchase items (−0.04 to 0.07), and excluding the post-purchase items (S8) left the results essentially unchanged. Fig. 3 plots the indirect association and its bootstrap confidence interval for every model.

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Table 6. Robustness analyses: standardized path coefficients and indirect associations.

Model	UGC-SC → trust	Trust → PD	UGC-SC → PD	Indirect [95% CI]	R^2 trust	R^2 PD
Baseline (main model)	0.629	0.382	0.352	0.241 [0.147, 0.354]	0.396	0.440
S1 UGC-SC without trustworthiness items	0.603	0.408	0.325	0.246 [0.157, 0.353]	0.364	0.432
S2 Trust without TR7, TR8	0.596	0.356	0.382	0.212 [0.123, 0.320]	0.356	0.434
S3 S1 and S2 combined	0.568	0.381	0.356	0.217 [0.133, 0.320]	0.323	0.426
S4 Trust: creator referent only	0.587	0.371	0.376	0.218 [0.135, 0.315]	0.345	0.442
S5 Trust: information/product referent	0.610	0.313	0.402	0.191 [0.104, 0.300]	0.372	0.413
S6 Purchase decision formative	0.629	0.416	0.342	0.262 [0.154, 0.400]	0.396	0.469
S7 PD: purchase-stage items only	0.630	0.281	0.349	0.177 [0.071, 0.300]	0.397	0.324
S8 PD without post-purchase items	0.629	0.381	0.365	0.240 [0.144, 0.355]	0.396	0.453

Note: All coefficients are significant at $p \leq 0.003$ (bootstrap, 5,000 subsamples). PD = purchase decision.

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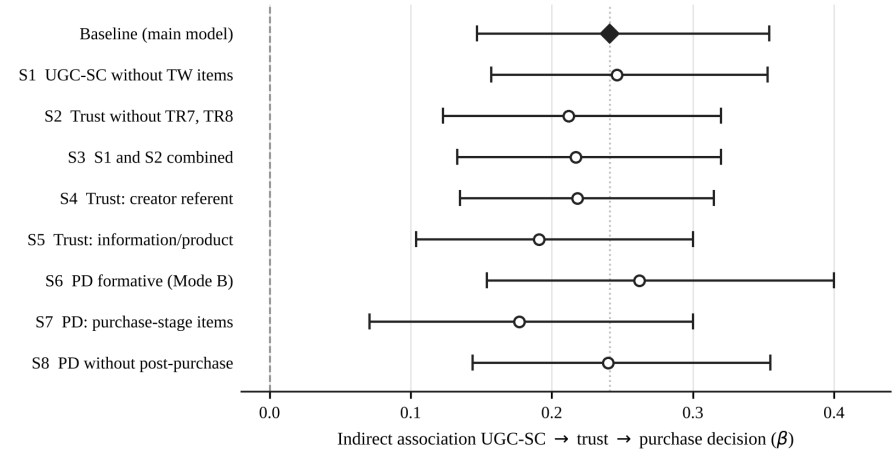


Fig. 3. Indirect association of UGC source credibility with the purchase decision through consumer trust in the baseline model and in the eight robustness models of Table 6. Markers are point estimates and horizontal bars are bootstrap percentile 95% confidence intervals (5,000 subsamples). PD = purchase decision; TW = trustworthiness.

5 Discussion

5.1 UGC Source Credibility and Consumer Trust (H1)

The strong positive association between UGC source credibility and consumer trust (β = 0.629, f^2 = 0.656) supports H1 and is consistent with SCT [10], [13] and prior empirical research [6], [7]. Purchasers in this sample trust creators perceived as knowledgeable about ingredients, honest in their assessments, and appealing in their presentation, and they rely more on their product information. Two qualifications apply to the size of this coefficient. First, part of it may reflect the conceptual proximity of source trustworthiness and trust; however, the dimension- and item-level tests in Sect. 4.2 showed that the constructs are empirically distinct, and removing the overlapping items reduced the coefficient only to 0.568. Second, because both constructs were self-reported at the same time by consumers who had already purchased, shared method variance and post-purchase evaluation may inflate the association (Sect. 5.5).

5.2 Consumer Trust and Purchase Decisions (H2)

The positive association between consumer trust and the purchase decision (β = 0.382, f^2 = 0.158) supports H2 and is consistent with the literature on trust in online consumer behavior [14], [20], [21]. Skincare products carry inherent purchase risk—concerns about skin sensitivity, ingredient efficacy, and value for money—so trust in the creators and information that inform a purchase is a plausible prerequisite for relying on that information. Among purchasers, those who trusted TikTok skincare UGC more also

Apollo: Journal of Tourism and Business
Vol 5, Issue 1, January 2027, Page 1208-1228
ISSN: 2985-5810 (Media Online)
DOI: https://doi.org/10.58905/apollo.v5i1.851

reported a purchase process that drew more heavily on it. The association held whether trust was measured through creator-referent or information-referent items.

5.3 Direct Association of UGC Source Credibility with Purchase Decisions (H3)

The significant direct association between UGC source credibility and the purchase decision ($\beta = 0.352$, $f^2 = 0.134$) supports H3. One interpretation is that credible creators shape purchases partly through informational and normative social influence that does not require deliberate trust formation: high-engagement content that accumulates likes, comments, and social consensus can prompt purchases among viewers who have not formed a considered judgment about the creator [17]. This may be particularly relevant for lower-priced skincare items, for which perceived risk is modest. Because the design is cross-sectional, this interpretation should be tested with designs that can separate these mechanisms.

5.4 Partial Mediation of Consumer Trust (H4)

The partial mediation finding indicates that consumer trust is an important but not exclusive pathway linking UGC source credibility to the purchase decision: the indirect path accounts for about 40% of the total association, and the direct path for about 60%. The coexistence of significant direct and indirect pathways indicates complementary partial mediation [30], consistent with the view that UGC operates through both trust-building and other routes such as habitual decision-making, affective responses to TikTok content, and social influence. This pattern held across all eight robustness models.

5.5 Limitations and Future Research

The findings should be read in light of five limitations. First, the sample was selected on the outcome: all respondents had purchased skincare after viewing TikTok UGC. The model therefore explains variation in the extent to which purchasers' decision processes relied on UGC and trust, not whether exposure leads to purchase. Selection on the dependent variable restricts its variance (all responses fell between 3 and 5) and can bias associations in either direction, so the coefficients cannot be generalized to TikTok users who were exposed to skincare UGC and decided not to buy. Future studies should sample exposed users regardless of purchase and model purchase versus non-purchase, ideally with behavioral data such as TikTok Shop transactions.

Second, the cross-sectional, single-source design does not establish causal ordering. Reverse or reciprocal relationships are plausible; in particular, consumers who have already bought a product may evaluate related creators and content more favorably to justify their choice [34]. In a model with three constructs and all paths specified, alternative orderings fit the data equally well, so the ordering tested here rests on theory rather than on the data. The full-collinearity test did not indicate substantial common method variance, but it cannot rule it out [33]. Longitudinal designs that measure

Apollo: Journal of Tourism and Business
Vol 5, Issue 1, January 2027, Page 1208-1228
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perceptions of UGC before purchase, or experiments that manipulate creator credibility, are needed for causal claims.

Third, the independent variable captures the source credibility of UGC creators, not the characteristics of the content itself. Content characteristics such as informativeness, authenticity, vividness, usefulness, argument quality, and interaction quality [6], [7] were not measured, and their relationships with trust and purchase decisions—and their relative importance compared with source credibility—remain to be tested. Moreover, the three SCT dimensions were highly correlated in these data, so the study cannot determine which dimension matters most.

Fourth, the purchase decision was measured with self-reported items spanning the stages of the buying process and modeled reflectively. Although a formative specification and reduced item sets led to the same conclusions, future research could treat the stages as distinct constructs, measure actual purchases, or focus on a single, well-defined decision outcome. Two indicators (UGC7 and PD9) showed elevated collinearity and could be revised in future applications of the instrument.

Fifth, the sample consists of students at a single Indonesian university and a single product category. Future research should extend the model to other universities, age groups, and product categories, and examine moderators such as social media literacy, product involvement, and gender.

6 Conclusions

This study examined how perceived source credibility of skincare UGC on TikTok relates to consumer trust and purchase decisions among 155 undergraduate students at Universitas Diponegoro, Indonesia, who purchased skincare after viewing such content. Drawing on S-O-R Theory and Source Credibility Theory, the PLS-SEM results support all four hypotheses: UGC source credibility is positively associated with consumer trust (H1); consumer trust is positively associated with the purchase decision (H2); UGC source credibility is directly associated with the purchase decision (H3); and consumer trust partially mediates the association between UGC source credibility and the purchase decision (H4). These conclusions were robust to item-level discriminant validity tests and eight alternative model specifications.

Theoretically, this study applies the S-O-R framework to the source credibility of TikTok UGC in an emerging market and shows that consumer trust in UGC is empirically distinct from perceived creator trustworthiness, while partly mediating the association between source credibility and purchase decisions. It also shows that, in short-video UGC, viewers' perceptions of creator expertise, trustworthiness, and attractiveness are highly interrelated and function as a single credibility judgment.

Managerially, the results suggest that skincare brands working with TikTok creators should attend to how credible those creators appear to their audiences—their demonstrated product knowledge, transparent and balanced communication, and authentic presentation—because perceived credibility is closely linked to the trust that accompanies UGC-informed purchase decisions. Given the cross-sectional, purchaser-only design, these implications describe associations among consumers who already

Apollo: Journal of Tourism and Business
Vol 5, Issue 1, January 2027, Page 1208-1228
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buy through TikTok and should be validated before being used to predict the effect of creator programs on purchase rates.

Appendix A: Measurement Items and Indicator Statistics

Table A1. Measurement items (English translation), item referents, outer loadings, and outer VIFs.

Code	Dimension / referent	Item	Loading	VIF
UGC source credibility				
EX1	Expertise	TikTok users who share skincare reviews have knowledge about the products they review.	0.779	2.17
EX2	Expertise	TikTok users are able to explain the benefits of skincare products well.	0.829	2.74
EX3	Expertise	TikTok users have experience using the skincare products they review.	0.708	1.80
TW1	Trustworthiness	I feel that skincare reviews on TikTok are delivered honestly.	0.743	1.96
TW2	Trustworthiness	Skincare information shared by TikTok users is trustworthy.	0.747	2.04
TW3	Trustworthiness	TikTok users review products objectively and without exaggeration.	0.795	2.32
AT1	Attractiveness	The communication style of TikTok users makes skincare reviews more engaging to watch.	0.916	4.84
AT2	Attractiveness	The visual presentation of skincare review videos on TikTok attracts my attention.	0.722	1.94
AT3	Attractiveness	TikTok creators who share skincare reviews give a positive impression.	0.753	2.10
AT4	Attractiveness	Skincare creators on TikTok appear attractive and confident when reviewing products.	0.734	2.01
Consumer trust (trust in TikTok skincare UGC)				
TR1	Credibility · product	I believe the skincare products reviewed in TikTok content are of good quality.	0.779	2.01
TR2	Credibility · information	I believe information about skincare products in TikTok content comes from sources who understand the products.	0.719	1.72
TR3	Credibility · information	I believe the skincare product information I obtain through TikTok can be used as a consideration before buying.	0.765	1.88
TR4	Benevolence · creator	I believe TikTok creators who share their skincare experiences intend to help other users obtain product information.	0.723	1.83

Apollo: Journal of Tourism and Business
Vol 5, Issue 1, January 2027, Page 1208-1228
ISSN: 2985-5810 (Media Online)
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Code	Dimension / referent	Item	Loading	VIF
TR5	Benevolence · creator	I believe TikTok creators share skincare information with good intentions, to help others find products that suit their needs.	0.725	1.77
TR6	Benevolence · creator	I believe TikTok creators recommend skincare products based on experiences they want to share with other users.	0.746	1.91
TR7	Integrity · information	I believe the skincare product information in TikTok content matches the actual condition of the products.	0.776	2.00
TR8	Integrity · creator	I believe TikTok creators describe their experiences with skincare products honestly and as they are.	0.748	1.80
Purchase decision				
PD1	Need recognition	The skincare I bought matches the needs of my skin.	0.779	2.24
PD2	Information search	I search for skincare information on TikTok before buying a product.	0.746	1.94
PD3	Information search	I watch TikTok users' reviews before buying skincare.	0.755	1.99
PD4	Alternative evaluation	I compare several skincare products before buying.	0.718	1.80
PD5	Alternative evaluation	I consider the advantages and disadvantages of products before buying.	0.721	1.78
PD6	Purchase decision	I decided to buy skincare after watching reviews on TikTok.	0.814	2.61
PD7	Purchase decision	Skincare content on TikTok helps me determine my product choice.	0.727	2.10
PD8	Post-purchase	I feel satisfied after buying skincare recommended on TikTok.	0.772	2.26
PD9	Post-purchase	I am interested in buying skincare products recommended on TikTok again.	0.929	5.69

Note: Items were administered in Indonesian. Data codes in the original data set: EX1–AT4 = UGC1–UGC10; TR1–TR8 = KK1–KK8; PD1–PD9 = KP1–KP9 (questionnaire items 2–10 of the purchase-decision section; item 1 was removed after the pilot test).

Table A2. Cross-loadings of all indicators on the three constructs.

Indicator	UGC-SC	Consumer trust	Purchase decision
EX1	**0.779**	0.494	0.414
EX2	**0.829**	0.483	0.447
EX3	**0.708**	0.458	0.501

Apollo: Journal of Tourism and Business
Vol 5, Issue 1, January 2027, Page 1208-1228
ISSN: 2985-5810 (Media Online)
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Indicator	UGC-SC	Consumer trust	Purchase decision
TW1	**0.743**	0.515	0.524
TW2	**0.747**	0.487	0.425
TW3	**0.795**	0.500	0.447
AT1	**0.916**	0.542	0.533
AT2	**0.722**	0.401	0.473
AT3	**0.753**	0.496	0.431
AT4	**0.734**	0.485	0.371
TR1	0.566	**0.779**	0.432
TR2	0.391	**0.719**	0.420
TR3	0.454	**0.765**	0.474
TR4	0.406	**0.723**	0.430
TR5	0.447	**0.725**	0.440
TR6	0.437	**0.746**	0.466
TR7	0.518	**0.776**	0.457
TR8	0.519	**0.748**	0.492
PD1	0.470	0.480	**0.779**
PD2	0.442	0.437	**0.746**
PD3	0.454	0.498	**0.755**
PD4	0.465	0.444	**0.718**
PD5	0.455	0.497	**0.721**
PD6	0.502	0.520	**0.814**
PD7	0.409	0.329	**0.727**
PD8	0.374	0.434	**0.772**
PD9	0.541	0.537	**0.929**

Note: Bold values are loadings on the indicator's own construct.

DECLARATIONS

Author Contributions

Conceptualization, A.M.N. and A.H.; methodology, A.M.N. and A.H.; investigation, A.M.N.; data curation, A.M.N.; formal analysis, A.M.N.; writing—original draft preparation, A.M.N.; writing—review and editing, A.H.; supervision, A.H. Both authors have read and approved the final version of the manuscript.

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Disclosure of Interests

The authors declare that they have no competing interests relevant to the content of this article.

Data Availability Statement
The data that support the findings of this study are available from the corresponding author upon reasonable request.

Research Ethics
Ethical review and approval were not required for this study because it involved an anonymous, voluntary, non-interventional online survey of adult university students and collected no personally identifiable information.

Informed Consent Statement
All participants provided informed consent before completing the questionnaire.

Use of Artificial Intelligence
Generative artificial intelligence was used to draft and run the code for the supplementary analyses reported in Sects. 3.4, 4.2, and 4.5 and in Appendix A, and to assist with language editing. That code was checked against the baseline SmartPLS 4.0 output before use. The authors reviewed and revised all generated or modified content and take full responsibility for the final manuscript.

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References

[1] Statista, "Skincare market – Statistics & facts," Statista, Hamburg, Germany, [Online]. Available: https://www.statista.com/topics/1008/skincare, 2025.
[2] S. Kemp, "Digital 2024: Global overview report," DataReportal, Singapore, [Online]. Available: https://datareportal.com/reports/digital-2024-global-overview-report, 2024.
[3] We Are Social and Meltwater, "Digital 2024: Indonesia," DataReportal, Singapore, [Online]. Available: https://datareportal.com/reports/digital-2024-indonesia, 2024.
[4] S. Kemp, "Digital 2024: July global statshot report," DataReportal, Singapore, [Online]. Available: https://datareportal.com/reports/digital-2024-july-global-statshot, 2024.
[5] M. L. Cheung, G. D. Pires, P. J. Rosenberger III, W. K. S. Leung, and H. Ting, "Investigating the role of social media marketing on value co-creation and engagement: An empirical study in China and Hong Kong," *Australas. Mark. J.*, vol. 29, no. 2, pp. 118–131, 2021, doi: 10.1016/j.ausmj.2020.03.006.
[6] R. Filieri, "What makes online reviews helpful? A diagnosticity-adoption framework to explain informational and normative influences in e-WOM," *J. Bus. Res.*, vol. 68, no. 6, pp. 1261–1270, 2015, doi: 10.1016/j.jbusres.2014.11.006.
[7] R. Geng and J. Chen, "The influencing mechanism of interaction quality of UGC on consumers' purchase intention—An empirical analysis," *Front. Psychol.*, vol. 12, Art. no. 697382, 2021, doi: 10.3389/fpsyg.2021.697382.
[8] D. H. McKnight, V. Choudhury, and C. Kacmar, "Developing and validating trust measures for e-commerce: An integrative typology," *Inf. Syst. Res.*, vol. 13, no. 3, pp. 334–359, 2002, doi: 10.1287/isre.13.3.334.81.

Apollo: Journal of Tourism and Business
Vol 5, Issue 1, January 2027, Page 1208-1228
ISSN: 2985-5810 (Media Online)
DOI: https://doi.org/10.58905/apollo.v5i1.851

[9] A. Mehrabian and J. A. Russell, *An Approach to Environmental Psychology*. Cambridge, MA, USA: MIT Press, 1974.

[10] C. I. Hovland, I. L. Janis, and H. H. Kelley, *Communication and Persuasion: Psychological Studies of Opinion Change*. New Haven, CT, USA: Yale Univ. Press, 1953.

[11] C. M. K. Cheung and D. R. Thadani, "The impact of electronic word-of-mouth communication: A literature analysis and integrative model," *Decis. Support Syst.*, vol. 54, no. 1, pp. 461–470, 2012, doi: 10.1016/j.dss.2012.06.008.

[12] B. Bickart and R. M. Schindler, "Internet forums as influential sources of consumer information," *J. Interact. Mark.*, vol. 15, no. 3, pp. 31–40, 2001, doi: 10.1002/dir.1014.

[13] R. Ohanian, "Construction and validation of a scale to measure celebrity endorsers' perceived expertise, trustworthiness, and attractiveness," *J. Advert.*, vol. 19, no. 3, pp. 39–52, 1990, doi: 10.1080/00913367.1990.10673191.

[14] P. A. Pavlou, "Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model," *Int. J. Electron. Commer.*, vol. 7, no. 3, pp. 101–134, 2003, doi: 10.1080/10864415.2003.11044275.

[15] S. A. Eroglu, K. A. Machleit, and L. M. Davis, "Atmospheric qualities of online retailing: A conceptual model and implications," *J. Bus. Res.*, vol. 54, no. 2, pp. 177–184, 2001, doi: 10.1016/S0148-2963(99)00087-9.

[16] L. Zhang, M. Chen, and A. M. A. Zamil, "Live stream marketing and consumers' purchase intention: An IT affordance perspective using the S-O-R paradigm," *Front. Psychol.*, vol. 14, Art. no. 1069050, 2023, doi: 10.3389/fpsyg.2023.1069050.

[17] K. Z. K. Zhang, H. Xu, S. Zhao, and Y. Yu, "Online reviews and impulse buying behavior: The role of browsing and impulsiveness," *Internet Res.*, vol. 28, no. 3, pp. 522–543, 2018, doi: 10.1108/IntR-12-2016-0377.

[18] M. A. Shareef, B. Mukerji, Y. K. Dwivedi, N. P. Rana, and R. Islam, "Social media marketing: Comparative effect of advertisement sources," *J. Retail. Consum. Serv.*, vol. 46, pp. 58–69, 2019, doi: 10.1016/j.jretconser.2017.11.001.

[19] D. Gefen, E. Karahanna, and D. W. Straub, "Trust and TAM in online shopping: An integrated model," *MIS Q.*, vol. 27, no. 1, pp. 51–90, 2003, doi: 10.2307/30036519.

[20] M. N. Hajli, "A study of the impact of social media on consumers," *Int. J. Mark. Res.*, vol. 56, no. 3, pp. 387–404, 2014, doi: 10.2501/IJMR-2014-025.

[21] X. J. Lim, A. R. M. Radzol, J. H. Cheah, and M. W. Wong, "The impact of social media influencers on purchase intention and the mediation effect of customer attitude," *Asian J. Bus. Res.*, vol. 7, no. 2, pp. 19–36, 2017, doi: 10.14707/ajbr.170035.

[22] Y. Yang and L. Ha, "Why people use TikTok (Douyin) and how their purchase intentions are affected by social media influencers in China: A uses and gratifications and parasocial relationship perspective," *J. Interact. Advert.*, vol. 21, no. 3, pp. 297–305, 2021, doi: 10.1080/15252019.2021.1995544.

[23] A. Bhattacherjee and C. Sanford, "Influence processes for information technology acceptance: An elaboration likelihood model," *MIS Q.*, vol. 30, no. 4, pp. 805–825, 2006, doi: 10.2307/25148755.

[24] N. Kock and P. Hadaya, "Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods," *Inf. Syst. J.*, vol. 28, no. 1, pp. 227–261, 2018, doi: 10.1111/isj.12131.

[25] W. Reinartz, M. Haenlein, and J. Henseler, "An empirical comparison of the efficacy of covariance-based and variance-based SEM," *Int. J. Res. Mark.*, vol. 26, no. 4, pp. 332–344, 2009, doi: 10.1016/j.ijresmar.2009.08.001.

Apollo: Journal of Tourism and Business
Vol 5, Issue 1, January 2027, Page 1208-1228
ISSN: 2985-5810 (Media Online)
DOI: https://doi.org/10.58905/apollo.v5i1.851

[26] P. Kotler and K. L. Keller, *Marketing Management*, 15th ed. Harlow, U.K.: Pearson Education, 2016.

[27] C. B. Jarvis, S. B. MacKenzie, and P. M. Podsakoff, "A critical review of construct indicators and measurement model misspecification in marketing and consumer research," *J. Consum. Res.*, vol. 30, no. 2, pp. 199–218, 2003, doi: 10.1086/376806.

[28] J. F. Hair, J. J. Risher, M. Sarstedt, and C. M. Ringle, "When to use and how to report the results of PLS-SEM," *Eur. Bus. Rev.*, vol. 31, no. 1, pp. 2–24, 2019, doi: 10.1108/EBR-11-2018-0203.

[29] J. Henseler, C. M. Ringle, and M. Sarstedt, "A new criterion for assessing discriminant validity in variance-based structural equation modeling," *J. Acad. Mark. Sci.*, vol. 43, no. 1, pp. 115–135, 2015, doi: 10.1007/s11747-014-0403-8.

[30] X. Zhao, J. G. Lynch Jr., and Q. Chen, "Reconsidering Baron and Kenny: Myths and truths about mediation analysis," *J. Consum. Res.*, vol. 37, no. 2, pp. 197–206, 2010, doi: 10.1086/651257.

[31] J. F. Hair, G. T. M. Hult, C. M. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Thousand Oaks, CA, USA: Sage, 2014.

[32] N. Kock, "Common method bias in PLS-SEM: A full collinearity assessment approach," *Int. J. e-Collab.*, vol. 11, no. 4, pp. 1–10, 2015, doi: 10.4018/ijec.2015100101.

[33] P. M. Podsakoff, S. B. MacKenzie, J.-Y. Lee, and N. P. Podsakoff, "Common method biases in behavioral research: A critical review of the literature and recommended remedies," *J. Appl. Psychol.*, vol. 88, no. 5, pp. 879–903, 2003, doi: 10.1037/0021-9010.88.5.879.

[34] L. Festinger, *A Theory of Cognitive Dissonance*. Stanford, CA, USA: Stanford Univ. Press, 1957.