GENDERED PATHWAYS TO PURCHASE: MODELING MOTIVATION, PRESENCE, AND JUDGMENT IN VIETNAM'S ONLINE BEAUTY AND PERSONAL CARE SECTOR

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Abstract - This research proposes and empirically examines an integrated framework merging Self-Determination Theory (SDT) with the Throughput Model (TPM) to explain online purchase intentions in Vietnam's beauty and personal care market. Focusing on Vietnam's online beauty sector, the research surveyed 323 young consumers to investigate the non-linear cognitive pathways influencing purchase intentions. Using PLS-SEM, the results confirmed a multi-pathway structure where Motivation, Presence, and Evaluation of Alternatives dynamically interact to shape Purchase Intention. Moreover, six distinct pathways within the context of online decision-making have been found to be significant. Crucially, a Multi-Group Analysis revealed significant gender differences: the relationships between Motivation and Presence, and Presence and Evaluation, are significantly stronger for women. These findings provide a nuanced, process-oriented understanding of digital consumer behavior, underscoring the necessity of gender-segmented e-commerce strategies.

Key words - Throughput Model; Self-Determination Theory; gender differences; purchase intention; motivation; presence; purchase decision pathways.

1. Problem statement

Digitalization has reshaped commerce and decision-making, creating information-rich journeys where product details, peer reviews, influencers, and algorithms make choices more complex and non-linear [1]-[3]. In Vietnam's fast-growing digital economy (projected GMV $50B by 2025; B2C e-commerce $20.5B in 2023), beauty and personal care is a major online driver, forecast to grow 5.9% annually through 2028 [4]-[6]. This high-involvement category relies on visual/sensory cues and social proof, where motivations extend beyond utility and perceived online presence shapes evaluation and intent [7], [8]. Yet much of the literature still models online decisions as a largely sequential process, under-specifying how consumers skip, revisit, and reorder stages as they process information [3], [9], [10].

Three gaps follow. Theoretically, SDT-based online shopping research shows that intrinsic and extrinsic motivations are associated with engagement and purchase intention [11], [12]. However, such studies rarely clarify the process mechanism through which motivation translates into purchase intention from a throughput or process-oriented perspective, and the integration of SDT with such process views remains limited in e-commerce contexts. Empirically, rigorous validation of multi-pathway (rather than single-sequence) structures for beauty e-commerce in Vietnam remains scarce, despite this context's distinctive dependence on social and telepresence cues [4]-[6]. Third, although gender differences in online shopping perceptions and outcomes have been documented [13], [14], evidence is still scarce on whether gender reshapes pathway-level dynamics within a multi-pathway framework, especially when examined via multi-group PLS-SEM [15].

To address these gaps, we evaluate an integrated process framework in Vietnam's online beauty market and ask two questions: (RQ1) Do consumers follow multiple viable cognitive pathways to purchase intention rather than a single linear sequence? (RQ2) Are the strengths of key pathway linkages systematically different for women versus men? Using PLS-SEM with multi-group analysis, this study has three specific research purposes: (i) to develop an integrated SDT–TPM process framework that explains the combined effects of motivation, presence and evaluation of alternatives on online beauty purchase intentions; (ii) to empirically examine whether consumers follow multiple alternative decision paths from motivation and presence to purchase intention, rather than a single fixed decision sequence; and (iii) to identify gender-based differences in these decision paths that can inform interface and content design in beauty e-commerce.

2. Literature review, hypotheses development, and research model

2.1. Literature review

2.1.1. Throughput Model

The Throughput Model (TPM) is a framework consisting of six distinct algorithmic strategies that evaluate decision-making processes in individuals or organizations [11]. Its key strength lies in its ability to allocate various factors influencing decisions, conceptualizing how individuals and organizations follow different pathways driven by the interaction between Information (I), Perception (P), Judgment (J), and Decision (D). A significant contribution of TPM is its emphasis on the relationship between perception and information, which can be influenced by environmental, economic, and social factors [16]. TPM has been applied to study diverse topics, including business ethics, organizational behavior, and tax compliance, and offers a unique perspective for examining consumer decision-making, especially in contexts involving conflicts of interest [16]-[18].

Previous literature has highlighted the application of TPM in the commercial environment, particularly in understanding and predicting consumer online purchasing decisions through its six algorithmic pathways [11]. This model provides valuable insights into various stages that influence decision-making, allowing marketers and organizations to better understand the information and processes involved before the final decision is made [17]. While consumers may shop for similar products, their decision-making pathways can vary significantly due to their adaptability in decision-making tasks [19]. TPM not only helps develop robust decision-making algorithms for online environments but also explores diverse pathways guiding consumers in their purchasing journey [16], [18].

Building on TPM's view, which indicated that behavioral responses are driven by internal processing (throughput) mechanisms that translate inputs into decisions [11], [17], this study conceptualizes purchase intention formation as a multi-pathway process in which consumers may follow multiple alternative and potentially iterative routes, rather than a single fixed sequence [11], [17]. Accordingly, "linear" denotes one unidirectional chain of relationships (one dominant pathway), whereas "non-linear" refers to the coexistence of multiple interacting/iterative routes within the decision process (i.e., multi-pathway), not non-linear functional forms in the statistical sense [11], [17].

2.1.2. Self-Determination Theory (SDT)

Self-Determination Theory (SDT focuses on the role of intrinsic and extrinsic motivations in driving human behavior [12]. It posits that individuals are most motivated when they experience autonomy, competence, and relatedness, influencing their engagement and decision-making processes in various contexts. Intrinsic motivation is driven by personal interest, while extrinsic motivation stems from external factors, such as social influence or external rewards. These motivations can significantly influence consumer behavior, guiding their decisions throughout the process [12], [20].

Incorporating SDT into the Throughput Model (TPM) allows for a deeper understanding of how consumers' intrinsic and extrinsic motivations interact with their perception of need and information search [21]. Need recognition, as an initial step in decision-making, can be influenced by both internal drives (e.g., personal desires) and external triggers (e.g., social influence or marketing stimuli) [20]. Within TPM's process view, these motivational forces modulate the information (I), perception (P), and judgment (J) pathways that culminate in decision (D), offering a more precise account of why and how consumers progress through digital purchase tasks [11], [22].

2.2. Hypotheses development

Recent work shows that intrinsic motivation strengthens consumers' brand passion and, in turn, purchase intentions [23]. In services, intrinsic/identified regulation tends to foster customer loyalty, whereas introjected regulation is often non-significant [24]. From Self-Determination Theory, consumers favor brands when products align with personally valued goals (identified regulation), while introjected motives reflect acting to avoid shame or protect self-worth [12]. In fashion, consumers pursue authenticity/originality (intrinsic) versus external rewards (extrinsic), illustrating how motives guide behavior [25]. Extending this logic to online beauty and personal care, intrinsic enjoyment/identification with product meaning and extrinsic, outcome-oriented considerations (e.g., utility, savings, social approval) are expected to translate into stronger purchase intention, a pattern consistent with evidence that shopping motivations reliably predict intention in digital contexts [26], [27].

H1: Motivation positively influences purchase intention.

Grounded in Self-Determination Theory, motivation comprises intrinsic forms (driven by enjoyment and interest) and extrinsic forms (driven by external contingencies) that energize and direct behavior [22], [28]. In digital environments, higher intrinsic motivation/involvement tends to heighten immersion and flow, which is defined as a phenomenologically experienced named (tele)presence [29], [30]. Conversely, perceiving stronger social presence (the sense of human warmth and "being with others" in computer-mediated settings) enhances enjoyment and other motivational outcomes, thereby reinforcing users' willingness to engage [31], [32]. Taken together, motivation and presence are mutually reinforcing in online contexts. Hence, we hypothesized:

H2: Motivation positively influences presence.

H3: Presence positively influences motivation

In online shopping, higher purchase motivation changes how people process information under different loads, thereby altering their price–quality–value judgments and product attitudes [33]. Similarly, [34] emphasized that consumers invest time in evaluating different products only when they have a real need for that product or service. However, [35] found that intrinsic motivation negatively affects the selection of luxury brands, as consumers driven by intrinsic motivation tend to avoid luxury brands. Based on these findings, we propose the following hypothesis:

H4: Motivation positively influences the evaluation of alternatives.

[36] demonstrated that social media, as an independent variable, significantly affects all stages of the purchasing decision, including evaluating alternatives. In computer-mediated shopping, higher perceived social presence increases enjoyment and trust, which supports more confident comparative judgments [31]. On social platforms, user-generated reviews and opinions add social proof and diagnostic information, broaden consideration sets, and facilitate side-by-side evaluation [37]. Accordingly, we posit:

H5: Presence positively influences the evaluation of alternatives.

Recent studies have clarified that the pathway from Motivation to Presence to Evaluation of Alternatives reflects a dynamic cognitive–affective mechanism in which motivation activates engagement, presence enhances immersion, and both jointly shape evaluative judgment. Within Self-Determination Theory, intrinsic motivation stimulates exploratory and affective

involvement, while perceived social or telepresence transforms this energy into richer information processing [38], [39]. Empirical evidence further shows that a stronger presence increases diagnostic confidence and comparative evaluation, especially in visually rich, AI-augmented retail settings [40], [41], [42]. This aligns with the Throughput Model's view that information and perception iteratively condition judgment [11]. Thus, presence functions as a cognitive bridge converting motivational drive into structured evaluation - explaining why gendered differences emerge when women's higher relational motivation amplifies presence-based appraisal in online decision-making [38], [39].

Research on the consumer decision journey and consideration shows that comparing viable options against goals and values improves choice confidence and downstream conative outcomes [43], [44]. Evidence from consideration-set and search models further indicates that greater deliberation over alternatives, which is known as what enters the set and how it is weighed, predicts the final choice and stated intention [45]. We posit:

H6: The evaluation of alternatives positively influences purchase intention.

2.3. Research model

This study models online purchase intention in beauty and personal care by embedding Self-Determination Theory (SDT) [12] within the Throughput Model (TPM) [11]. Motivation, drawn from SDT, initiates the process as Perception (P) through need recognition. Presence, which includes social and telepresence, provides the Information (I) cues the consumer processes, leading to Judgment (J) as the cognitive evaluation of alternatives. The pathways culminate in Decision (D), operationalized as purchase intention, enabling empirical tests of how motivation and presence jointly shape the final choice.

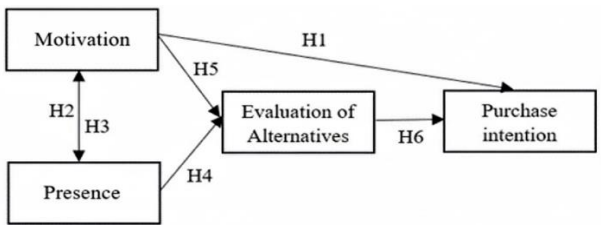

Figure 1. *Research model*

3. Research method

Following the proposed conceptual framework, this study employed a quantitative, cross-sectional survey to operationalize the constructs and test the hypothesized relationships. A structured questionnaire comprising 33 measurement items adapted from established literature was rated on a seven-point Likert scale. To ensure conceptual equivalence, the instrument was back-translated and pre-tested with 30 participants, confirming clarity and suitability.

In total, five multi-item latent constructs were measured using 31 observed indicators. Motivation was captured by 12 items (INM1–INM3, IDM1–IDM3, INTM1–INTM3, EXM1–EXM3) adapted from [23]. Presence was measured by 9 items, including 5 social presence items (SP1–SP5) and 4 telepresence items (TP1–TP4), adapted from [46]. Evaluation of alternatives (EA1–EA3) and intention recognition (IR1–IR3) were adapted from [47]. Purchase intention was measured with 4 items (PU1–PU4) adapted from [48].

Data were collected through an online survey distributed via social media using a non-probability convenience sampling method. The final sample consisted of 323 Vietnamese consumers aged 18–30 who had purchased beauty and personal care products online within the previous six months. Although non-probability sampling limits generalizability, the sample size ensures robust statistical power for PLS-SEM analysis and multi-group comparison [49].

To strengthen methodological rigor, screening criteria were applied to guarantee recency and relevance of consumer behavior, while quota considerations ensured balance across gender and age segments consistent with national e-commerce statistics [4], [6]. In addition to demographic variables (gender, age), three control variables were included: (i) average monthly online spending, representing purchasing power and involvement; (ii) purchase frequency, indicating habitual behavior; and (iii) device type (mobile vs. desktop), capturing differences in telepresence and interface immersion. These controls help verify that observed effects arise from psychological constructs rather than contextual biases.

Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4, following a two-step procedure. The measurement model was first assessed for reliability and validity (Composite Reliability, AVE, HTMT). The structural model was then tested to evaluate hypothesized paths using bootstrapping (5,000 resamples), coefficient significance (β), explanatory power (R^2), and Multi-Group Analysis (MGA) to examine gender-based differences.

To operationalize the multi-step cognitive journeys proposed by the Throughput Model, we model each decision route as a sequential indirect effect from an antecedent to Purchase Intention through one or more mediators, consistent with TPM's process orientation and multiple ordered routes [11], [17]. We test the significance of these pathway-specific indirect effects using bias-corrected bootstrapping (5,000 resamples) in PLS-SEM, following established guidelines for indirect-effect inference [49].

4. Result

The dataset reveals the demographic distribution of participants based on gender and age. In terms of gender, 41.80% of the sample are males, while 58.20% are females. Regarding age, the majority of participants belong to the 18-22 years old group, accounting for 60.99% of the sample, followed by the 23-30 years old group, which represents 35.60% of the participants. A small portion, 3.41%, is in the above 30-year-old group. These statistics show a higher representation of females, particularly in the younger age category, providing valuable insights into the demographic composition of the sample.

Convergent validity is confirmed when the Average Variance Extracted (AVE) exceeds 0.5 [49]. In this study, AVE values ranged from 0.531 to 0.739, supporting the presence of convergent validity. Both Cronbach's alpha and composite reliability scores surpassed the 0.7 threshold [15], indicating strong internal consistency. For discriminant validity, item loadings were higher on their intended constructs than on others, with no significant cross-loadings identified. Three items, EM1, IM3, and TP2, showed lower loadings of 0.608, 0.591, and 0.600, respectively, and were removed to enhance model quality without compromising validity. The Fornell-Larcker criterion [50] was also satisfied, ensuring discriminant validity, and all VIF values were under 5, confirming the absence of multicollinearity issues in the structural model.

Although Motivation and Presence are moderately correlated (Table 1), discriminant validity is supported by the Fornell–Larcker criterion [50]. In addition, all inner VIF values are below 5 (Table 2), suggesting that multicollinearity is unlikely to bias the structural path estimates [49].

Table 1. *Discriminant Validity*

	EA	PI	M	P
[EA] The evaluation of alternatives	**0.860**			
[PI] Purchase Intention	0.542	**0.841**		
[M] Motivation	0.587	0.430	**0.728**	
[P] Presence	0.450	0.413	0.734	**0.760**

Table 2. *Results of SEM*

Hypothesis - Path	Path coefficient (β)	Std.	T-value (>1.96)	P-Valu e(≤ 0.05)	VIF (<5)	Results
H1: M -> PI	0.177	0.059	3.019	0.003	1.525	Accepted
H2: M -> P	0.728	0.032	22.983	0.000	1.000	Accepted
H3: P -> M	0.728	0.033	33.345	0.000	1.000	Accepted
H4: M -> EA	0.429	0.064	6.703	0.000	2.126	Accepted
H5: P -> EA	0.217	0.081	2.692	0.007	2.126	Accepted
H6: EA -> PI	0.438	0.053	8.252	0.000	1.525	Accepted

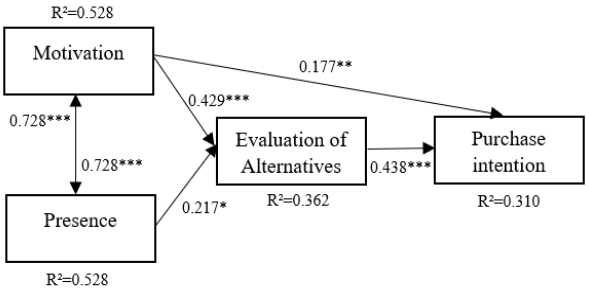

Figure 2. *Result of Path analysis*

The analysis confirmed that all six hypotheses were statistically significant, with the model demonstrating robust predictive power. The most powerful relationships were observed in the strong, reciprocal influence between Motivation (M) and Presence (P) (H2 & H3: $\beta = 0.728$, $p < 0.001$). The next strongest impact was from Evaluation of Alternatives (EA), which proved to be a key predictor of Purchase Intention (PI) (H6: $\beta = 0.438$, $p < 0.001$). This evaluation stage was itself significantly shaped by a strong influence from Motivation (H4: $\beta = 0.429$, $p < 0.001$) and a moderate influence from Presence (H5: $\beta = 0.217$, $p < 0.01$). Finally, while the direct path from Motivation to Purchase Intention was also significant, it exhibited the weakest effect within the model (H1: $\beta = 0.177$, $p < 0.01$). All VIF values remained well below 5, indicating the absence of multicollinearity. The model explains 53.0% of the variance in Motivation (M), 36.6% in Evaluation of Alternatives (EA), and 31.4% in Purchase Intention (PI).

Table 3. *Results of Significant Pathways*

Pathways	Type	Path coefficient (β)	Std.	T-value (>1.96)	P-Value (≤ 0.05)
M->PI	1-step	0.177	0.059	3.019	0.003
P->M->PI	2-step	0.129	0.044	2.955	0.003
M->EA->PI	2-step	0.188	0.051	6.154	0.000
P->EA->PI	2-step	0.095	0.038	2.507	0.012
P->M->EA->PI	3-step	0.137	0.029	4.661	0.000
M->P->EA->PI	3-step	0.069	0.029	2.418	0.016

To explicitly test the multi-step cognitive journeys conceptualized in the Throughput Model, a specific indirect effects analysis was conducted. This route-based interpretation accords with TPM's process-oriented view that consumers can reach purchase intention through multiple viable decision pathways rather than a single predetermined sequence [11], [17]. It is also consistent with prior online shopping studies showing that interactive decision aids and digital environments foster non-linear purchasing processes [1], [3], [9]. The results (Table 3) confirm that multiple sequential pathways leading to purchase intention are statistically significant ($p < .05$). This provides strong empirical evidence for the non-linear, multi-pathway structure of consumer decision-making, which will be interpreted in the Discussion.

To examine the differences between male and female customers, Multi-Group Analysis (MGA) and the Welch-Satterthwaite test [51] were performed. Table 4 presents a comparison of the path coefficients between the two groups. Out of the six MGA hypotheses, two were found to be supported. Specifically, the influence of Motivation on Presence, Presence on Motivation, and Presence on the Evaluation of Alternatives was significantly stronger for females than for males. The results revealed path coefficients of $\beta = 0.157$, 0.157, and 0.312, respectively, with $p < 0.05$ in the MGA, and t-values of 2.714, 2.733, and 2.074, respectively, with $P < 0.05$ in the Welch-Satterthwaite test, thus confirming H2, H3, and H5.

Table 4. *Results of MGA*

Hypothesis	PLS-MGA		Welch-Satterthwaite		Decision
	Diff	p-value	t-value	p-value	
H1: M -> PI	-0.094	0.474	2.722	0.472	Not supported
H2: M -> P	0.157	0.003	2.714	0.007	Supported
H3: P -> M	0.157	0.002	2.733	0.042	Supported
H4: M -> EA	-0.159	0.207	1.265	0.208	Not supported
H5: P -> EA	0.312	0.035	2.074	0.007	Supported
H6: EA -> PI	0.015	0.898	0.134	0.894	Not supported

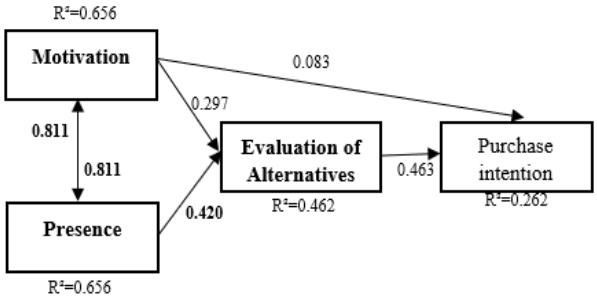

Figure 3. *SEM model of female customers*

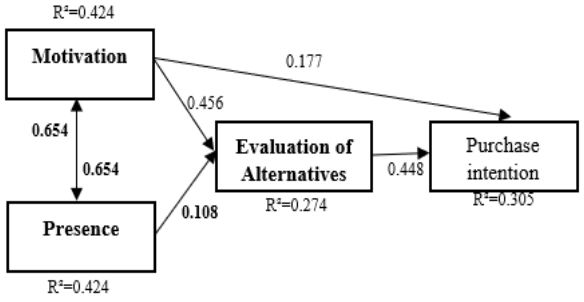

Figure 4. *SEM model of male customers*

5. Discussion and conclusion

This study provides strong evidence for a non-linear, multi-pathway model of online consumer decision-making. Motivation remains the initial impetus. “Non-linear” is used here in a process sense to denote a multi-pathway decision structure, in which purchase intention may emerge through several viable ordered routes rather than one fixed sequence, consistent with TPM’s process-thinking view [11], [17]. In line with Self-Determination Theory, both intrinsic (interest, enjoyment) and extrinsic (social recognition, promotions) motives significantly predict purchase intention [28], reflecting the complex needs of digital consumers where the experience can rival the product itself [23]. Presence is also pivotal: social presence, via seller interactions and community engagement, builds connection and trust [31], while telepresence fosters immersive processing [52]. Together, these forms of presence supply the informational and affective context on which consumer judgments are formed. The research's primary contribution is the empirical validation of six distinct cognitive pathways that consumers may follow, challenging the notion of a single, uniform decision-making process. These empirically supported pathways range from a swift, one-step "Quick purchase" (Motivation → Intention) to more deliberative two-step and comprehensive three-step sequences that involve different combinations of the core constructs [11]. For instance, the findings validate an "Impressive purchase" pathway (Presence → Motivation → Intention) that aligns with impulse buying literature, where environmental cues trigger sudden need recognition [53]. Conversely, the "Traditional purchase" pathway (Motivation → Presence → Judgment → Intention) mirrors the classic, high-involvement decision models, confirming its continued relevance in complex buying situations [54]. The identification of these multiple, viable pathways provides a sophisticated framework for understanding and segmenting consumer behavior based on their dominant cognitive processing style.

Multi-group analysis reveals systematic gender differences in presence-related mechanisms. For women, there's a much stronger mutual influence between their Motivation to shop and their engagement with these social elements. Furthermore, these interactions more heavily impact how they evaluate products. This pattern is consistent with Social Role Theory, in which communal orientations direct more attention to relational cues and social meaning [55], and with evidence that “rapport-oriented” consumers emphasize trustworthiness and opinion-sharing more than strictly agentic value calculus [56]. It is also compatible with documented processing differences: women tend to adopt more comprehensive, cue-rich strategies and are more sensitive to relevant online information, whereas men more often rely on selective, heuristic shortcuts [57]. Because women tend to perceive more risk in e-commerce, they use social proof like peer reviews to reduce that risk before making a choice [13]. In Vietnam's beauty market, these distinctions appear to be based on actual behavioral differences, not just varying levels of market exposure, especially as more men become consumers [14].

From a management perspective, this suggests three priorities. First, create customer journeys that cater to different buying styles: offer a clear, quick path for those ready to purchase, but also provide deeper layers of comparison, learning, and reassurance for those making more considered decisions. Second, treat human interaction as a key asset. Feature verified reviews, creator try-on videos, live chats, and community Q&A to build trust and provide detailed information, which both motivates customers and helps them evaluate products. Third, tailor messaging and interface to different user segments: for groups that respond well to social cues, like female shoppers, highlight community features to reduce perceived risk; for users focused on efficiency, present key benefits and expert summaries upfront to enable a fast, confident choice.

This study advances the understanding of online consumer behavior by empirically validating a non-linear framework that integrates Self-Determination Theory (SDT) and the Throughput Model (TPM). The findings confirm that purchase intention emerges not from a fixed sequence but from a dynamic interplay between Motivation, Presence, and Evaluation of Alternatives, which together form multiple cognitive–affective pathways. Importantly, these pathways are moderated by gender, indicating that women’s stronger relational orientation intensifies the role of presence in shaping evaluative confidence. Theoretically, the research enriches consumer behavior literature by linking motivational drivers with process-based decision structures. Practically, it underscores the need for gender-sensitive e-commerce design, such as interfaces that cultivate social presence, emotional engagement, and guided evaluation, particularly in sensory-driven categories such as beauty and personal care. Tailoring communication and interface cues to motivational profiles can enhance user immersion, trust, and conversion, offering actionable insights for digital marketers and platform designers in an increasingly personalized marketplace.

The findings have a variety of implications for practice and scholarship. For researchers, the research offers a basis on which to extend the integrated SDT–TPM approach to other virtual environments, such as AI-support or immersive shopping, so that future research can examine cross-cultural differences and longitudinal behavioral patterns. For practitioners, designing customer experiences matching individualistic motivational and gender profiles can foster long-term commitment and loyalty. Later research can utilize real-time behavioral data or experimental methods to capture the dynamic evolution of presence and motivation in evolving digital settings.

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