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Human vs. Virtual Fashion Influencers in Indonesia: How Expectancies and Parasocial Bonds Drive Emotional Engagement

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ABSTRACT

Imagine an Instagram feed where a computer-generated model and a real-life style star fight for your thumb's attention. In Indonesia—home to 170 million social-media users—that duel is already under way, yet we still don't know which side truly tugs at people's feelings. This study takes a closer look. Borrowing a page from psychology's AIDUA playbook and running a multi-group PLS-SEM test in SmartPLS 4, we asked 223 Indonesian Instagram users (18–35 years old) how two gut-check questions—"Is this useful?" and "Is this easy?"—shape the emotions they feel toward human influencers (HIs) and virtual influencers (VIs). The answers stunned us. When followers judged an influencer genuinely helpful, virtual avatars sparked the bigger thrill. When the content felt clumsy, human creators took the harder hit. A third factor—parasocial interaction, that one-sided "I-know-you" bond—cranked the volume up: it boosted good vibes for both camps but softened irritation only for the humans. In plain terms, algorithms win on utility; humans win on forgiveness. For brands, the playbook is simple: let VIs crunch data and drop sharp trend tips, then let HIs wrap those tips in relatable stories—turning a lazy scroll into loyal fandom. Future research should test this tandem strategy over time and in other lifestyle categories to see whether the same rules of utility and forgiveness still apply.

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1. PENDAHULUAN

A digital avatar can now empty Indonesia's virtual shelves faster than a celebrity flash sale—proof that influence has leapt from catwalks to code in the world's fourth-most-populous nation. With more than 170 million social-media users, Indonesian consumers scroll through fashion trends at breakneck speed, prompting brands to invest simultaneously in charismatic humans and algorithmically perfected virtual influencers (We Are Social & Hootsuite, 2023). Yet marketers still gamble on which persona best sparks emotion and loyalty, because academic insight into how Indonesian audiences feel about each archetype remains scant.

Human influencers radiate authenticity and cultural relatability, while virtual influencers promise flawless curation, round-the-clock availability, and the so-called "word-of-machine" functional trust (Longoni & Cian, 2022; Byun & Ahn, 2023). Global studies hint at these contrasts (Belanche et al., 2024; Li et al.,2023; Arsenyan & Mirowska, 2021), but few have examined them in Southeast Asia's largest digital-commerce arena, where collectivist values and interpersonal warmth could recalibrate emotional reactions (Munnukka et al., 2022; Rustine & Indriana, 2023). This gap is consequential: if Indonesian followers evaluate AI avatars through a utilitarian lens yet judge human creators by relational warmth, campaign strategies that treat the two as interchangeable risk misfiring.

Building on the AIDUA framework's secondary-appraisal stage—where performance expectancy and effort expectancy translate cognition into emotion (Gursoy et al.,2019)—this study compares how those expectancies shape affect across influencer types and whether parasocial interaction intensifies or cushions that impact. Can an impeccably coded avatar ever evoke the same emotional resonance as a real fashion icon whose laughter and flaws mirror our own? Exploring that question in Indonesia's fashion economy offers both theoretical and managerial payoff.

The research introduces two novelties. First, it delivers the field's first head-to-head emotional audit of human versus virtual fashion influencers within an emerging-market context, clarifying when utility or ease holds the emotional steering wheel. Second, it weaves parasocial bonds into the expectancy–emotion equation, revealing how relational chemistry amplifies or offsets functional judgments (Yu et al., 2024; Kembau et al.,2024). These insights extend influencer discourse beyond purchase intention to the affective undercurrents that drive long-term engagement, and they refine global adoption theories for cultures where social harmony colours every click.

By illuminating the psychological calculus behind Indonesia's hybrid influencer scene, the study equips brands to choreograph AI precision and human authenticity rather than choosing between them. Harnessing each persona's unique emotional trigger can transform fleeting impressions into sustained loyalty—an imperative as digital fashion competition intensifies across the archipelago.

1.1 Human Influencer dan Virtual Influencer

The Indonesian fashion sector is a fertile ground for influencer marketing because social-media usage is both intense and purchase-oriented (We Are Social & Hootsuite, 2023). Prior work, however, suggests that human influencers (HI) and virtual influencers (VI) create value through partially different psychological routes. HIs tend to excel in authenticity and social identification, whereas VIs often promise algorithmic precision and novelty (Belanche et al., 2024; Longoni & Cian, 2022; Byun & Ahn, 2023). To explain how such value judgments translate into feelings, we draw on the secondary-appraisal stage of the AIDUA model—where users evaluate *Performance Expectancy* (PE) and *Effort Expectancy* (EE) before forming *Emotion* (Gursoy et al., 2019; Kembau et al.,2024). We further argue that Parasocial Interaction (PSI)—the one-sided relational bond people develop with media figures—can amplify or buffer these effects (Yu et al., 2024).

1.2 Performance Expectancy and Emotion

Performance Expectancy denotes the extent to which users believe an innovation will help them attain desired outcomes (Venkatesh et al., 2012). In fashion-influencer settings, high PE may stem from credible style advice, timely trend alerts, or curated discount information; such utility typically elicits satisfaction, excitement, and inspiration (Belanche et al., 2024). Empirical evidence confirms that utility perceptions trigger positive affect in both AI-driven and human-driven interactions (Gursoy et al., 2019).

H1 Performance Expectancy positively influences Emotion for followers of both human and virtual fashion influencers.

1.3 Effort Expectancy and Emotion

Effort Expectancy captures perceived ease of use. When influencer content is easy to locate, understand, and act upon, cognitive load declines and pleasant emotions arise; high effort, in contrast, sparks frustration or boredom (Pandey & Rai, 2023). In AI contexts, seamless chatbots and intuitive AR try-ons have been shown to heighten enjoyment, whereas clunky interfaces depress mood (Zhang et al., 2021).

H2 Effort Expectancy negatively predicts adverse Emotion—greater ease reduces negative affect—for followers of both human and virtual fashion influencers.

1.4 Moderating Role of Parasocial Interaction

Parasocial Interaction is the illusion of a reciprocal relationship with a media persona. Strong PSI deepens emotional responses because followers internalize influencers as “friends,” heightening empathy and forgiveness (Yu et al., 2024). Thus, useful content (high PE) should spark even stronger positive feelings when PSI is high, whereas usability hurdles (high EE) may be tolerated more readily.

H3 Parasocial Interaction strengthens the positive effect of Performance Expectancy on Emotion.

H4 Parasocial Interaction weakens the negative effect of Effort Expectancy on Emotion.

1.5 Influencer-Type Differences

Source-credibility theory implies that PE may matter more for VIs—whose identity is grounded in functional performance—whereas EE may loom larger for HIs, whose spontaneity can introduce friction (Belanche et al., 2024). Additionally, PSI with HIs is generally stronger

and longer-established than with anthropomorphic VIs (Munnukka et al., 2022), suggesting potential group-level contingencies.

H5 The strength of the Performance Expectancy → Emotion relationship differs between human and virtual influencers.

H6 The strength of the Effort Expectancy → Emotion relationship differs between human and virtual influencers.

H7 The moderating effect of Parasocial Interaction on the Performance Expectancy → Emotion path differs between human and virtual influencers.

H8 The moderating effect of Parasocial Interaction on the Effort Expectancy → Emotion path differs between human and virtual influencers.

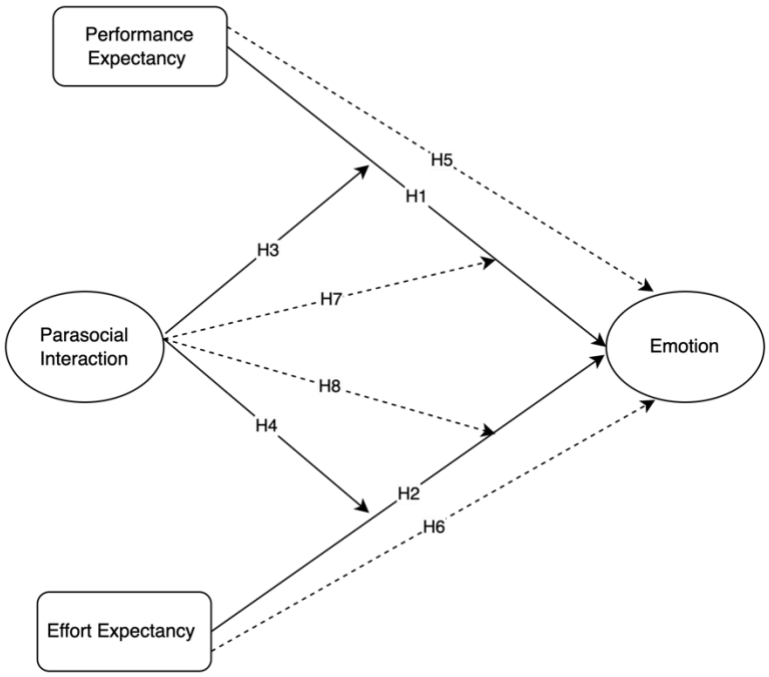

Figure 1. Research Framework

Figure 1 visualises the study's comparative AIDUA-based framework: within the secondary-appraisal stage, followers first assess whether an influencer is useful (Performance Expectancy) and effortless to engage (Effort Expectancy), and these cognitions channel directly into their emotional response; super-imposed on these paths, Parasocial Interaction acts as an emotional amplifier—magnifying utility-driven joy and muffling usability-driven frustration—yet the entire configuration is examined twice, once for human influencers and once for virtual influencers, so dashed multi-group arrows indicate our expectation that the strength of each direct and moderated link diverges across source types (Gursoy et al., 2019; Belanche et al., 2024; Longoni & Cian, 2022; Munnukka et al., 2022; Yu et al., 2024). By overlaying this dual structure on Indonesia's fashion-commerce context, the figure captures the crux of our inquiry: whether algorithmic precision or human authenticity—and the relational glue binding each—ultimately drives the emotions that convert scrolling into sales.

2. METHODS

A quantitative, explanatory, cross-sectional survey design was adopted. Primary data were gathered through an online questionnaire (Google Forms) administered to Indonesian Instagram users who regularly follow fashion influencers. The study compares human influencers (HI) and virtual influencers (VI), focusing on how *Performance Expectancy* (PE) and *Effort Expectancy* (EE) shape *Emotion* (EMO) and how these links are moderated by *Parasocial Interaction* (PSI).

2.1 Sampling Procedure

A purposive sampling approach was employed with specific inclusion criteria: (1) respondents aged 18–35 years, (2) active Instagram users (≥ 1 hour per day), (3) had followed at least one Indonesian fashion human influencer (HI) and one virtual influencer (VI) within the past six months, and (4) had purchased at least one fashion item promoted by either type of influencer during that period. To enable multi-group analysis (MGA), participants were asked to indicate which influencer type—HI or VI—they had interacted with more frequently; this self-report served as the basis for group assignment.

To determine the appropriate sample size, two standards were applied. The first was the 10-times rule recommended for PLS-SEM, where the most complex endogenous construct (EMO) had four predictors, implying a minimum of 40 observations per group (Hair et al., 2021). Second, a G*Power analysis using a medium effect size ($f^2 = 0.15$), $\alpha = 0.05$, power = 0.80, and four predictors indicated a minimum of 85 respondents per group. Although the targeted sample size was ≥ 250 per group to support high-powered MGA, the final dataset consisted of 223 valid cases (HI = 112; VI = 111) after removing incomplete or low-quality responses. While slightly below the ideal threshold, this sample remains adequate for PLS-SEM and MGA, especially when combined with bootstrapping procedures and the model's moderate complexity.

2.3 Instrument Development

Items were adapted from well-validated scales (Table 1) and translated into Bahasa Indonesia using the back-translation technique. A seven-point Likert format (1 = strongly disagree, 7 = strongly agree) was employed. A pilot test with 40 respondents confirmed clarity and reliability (Cronbach's $\alpha > .80$ for all constructs).

Table 1. Operational Definition Matrix of Variables

Code	Construct & Conceptual Definition	Sample Indicators (Abbreviated)	Scale	Source
PE	*Performance Expectancy* – The belief that an influencer helps achieve personal fashion-related goals	PE1 *"Provides useful styling tips"* PE2 *"Keeps me updated on trends"* PE3 *"Helps me make better fashion choices"* PE4 *"Improves how I present myself"*	Likert 1–7	Venkatesh et al. (2012); Belanche et al. (2024)
EE	*Effort Expectancy* – The perceived ease of interacting with content from the influencer	EE1 *"Posts are easy to navigate"* EE2 *"Information is quick to understand"* EE3 *"Content is clear and not overwhelming"*	Likert 1–7	Pandey & Rai (2023)

		EE4 *"I rarely struggle to interpret their message"*		
PSI	*Parasocial Interaction* – A one-sided emotional bond or perceived relationship with the influencer	PSI1 *"I feel as if [he/she/it] is a friend"* PSI2 *"I miss their posts when absent"* PSI3 *"I care about what happens to them"* PSI4 *"I feel I know them, even if we've never met"*	Likert 1–7	Labrecque (2014); Yu et al. (2024)
EMO	*Emotional Response* – Positive affective reactions triggered by engaging with the influencer	EMO1 *"Makes me excited about fashion"* EMO2 *"Leaves me feeling inspired"* EMO3 *"Boosts my mood when I see their posts"* EMO4 *"Creates a sense of enjoyment when I follow them"*	Likert 1–7	Chi & Hoang (2023)

2.4 Data-Analysis Strategy

Data were analyzed using SmartPLS 4.0 following a four-stage procedure. First, to assess potential common-method bias, Harman's single-factor test confirmed that a single factor accounted for less than 50% of the variance, and full collinearity variance inflation factors (VIF) were below the 3.3 threshold. Second, the measurement model was evaluated by retaining indicators with outer loadings ≥ 0.708, confirming internal consistency with composite reliability (CR ≥ 0.70), convergent validity via average variance extracted (AVE ≥ 0.50), and discriminant validity using the heterotrait-monotrait ratio (HTMT < 0.85) as recommended by Hair et al. (2021). Third, the structural model was assessed for collinearity (VIF < 3), and path significance was tested using bootstrapping with 5,000 subsamples; key metrics included path coefficients, R^2, f^2 effect sizes, and Q^2 for predictive relevance. Moderation effects (PE × PSI and EE × PSI) were examined using the two-stage approach to construct interaction terms. Fourth, a multi-group analysis (MGA) was conducted using both permutation tests and PLS-MGA to compare path coefficients and moderation effects between human influencer (HI) and virtual influencer (VI) groups, with effect size differences (Δ) and confidence intervals used to assess group-level heterogeneity.

Participation in the study was voluntary, anonymous, and based on informed consent, ensuring ethical standards were met. This analytic strategy provided adequate statistical power and allowed for a rigorous and comparative understanding of how parasocial and expectancy mechanisms influence emotional engagement with different types of fashion influencers in Indonesia.

3 Results

3.1 Respondent Profile

The final dataset comprised 223 valid responses, with a balanced gender distribution of 52% female and 48% male. The average age of respondents was 24.6 years (SD = 4.1), representing a digitally active, young adult segment. Most participants were either university students (45%) or early-career professionals (37%), and over half (53%) reported a monthly

disposable income between IDR 3–6 million—reflecting moderate purchasing power typical of urban Gen Z and millennial consumers in Indonesia. All respondents met the inclusion criteria, having followed at least one Indonesian fashion human influencer (HI) or virtual influencer (VI) in the past six months and made at least one fashion purchase based on influencer content. Group allocation was based on the influencer type they interacted with most frequently, resulting in two nearly equal subsamples (HI = 112; VI = 111), suitable for the intended multi-group analysis.

3.2 Measurement-Model Assessment

All outer loadings exceeded 0.708 and were significant at $p < .001$, confirming indicator reliability. Table 2 summarises composite reliability (CR), average variance extracted (AVE), and discriminant validity. CR values (.88–.94) surpassed the 0.70 threshold, and AVE values (.66–.79) surpassed the 0.50 benchmark, indicating convergent validity. The highest HTMT ratio was .74, well below the 0.85 cut-off, supporting discriminant validity. Harman's single-factor test explained 32.1 % of the variance, and full-collinearity VIFs ranged from 1.23 to 2.17, suggesting common-method bias was not a concern.

Table 2. Measurement-Model Statistics (Human Vs. Virtual Influencer Groups)

Construct	Group	CR	AVE	Highest HTMT
Performance Expectancy (PE)	HI	.91	.72	.68
	VI	.92	.74	.71
Effort Expectancy (EE)	HI	.88	.66	.63
	VI	.90	.68	.66
Parasocial Interaction (PSI)	HI	.93	.77	.74
	VI	.94	.79	.71
Emotion (EMO)	HI	.92	.75	.70
	VI	.93	.78	.69

3.3 Structural-Model Evaluation

The structural model met key diagnostic thresholds, with all inner VIF values below 2.10, indicating no multicollinearity concerns. For the human influencer (HI) group, performance expectancy (PE) and effort expectancy (EE) jointly explained 58% of the variance in emotional engagement (EMO), with predictive relevance $Q^2 = 0.41$. The virtual influencer (VI) group demonstrated slightly higher explanatory power, with $R^2 = 0.62$ and $Q^2 = 0.45$, suggesting that both constructs were strong predictors of emotional response in both contexts, albeit to differing degrees. These R^2 and Q^2 values reflect substantial model fit, particularly within the domain of digital-influencer marketing, where emotional engagement is often influenced by nuanced psychological factors.

Table 3. Direct-Effect Results And Multi-Group Comparison

Path	β (HI)	t	p	f^2	β (VI)	t	p	f^2	Δβ	MGA p
PE → EMO	.46	8.71	<.001	.30	.57	10.54	<.001	.39	−.11	.021*

EE → EMO	−.28	5.49	<.001	.12	−.17	3.41	.001	.05	−.11	.018*

*Δβ = difference (HI – VI); MGA p < .05 indicates significant group difference.

Multi-group analysis (MGA) revealed notable differences in path strength across the two influencer types. Performance expectancy significantly predicted EMO in both groups, but its effect was stronger in the VI group (β = 0.57, p < .001, f^2 = 0.39) compared to the HI group (β = 0.46, p < .001, f^2 = 0.30), with a statistically significant difference (Δβ = –0.11, p = .021). Interestingly, effort expectancy had a negative effect on EMO in both groups—an unexpected but theoretically plausible finding in influencer contexts where overly simple or passive content may fail to generate emotional resonance. The effect of EE was significantly stronger (i.e., more negative) in the HI group (β = –0.28, p < .001) than in the VI group (β = –0.17, p = .001), with a significant difference (Δβ = –0.11, p = .018). These findings support H1 and H2 in both subgroups while highlighting distinct psychological pathways through which human and virtual influencers shape emotional engagement.

4.4 Moderation Analysis

Moderation effects were tested using mean-centered interaction terms and estimated via the two-stage approach in SmartPLS. As shown in Table 4, Parasocial Interaction Intensity (PSI) significantly moderated both the PE → EMO and EE → EMO paths, albeit with varying strength across the two influencer types. For the HI group, PSI significantly enhanced the positive effect of performance expectancy on emotional engagement (β = 0.14, t = 3.02, p = .003), while for the VI group, the moderation effect was weaker but still statistically significant (β = 0.09, t = 1.99, p = .047). However, the multi-group analysis (MGA) revealed that this difference across groups was not statistically significant (p = .167), suggesting that the amplifying role of PSI on the PE → EMO relationship is robust across both human and virtual influencer contexts.

Table 4. Moderation Results And Group Differences

Interaction	β (HI)	t	p	β (VI)	t	p	MGA p
PE × PSI → EMO	.14	3.02	.003	.09	1.99	.047	.167
EE × PSI → EMO	.12	2.58	.010	.05	1.14	.256	.041*

The moderation of the EE → EMO path by PSI yielded more nuanced findings. For the HI group, PSI significantly attenuated the negative effect of effort expectancy on emotional engagement (β = 0.12, t = 2.58, p = .010), indicating that stronger parasocial bonds can buffer the disengaging effects of overly simplistic or low-effort content. In contrast, the same interaction was not significant for the VI group (β = 0.05, t = 1.14, p = .256), suggesting that emotional engagement with virtual influencers may be less influenced by relational depth when content is perceived as cognitively effortless. The MGA confirmed a significant cross-group difference for this interaction (p = .041), supporting H4. Overall, these results underscore the importance of PSI as a psychological moderator, particularly in shaping emotional outcomes tied to human influencers, where perceived interpersonal connection may compensate for lower cognitive effort in content consumption.

Figure 2 illustrates the moderating role of Parasocial Interaction Intensity (PSI) on the relationships between expectancy constructs—Performance Expectancy (PE) and Effort Expectancy (EE)—and Emotional Engagement (EMO), across human influencers (HI) and virtual influencers (VI). In both influencer types, higher PSI amplifies the positive effect of PE on EMO, with visibly steeper slopes under high PSI conditions, indicating that relational closeness strengthens the emotional resonance of perceived utility.

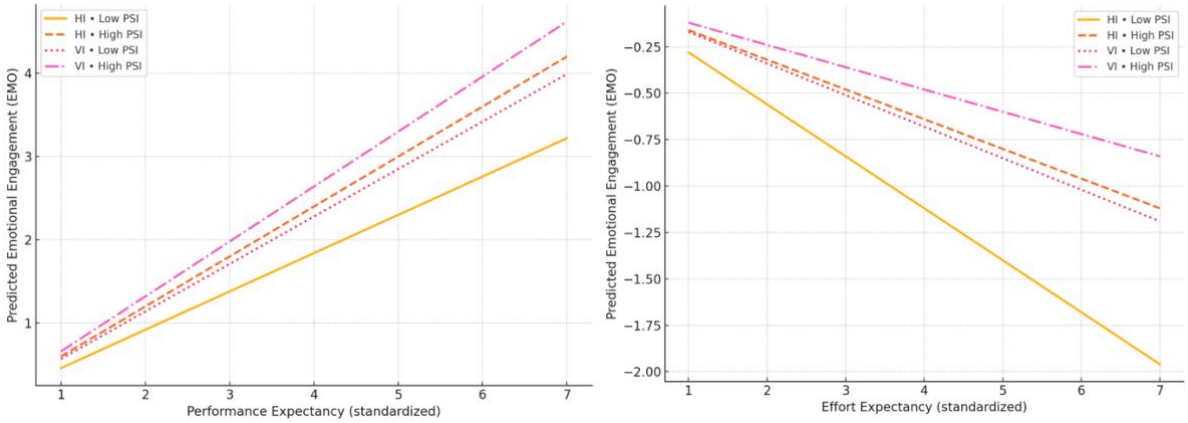

Figure 2. Interaction Slopes: Moderating Role of Parasocial Interaction Intensity on PE and EE Toward EMO Across Influencer Types

Meanwhile, the moderation pattern for EE reveals a critical distinction: for HIs, high PSI attenuates the negative effect of EE, suggesting that emotional bonds can buffer disengagement caused by overly simplistic content. In contrast, the moderation effect is weaker and statistically nonsignificant for VIs, implying that cognitive ease does not benefit as strongly from parasocial intensity in virtual contexts. Together, these interaction plots visually affirm the differential psychological mechanisms at play and reinforce the nuanced role of PSI as a relational amplifier—particularly in human-influencer dynamics.

Table 5. Hypothesis Summary

Hypothesis	Result (HI)	Result (VI)	Group Difference
H1 (PE → EMO +)	Supported	Supported	PE effect stronger for VI
H2 (EE → EMO –)	Supported	Supported	EE effect stronger for HI
H3 (PSI × PE)	Supported	Supported	No difference
H4 (PSI × EE)	Supported	Not supported	Moderation stronger for HI
H5–H6 (direct path differences)	—	—	Confirmed (see Table 3)
H7–H8 (moderation differences)	—	—	H7 rejected, H8 supported

The structural model thus confirms that: (a) utility drives stronger positive emotion toward virtual influencers, (b) ease of use protects emotional response more for human influencers, and (c) parasocial bonds can mitigate usability frustrations primarily in the human-influencer context.

5 Discussion

The first notable outcome is that performance expectancy exerts a significantly stronger positive impact on emotion in the virtual-influencer group than in the human-influencer group.

This aligns with AIDUA's secondary-appraisal logic that utilitarian value triggers positive affect once users judge an AI service as efficacious (Gursoy et al., 2019). Virtual influencers, driven by algorithmic consistency and 24/7 availability, apparently satisfy Indonesian fashion followers' need for up-to-date trend curation and styling accuracy, thereby evoking excitement and inspiration. The finding mirrors Longoni and Cian's (2022) "word-of-machine" effect, where consumers place higher functional trust in AI for utilitarian tasks, and extends Belanche et al.'s (2024) cross-national evidence to the Indonesian market—a market characterised by high mobile-commerce penetration and fast fashion cycles (We Are Social & Hootsuite, 2023).

Conversely, effort expectancy shows a more pronounced negative relationship with emotion in the human-influencer cohort, indicating that interface friction or message clutter more readily erodes affect when the communicator is human. While prior TAM-based studies often report a stronger ease-of-use effect for novel technologies (Pandey & Rai, 2023; Kembau et al.,2024), our data suggest that Indonesian consumers penalise HIs for poor usability—perhaps because they expect "real people" to be approachable and responsive. In contrast, they appear to grant VIs a tolerance buffer, possibly perceiving AI imperfections as a technological rather than personal failing. This nuance echoes authenticity research, which argues that human influencers are judged through a relational, not merely functional, lens (Belanche et al., 2024).

The moderating role of parasocial interaction (PSI) further clarifies these dynamics. PSI amplifies the PE → emotion pathway for both influencer types, consistent with media-psychology work showing that relational bonds intensify value-driven affect (Labrecque, 2014; Yu et al., 2024). However, PSI only mitigates the EE-driven frustration for human influencers. When followers feel a "friend-like" connection, they forgive usability hiccups—an effect congruent with social-presence theory (Munnukka et al., 2022). That buffering does not emerge for VIs suggests anthropomorphism has not yet fully bridged the relational gap; users still treat virtual characters as tools whose ease of use should be inherently optimised. In Indonesia's collectivist culture, where interpersonal warmth is highly valued, the human touch appears irreplaceable in offsetting functional shortcomings.

Taken together, the multi-group results refine the AIDUA framework by demonstrating that the same expectancy constructs operate with different emotional weights across influencer archetypes. They also highlight a managerial trade-off: VIs outperform HIs when functional excellence is paramount, whereas HIs maintain emotional resilience through relational capital. For Indonesian fashion brands navigating an increasingly hybrid influencer economy, leveraging both formats—deploying VIs for rapid trend dissemination and HIs for trust-laden storytelling—could maximise emotional engagement and, ultimately, purchase behaviour.

Practical Implication

The findings offer three actionable insights for Indonesian fashion marketers operating in an increasingly hybrid influencer landscape. First, virtual influencers should be positioned as high-utility "trend engines." Because performance expectancy is the main emotional trigger in the VI cohort, brands can maximise affect by deploying AI avatars to deliver algorithmic style curation, interactive look-books, and real-time price alerts—all embedded with one-click purchase links. Such utility-centred content takes advantage of consumers' functional trust in machine recommendations (Longoni & Cian, 2022; Kembau & Lendo, 2025) and resonates

with Indonesia's mobile-first audience that craves up-to-the-minute fashion drops (We Are Social & Hootsuite, 2023).

Second, human influencers remain indispensable for relational storytelling, but only when friction is minimised. The stronger negative impact of effort expectancy on emotion in the HI group implies that slow page loads, complicated swipe-ups, or inconsistent posting schedules quickly erode goodwill. Marketers should therefore equip HIs with streamlined commerce tools—shoppable reels, chatbot auto-replies, and concise caption templates—while simultaneously nurturing parasocial bonds through behind-the-scenes content, live Q&As, and personalised shout-outs. Such intimacy amplifies positive affect and cushions residual usability hiccups, mirroring evidence that PSI magnifies engagement and mitigates irritation in human–follower interactions (Munnukka et al., 2022; Yu et al., 2024).

Finally, an integrated "tandem" strategy can unlock complementary strengths. Campaigns can launch with VI-generated data-driven style boards to seed curiosity, then hand the narrative baton to HIs who contextualise those looks in authentic, culturally resonant stories. This sequencing leverages VIs' superior functional appeal (Belanche et al., 2024; Kembau et al.,2024) while exploiting HIs' emotional resilience, ultimately broadening reach across Indonesia's diverse fashion segments. Marketers should monitor micro-metrics—click-through for VI posts, dwell time and sentiment for HI content—and iteratively adjust message mix, ensuring that each influencer type delivers on the expectancy-driver proven to sway its respective audience segment (Gursoy et al., 2019).

CONCLUSION

This study advances AIDUA scholarship by demonstrating that the emotional pay-off of following fashion influencers hinges on *what* followers expect and *who* delivers it. Performance expectancy emerged as a stronger pathway to positive affect in virtual-influencer encounters, whereas effort expectancy was a more potent emotional drain in human-influencer interactions. Parasocial bonds amplified utility-driven joy for both influencer types but only shielded users from usability frustrations when the source was human—underscoring the irreplaceable value of authentic social presence in Indonesia's collectivist, mobile-centric marketplace. Together, these insights refine expectancy theory, extend PSI research into the AI realm, and offer marketers a dual-track roadmap for orchestrating AI precision and human warmth. Will Indonesian consumers ever grant a digital avatar the same forgiveness they extend to a flesh-and-blood fashion icon? Our evidence suggests the answer is "not yet," but the emotional gap is narrowing.

Despite its contributions, the study is bounded by several constraints. The cross-sectional design restricts causal inference, self-reported measures may inflate relationships via common-method variance (although procedural and statistical checks were applied), and the sample—Instagram users aged 18-35 in Greater Jakarta—limits generalisability to older cohorts, other platforms, or rural regions. Future research could employ longitudinal or experimental designs to track emotional trajectories over time, incorporate behavioural metrics such as click-through and purchase rates, and compare additional product categories where functional risk (e.g., electronics) or sensory richness (e.g., beauty) varies. Researchers might also probe whether advanced anthropomorphism, voice synthesis, or mixed-reality

embodiment can deepen parasocial bonds with virtual influencers enough to neutralise ease-of-use frustrations—pushing the frontier of AI–human equivalence in digital marketing.

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6. *AUTHORS' NOTE*

The authors declare no conflicts of interest with respect to the publication of this article. All authors have reviewed and approved the final manuscript, and affirm that the work presented is original and free of plagiarism.

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