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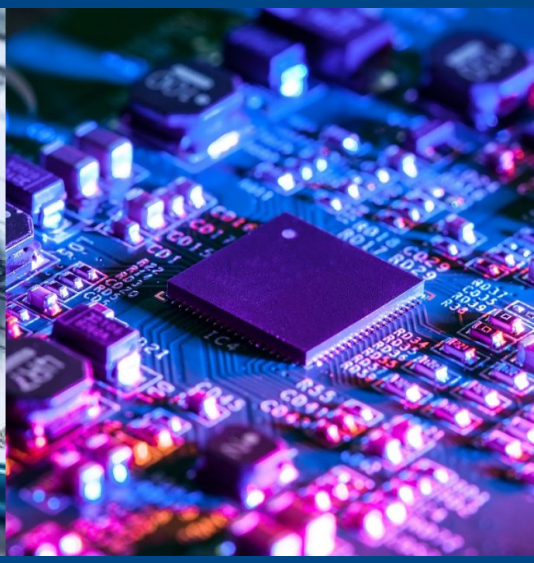

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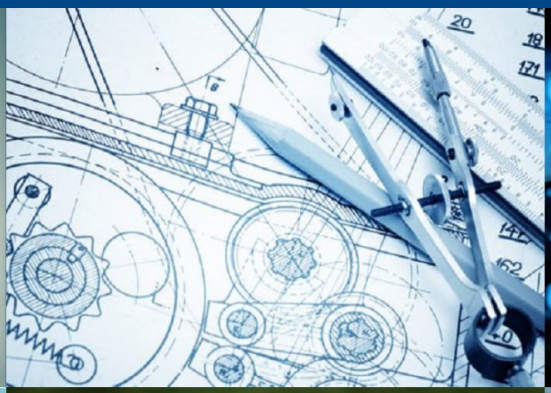

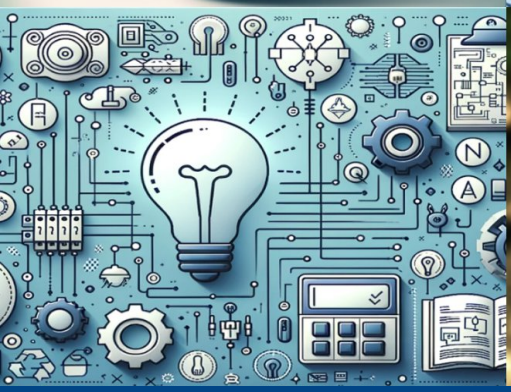

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Examining Consumer Adoption of AI-Based Personalized Hairstyle Recommendation Systems: The Mediating Role of Self-Congruity in Salon Booking Intentions

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ABSTRACT: The integration of artificial intelligence (AI) into consumer-facing personal grooming applications has opened new frontiers for tailored hairstyle recommendations. Despite growing adoption of virtual try-on and AI-driven styling tools, the psychological mechanisms that translate digital experimentation into real-world salon bookings remain underexplored. This study investigates antecedents of consumer adoption of AI-based personalized hairstyle recommendation systems, foregrounding the mediating role of *perceived hairstyle–self congruity* — the alignment between AI-generated recommendations and the user's self-image — on salon booking intention. Drawing on UTAUT2 and self-congruity theory, the study examines five predictor constructs: perceived AI interactivity, perceived personalization, performance expectancy, hedonic motivation, and trust. A structured survey was administered to 230 respondents across metropolitan and tier-1/tier-2 Indian cities. Multiple regression ($R^2 = 0.933$) revealed that perceived AI interactivity ($\beta = 0.284$) is the strongest predictor, followed by performance expectancy ($\beta = 0.226$) and perceived personalization ($\beta = 0.159$). Self-congruity partially mediates all five technology-based antecedents and fully mediates hedonic motivation. Hedonic motivation does not exert an independent direct effect on booking intention. Findings extend UTAUT2 with a psychological identity layer and offer design and marketing guidance for AI grooming platform developers and salon businesses.

KEYWORDS: artificial intelligence; self-congruity; consumer adoption; hairstyle recommendation; salon booking intention; UTAUT2; virtual try-on; India

I. INTRODUCTION

AI-powered hairstyle recommendation platforms employ facial scanning and machine learning to deliver individualized styling suggestions, bridging the gap between generic social media inspiration and bespoke salon consultations. Traditionally, hairstyle selection relied on physical stylist consultations, magazine trends, and subjective judgment — methods that are often inconsistent, time-consuming, and unable to account for individual facial geometry, hair texture, and personal preferences. AI-enabled mobile applications address these limitations by using augmented reality (AR) and predictive analytics to simulate prospective hairstyle outcomes in real time, substantially reducing decision-making uncertainty.

Despite this technological promise, adoption barriers persist. Consumers must trust AI recommendations, perceive them as functionally useful, and — critically — feel that suggested styles resonate with their personal identity. This concern is anchored in self-congruity theory (Sirgy, 1985), which holds that individuals prefer products whose perceived image aligns with their self-concept. In hairstyling, where choices signal personality, social identity, and confidence, this psychological alignment becomes a decisive gateway between digital exploration and real-world booking. Existing technology adoption frameworks — TAM (Davis et al., 1989) and UTAUT2 (Venkatesh et al., 2012) — underweight such identity-based mechanisms, and the personal grooming sector remains underrepresented in AI adoption research.

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This study integrates UTAUT2 with self-congruity theory to model salon booking intention as the downstream behavioral outcome of AI-assisted hairstyle recommendation among 230 urban Indian consumers. The research: (a) extends UTAUT2 with a psychological identity mediator in a novel domain; (b) empirically validates self-congruity as a partial — and for hedonic motivation, full — mediator; and (c) demonstrates that enjoyment alone does not independently drive booking conversion when functional and identity factors are controlled.

II. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

AI-Driven Personalization

Personalization through AI enhances consumer engagement and loyalty by tailoring experiences to individual preferences (Tam & Ho, 2006; Fan & Poole, 2006). In fashion retail, personalized recommendation engines show significant positive effects on perceived value and purchase intention (Zanker et al., 2019; Micheletto, 2021). In grooming, AI can analyze facial geometry, hair texture, and lifestyle metadata to generate contextually relevant suggestions that traditional platforms cannot replicate. Because hairstyle choices are intimately tied to identity and self-expression (Sirgy, 1985), personalization quality is especially salient — a recommendation that does not 'feel like me' will not motivate action regardless of technical accuracy.

UTAUT2 and Technology Acceptance

UTAUT2 (Venkatesh et al., 2012) extends TAM by adding hedonic motivation and habit alongside performance expectancy, effort expectancy, social influence, and facilitating conditions. In voluntary consumer technology adoption, hedonic motivation and interactivity — the degree to which users can manipulate and respond to the system in real time — are particularly prominent drivers (Hsu & Lin, 2016; McLean & Wilson, 2019; Yim et al., 2017). The present study operationalizes performance expectancy, hedonic motivation, and trust from UTAUT2, supplemented by perceived AI interactivity and perceived personalization as domain-specific AR grooming constructs.

Self-Congruity Theory

Self-congruity theory holds that consumers prefer products matching their actual or ideal self-image (Sirgy, 1985; Sirgy et al., 1997). Research in fashion (Kim et al., 2017), cosmetics (Choi & Kim, 2019), and online retail (Lu & Hsiao, 2010) consistently shows self-congruity mediates product perception–behavioral intention pathways. Kim et al. (2017) specifically found self-congruity mediates personalized fashion recommendation effects on purchase intention, providing direct theoretical precedent for the present study. The construct is operationalized as Perceived Hairstyle–Self Congruity (SELFCON): the degree to which users perceive AI-recommended hairstyles match their self-image, personality, and desired social presentation.

Trust

Trust in the platform and affiliated service providers is a well-established antecedent of digital service adoption (McKnight et al., 2002; Pavlou, 2003). In AI grooming apps, users must trust both the recommendation algorithm and the listed salons before committing to a booking. Verified profiles, transparent data policies, and genuine ratings reduce risk perceptions and raise booking propensity (Salisbury et al., 2001; Hassanein & Head, 2007). Trust is included as both an antecedent of self-congruity and a direct predictor of booking intention.

III. CONCEPTUAL MODEL AND RESEARCH HYPOTHESES

The proposed model positions five independent constructs — Perceived AI Interactivity (PARI), Perceived Personalization (PPERS), Performance Expectancy (PE), Hedonic Motivation (HM), and Trust (TRUST) — as predictors of Booking Intention (BI) both directly and indirectly through Perceived Hairstyle–Self Congruity (SELFCON). Table I presents the research hypotheses.

TABLE I — Research Hypotheses

H	Proposed Path	Direction	Theoretical Basis
H1	Perceived AI Interactivity → Self-Congruity (SELFCON)	Positive	Yim et al. (2017)
H2	Perceived Personalization → Self-Congruity (SELFCON)	Positive	Kim et al. (2017)

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H	Proposed Path	Direction	Theoretical Basis
H3	Performance Expectancy → Self-Congruity (SELFCON)	Positive	Venkatesh et al. (2012)
H4	Hedonic Motivation → Self-Congruity (SELFCON)	Positive	Hsu & Lin (2016)
H5	Trust → Self-Congruity (SELFCON)	Positive	McKnight et al. (2002)
H6	Self-Congruity → Booking Intention (BI)	Positive	Sirgy (1985)
H7	Trust → Booking Intention (BI) — direct	Positive	Pavlou (2003)
H8	Performance Expectancy → Booking Intention (BI) — direct	Positive	UTAUT2
H9a–e	IVs → Self-Congruity → Booking Intention (mediation)	Partial	Baron & Kenny (1986)

IV. RESEARCH METHODOLOGY

Research Design and Sampling

A quantitative, cross-sectional, explanatory design was adopted. Data were collected via a structured online questionnaire (Google Forms) distributed to consumers across metropolitan and tier-1/tier-2 Indian cities (Bengaluru, Mumbai, Delhi, Pune, Hyderabad, Jaipur, and others) between January and March 2026. Non-probability purposive sampling targeted individuals who actively seek hairstyle inspiration via digital platforms. After screening incomplete responses, the final usable sample was N = 230.

Measurement Instrument

Seven constructs were each measured using five items on a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree), yielding 35 scale items. All scales were adapted from validated instruments: PARI from Yim et al. (2017); PPERS from Tam & Ho (2006); PE from Venkatesh et al. (2012); HM from Venkatesh et al. (2012); TRUST from McKnight et al. (2002); SELFCON from Sirgy (1985); BI from Dodds et al. (1991). Construct composite scores were computed by averaging item-level responses. Data were analyzed in JASP using descriptive statistics, Pearson correlation analysis, and multiple linear regression. Mediation was assessed via Baron & Kenny's (1986) classical three-condition approach.

V. RESULTS

Sample Profile

The sample (N = 230) was young (22–25 years: 38.7%; 26–30 years: 26.5%) and near-balanced by gender (Female: 53.0%; Male: 47.0%). Respondents were educationally diverse (undergraduate to postgraduate). Students (33.9%) and full-time employees (27.4%) were the dominant occupational groups. Metro cities represented 42.6%; tier-1, 35.7%; tier-2, 21.7%. Over half the sample (55.2%) had prior experience with an AI hairstyling or beauty application, and 40.4% reported being comfortable or very comfortable with virtual try-on features.

Descriptive Statistics

All seven constructs recorded mean values above 3.0, indicating overall positive perceptions. Performance Expectancy was highest rated (M = 3.73, SD = 1.19), followed by Self-Congruity (M = 3.72, SD = 1.14) and Hedonic Motivation (M = 3.70, SD = 1.18). Trust received the lowest mean (M = 3.39, SD = 1.26), signalling residual user skepticism about recommendation accuracy and data privacy. Booking Intention recorded a moderate-positive mean (M = 3.54, SD = 1.22), confirming a gap between positive perceptions and committed booking behaviour that the study aims to explain.

Correlation Analysis

All constructs correlated positively and significantly with Booking Intention (all $p < .001$). PPERS exhibited the highest correlation with SELFCON ($r = 0.910$), confirming personalization as the primary identity-alignment mechanism. PARI showed the strongest IV–DV bivariate association ($r = 0.920$). TRUST showed comparatively lower inter-construct correlations with other IVs ($r = 0.574$–0.601), suggesting it operates more independently. All five IVs correlated strongly with SELFCON ($r = 0.660$–0.910), confirming its suitability as a mediating construct.

Multiple Regression Analysis

Table II presents the regression model. The model was highly significant ($F(6,223) = 521.700$, $p < .001$, $R^2 = 0.933$, Adj. $R^2 = 0.932$, RMSE = 0.327), explaining 93.3% of variance in Booking Intention with minimal shrinkage, ruling out

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overfitting. PARI was the strongest predictor (β = 0.284, p < .001), followed by PE (β = 0.226), PPERS (β = 0.159), SELFCON (β = 0.142), and TRUST (β = 0.141). Hedonic Motivation did not attain significance as a direct predictor (β = 0.096, p = .068).

TABLE II — Multiple Regression Coefficients (DV = Booking Intention; N = 230)

Predictor	B	SE	β (Beta)	t	p	Decision
Intercept	−0.985	0.111	—	−8.834	< .001	—
Perceived AI Interactivity (PARI)	0.287	0.056	0.284***	5.155	< .001	H1: Supported ✓
Perceived Personalization (PPERS)	0.177	0.055	0.159**	3.193	.002	H2: Supported ✓
Performance Expectancy (PE)	0.301	0.049	0.226***	6.161	< .001	H3 & H8: Supported ✓
Hedonic Motivation (HM)	0.090	0.049	0.096 ns	1.834	.068	H4 (direct): Not Supported ✗
Trust in App & Salons (TRUST)	0.227	0.042	0.141***	5.339	< .001	H5 & H7: Supported ✓
Self-Congruity (SELFCON)	0.174	0.059	0.142**	2.926	.004	H6: Supported ✓

*Note. $R = 0.966$; $R^2 = 0.933$; Adj. $R^2 = 0.932$; $F(6, 223) = 521.700$, $p < .001$. ** $p < .01$; *** $p < .001$; ns = not significant. ✓ Supported; ✗ Not Supported.*

Mediation Analysis (H9a–e)

All five IVs significantly predicted SELFCON (r = 0.660–0.910, all p < .001) — satisfying Baron & Kenny's first condition. SELFCON significantly predicted BI (β = 0.142, p = .004) in the full regression — satisfying the second condition. SELFCON retained significance with all IVs controlled, confirming partial mediation for PARI, PPERS, PE, and TRUST (H9a–c, H9e). For HM (H9d), the absence of a direct significant effect (β = 0.096, p = .068) while retaining a strong bivariate correlation (r = 0.900) confirms full mediation through SELFCON — enjoyment elevates identity alignment, which drives booking, but enjoyment alone does not independently produce booking commitment.

VI. DISCUSSION

Primacy of AI Interactivity

Perceived AI interactivity is the strongest predictor (β = 0.284), extending Yim et al. (2017) and McLean & Wilson (2019) to the grooming domain. Real-time facial scanning, AR hairstyle overlays, and interactive controls reduce appearance-outcome ambiguity, shortening the psychological distance to booking. Interactivity also drives self-congruity (r = 0.890), as active style manipulation on one's own image is the primary mechanism through which users assess identity fit.

Performance Expectancy and Personalization

Performance expectancy (β = 0.226) confirms a dual pathway: functional utility drives both direct booking and identity alignment (r = 0.800). Perceived personalization, while third-ranked in direct effects (β = 0.159), records the highest correlation with self-congruity (r = 0.910) — making it the foremost identity-gateway construct. Platforms incorporating richer personalization signals (lifestyle preferences, occasion-based filtering, past booking history) should achieve superior self-congruity and booking conversion.

Self-Congruity as Psychological Bridge

Partial mediation by SELFCON confirms it translates technology features into actionable behavior. The unique full mediation of hedonic motivation implies that enjoyment-led engagement strategies — while valuable for user acquisition — are insufficient for booking conversion unless complemented by identity-reinforcing mechanisms: recommendation explanations that narrate style-self fit ('This cut complements your face shape and aligns with your professional identity') represent high-potential design interventions.

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Trust as Conversion Gatekeeper

Trust (M = 3.39, β = 0.141) retains a significant direct effect on booking intention, consistent with Pavlou (2003). Lower trust scores signal unresolved concerns about recommendation accuracy, salon service delivery fidelity, and data privacy. Verified before-and-after proof of salon service delivery, AI explainability features, and explicit data privacy policies represent high-return improvement opportunities for platform operators.

VII. IMPLICATIONS

Theoretical Contributions

This study makes three primary contributions. First, it extends UTAUT2 by incorporating self-congruity as a mediating variable, demonstrating that psychological identity alignment is an essential explanatory layer between technological features and behavioral outcomes. Second, it disentangles the roles of hedonic engagement and functional utility: enjoyment strongly predicts self-congruity (r = 0.880) but is fully mediated in its effect on booking, while functional constructs exert both direct and identity-mediated effects. Third, it establishes empirical evidence in the novel, identity-sensitive domain of AI hairstyle recommendation, contributing domain extension for self-congruity mediation effects across personalized recommendation contexts.

Managerial Implications

For developers: (i) invest in high-fidelity AR interactivity as the primary booking driver; (ii) deepen personalization algorithms beyond facial structure to incorporate lifestyle, occasion, and preference history; (iii) add functional demonstration features (side-by-side comparisons, decision-quality showcases) to drive both conviction and identity resonance. For marketers: shift positioning from entertainment toward identity-confident narratives — 'Discover the hairstyle that is you.' For salon operators: maintain accurate visual portfolios, cultivate genuine reviews, and offer trust-reducing guarantees (free style touch-up if outcome deviates from virtual preview).

VIII. LIMITATIONS AND FUTURE RESEARCH

Several limitations apply. Purposive sampling of urban digital consumers limits generalizability to rural and older demographics. Self-reported intention rather than actual booking data introduces the intention–behavior gap (Ajzen, 1991). The correlation-regression mediation approach cannot establish causality; future research should apply bootstrapped SEM with confidence interval estimation. The cross-sectional design precludes longitudinal tracking. Future research should: (a) replicate using actual platform booking data; (b) examine moderating roles of grooming involvement and cultural identity salience; (c) extend the framework to fashion styling, cosmetics, and healthcare AI; (d) incorporate AI explainability as a trust antecedent; and (e) apply covariance-based SEM across diverse populations.

IX. CONCLUSION

This study demonstrates that young urban Indian consumers will not adopt AI hairstyle recommendation apps — or convert virtual experimentation into salon bookings — simply because those apps are interactive or enjoyable. Adoption and booking conversion become significantly more probable when the technology delivers demonstrable functional value (PE, β = 0.226), rich interactive AR visualization (PARI, β = 0.284), and deeply tailored suggestions (PPERS, β = 0.159) that produce a strong sense of hairstyle–self alignment. Trust is a necessary, if not sufficient, conversion condition (β = 0.141).

The mediating role of self-congruity is the study's central finding: AI recommendations that resonate with users' identity function as a psychological bridge from digital exploration to physical salon appointments. The model explains 93.3% of variance in booking intention, validating the integrated UTAUT2–self-congruity framework as both theoretically robust and empirically powerful. The critical strategic insight — that entertainment-led engagement is insufficient without identity-reinforcing mechanisms — provides a clear roadmap for developers and marketers seeking to convert growing digital engagement in personal grooming into sustainable business outcomes.

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