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From Cognition to Emotion and Guanxi: Explaining Virtual Product Purchase Intention Among Chinese Gen Z Consumers

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Abstract

The rapid growth of virtual economies has changed how Generation Z interacts with digital products, fulfilling symbolic, emotional, and social roles. Existing research is fragmented and does not provide a comprehensive explanation of how cognitive acceptance beliefs affect purchase intention through emotional and relational pathways, particularly within culturally embedded digital environments. This study creates and tests a framework explaining Chinese Gen Z consumers' virtual product purchase intention, integrating Digital Product Acceptance Factors (DPAFs), attitude toward virtual products, brand attachment, perceived trust, and Swift Guanxi. Using survey data from 524 Chinese Gen Z consumers and a two-stage PLS-SEM approach, DPAFs are modeled as a second-order construct comprising perceived usefulness, perceived ease of use, emotional value, and social influence. The impact of DPAFs on purchase intention is mediated by attitude, brand attachment, and perceived trust. Serial mediation applies to the basic model and is moderated by Swift Guanxi. High levels of Swift Guanxi directly influence acceptance beliefs and attitudes, thereby eliminating the mediating effect of trust on purchase intention. The results expand technology acceptance and virtual consumption studies by showing that purchase intention in virtual markets is a context-specific psychological event rooted in emotional bonds and cultural immediacy with other users.

Keywords: Virtual products, Digital product acceptance, Brand attachment, Swift Guanxi, Purchase intention

Introduction

Virtual economies changed how consumers buy digital products as identity markers and social tools (Al-Zoubi, 2024; Bleize & Antheunis, 2019). Generation Z mainly drives this trend, expressing their identities on digital platforms (Kholkina et al, 2025; Rovai & Jain, 2026; Mäntymäki et al., 2014). In China, a key market, consumer behavior is shaped by technological factors and cultural values like exclusivity, status, and emotional significance (Liu et al., 2025). Research has not completely clarified how cognitive, emotional, and relational factors affect virtual purchase intentions (Bleize & Antheunis, 2019; Liu et al., 2025). Early research on TAM shows perceived usefulness and ease of use drive technology adoption (Davis, 1989). Virtual consumption is pleasurable and impacts young users emotionally and socially. Traditional acceptance models may overlook affective and relational motivations influencing decisions in digital environments (Papagiannidis et al., 2017). Previous models often treat cognitive and hedonic motives in isolation, overlooking how relational and identity processes make virtual products meaningful to consumers.

The literature identifies five research gaps. First, it lacks a unified framework that merges cognitive, emotional, and social factors affecting virtual purchase intentions. Past studies focus separately on perceived enjoyment (Bleize & Antheunis, 2019), self-presentation (Kim et al., 2012), social influence (Hsieh & Tseng, 2018), and cognitive absorption (Mäntymäki et al., 2014), without examining their interactions or how cognitive responses lead to emotional and social reactions that influence buying behavior. Second, virtual

brand attachment remains understudied despite consumers' strong connections to their digital identities (Méndez-Lazarte et al., 2025). Its identity and symbolic role differentiate it from conventional environments; however, the theory remains underdeveloped. Third, trust affects online shopping (Gefen et al., 2003); however, its exact function in virtual marketplaces remains unclear. The risks associated with virtual items can range from low monetary to high symbolic. The results may be mixed, whether social influence has a direct or indirect impact on purchase intention (Mäntymäki et al., 2014). Fourth, although Swift Guanxi has been defined in isolation from social commerce, the meaning of fast bonds, characterized by warmth, reciprocation, and harmony, remains understudied in the context of virtual product consumption. Prior research examines buyer– seller relations on C2C platforms. However, it is unclear if Swift Guanxi operates similarly in symbolic, identity-driven, and socially visible consumption contexts (Liang et al., 2025). Given Chinese consumers' relational orientation, Swift Guanxi may strengthen the emotional and social links between evaluations and purchase intention; however, empirical evidence in virtual contexts remains limited. In such contexts, Swift Guanxi not only acts as a context but also as a catalyst, accelerating the transformation of attitudes and emotional attachment into trust and behavioral intention. Lastly, methodological limitations still exist. Few studies employ advanced SEM techniques such as multistage or serial mediation. No research has employed a two-stage PLS-SEM approach to model a second-order construct that integrates emotional value, social influence, perceived usefulness, and ease of use into a single construct of Digital Product Acceptance Factors (DPAFs) in virtual settings. No research has used a two-stage PLS-SEM to model a second-order construct that combines emotional value, social influence, perceived usefulness, and ease of use into Digital Product Acceptance Factors (DPAFs) in virtual settings.

Prior studies that treat multiple acceptance dimensions as independent predictors risk fragmented estimates, high collinearity, and inconsistent interpretations when effects oppose or are non-significant. A higher-order construct approach addresses these issues by considering shared variance among dimensions as a coherent analysis unit. This study uses a disjoint two-stage PLS-SEM to model DPAFs as a second-order reflective construct, enabling a simplified, theory-based exploration of digital product acceptance as a combined cognitive, emotional, and social stance and its effect on emotional and relational outcomes in virtual contexts. Unlike independent predictor models, this higher-order structure captures their collective explanatory power, reduces multicollinearity among correlated dimensions, and yields cleaner structural estimates for downstream variables such as attitude, brand attachment, trust, and purchase intention (Becker et al., 2012, 2023; Sarstedt et al., 2019; Abreu-Ledón et al., 2026).

This study distinguishes itself from existing research on virtual consumption and social commerce in three simultaneous and mutually reinforcing ways. First, whereas prior frameworks treat cognitive, hedonic, and social acceptance dimensions as independent first-order predictors (Bleize & Antheunis, 2019; Mäntymäki et al., 2014), this study aggregates them into a unified second-order construct (DPAFs) using a disjoint two-stage PLS-SEM, reflecting the theoretical position that virtual consumption activates these dimensions simultaneously rather than independently. Second, whereas existing social commerce studies position Swift Guanxi as a direct predictor or relational outcome (Liang et al., 2025; Qin et al., 2025), this study repositions SG as a cultural boundary condition— a moderator that determines whether and how strongly cognitive-attitudinal variables translate into purchase intention depending on the consumer's relational context. Third, this study is specifically embedded in the virtual goods market among Chinese Gen Z consumers, a population whose purchase decisions are simultaneously shaped by digital identity expression, Confucian relational norms, and platform-mediated social interaction. This combination of HOC methodology, SG as a cultural moderator, and the Chinese Gen Z virtual consumption context represents a framework that no prior single study has integrated.

Using a two-stage PLS-SEM approach, this study examines how DPAFs influence purchase intention through a sequential cognitive– affective– relational process and investigates whether Swift Guanxi alters these psychological pathways among Chinese Gen Z consumers.

This article proceeds as follows**.** The introduction outlines the research context, gaps, and objectives. The following section presents the theoretical basis and hypotheses. The research methods section describes the research design and data analysis methods. Empirical findings are presented in the results section. Theoretical and managerial implications are presented in the discussion section. In the final section, we summarize this study and propose directions for future research.

Theoretical, literature review, and hypotheses development

Technology acceptance and value- based perspectives in virtual consumption

The Technology Acceptance Model (TAM) describes how technology adoption is driven by perceived usefulness (PU) and perceived ease of use (PEU), which affect users' attitudes and intentions (Davis, 1989). Although widely used online (Venkatesh et al., 2003), TAM primarily emphasizes cognitive and utilitarian perspectives. In virtual consumption, however, PU is often linked to identity enhancement and social presence, whereas PEU facilitates interaction and customization. TAM alone is insufficient to capture the emotional and symbolic motivations underlying virtual product adoption (Fussell & Truong, 2023). Value-based approaches connect consumption to benefits over costs (Zeithaml, 1988; Babin et al., 1994). In virtual environments, emotional enjoyment, playfulness, identity expression, and social signaling are key, especially among Generation Z, whose behavior is heavily influenced by peers and social validation (Venkatesh et al., 2003). Empirical evidence shows that hedonic and social values influence virtual purchase intention more than utilitarian factors. Technology acceptance and value theories show virtual product adoption depends on beliefs, emotions, and social factors. These perspectives imply that digital acceptance should extend beyond utility, particularly in identity-driven, socially embedded virtual spaces.

Digital Product Acceptance Factors (DPAFs)

Digital products differ from physical goods as they are intangible, symbolically consumed, and mainly valued for experiential and hedonic benefits, not functional utility (Hamari et al., 2017). While TAM explains adoption via perceived usefulness (PU) and perceived ease of use (PEU) (Davis, 1989), virtual consumption also depends on emotional, aesthetic, and identity motivations beyond cognitive factors (Hamari & Keronen, 2017). Recent studies show emotional value (EV) and social influence (SI) are key to virtual engagement. Enjoyment and satisfaction increase interaction and purchases (Bleize & Antheunis, 2019), whereas peer norms, cues, and community validation ifluence adoption, particularly among youth (Venkatesh et al., 2003). PU, PEU, EV, and SI are complementary beliefs that explain digital product adoption.

Attitude Toward Virtual Products (AVP)

Attitudes toward virtual products reflect consumers' judgments of digital goods, including perceived value, symbolic meaning, and emotional appeal (Ajzen, 1991). In digital environments, attitudes are a key cognitive link between acceptance beliefs and behavioral intention (Venkatesh et al., 2003). In virtual consumption, attitude alone may not directly generate purchase intention but acts as a precursor to emotional attachment (Kim et al., 2020). This study views attitude as a cognitive– affective evaluation that engages emotional mechanisms in decision- making. Digital Product Acceptance Factors (DPAFs) — perceived usefulness, ease of use, emotional value, and social influence— shape evaluations of virtual products. Functional beliefs create initial acceptance, while emotional and social cues enhance attractiveness and symbolic value, fostering more positive attitudes (Babin et al., 1994; Davis, 1989; Fussell & Truong, 2023). Stronger acceptance beliefs are expected to positively influence attitudes toward virtual products.

H1: Digital Product Acceptance Factors positively influence Attitude toward Virtual Products.

Attachment theory and brand attachment in virtual consumption

Attachment theory describes how emotional bonds develop through objects or entities that satisfy individuals' needs, such as symbolic, experiential, and identity- related needs (Wang et al., 2023). Among consumers, brand attachment is a deep emotional bond characterized by affection and a sense of self-connection beyond satisfaction or loyalty (Diwan, 2025). Prior research demonstrates that brand attachment is a strong predictor of behavioral intention and loyalty,

particularly in hedonic and identity- driven markets (Hemsley-Brown, 2023). In virtual environments, brand attachment is crucial as digital brands, avatars, and virtual items act as extensions of the self. Personalization, symbolism, and immersive encounters rapidly establish emotional connections, enhancing consumer loyalty to virtual businesses (Lim et al., 2020). Cognitive and attitudinal evaluations come before emotional attachment, so acceptance beliefs and positive attitudes are key precursors of brand attachment (Bagozzi, 1992; Zhang & Choi, 2022). This research considers brand attachment as an emotional connection formed through acceptance beliefs, trust, and purchase intention.

When digital products are valuable, user- friendly, emotionally satisfying, and socially significant, consumers form strong bonds with virtual brands. Thus, Digital Product Acceptance Factors (DPAFs) are expected to positively influence brand attachment. Favorable attitudes toward virtual products enhance emotional engagement and brand attachment (Zhao & Chung, 2025)

H2: Digital Product Acceptance Factors positively influence Brand Attachment.

H4: Attitude toward Virtual Products positively influences Brand Attachment.

Perceived Trust (PT)

Trust is vital in online commerce, reducing uncertainty and boosting engagement and purchase intent (Gefen et al., 2003). In virtual consumption, trust is more a relational outcome influenced by cognitive and emotional factors than just a risk-reduction mechanism. Although virtual products typically entail low financial risk, trust remains vital in symbolic and identity markets, particularly in Chinese contexts, where relational assurance and perceived integrity are valued (Zhang et al., 2022). This study views perceived trust as a relational link between emotional attachment and behavioral intention. Acceptance beliefs and experiential cues influence the extent to which users trust virtual environments. Perceptions of usefulness, ease of use, emotional value, and social endorsement diminish uncertainty and enhance confidence in platform reliability and brand integrity (Davis, 1989; Gefen et al, 2003). Stronger beliefs about digital products likely increase perceived trust.

H3: Digital Product Acceptance Factors positively impact Perceived Trust.

Attitudes toward virtual products influence trust by signaling credibility and reliability. When consumers view virtual products favorably, they see brands or platforms as trustworthy, increasing relational confidence (Gefen et al., 2003).

H5: Attitude toward Virtual Products positively influences Perceived Trust.

Emotional attachment is a key trust antecedent in virtual consumption, where brands act as identity extensions. Strong bonds lower psychological distance and uncertainty, boosting relational trust (Frasquet et al., 2017; Yim et al., 2008).

H8: Brand Attachment positively influences Perceived Trust.

Purchase Intention (PI)

Purchase intention is driven by cognition, emotion, and trust in digital commerce. In virtual spaces— such as online games, skins, and NFTs— decisions are based on emotional, symbolic, and identity factors rather than utility. Virtual products enable self-presentation and social signaling, prioritizing emotional and social recognition over utility. Studies indicate that attitudes toward virtual products influence purchase intention, and Wang and Datta (2010) found that positive virtual experiences enhance both. Barkhi et al. (2008) linked attitudes toward virtual stores to buying behavior. Hamari et al. (2015) showed that favorable attitudes and peer influence increase willingness to buy digital items. He found that attitudes toward virtual goods influence purchase intention. These findings, consistent with Ajzen's (1991) Theory of Planned Behavior, highlight attitude's role in turning beliefs into behavioral intent. The study conceptualizes purchase intention as a process in which acceptance beliefs shape attitudes, foster emotional bonds, build trust, and lead to purchase. Attitude is crucial, as positive evaluations increase perceived attractiveness and buying likelihood (Liu et al., 2025).

H6: Attitude toward Virtual Products positively influences Purchase Intention**.**

Brand attachment is a key predictor of purchase intention in both physical and digital markets (Kim &

Park, 2023; Thomson et al., 2005). Attachment encourages consumers to strengthen their bond with the brand, which often results in repeat purchases. In virtual consumption, attachment plays a key role as symbolic links, avatar identity, and immersive experiences strengthen emotional connections. This emotional connection leads to firm purchase intention, as consumers seek to reinforce their virtual identities and personal narratives by purchasing digital items. Prior research indicates that in virtual environments, brand attachment acts as an affective schema linking symbolic interaction and immersive experiences to consumers' self-meaning, boosting emotional bonds and purchase motivation (Zhao & Chung, 2025). The hypothesis is structured as follows;

H7: Brand Attachment positively influences Purchase Intention.

Trust plays a crucial role in online shopping, initially serving to reduce risks associated with vendor reliability and transaction security (Gefen & Straub, 2004). It strongly influences consumers' purchase intentions, especially regarding service trustworthiness (Lu et al., 2010). In digital contexts, trust functions as both a relational and emotional assurance: consumers rely on brands to safeguard their identities, deliver value, and stay visible (Liu et al., 2025; Zhao & Chung, 2025). In livestream commerce, trust mediates emotional connection and purchase choices, particularly among Generation Z in China (Zhao & Chung, 2025). Transitioning from transactional to relational trust is vital in virtual goods, where the intangible, non-returnable nature of products increases psychological risk. Overall, perceived trust positively affects the intention to buy virtual items.

H9: Perceived Trust positively influences Purchase Intention.

Decades of research show that beliefs about digital acceptance shape purchase intention, evolving from basic factors like usefulness and ease of use (Davis, 1989) to include enjoyment, aesthetics, and social signaling (Hamari & Keronen, 2017). Kim et al. (2020) link acceptance to behavior through cognition, emotion, and relationships. Recent studies, such as Liu et al. (2025), highlight the role of emotional engagement in purchase intention among Chinese Gen Z in virtual environments. Kohlkina et al. (2025) show that acceptance of identity predicts purchasing, especially among younger digital natives who value symbolism over utility. Overall, acceptance beliefs predict virtual purchase intention through cognitive, emotional, and social pathways, thereby positively influencing purchase decision intention.

H10: Digital Product Acceptance Factors positively influence Purchase Intention.

Serial mediation analysis

To clarify how digital product acceptance translates into purchase intention, this study employs serial rather than parallel mediation analysis. Following the process-based mediation framework (Hayes, 2018; Nitzl, 2016; Nitzl et al, 2016), the mediators—Attitude toward Virtual Products (AVP), Brand Attachment (BA), and Perceived Trust (PT)—are theoretically and causally ordered. AVP should influence BA, and BA should affect PT, with AVP also having a direct impact on PT, indicating that AVP and BA are interdependent mediators rather than independent parallel pathways. The assumption of independence in parallel mediation is broken (Hayes, 2018). The sequential mediation model (DPAFs → AVP → BA → PT → PI) illustrates the step-by-step process from cognitive appraisal to emotional intimacy and relationship trust. Indirect effects were examined using bootstrapping (5,000 resamples), and serial mediation was indicated when confidence intervals did not cross zero.

This analysis adopts a two-step second-order PLS-SEM methodology. Initially, without SG as a moderator, we examine pure serial mediation to assess the target psychological process. The second model includes SG as a moderator to explore its moderating effect, thus differentiating mechanism testing from boundary conditions testing.

H11: The influence of Digital Product Acceptance Factors on Purchase Intention is sequentially mediated through Attitude toward Virtual Products, Brand Attachment, and Perceived Trust.

Swift Guanxi (SG) as a cultural moderator

Swift Guanxi (SG) is a quickly formed bond marked by warmth, reciprocity, and obligation in Chinese contexts (Ou et al., 2014). Unlike traditional guanxi, which develops slowly, SG emerges from

situational cues like social presence, responsiveness, and emotional communication. In digital environments with frequent, emotionally charged interactions, SG influences consumer decisions. Livestreaming commerce demonstrates that SG acts as a relational booster, not merely an attitude. Real-time interactivity, empathy, personalization, and expressive communication quickly build SG, thereby increasing trust and the likelihood of repurchase (Qin et al., 2025). SG fosters relational growth by helping consumers feel secure, close, and understood early in digital interactions. This rapid rapport-building may reduce reliance on trust, which typically develops slowly in social digital exchanges (Qin et al., 2025). Applying this to virtual products, SG affects how evaluations influence behavior. Virtual products are symbolic, identity-related, and socially visible; decisions are shaped by practical benefits and relational cues, such as acceptance and belonging. In high-SG settings, consumers seek quick reassurance; therefore, attitudes directly influence purchases without requiring extensive trust. When SG is low, consumers rely on evaluative and relational processing, where trust and emotional bonds are key to converting attitudes into actions.

This study views SG as a cultural boundary that affects the relationship between psychological factors and purchase intention, rather than serving as a direct predictor or mediator. Treating SG as a moderator highlights how cultural factors shape cognitive, emotional, and relational connections in virtual consumption. Qin et al. (2025) suggest that SG is likely to affect trust, brand attachment, attitudes toward virtual products, acceptance factors, and purchase intentions in Chinese virtual markets.

Treating Swift Guanxi as a moderator instead of a mediator is based on theory and timing. A mediator connects an antecedent to an outcome, forming a causal chain (Baron & Kenny, 1986; Hayes, 2018). But SG is not driven by beliefs or attitudes toward digital acceptance, nor is it an intermediate step between acceptance and purchase. Rather, SG is a prior relational factor shaped by platform design, interaction style, and cultural norms, which in turn influence the translation of cognitive and attitudinal factors into behavioral intention. SG is a moderator that modifies the relationship between the predictor and outcome, but is not influenced by the predictor (Hair et al., 2022). SG is a pre-existing or concurrent condition prior to consumers' judgments of DPAFs and AVP, not a consequence. Its independence from the acceptance confirms its moderating effect and is consistent with prior research on guanxi-based boundary conditions in the Chinese digital context (Ou et al., 2014; Lin et al., 2019; Qin et al., 2025). Therefore, the following hypotheses are proposed.

H12: Swift Guanxi moderates the relationship between Perceived Trust and Purchase Intention.

H13: Swift Guanxi moderates the relationship between Brand Attachment and Purchase Intention.

H14: Swift Guanxi moderates the relationship between Attitude toward Virtual Products and Purchase Intention.

H15: Swift Guanxi moderates the relationship between Digital Product Acceptance Factors and Purchase Intention

Conceptual framework

This research investigates how Generation Z consumes virtual goods by examining the effects of culture, perceived value, technology adoption, and emotional attachment. Perceived social influence, affective value, perceived usefulness, and ease of use are considered second-order constructs, collectively referred to as Digital Product Acceptance Factors (DPAFs). According to TAM, DPAFs impact AVP, thereby improving BA, facilitating PT, and resulting in PI. This path outlines the factors influencing decision-making, with AVP, BA, and PT serving as serial mediators between DPAFs and PI. SG moderates the influence of culture on the link between psychological paths and purchase intention.

This study views Digital Product Acceptance Factors (DPAFs) as a higher-order construct combining cognitive, emotional, and social influence dimensions. Modeling these dimensions as a second-order construct captures their roles and enables the study of how digital acceptance influences attitudes, emotional attachment, trust, and purchase intention in virtual consumption.

Methodology

Research design

A PLS- SEM design suits analyzing complex models with multiple variables, hierarchical structures, mediation, and moderation, especially for non-normal data. It focused on explaining Generation Z consumers' intentions to purchase virtual goods in China by investigating how online cognitive evaluation, emotional attachment, and trust interact.

Sampling and data collection

Data for this study were collected via an online survey distributed through major Chinese social media platforms (WeChat, QQ, and Xiaohongshu). Generation Z consumers were targeted based on item consumption history through purposive sampling. According to an a-priori SEM sample size analysis based on five latent constructs and thirty indicators, we needed at least 200 observations under conservative assumptions ($f^2 = 0.10$, power = 0.80, $\alpha = 0.05$) (Soper, 2026). The final total of valid responses included 524 items, exceeding recommended thresholds for more complex higher-order models and mediation in terms of overall satisfactory parameter estimation (Hair et al., 2019).

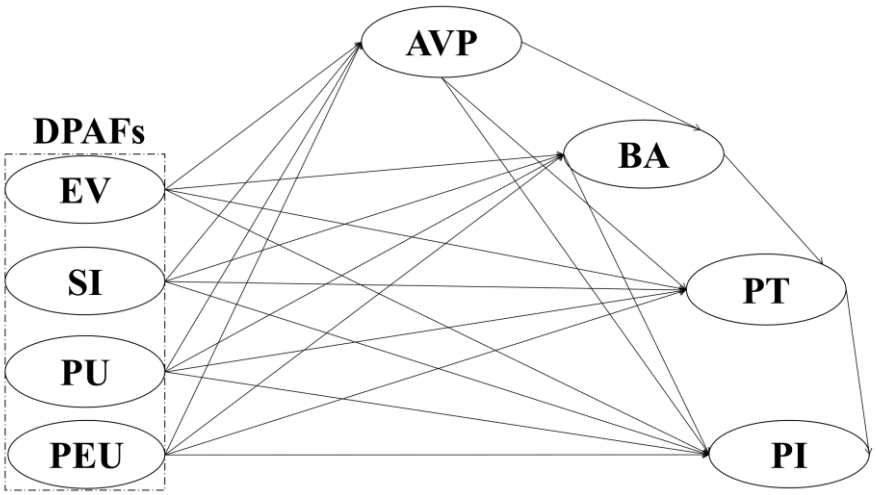


Figure 1 First order construct with two-stage approach on DPAFs

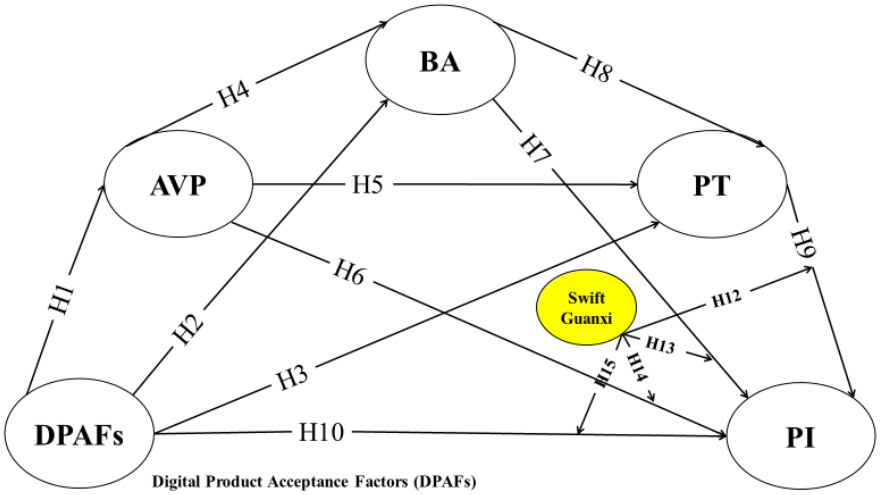


Figure 2 Second-order construct on DPAFs

Measurement of constructs

All constructs were assessed with Likert scales from 1 (strongly disagree) to 7 (strongly agree). Digital Product Acceptance Factors (DPAFs) comprised perceived usefulness and perceived ease of use, adapted from Davis (1989), together with emotional value, adapted from Kim et al. (2011), and social influence, adapted from Hsieh and Tseng (2018). The attitude toward virtual products (AVP) was adapted from Ajzen (1991). Brand attachment was assessed using items from Thomson et al. (2005), and perceived trust (PT) was measured using items from Gefen et al. (2003). Purchase intention items were derived from recent research on digital commerce (Kim et al., 2020). Swift guanxi (SG), a relational mechanism in online consumer–brand interactions, was measured using scales adapted from Lin et al. (2019), Ou et al. (2014), and Zhou et al (2025). All measurement items were translated into Chinese and then back-translated into English using Brislin's method to ensure cross-language equivalence (Jones et al., 2001).

Higher-order construct modeling: DPAFs

DPAFs comprise perceived usefulness, ease of use, emotional value, and social influence. DPAFs is a higher-order construct using the disjoint two-stage approach (Becker et al., 2023; Cheah et al., 2019; Sarstedt et al., 2019). Initially, each of the four lower-order constructs was estimated separately, with its antecedents and consequences defined and its measurement qualities evaluated using latent scores (Becker et al., 2012). Latent variable scores from this stage were extracted and used as indicators of the second-order DPAFs construct in the second-stage structural model (see Figure 1, 2). Unlike the embedded approach, the disjoint procedure models lower-order constructs separately from higher-order constructs in the first stage, thereby avoiding identification issues and reducing multicollinearity among indicators (Becker et al., 2012). This approach enables accurate estimation of hierarchical relationships while preserving the theoretical uniqueness of each acceptance dimension, in accordance with recent best-practice guidelines for higher-order modeling in PLS-SEM (Becker et al., 2023).

Reliability and validity assessment

The measurement model was evaluated using standard PLS-SEM criteria. All indicators surpassed 0.70, showing adequate reliability. Cronbach's alpha and composite reliability were above 0.70 for all constructs, confirming consistency. Average Variance Extracted (AVE) values surpassed 0.50, demonstrating convergent validity. Discriminant validity was supported using the Heterotrait–Monotrait ratio (HTMT), with values remaining below 0.85 (Henseler et al., 2015). These results confirm that the reflective measurement model has strong psychometric properties.

Structural model procedure

The structural model was assessed for multicollinearity, predictive accuracy, and effect sizes. Variance Inflation Factor (VIF) values for all predictor constructs were below the conservative threshold of 3.3, indicating the absence of common method bias based on the full collinearity assessment (Kock, 2015). In addition, all VIF values were well below the threshold of 5, suggesting no multicollinearity concerns among the predictor constructs. Bootstrapping with 5,000 subsamples was conducted to evaluate the significance of direct, indirect, and interaction effects. The R^2 coefficients for AVP, BA, PT, and PI varied from moderate to substantial, indicating adequate explanatory power (Chin, 1998). The blindfolding method yielded high Q^2 values for all endogenous constructs, confirming the model's predictive validity.

Serial mediation analysis

To clarify how digital product acceptance translates into purchase intention, this study employs serial rather than parallel mediation analysis. Following the process-based mediation framework (Hayes, 2018; Nitzl, 2016; Nitzl et al, 2016), the mediators—Attitude toward Virtual Products (AVP), Brand Attachment (BA), and Perceived Trust (PT)—are theoretically and causally ordered. AVP should influence BA, and BA should affect PT, with AVP also having a direct impact on PT, indicating that AVP and BA are interdependent mediators rather than independent parallel pathways. The assumption of independence in parallel mediation is broken (Hayes, 2018). The sequential mediation model (DPAFs → AVP → BA → PT → PI) illustrates the

step- by- step process from cognitive appraisal to emotional intimacy and relationship trust. Indirect effects were examined using bootstrapping (5,000 resamples), and serial mediation was indicated when confidence intervals did not cross zero. Full serial mediation between DPAFs and PI occurs when the direct effect is insignificant; otherwise, it indicates partial mediation (Hayes, 2018; Nitzl, 2016; Nitzl et al, 2016).

This analysis adopts a two-step second-order PLS-SEM methodology. Initially, without SG as a moderator, we examine pure serial mediation to assess the target psychological process. The second model includes SG as a moderator to explore its moderating effect, thus differentiating mechanism testing from boundary conditions testing.

Moderation analysis: Swift Guanxi

Swift Guanxi moderation effects were examined using Henseler and Chin's (2010) latent variable interaction technique. Interaction terms between SG and key antecedents (AVP, BA, PT, and DPAFs) were examined to determine if relational dynamics within Chinese cultural contexts impact the psychological factors that influence the intention to purchase virtual products. Significance levels and f^2 effect sizes were used to assess the strength and importance of the moderation effect.

Results

Demographic

The 510 respondents were all Generation Z aged 18-28, mainly female (56.10%), with 39.20% male and 4.70% non-binary or other. Most earned 6,000-7,000 CNY per month, which is typical for students and young professionals in China. They reported frequent use of virtual products, showing high digital engagement. These demographics suggest that the sample accurately represents Chinese Gen Z individuals who are active online and familiar with virtual products.

First-order construct

Model fit

The initial measurement model demonstrates a good fit, with SRMR values of 0.050 for the saturated model and 0.051 for the estimated model, both remaining below the 0.08 threshold. The chi-square statistic is consistent across models, with an NFI of 0.834. This value exceeds 0.80, indicating a good incremental fit. Overall, these indices show the first-order construct model fits well.

***Measurement model* (First-order constructs)**

Tables 1 and 2 support the measurement model's reliability and validity, justifying further use.

Second- order construct without moderator (Swift Guanxi)

Model fit

The model fit evaluation suggests that the research model is quite acceptable overall. The SRMR for both models is 0.058, below the 0.08 threshold (Henseler et al., 2014), indicating a good fit. The d_ULS (0.463) and d_G (0.267) values fall within their confidence intervals, indicating that the empirical and predicted correlations are not significantly different from each other. These indices indicate the PLS-SEM model fits well and is suitable for further analysis.

Measurement model

Table 3 shows the reliability and validity results for the second-order measurement model. The path coefficients from the higher-order construct (DPAFs) to its first-order dimensions (EV, PEU, PU, SI) are strong and exceed thresholds, indicating each dimension's contribution. Composite reliability (ρa and ρc) and Cronbach's alpha for DPAFs are above 0.80, confirming internal consistency. AVE > 0.50, indicating high convergent validity.

Table 4 presents the HTMT discriminant validity for the second-order construct. All HTMT values are below 0.85, indicating that DPAFs are distinct from AVP, BA, PI, and PT.

Table 1 Loading Composite reliability and AVE of the first-order construct

		Loading	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Attitude towards Virtual Products and Derivatives (AVP)			0.893	0.897	0.933	0.823
AVP1	Using virtual products and their derivatives is advisable.	0.923				
AVP2	Virtual products and their derivatives enhance my digital life.	0.900				
AVP3	I have a positive attitude towards purchasing virtual product derivatives.	0.899				
Brand Attachment (BA)			0.851	0.852	0.910	0.771
BA1	I feel personally connected to brands that offer virtual products and derivatives.	0.888				
BA2	I am loyal to specific virtual product brands.	0.884				
BA3	The brand image influences my purchase of virtual product derivatives.	0.862				
Emotional Value (EV)			0.877	0.878	0.924	0.803
EV1	Using virtual products makes me feel good.	0.899				
EV2	I derive pleasure from using derivatives of virtual products.	0.899				
EV3	Virtual products and their derivatives reflect my personal style.	0.891				
Perceived Ease of Use (PEU)			0.879	0.883	0.926	0.806
PEU1	Learning to use virtual products is easy for me.	0.880				
PEU2	I find it easy to use and understand derivatives of virtual products.	0.913				
PEU3	The process of purchasing virtual products and their derivatives is straightforward.	0.899				
Purchase Intention (PI)			0.890	0.894	0.932	0.820
PI1	I intend to purchase virtual products in the near future.	0.920				
PI2	I am likely to buy derivatives of virtual products I already own.	0.910				
PI3	I plan to increase my spending on virtual products and their derivatives.	0.887				
Perceived Trust (PT)			0.865	0.869	0.918	0.788
PT1	I trust providers of virtual products and their derivatives in China.	0.903				
PT2	I believe virtual product providers in China keep my best interests in mind.	0.868				
PT3	I feel secure when purchasing virtual products and derivatives from Chinese platforms.	0.891				

		Loading	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Perceived Usefulness (PU)			0.893	0.893	0.933	0.824
PU1	Virtual products enhance my effectiveness in daily activities.	0.908				
PU2	Derivatives of virtual products (e.g., upgrades) improve the functionality of the original product.	0.902				
PU3	Virtual products and their derivatives are useful in my personal life.	0.913				
Social Influence (SI)			0.826	0.826	0.896	0.742
SI1	People important to me think I should use virtual products and their derivatives.	0.873				
SI2	My peers influence my choice of virtual products and derivatives.	0.848				
SI3	Using certain virtual products and derivatives enhances my social status.	0.862				

Table 2 HTMT of the first-order construct

	AVP	BA	EV	PEU	PI	PT	PU
AVP							
BA	0.707						
EV	0.672	0.646					
PEU	0.700	0.604	0.692				
PI	0.691	0.631	0.593	0.591			
PT	0.588	0.688	0.534	0.539	0.597		
PU	0.639	0.587	0.690	0.681	0.607	0.517	
SI	0.641	0.698	0.599	0.517	0.679	0.746	0.600

Table 3 Loading, composite reliability, and AVE of the second-order construct

	Path Coefficient	Composite reliability (rho_a)	Composite reliability (rho_c)	Cronbach's alpha	AVE
AVP		0.897	0.933	0.893	0.823
AVP1	0.923				
AVP2	0.900				
AVP3	0.899				
BA		0.852	0.910	0.851	0.771
BA1	0.888				
BA2	0.882				
BA3	0.864				
PI		0.895	0.932	0.890	0.820
PI1	0.921				
PI2	0.910				
PI3	0.886				
PT		0.870	0.918	0.865	0.788
PT1	0.905				
PT2	0.866				
PT3	0.891				
DPAFs		0.829	0.887	0.829	0.662
EV	0.837				
PEU	0.812				
PU	0.833				
SI	0.772				

Table 4 HTMT of the second-order construct without the moderator model

	Original sample (O)
BA <-> AVP	0.707
DPAFs <-> AVP	0.835
DPAFs <-> BA	0.798
PI <-> AVP	0.691
PI <-> BA	0.631
PI <-> DPAFs	0.777
PT <-> AVP	0.588
PT <-> BA	0.688
PT <-> DPAFs	0.734
PT <-> PI	0.597

Structural model results

Figure 3 and Table 5 report the results of the structural model without the moderator. Consistent with a process-based serial mediation framework (Hayes, 2018; Nitzl, 2016; Nitzl, et al., 2016), the results indicate a sequential cognitive– affective– relational pathway from digital product acceptance to purchase intention.

Digital Product Acceptance Factors (DPAFs) exert a strong positive effect on Attitude toward Virtual Products (AVP) ($\beta = 0.720$, $p < 0.001$), as well as significant direct effects on Brand Attachment (BA) (β

= 0.471, p < 0.001), Perceived Trust (PT) (β = 0.389, p < 0.001), and Purchase Intention (PI) (β = 0.363, p < 0.001). These findings suggest acceptance beliefs are the main cognitive basis for later emotional, relational, and behavioral responses.

AVP significantly predicts BA (β = 0.279, p < 0.001) and PI (β = 0.245, p < 0.001), but its direct effect on PT is not significant (β = 0.059, p = 0.343). Favorable evaluations do not directly create trust; instead, trust forms via affective mechanisms rather than attitude transfer.

Brand Attachment boosts Perceived Trust (β = 0.294, p < 0.001) but has a non-significant direct effect on Purchase Intention (β = 0.087, p = 0.087). This pattern aligns with serial mediation, in which emotional attachment influences behavioral intention indirectly through trust rather than directly.

Finally, Perceived Trust strongly affects Purchase Intention (β = 0.118, p = 0.021), confirming that trust is the main factor that converts feelings into action.

The model explains substantial variance in AVP (R^2 = 0.518), BA (R^2 = 0.489), PT (R^2 = 0.450), and PI (R^2 = 0.505). The effects support a serial mediation model in which acceptance beliefs influence attitudes, which in turn foster attachment, build trust, and drive purchase intention.

Serial mediation explanation

Figure 3 and Table 5 illustrate a mediation: DPAFs have a direct impact on Purchase Intention. Initially, DPAFs impact AVP, which subsequently enhances BA. This attachment can build consumers' perceived trust, thereby stimulating their purchase intention. There are no direct effects of AVP on PT or BA on PI. These findings imply that mediators play a causal role in the sequence. Thus, the process-based serial mediation model supported by this pattern makes trust the final link in a chain that translates attitudinal and emotional responses into behavioral intentions.

Second-order construct with moderator (Swift Guanxi)

Model fit

The second-order model with Swift Guanxi (SG) as a moderator had acceptable fit, with SRMR values of 0.054 (saturated) and 0.068 (estimated), both below 0.08, despite increased complexity. Although the distribution-based fit indicators (d_ULS and d_G) slightly surpass the 95% and 99% bootstrap confidence intervals, the SRMR remains within acceptable limits, suggesting a good model fit. Prior PLS-SEM research indicates that deviations are common in complex models with higher-order constructs and interactions and do not necessarily indicate misspecification. These results confirm that the second-order model with SG as a moderator has a good fit, supporting its robustness and justifying hypothesis testing of the moderated relationships.

Measurement model

Tables 6 and 7 report the measurement model results for the second-order model with the moderator, while Tables 3 and 4 present the corresponding results without the moderator. The tables show that indicator loadings, composite reliability, Cronbach's alpha, rho_A, and AVE are identical across models; therefore, adding the moderator does not alter measurement properties. In the moderated model, additional measures of Swift Guanxi (SG) and interaction terms are introduced. All SG indicators exhibit strong loadings, and the reliability and convergent validity measures for SG exceed the recommended thresholds (ρc > 0.70; AVE > 0.50). HTMT values in Table 7, including those with SG, stay below 0.85, confirming discriminant validity. These findings indicate that the measurement model remains stable and robust after adding the moderator, thereby meeting all quality standards. This confirms the suitability of the moderated second-order model.

Structural model results

Figure 3 and Table 5 present the structural model without the moderator, revealing a straightforward serial mediation process in which Digital Product Acceptance Factors (DPAFs) influence Purchase Intention (PI) sequentially through Attitude toward Virtual Products (AVP), Brand Attachment (BA), and Perceived Trust (PT). In this baseline model, the path PT → PI is significant, thereby completing the causal chain and supporting the serial mediation mechanism

Table 5 Direct effects without moderator

	Path Coefficient	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	2.5%	97.5%	Supported
H1: DPAFs -> AVP	0.720	0.026	28.184	0.000	0.669	0.768	Yes
H2: DPAFs -> BA	0.471	0.052	9.016	0.000	0.370	0.573	Yes
H3: DPAFs -> PT	0.389	0.058	6.718	0.000	0.275	0.499	Yes
H4: AVP -> BA	0.279	0.053	5.294	0.000	0.173	0.381	Yes
H5: AVP -> PT	0.059	0.062	0.948	0.343	-0.063	0.181	No
H6: AVP -> PI	0.245	0.059	4.158	0.000	0.125	0.357	Yes
H7: BA -> PI	0.087	0.057	1.512	0.131	-0.026	0.197	No
H8: BA -> PT	0.294	0.057	5.149	0.000	0.181	0.406	Yes
H9: PT -> PI	0.118	0.051	2.310	0.021	0.019	0.216	Yes
H10: DPAFs -> PI	0.363	0.062	5.830	0.000	0.241	0.486	Yes

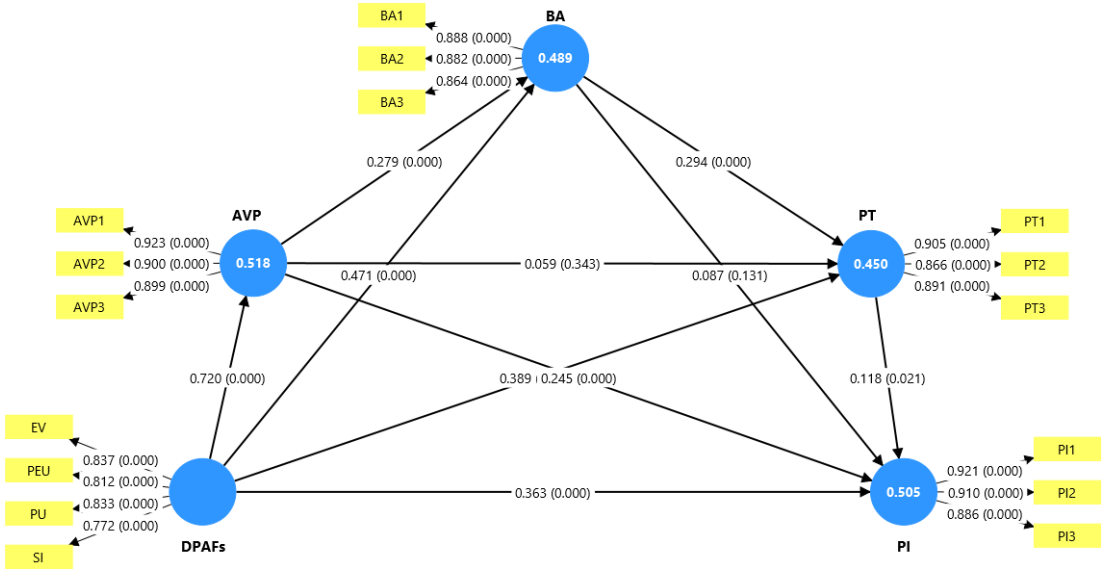


Figure 3 Second-order construct without moderator (Swift Guanxi)

Table 6 Loading composite reliability and AVE of the second-order construct with moderator

	Path Coefficient	Composite reliability (rho_a)	Composite reliability (rho_c)	Cronbach's alpha	AVE
AVP		0.933	0.933	0.897	0.823
AVP1	0.923				
AVP2	0.900				
AVP3	0.899				
BA		0.910	0.910	0.852	0.771
BA1	0.888				
BA2	0.882				
BA3	0.864				
PI		0.932	0.932	0.895	0.820
PI1	0.921				
PI2	0.909				
PI3	0.886				
PT		0.918	0.918	0.870	0.788
PT1	0.905				
PT2	0.866				
PT3	0.891				
DPAFs		0.887	0.887	0.829	0.662
EV	0.837				
PEU	0.812				
PU	0.833				
SI	0.772				
SG		0.927	0.927	0.884	0.808
SG1	0.899				
SG2	0.893				
SG3	0.904				
SG x AVP	1.000			1.000	
SG x BA	1.000			1.000	
SG x DPAFs	1.000			1.000	
SG x PT	1.000			1.000	

Figure 4 and Table 8 show the results of the moderated structural model with Swift Guanxi (SG). Path coefficients without the moderator stay stable, showing model robustness. Adding interaction terms alters the significance of some relationships. The direct effect of PT on PI is now statistically insignificant, showing that the serial mediation is unsupported when moderation is included. SG moderates the relationships between DPAFs, AVP, and PI, but the interactions BA × SG → PI and PT × SG → PI are not significant. These findings indicate that Swift Guanxi primarily influences the translation of cognitive acceptance and attitudes into purchase intent, rather than through affective attachment or trust- based mechanisms. The results indicate that serial mediation depends on contextual and relational

cues in Swift Guanxi. The moderated model shifts from a simple sequence to a conditional process, with relational immediacy influencing specific paths to purchase intention.

Table 7 HTMT of the second-order construct with the moderator model

	Original sample (O)	Sample mean (M)	2.5%	97.5%
BA <-> AVP	0.707	0.707	0.635	0.771
DPAFs <-> AVP	0.835	0.835	0.784	0.884
DPAFs <-> BA	0.798	0.798	0.730	0.859
PI <-> AVP	0.691	0.690	0.621	0.753
PI <-> BA	0.631	0.631	0.546	0.708
PI <-> DPAFs	0.777	0.777	0.718	0.831
PT <-> AVP	0.588	0.588	0.501	0.668
PT <-> BA	0.688	0.689	0.602	0.765
PT <-> DPAFs	0.734	0.735	0.665	0.797
PT <-> PI	0.597	0.597	0.506	0.680
SG <-> AVP	0.701	0.701	0.629	0.769
SG <-> BA	0.626	0.627	0.540	0.707
SG <-> DPAFs	0.804	0.805	0.744	0.861
SG <-> PI	0.607	0.607	0.516	0.693
SG <-> PT	0.708	0.708	0.633	0.776

Summary of key findings

This study examined how Digital Product Acceptance Factors (DPAFs) translate into Purchase Intention (PI) for virtual products among Chinese Gen Z consumers through a cognitive–affective–relational process, and how this mechanism changes when Swift Guanxi (SG) is introduced as a contextual moderator. Consistent with process-oriented views of consumer behavior (Bagozzi, 1992; Hayes, 2018), the baseline model reveals a serial mediation mechanism in which DPAFs influence PI sequentially through Attitude toward Virtual Products (AVP), Brand Attachment (BA), and Perceived Trust (PT). However, with SG incorporation, the serial mechanism breaks down, making the impact of acceptance beliefs and attitudes on purchase intention dependent on relational context.

Serial mediation mechanism in virtual product consumption

The results support a serial mediation paradigm, which is consistent with Bagozzi's (1992) self-regulation and Hayes' (2018) mediation logic. Attitudes toward virtual products are shaped by beliefs about digital acceptance, such as perceived usefulness, ease of use, emotional value, and social influence (Venkatesh et al., 2003; Davis, 1989). These attitudes create a connection with brands, also known as brand attachment (Thomson et al., 2005), increasing perceived trust, which is essential in digital relationships (Gefen et al., 2003). Notably, non-significant pathways from AVP to PT and from BA to PI support the serial sequence. These findings suggest that having positive attitudes by themselves does not directly lead to trust, and that emotional attachment alone does not instantly result in behavioral intentions without relational reassurance. These results align with prior research emphasizing that trust in digital and virtual contexts arises from accumulated affective and relational experiences rather than from instantaneous cognitive evaluations (Yim et al., 2008; Gefen & Straub, 2004). This psychological process is particularly significant in contexts of symbolic and identity-driven consumption, like virtual products (Hamari et al., 2017).

Table 8 Direct effects and moderating effects of swift Guanxi

Hypothesis	Path coefficients	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	2.5%	97.5%	Supported
H1: DPAFs -> AVP	0.720	0.026	28.184	0.000	0.669	0.768	Yes
H2: DPAFs -> BA	0.471	0.052	9.016	0.000	0.370	0.573	Yes
H3: DPAFs -> PT	0.389	0.058	6.718	0.000	0.275	0.499	Yes
H4: AVP -> BA	0.279	0.053	5.294	0.000	0.173	0.381	Yes
H5: AVP -> PT	0.059	0.062	0.948	0.343	-0.063	0.181	No
H6: AVP -> PI	0.165	0.062	2.662	0.008	0.041	0.288	Yes
H7: BA -> PI	0.088	0.058	1.518	0.129	-0.029	0.197	No
H8: BA -> PT	0.294	0.057	5.149	0.000	0.181	0.406	Yes
H9: PT -> PI	0.100	0.054	1.838	0.066	-0.007	0.210	No
H10: DPAFs -> PI	0.418	0.067	6.201	0.000	0.281	0.548	Yes
H12: SG x PT -> PI	-0.019	0.055	0.345	0.730	-0.127	0.088	No
H13: SG x BA -> PI	0.036	0.058	0.610	0.542	-0.082	0.145	No
H14: SG x AVP -> PI	-0.187	0.054	3.476	0.001	-0.287	-0.073	Yes
H15: SG x DPAFs -> PI	0.184	0.058	3.151	0.002	0.066	0.291	Yes

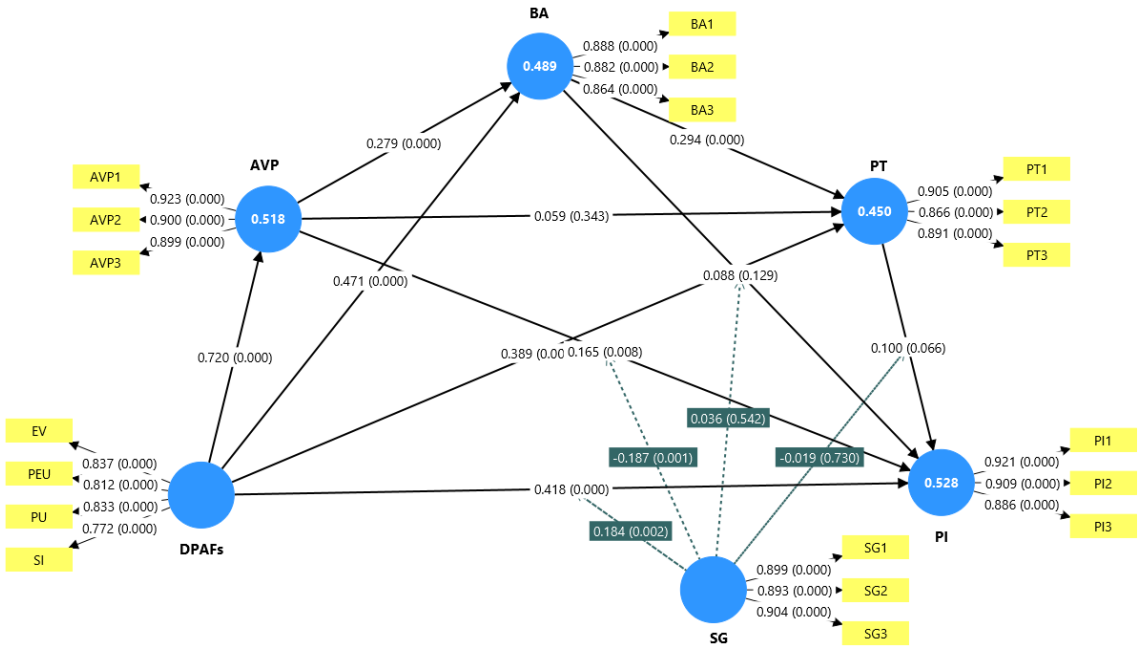


Figure 4 Second-order construct with moderator (Swift Guanxi)

Discussion

Moderating role of Swift Guanxi

When Swift Guanxi (SG) is introduced as a moderator, the decision-making process changes substantially. The impact of PT on PI is no longer significant, whereas paths that do not pass through the moderator remain stable. This suggests that the serial mediation process found in the baseline model operates unevenly among relational contexts. Presumably, in accordance with guanxi theory, which emphasizes warmth, reciprocity, and reassurance (Ou et al., 2014). Swift Guanxi doesn't replace trust but reduces uncertainty by fostering warmth, reciprocity, and empathy instead of relying on confidence in brand reliability. When SG exists, formal trust evaluation becomes redundant because the relational bond already resolves the uncertainty (Ou et al., 2014; Lin et al., 2019; Zhao & Chung, 2025).

The asymmetric moderation effects also help to explain the role of SG. SG has a sizable moderation effect on the cognitive-evaluative paths (SG×DPAFs→PI and SG×AVP→PI), but not on the affective-relational paths (SG×BA→PI and SG×PT→PI). These results are consistent with the theory: SG plays a role in the early stages of evaluation, in which relational confidence is set up and acceptance of belief and attitude occurs, and which eventually leads to purchase intention (Lin et al., 2019). SG does not impact brand attachment or trust once formed as affective-relational constructs (Hair et al., 2022). Its accelerating effect is evident in symbolic, identity-driven products such as virtual goods, where relational immediacy affects cognitive-to-behavioral conversion without replacing emotional processes (Hamari et al., 2017; Liu et al., 2025).

The results indicate that the virtual product purchase intention is context-dependent and affected by consumer psychology and digital relationship climate. In high-context Chinese markets, where guanxi norms dominate commerce, the cognitive-affective-relational sequence of the baseline model is typical for consumers without strong relational ties. Swift Guanxi does not break this sequence but offers an alternative by addressing relational uncertainty at the evaluative stage rather than waiting for attachment and trust to develop. This impacts cross-cultural consumer theory, necessitating adjustments to Western models (Davis, 1989; Bagozzi, 1992) for Confucian markets where relational immediacy influences decision-making (Zhao & Chung, 2025).

Explaining the non-significant pathways

The five unsupported hypotheses (H5, H7, H9, H12, and H13) collectively reflect theoretically coherent boundaries within the proposed model. H5 (AVP→PT) is not significant because attitude represents a product evaluation, whereas trust is a relational judgment about the brand that requires emotional evidence, which attitude alone cannot supply. Brand Attachment fulfills this role, aligning with trust-as-relational-outcome views (Frasquet et al., 2017; Yim et al., 2008). H7 (BA→PI) is non-significant because emotional attachment creates purchase motivation but not purchase permission; in virtual markets where goods are intangible and non-returnable, trust functions as the necessary commitment threshold before attachment converts to behavioral intention (Thomson et al., 2005; Hamari et al., 2017). H9 (PT→PI, moderated model) loses significance with Swift Guanxi, as SG provides relational pre-authorization via warmth, reciprocity, and empathy, reducing uncertainty. This overlaps with trust, making formal trust evaluation unnecessary in high-context environments (Ou et al., 2014; Lin et al., 2019). Finally, H12 and H13 (SG×PT→PI and SG×BA→PI) are non-significant because SG, BA, and PT are in the same affective-relational psychological domain. For moderation to be effective, the moderator and focal constructs need to be conceptually distinct, and where they share a relational register, interaction effects are expected to be attenuated in theory (Hair et al., 2022; Qin et al., 2025). SG, on the other hand, significantly moderates cognitive pathways (DPAFs, AVP) precisely because relational warmth is orthogonal to cognitive acceptance evaluation and brings qualitatively distinct influence to the evaluative stage of the purchase process.

Theoretical contributions

The contributions of this work are threefold. First, it contributes to TAM research by clarifying that the formation of acceptance beliefs in virtual consumption is mediated by psychological mechanisms rather than by a direct relationship (Davis, 1989; Venkatesh et al., 2003). Second, Serial mediation verifies a sequential process of causality from acceptance to attitude to

attachment to trust and then to purchase intention in the context of HCM (Bagozzi, 1992; Hayes, 2018; Nitzl, 2016; Nitzl et al., 2016). Third, it advances guanxi research by framing Swift Guanxi as a boundary condition influencing decision- making in digital contexts, not just as a behavior determinant (Ou et al., 2014).

This study adds to higher order modeling in consumer behavior by demonstrating the advantages of accounting for digital product acceptance as a second-order construct. Modeling of PU, PEU, EV, and SI separately can result in problems such as suppression effects, multicollinearity, and inconsistent significance, which makes it difficult to understand how acceptance beliefs impact behavior (Becker et al., 2023; Sarstedt et al., 2019). The VIF values among these dimensions justify aggregation into a second-order construct, which better captures their shared explanatory power, grounded in the idea that virtual consumption involves cognitive, hedonic, and social acceptance. This approach simplifies interpretation of how acceptance beliefs, as a unified mechanism, drive the process from attitude to purchase intention, rather than isolating each dimension.

Managerial implications

This study has practical implications for three sets of stakeholders, in particular on the moderating role of Swift Guanxi (SG). First, virtual product platform developers should focus on interaction design features that facilitate SG development, including real- time, personalized responses, live streaming with empathetic host communication, and warm onboarding cues. Under high- SG conditions, relational immediacy substitutes for formal trust and directly boosts the effects of acceptance beliefs and attitudes on purchase intention. Investment in these relational triggers will lead to higher conversion rates than investing the same amount in conventional trust signals, such as security badges or review systems, alone. Second, digital brand managers should tailor their engagement strategies to consumers' relational readiness. For high- SG consumer segments, brands can reduce investment in sequential trust-building campaigns, and rather focus on maintaining relational warmth through personalized content and community interaction. For low- SG segments, the whole cognitive–affective–relational pathway must be supported: first, develop acceptance-enhancing features, then build attachment through brand storytelling, and finally introduce trust-oriented messaging. Third, digital consumer protection policymakers should acknowledge that younger Gen Z consumers, when SG is high, may skip deliberative trust evaluation altogether, committing to virtual purchases via relational rather than rational means, demanding specific governance frameworks that stop relational acceleration cues from exploiting financially inexperienced young consumers (Kim et al., 2012; Bleize & Antheunis, 2019).

The second- order approach reveals the joint effects of cognitive, emotional, and social acceptance on positive attitudes, brand attachment, and virtual goods purchases. When modeling digital acceptance across four dimensions, managers tend to focus on a single predictor and overlook the others. Virtual providers need to develop usefulness, ease of use, emotional enjoyment, and social validation simultaneously, rather than optimizing one dimension. For example, high usability alone may not substantially increase purchase intent because higher- order acceptance needs all dimensions. DPAFs can help managers assess whether their platform is a success in all four areas, rather than just one.

Limitations and directions for future research

Although this study provides valuable insights, it has limitations. Its cross- sectional design limits causal conclusions; future research could use longitudinal studies to track how acceptance, attachment, and trust evolve. Second, adding serial mediation and multiple moderation effects complicates the analysis. This approach enables detailed psychological analysis but might hide unobserved differences among consumer groups. Future research could employ multigroup analysis to examine whether mechanisms vary across subgroups, such as relational intensities or platform engagement (Cheah et al., 2023; Henseler, 2007; Matthews, 2017; Sarstedt et al., 2011). Additionally, concentrating on Chinese Gen Z consumers could limit the broader applicability of the findings. Future studies should consider including diverse cultural or generational groups to determine if Swift Guanxi remains significant outside high-context cultures.

The sample includes 56. 10% female, 39. 20% male, and 4.70% non-binary Chinese Gen Z consumers

aged 18-28, reflecting patterns where female Gen Z dominate virtual identity goods purchases in Chinese digital markets (Bleize & Antheunis, 2019; Kim et al., 2012). Interpret findings within this demographic, as psychological mechanisms like brand attachment and Swift Guanxi may differ for males, whose motivations are more performance- or competition-driven. Future research using gender-balanced sampling and PLS-MGA can test if the cognitive–affective–relational process and the role of Swift Guanxi are similar across genders (Henseler et al., 2016).

Conclusion

This research reveals that the intention to purchase a virtual product is not a single-moment acceptance belief. In the absence of Swift Guanxi, acceptance influences purchase as a cognitive-affective-relational sequence composed of attitude, brand attachment, and trust (Bagozzi, 1992; Hayes, 2018). Under Swift Guanxi, this process is contingent: relational immediacy transforms how beliefs about acceptance and attitudes produce behavior.

The results suggest that psychological variables and relational motivations have to be taken into account in virtual consumption. By integrating serial mediation and cultural moderation in an acceptance model, the study provides a fine-grained understanding of purchase intentions from digital and cultural perspectives.

Declaration of generative AI in scientific writing

During the preparation of this manuscript, the authors used ChatGPT to assist with language editing and to improve the clarity and readability of selected sections of the text. The tool was used only for linguistic refinement and did not contribute to the study design, data analysis, interpretation of results, or the generation of research findings. After using this tool, the authors carefully reviewed and edited the content as necessary and take full responsibility for the accuracy, integrity, and originality of the manuscript.

CRediT Author Statement

Tang Xue: Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Writing – Original Draft. **Rattana Seedee:** Methodology, Validation, Writing – Review & Editing, Co-supervision. **Chanta Jhantasana:** Conceptualization, Methodology, Formal Analysis, Writing – Review & Editing, Supervision.

Refference

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