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Why Do Tourists Buy Culture? An Investigation of Demographic Differences in Cultural Souvenir Preferences among Chinese Tourists

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ABSTRACT

This study investigates how demographic factors shape Chinese tourists' preferences for cultural souvenir design and influence their purchase intentions. Despite the significance of souvenir consumption in tourism, the role of consumer demographics remains underexplored, especially in the Chinese outbound market. Drawing on the Theory of Planned Behavior and semiotics, this research examines how gender, age, income, and education affect evaluations of three design attributes—aesthetic value, care & travel convenience, and uniqueness—and their moderating role in shaping purchase intention. Based on survey data from 620 domestic Chinese tourists, structural equation modeling and hierarchical regression reveal that all four demographic factors not only influence design preferences but also significantly moderate their effect on purchase intention. For example, women are more sensitive to symbolic aesthetics, older and higher-income tourists respond more strongly to design features, and higher education enhances design influence. The study extends consumer behavior theory by establishing demographics as key moderators and offers practical implications for segmented marketing and design strategies in cultural tourism.

Keywords: Cultural Souvenirs; Design Preferences; Purchase Intention; Demographic Moderators; Chinese Tourists

INTRODUCTION

Background

Souvenirs are far more than travel memorabilia; they represent a multi-billion-dollar global industry intertwined with destination branding, cultural preservation, and economic sustainability (He & Timothy, 2024; Mathisen, 2020). As tangible expressions of intangible travel experiences, souvenirs act simultaneously as anchors of memory and cultural signifiers (Swanson & Timothy, 2012). Tourists' motivations to purchase souvenirs are diverse, ranging from self-memory to gift-giving (Hu & Yu, 2024), and their spending on souvenirs can account for over 30% of total travel expenses, indicating their strong economic significance.

While a growing body of literature has addressed souvenir purchase motivations (e.g., Kim & Littrell, 2001), including studies on Chinese outbound tourists (Chen & Tung, 2014), there remains a critical gap in understanding how demographic variables shape design preferences. China, as one of the world's fastest-growing tourism markets, exerts considerable influence on global tourist shopping patterns. Previous research has highlighted how demographic characteristics affect tourist behavior (Amaro et al., 2016), with evidence suggesting that female tourists shop more frequently, younger travelers place greater importance on souvenir purchasing, and affluent or highly educated tourists are more selective about product quality and design.

However, these insights remain fragmented. Most studies emphasize motivations or general shopping behavior, but few systematically explore the link between demographic stratification (age, gender, income, education) and specific design preferences. This lack of evidence constrains product development, especially in the increasingly segmented Chinese market, where cultural confidence and generational shifts demand nuanced targeting (Hossain et al., 2024).

More critically, the existing literature has largely overlooked the moderating role of demographic factors in the relationship between design features and purchase intention. Why do the same products resonate strongly with some consumer segments but fail to engage others? Without answers to such questions, destination marketers lack clear segmentation strategies, and artisans face uncertainty in design investment.

To address this gap, this study introduces a four-dimensional demographic framework: gender as a lens for utilitarian versus experiential preferences, age as a marker of generational cognitive divergence, income as a boundary for symbolic consumption, and education as a differentiator of cultural capital.

By conceptualizing demographics as systemic moderators rather than mere predictors, this study redefines market segmentation within China's US$1.2 trillion tourism economy (WTTC, 2024). It offers an empirical foundation for aligning souvenir design with stratified consumer preferences and optimizing resource allocation toward high-impact consumer segments.

Conceptual Background and Hypotheses Development

Demographic Factors in Tourism Consumption

A growing body of research has established the critical role of demographic variables in shaping tourist behavior, particularly in the domain of souvenir consumption (Amaro et al., 2016). Demographic attributes—including age, gender, education, and income—do not merely serve as background indicators; they exert both direct and mediated influence on cultural souvenir preferences (Yu & Littrell, 2005). Timothy (2005) classified these influences into intrinsic factors (e.g., demographic characteristics and cultural background) and extrinsic ones (e.g., retail environment, customer service, and souvenir features). Yoon-Jung (2007) further specified that souvenir selection is determined by a tripartite framework involving personal characteristics, travel-related features, and destination context.

Gender

Gender remains one of the most frequently examined demographic variables in tourism research, showing consistent correlations with purchasing behavior (Uçgun & Narcı, 2022). Gender functions not only as a core segmentation axis (Pinna, 2020), but also as a moderator of product perception and decision-making processes (Kim et al., 2021). Studies consistently report that women are more likely to purchase a higher volume and frequency of souvenirs compared to men, particularly those that serve social gifting purposes (Amaro et al., 2020). Female tourists also exhibit greater interest in locally themed handicrafts, food items, and decorative artifacts (Littrell et al., 1994), reflecting a stronger affective and relational orientation in their consumption logic (Singh et al., 2025).

Conversely, male tourists and those with higher education levels display a stronger preference for souvenirs that emphasize cultural authenticity, aesthetic quality, and symbolic value (Li, 2012). Research also indicates gender-specific heuristics in information processing: men are more likely to rely on brand, price, or store cues, while women respond more to experiential and relational stimuli (Verma, 2020). However, existing literature on Chinese outbound tourists provides limited gender-specific insights into the differentiated valuation of cultural souvenir design attributes.

Age

Age has long been recognized as a pivotal determinant in tourism-related consumption (Littrell, 1990), with substantial empirical support highlighting its predictive power in souvenir purchasing patterns (Biswas et al., 2020). Age influences not only the perceived value of souvenirs but also the underlying motivations and consumption contexts. Younger tourists tend to prioritize souvenirs that offer novelty, fashionability, or social signaling potential, whereas older tourists are more inclined toward long-lasting, meaningful, and memory-laden products (Seočanac et al., 2025).

For instance, younger tourists often favor wearable items such as T-shirts or accessories, while older demographics exhibit stronger preferences for artisanal goods, traditional crafts, and regionally distinctive foods (Littrell et al., 1994). Further, older visitors are more likely to seek products that reinforce their emotional connection to the destination or commemorate personal milestones (Li, 2012). Although the tourism literature has increasingly acknowledged age-based segmentation, targeted investigations into how different age cohorts among Chinese tourists evaluate souvenir design elements remain underdeveloped.

Income Level

Tourists' income levels are closely tied to their overall travel spending and, by extension, their souvenir purchasing capacity (Horita & Kato, 2020). Economic status not only defines what tourists can afford but also shapes their valuation of product attributes such as exclusivity, craftsmanship, and symbolic capital (Durmaz & Gündüz, 2021). High-income tourists are more likely to purchase expensive, artisanal souvenirs that serve as prestige signals or aesthetic collectibles, whereas low-income tourists prioritize affordability, practicality, and gift-giving utility.

Furthermore, income intersects with family structure, lifestyle aspirations, and cultural capital to determine specific patterns of spending behavior. For example, families without children tend to spend more on shopping (Bojanic, 2011), and high-income individuals often exhibit preferences for premium materials, branded goods, or limited-edition artifacts (Jang et al., 2004). Despite these insights, few studies have mapped the income-related stratification of souvenir design preferences among Chinese outbound tourists—a market segment marked by increasing heterogeneity and consumer sophistication.

Education Background

Education serves as both a socio-cultural filter and a cognitive enhancer in tourist decision-making, particularly when evaluating products with historical or cultural significance. Higher educational attainment is consistently linked to an increased appreciation for authenticity, heritage, craftsmanship, and symbolic resonance in souvenir selection (Mawufemor et al., 2019). Educated tourists also demonstrate higher sensitivity to product narratives and cultural semiotics, aligning their consumption with broader notions of cultural capital.

Empirical evidence from Chinese domestic tourism suggests that educational background significantly affects the prioritization of product features. He (2012) observed that tourists with elementary-level education focus primarily on price, whereas those with undergraduate degrees emphasize traditional techniques and craftsmanship. Postgraduates, in particular, show a strong preference for brand value and cultural authenticity. Moreover, educated tourists are more selective in their choice of retail environments, favoring outlets that provide narrative context, ethical production, and symbolic alignment (Kay Smith et al., 2022).

Cultural Souvenir Design Attributes

The design attributes of cultural souvenirs have garnered increasing scholarly attention due to their crucial role in influencing tourist purchase behavior and cultural value perception. Souvenir design, as a multidimensional concept, integrates visual, functional, and symbolic elements, such as shape, color, material, portability, and embedded meanings (Liu et al., 2022). This section synthesizes extant literature on souvenir design and organizes the attributes into three overarching categories: aesthetic value, care and travel convenience, and uniqueness. These categories represent both functional and emotional considerations that affect tourists' evaluations of souvenirs.

Aesthetic Value

Aesthetics play a central role in shaping consumers' first impressions and emotional attachment to souvenirs. Visual attributes such as color, shape, and pattern serve not only as attention-grabbers but also as vehicles for cultural communication (Cheng, 2024). Kim and Littrell (2001) as well as Swanson and Horridge (2002) consistently emphasized aesthetic satisfaction as one of the top determinants of souvenir desirability.

Color, in particular, has been extensively studied in the context of Chinese cultural expression. Traditional hues such as red, yellow, and blue-and-white tones carry profound symbolic meanings rooted in the Five Elements philosophy and Taoist cosmology. These color systems offer tourists a recognizable connection to regional identity and heritage. However, despite consensus on the importance of color, scholars differ on its application—some advocate for harmonization with modern color trends, while others call for a strict adherence to traditional symbolism.

Similarly, pattern and form serve as crucial design elements. Cultural motifs derived from local traditions—such as Han stone carvings (Lian et al., 2024), Yao and Tibetan decorative symbols (Zhang & Yang, 2023), and symmetrical layouts inspired by ancient architecture (Liu et al., 2022)—enhance the perceived cultural depth and authenticity of souvenirs. Shape design, meanwhile, blends form with function, bridging traditional aesthetics with

modern usability (Kielarova & Pradujphongphet, 2023). Collectively, these studies demonstrate that the aesthetic dimension is multidimensional and instrumental in linking the souvenir to the destination's identity.

Care and Travel Convenience

In addition to aesthetic appeal, practical considerations such as portability, durability, and maintenance significantly influence tourists' purchase decisions. Kim and Littrell (2001) found that souvenirs that are easy to carry, clean, and store are more likely to be chosen, especially when intended as gifts. These "care and travel" attributes align with tourists' logistical needs during the journey.

Several studies highlight that souvenir buyers often prioritize comfort and usability, especially when the product is meant for long-distance transport (Amaro et al., 2020). Moreover, souvenirs that evoke emotional comfort—through tactile design or symbolic reassurance—are reported to enhance tourists' psychological well-being (Gao et al., 2025). Such findings underscore a growing expectation for souvenirs to balance form, function, and emotional design, thus elevating their perceived value beyond mere decoration.

Uniqueness

Uniqueness, often linked to authenticity, creativity, and local specificity, is another critical factor in shaping tourists' purchase intention. Tourists are increasingly drawn to souvenirs that reflect distinctive local culture, embody novel ideas, or carry limited-edition value. As Graburn (1984) and McLeod (1976) suggested, handcrafted items produced with local materials and traditional techniques are perceived as more authentic and desirable.

Recent studies emphasize the synergy between cultural symbolism and design innovation. For instance, integrating region-specific motifs with digital technologies or modern aesthetics can enhance both the market value and cultural communicability of souvenirs (Quan & Wang, 2025). Furthermore, souvenirs bearing signature elements—such as the name of the place, artisan marks, or storytelling inscriptions—amplify the uniqueness and memorial function of the object. While opinions diverge on the degree of innovation versus tradition, most scholars agree that uniqueness enriches the emotional and symbolic value of the souvenir.

Hypotheses Development

Building on the preceding conceptual background, this study proposes a set of hypotheses to empirically test the relationships between demographic characteristics, cultural souvenir design attributes, and purchase intentions. The hypotheses are grounded in the Theory of Planned Behavior (Ajzen, 1991), semiotic perspectives on product meaning (Mick, 1986), and existing literature on tourist behavior (Meitiana et al., 2019). A particular emphasis is placed on the interplay between personal characteristics and design perceptions in shaping consumer intention in the context of cultural souvenirs.

Influence of Demographic Factors on Design Preferences

Prior studies suggest that demographic characteristics such as age, gender, income, and education influence consumer preferences for product design (Creusen, 2010). In the tourism context, these factors shape not only aesthetic appreciation but also the perceived authenticity and symbolic value of souvenirs (Kim & Littrell, 2001; Swanson & Timothy, 2012). For example, older tourists may favor traditional or nostalgic designs, whereas younger cohorts may respond more positively to innovative or hybrid styles. Gender differences have also been reported in preference for color, form, and function in souvenir selection. Meanwhile, higher-income or better-educated tourists may seek souvenirs with cultural depth, craftsmanship, or heritage value, while others may prioritize price, portability, or decorative appeal.

Based on this rationale, the study proposes the following hypothesis and sub-hypotheses:

H1: Tourists' personal factors significantly influence their preferences or evaluations of cultural souvenir design features.

H1a: Tourists' age significantly influences their preferences for the design features of cultural souvenirs.

H1b: Tourists' gender significantly influences their preferences for the design features of cultural souvenirs.

H1c: Tourists' income level significantly influences their preferences for the design features of cultural souvenirs.

H1d: Tourists' educational level significantly influences their preferences for the design features of cultural souvenirs.

Moderating Effects of Demographic Factors on Purchase Intention

While design characteristics directly impact purchase intention (Li & Li, 2022), the strength and direction of this impact may vary across consumer segments. Demographic traits can serve as moderating variables that condition the relationship between design attributes and behavioral outcomes (Sthapit et al., 2024). For instance, design elements that emphasize cultural symbols may strongly appeal to older tourists who seek nostalgia or authenticity but may be less compelling for younger travelers (Patterson & Balderas-Cejudo, 2025). Similarly,

gender may influence how decorative or functional aspects of design affect intention to purchase (Ding et al., 2024), while income and education may shape sensitivity to symbolic meaning versus practical utility.

Informed by these dynamics, this study further posits that demographic characteristics moderate the influence of design features on tourists' purchase intention:

H2: Tourists' personal factors moderate the relationship between the design features of cultural souvenirs and their purchase intentions.

H2a: Tourists' age positively moderates the relationship between design features and purchase intentions.

H2b: Tourists' gender positively moderates the relationship between design features and purchase intentions.

H2c: Tourists' income level positively moderates the relationship between design features and purchase intentions.

H2d: Tourists' educational level positively moderates the relationship between design features and purchase intentions.

Conceptual Framework

To visually integrate the theoretical foundation and proposed hypotheses, a conceptual framework was developed (see Figure 1). This framework incorporates key elements from the Theory of Planned Behavior (TPB), combining demographic variables, cultural souvenir design attributes, and purchase intention. As illustrated in the model, it is hypothesized that demographic factors—namely age, gender, income, and education—directly influence tourists' preferences for cultural souvenir design attributes (H1a–H1d). In turn, these design preferences are assumed to significantly affect purchase intention, aligning with the TPB's assertion that attitude serves as a key antecedent of behavioral intention.

Moreover, the framework posits that demographic variables moderate the relationship between design preferences and purchase intention (H2a–H2d), acknowledging that individuals with different demographic backgrounds may respond differently to the same cultural design features.

MATERIALS & METHODS

Sampling and Data Collection

This study adopted a positivist research paradigm and employed a cross-sectional quantitative design to investigate the relationship between Chinese tourists' demographic characteristics and their preferences for cultural souvenir design, as well as the moderating effects of these demographic factors on purchase intention.

A structured questionnaire was used as the primary data collection instrument. The questionnaire was developed based on previously validated scales, adapted for cultural relevance and linguistic clarity to suit Chinese participants. Data were collected through an online survey hosted on Wenjuanxing, a leading Chinese survey platform, between October 12 and November 19, 2024. A convenience sampling method was applied, targeting Chinese domestic tourists who had prior travel experience.

To ensure sample validity, a screening question ("Have you ever traveled domestically?") was placed at the beginning of the survey. Participants who responded "no" were disqualified. Additionally, an attention check item ("Do you fill in this questionnaire carefully?") was embedded midway through the questionnaire to identify and exclude careless responses. A total of 620 valid responses were obtained.

Measures

All constructs in this study were measured using existing validated scales, adapted where necessary for clarity and cultural fit. A five-point Likert scale was used for all items, ranging from 1 (strongly disagree) to 5 (strongly agree).

Demographic factors (Section A) included gender, age, income, education, occupation, and travel type. Age groups and income brackets were defined based on Chinese national statistics (NBSPRC, 2024) and recent academic studies (Guo & Zhu, 2023).

Tourism behavior (Section B) included six items capturing travel motivation, souvenir preferences, purchase purpose, material preferences, and emotional responses.

Cultural souvenir design attributes (Section C) were measured using 18 items drawn from Yi et al. (2022), structured across three dimensions: Care and Travel, Aesthetic, and Unique. Items were linguistically revised to better suit Chinese respondents.

Purchase intention (Section D) included 15 items based on prior tourism literature, measuring three dimensions: purchase motive, purchase attitude, and purchase behavior.

Pre-Test and Sample Adequacy

A pilot study was conducted from October 5 to 9, 2024, involving 77 respondents (approx. 12% of the target sample). After screening, 75 usable responses were retained. Minor wording adjustments were made based on participant feedback. Cronbach's alpha values for all scales exceeded 0.7, indicating strong internal consistency (Cheung et al., 2024).

Given the complexity of the structural equation model (SEM), the study followed the N:q rule (Jackson, 2003), with a recommended sample-to-parameter ratio of at least 10:1. With 61 parameters estimated in the model, a sample size of 610 was deemed appropriate. The final sample of 620 respondents meets this requirement, enabling robust SEM and moderation analysis using SPSS 22.0 and AMOS 22.0.

RESULTS

Descriptive Statistics and Demographic Profile

A total of 620 valid questionnaire responses were collected for this study. Table 1 summarizes the key demographic characteristics of the respondents. The sample was relatively balanced in terms of gender, with 59.19% identifying as male and 40.81% as female. The age distribution was broad, with the majority of respondents falling between 18 and 55 years old: under 18 (2.26%), 18–25 years (26.61%), 26–34 years (20.48%), 35–49 years (22.58%), 50–55 years (25.97%), and over 56 years (2.1%).

In terms of educational attainment, respondents were primarily concentrated at the college and undergraduate levels, with 32.74% holding an associate degree and 33.06% holding a bachelor's degree. This was followed by 18.39% with a master's degree and 7.58% with a doctoral degree.

Regarding monthly income, respondents showed diverse economic backgrounds. The largest proportion (37.42%) reported earning between RMB 3,501 and RMB 4,000, followed by those earning RMB 4,001–6,000 (19.68%) and RMB 6,001–8,000 (18.06%). A smaller portion of the sample belonged to the higher-income group, with only 5.32% reporting a monthly income above RMB 12,000. Overall, the income levels were skewed toward the low- to middle-income range.

The data were visualized (see Figure 2) to provide an empirical foundation for testing the influence of individual factors on preferences for souvenir design and purchase intentions, as outlined in Hypotheses 1 and 2. These visualizations also offer valuable insights into the characteristics of the respondent groups, supporting subsequent analysis.

Measurement Model Assessment

Prior to hypothesis testing, an Exploratory Factor Analysis (EFA) was conducted to evaluate the reliability and validity of the measurement model. The standardized Cronbach's alpha for the dimension of design attributes was 0.970, which significantly exceeds the acceptable threshold of 0.7. The Corrected Item-Total Correlations (CITC) for all items ranged from 0.758 to 0.937, indicating a very high level of internal consistency. For the purchase intention dimension, the standardized Cronbach's alpha was 0.956, with CITC values ranging from 0.713 to 0.888, also demonstrating excellent internal reliability.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.982, and Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 23{,}865.099$, $df = 1{,}128$, $p < 0.001$), confirming that correlations among variables were sufficiently strong to justify the use of factor analysis. The rotated factor loadings extracted two principal factors that aligned with the theoretically predefined dimensions. Factor 1 represented design attributes, with loadings ranging from 0.75 to 0.9; Factor 2 represented purchase intention, with loadings ranging from 0.715 to 0.868. All factor loadings exceeded the recommended threshold of 0.7, indicating that the items effectively reflected their intended constructs (Hair et al., 2010). These results confirm that the questionnaire items were well-designed to capture the targeted theoretical constructs, thereby minimizing the risk of data bias resulting from misinterpretation or irrelevant responses.

Testing Hypothesis H1

To evaluate Hypothesis 1 and its sub-hypotheses, this study initially employed an analysis of variance (ANOVA). The results indicated that H1a and H1d were supported, while H1b and H1c were not. Given the limitations of ANOVA, structural equation modeling (SEM) was subsequently conducted. The SEM results demonstrated support for all four sub-hypotheses (H1a–H1d). Therefore, this study adopts the results derived from the SEM analysis as the basis for hypothesis testing.

ANOVA Results and Hypothesis Testing

Table 2 presents the comparative data between male and female respondents regarding design attributes and purchase intention of cultural souvenirs. In terms of design attributes, the mean scores for females (M = 0.785) and males (M = 0.926) approached the threshold of statistical significance (t = 3.66, p = 0.059), suggesting a marginal gender difference that did not reach a clear distinction. Regarding purchase intention, a significant gender difference was observed (t = 6.698, p = 0.011), with male respondents reporting a higher level of intention to purchase (M = 0.892) compared to females (M = 0.671). These findings suggest that gender may be a critical factor influencing purchase decisions, with males exhibiting a stronger propensity to buy.

Table 3 shows one-way ANOVA results on age differences in perceptions of design attributes and purchase intention of cultural souvenirs. The "F" values are test statistics, and "p" values indicate significance.

Significant age differences appeared in design attribute evaluations (p = 0.021), with the 35–49 group scoring highest (mean = 0.986), indicating stronger emphasis or satisfaction with design. The 56+ group scored lowest (0.632), suggesting less concern for design, while younger groups (under 18, 18–25, 26–34) had intermediate and similar scores.

Purchase intention also varied significantly by age (p = 0.013). The youngest groups (under 18 and 18–25) showed the highest purchase intention (mean ~0.9), while the 26–34 and 50–55 groups had the lowest scores (0.642 and 0.601), indicating more cautious buying. The 35–49 and 56+ groups showed moderate purchase intentions (0.816 and 0.721).

Table 4 presents the one-way ANOVA results for design attributes and purchase intention of cultural souvenirs across different monthly income groups. The differences in design attribute perceptions among income levels are not statistically significant (F = 1.088, p = 0.372), indicating a general consensus in design preferences or evaluation criteria across income brackets. Similarly, the variation in purchase intention by monthly income is not statistically significant (F = 1.673, p = 0.149), suggesting that income level has a limited direct influence on consumers' purchasing decisions.

Table 5 shows one-way ANOVA results for education groups on design attributes and purchase intention. Design attribute scores differ significantly by education (F = 3.052, p = 0.021), with associate (M = 0.924) and bachelor's degree holders (M = 0.929) scoring higher than other groups, including doctoral degree holders (M = 0.32). This suggests mid-to-high education levels correlate with stronger design preferences, possibly due to aesthetic experience or professional background.

Purchase intention also varies significantly by education (F = 3.263, p = 0.015). The associate degree group (M = 0.912) shows higher purchase intention than doctoral (M = 0.561) and high school groups (M = 0.515), likely influenced by its larger sample size (n = 203). Differences between doctoral, high school, and master's groups are not significant, possibly reflecting more rational consumption among highly educated individuals.

Overall, education significantly impacts both design preferences and purchase intention, with mid-to-high education groups as core consumers. Education may also influence perceptions of souvenir authenticity.

In summary, ANOVA results indicate age (p = 0.021) and education (p = 0.021) significantly affect preferences for souvenir design attributes, while gender (p = 0.059) and income (p = 0.372) do not reach significance. Hypothesis 2 (H2a–H2d) testing results are shown in Table 6.

However, the t-test only examines the mean differences in design attribute ratings by gender without controlling for other variables (such as age and income), which may obscure the true effects. The ANOVA analysis also has limitations, as it tests the independent effect of a single independent variable (e.g., gender) on the dependent variable (design attribute preference) while ignoring potential confounding from other variables. Therefore, the next section of this study will use an SEM model to further analyze and validate Hypothesis 2.

Structural Equation Modeling and Hypothesis Testing

As shown in Table 7, the structural equation model for Hypothesis 1 demonstrates excellent fit: χ^2/df = 1.114 (within the acceptable range of 1–3), RMSEA = 0.014 (< 0.08), and NFI, IFI, and CFI values all exceed 0.9 (NFI = 0.979; IFI = 0.998; CFI = 0.998), indicating strong structural validity. GFI = 0.968 and AGFI = 0.96 (≥ 0.9) further confirm model reliability. Overall, the model meets all fit criteria, offering robust support for hypothesis testing.

Table 8 summarizes the structural equation model results, showing that all demographic variables have significant effects on design preferences (all |C.R.| > 3.29, p < 0.001). Specifically: Age (β = 0.167): older tourists show stronger preferences, often valuing traditional elements or practicality; Gender (β = 0.249): Gender has the strongest influence, with men favoring functionality and women prioritizing aesthetics or emotional appeal; Income (β = 0.202): higher-income groups lean toward premium or exclusive designs, while lower-income groups seek value; Education (β = 0.150): though weaker, education still matters; those with higher education levels are more drawn to symbolic or intricate designs.

These results confirm H1 and its sub-hypotheses (H1a–H1d), with influence strength ranked as Gender (β = 0.249) > Income (β = 0.202) > Age (β = 0.167) > Education (β = 0.150).

Table 9 reports the hypothesis testing results on the impact of tourists' personal factors on their preferences for cultural souvenir design attributes. Hypothesis 2 is supported, showing that demographic variables significantly influence design preferences.

H1a (Age), significant effect ($\beta = 0.167$, $p < 0.001$); H1b (Gender), strongest effect ($\beta = 0.249$, $p < 0.001$); H1c (Income), significant effect ($\beta = 0.202$, $p < 0.001$); H1d (Education), significant effect ($\beta = 0.150$, $p < 0.001$).

All four sub-hypotheses (H1a–H1d) are supported, confirming the influence of age, gender, income, and education on design attribute preferences.

In summary, all sub-hypotheses (H1a–H1d) are supported, indicating that tourists' age, gender, income level, and education significantly influence their preferences or evaluations of cultural souvenir design attributes. The structural equation model for H1 is illustrated in Figure 3.

Discussion of Conflicting Results Between ANOVA and SEM for H1

To test H1, both ANOVA and SEM were used to provide complementary insights (Table 10). ANOVA showed that age and education significantly influenced design preferences, while gender and income did not reach significance at $\alpha = 0.05$—suggesting H1b and H1c were not supported. However, SEM results, which accounted for interactions among all personal factors, revealed that age, gender, income, and education all had significant effects, thus supporting H1b and H1c.

The discrepancy arises from methodological differences: ANOVA assesses single-variable effects, while SEM accounts for inter-variable relationships and controls for collinearity, thus better capturing the net impact of personal factors. For instance, income's effect may be concealed by its correlation with education in ANOVA but emerges clearly in SEM. Given SEM's strength in modeling latent variables and complex paths (Barbierato et al., 2023), its results are adopted to support H1 and sub-hypotheses H1a–H1d. While SEM confirms the overall influence of personal factors, ANOVA provides subgroup-level insights useful for cultural souvenir market segmentation.

Hypothesis 2 Testing

H2 was tested via hierarchical regression. A positive β for the interaction term indicates a strengthening (positive moderation), while a negative β suggests a weakening (negative moderation) of the independent variable's effect on the dependent variable.

Age Moderation Effect

Table 11 presents the test results of age as a moderator between cultural souvenir design attributes and tourists' purchase intention. Models 1 and 2, respectively, show the effects of design attributes (X) and age (W) on purchase intention as well as their interaction effect.

Main Effect Analysis (Model 1): Design attributes significantly predict purchase intention ($\beta = 0.179$, $p < 0.001$), and age also shows a significant positive effect ($\beta = 0.265$, $p < 0.001$). The model demonstrates strong explanatory power (adjusted $R^2 = 0.286$; $F = 124.891$, $p < 0.01$).

Moderation Analysis (Model 2): the interaction term (design attributes × age) is significant ($\beta = 0.172$, $p < 0.001$), indicating that age positively moderates the relationship between design attributes and purchase intention. Model fit improves (adjusted $R^2 = 0.307$; $F = 120.365$, $p < 0.001$), and the effect size ($\Delta R^2 = 0.021$) meets the threshold for medium practical significance (Cohen, 1988).

In summary, age positively moderates the effect of cultural souvenir design attributes on tourists' purchase intention, with older groups showing greater design sensitivity. These findings provide empirical support for age-segmented product development and targeted marketing strategies.

Gender Moderation Effect

Table 12 presents the results of testing gender's moderating effect on the relationship between cultural souvenir design attributes and purchase intention. Models 1 and 2 examine the effects of design attributes (X) and gender (W) on purchase intention, as well as their interaction effect.

Moderation test results (Table 12) show that gender significantly moderates the effect of cultural souvenir design on purchase intention.

In Model 1, design attributes positively predict purchase intention ($\beta = 0.200$, $p < 0.001$), and females show higher overall purchase intention than males ($\beta = 0.565$, $p < 0.001$).

In Model 2, the interaction term (design × gender) is also significant ($\beta = 0.299$, $p < 0.001$), suggesting that gender amplifies the positive effect of design features on purchase intention. Specifically, female tourists respond more strongly to visual and symbolic elements. The model's explanatory power improves with the interaction ($\Delta R^2 = 0.033$), confirming the practical relevance of the moderation.

In summary, gender is an important moderator in the relationship between design attributes and purchase intention, with female tourists demonstrating significantly higher sensitivity to design features. These findings provide empirical support for gender-segmented product development and targeted marketing strategies.

Income Moderation Effect

Table 13 presents the results of testing income level as a moderator between cultural souvenir design attributes and purchase intention. Models 1 and 2, respectively, examine the effects of design attributes (X) and income level (W) on purchase intention, as well as their interaction effect.

Table 13 shows that income significantly moderates the link between cultural souvenir design attributes and purchase intention.

Main Effects (Model 1): Design attributes positively influence purchase intention ($\beta = 0.170$, $p < 0.001$), confirming the role of aesthetics, functionality, and uniqueness. Income also shows a significant main effect ($\beta = 0.253$, $p < 0.001$), with higher-income tourists exhibiting stronger purchase intentions—likely due to greater discretionary spending or stronger appreciation of cultural value.

Interaction Effects (Model 2): The interaction term (design × income) is positive and significant ($\beta = 0.159$, $p < 0.001$), indicating that income strengthens the effect of design on purchase intention. High-income tourists are more responsive to culturally rich design features, while low-income groups may prioritize affordability. The adjusted R^2 increases from 0.291 to 0.310 ($\Delta R^2 = 0.019$), and the interaction effect size reaches a moderate level (Cohen, 1988).

In summary, income level is an important moderator in the relationship between design attributes and purchase intention, with high-income tourists showing significantly higher sensitivity to design features. These findings provide empirical support for income-based product positioning and marketing strategies.

Education Level Moderation Effect

Table 14 presents the results of testing education level as a moderator between cultural souvenir design attributes and purchase intention. Models 1 and 2 examine the effects of design attributes (X) and education level (W) on purchase intention, as well as their interaction effect.

Moderation results (Table 14) confirm that education level positively moderates the relationship between design attributes and purchase intention.

Main Effects (Model 1): Design attributes significantly predict purchase intention ($\beta = 0.201$, $p < 0.001$), and education level is also a strong predictor ($\beta = 0.280$, $p < 0.001$), suggesting that higher-educated tourists exhibit greater purchase intention—potentially due to heightened cultural sensitivity or aesthetic awareness.

Interaction Effect (Model 2): The interaction term (design × education) is significant ($\beta = 0.189$, $p < 0.001$), indicating that design attributes exert a stronger influence on purchase decisions among higher-educated tourists. For instance, highly educated tourists may be more inclined to choose souvenirs that embody historical narratives or traditional craftsmanship, whereas lower-educated tourists may prioritize practicality or price factors. The model's explanatory power improves significantly with the interaction term (adjusted R^2 increases from 0.264 to 0.310), and the interaction effect size ($\beta = 0.189$) reaches a medium level (Cohen, 1988), indicating practical significance. The F-values of 112.252 and 109.316 are both significant, indicating good model fit.

In summary, education level plays a significant moderating role in the relationship between design attributes and purchase intention, with higher-educated tourists showing noticeably greater purchase intention for cultural souvenirs than those with lower education levels.

Validation of Hypothesis 3

Table 15 summarizes the moderation test results supporting Hypothesis 2 and its sub-hypotheses:

H2a: Age positively moderates the effect of design attributes on purchase intention ($\beta = 0.172$, $p < 0.001$); older tourists are more design-sensitive.

H2b: Gender strengthens this relationship ($\beta = 0.299$, $p < 0.001$); females' purchase intention is more influenced by design.

H2c: Income positively moderates the effect ($\beta = 0.159$, $p < 0.001$); higher-income tourists respond more strongly to design and are willing to pay premiums.

H2d: Education also moderates positively ($\beta = 0.189$, $p < 0.001$); highly educated tourists emphasize cultural meaning more in design.

All sub-hypotheses are supported, confirming that demographic factors significantly and positively moderate the link between design attributes and purchase intention. These findings highlight the importance of audience segmentation in cultural souvenir marketing.

DISCUSSION AND CONCLUSION

Discussion

This study contributes to a deeper understanding of how demographic factors shape Chinese tourists' preferences for cultural souvenir design and purchase intentions. By examining the interaction between design features and consumer heterogeneity, we identify distinct behavioral patterns that enrich current knowledge on cultural consumption in tourism.

Gendered Logics in Design-Led Consumption

Findings reveal clear gender-based distinctions. Male tourists favor functionality and external validation (e.g., certification labels), relying on heuristic decision-making aligned with utilitarian logic (Verma, 2020). Female tourists, by contrast, are more responsive to aesthetic appeal and uniqueness. Notably, high-quality design significantly boosts their purchase intention, emphasizing the role of symbolic and emotional value. This extends prior work by uncovering the mechanism behind women's higher design sensitivity (Littrell et al., 1994).

Age-Based Design Responsiveness

Age moderates design effects in meaningful ways. Older tourists prioritize portability and perceived authenticity over narrative richness, suggesting a preference for intuitive, accessible design. This adds to existing literature by moving beyond the emotional-attachment explanation often used to describe senior consumer behavior (Sthapit et al., 2024). Middle-aged consumers value craftsmanship and cultural content, while younger tourists show a higher tendency toward novelty-seeking, customization, and social sharing. Their preferences are shaped less by traditional design motifs and more by perceived social value, such as co-branded or media-influenced souvenirs.

Income and Symbolic Consumption

Income influences both sensitivity to design and perceived value. High-income tourists are willing to pay premiums for uniqueness and symbolic capital (e.g., designer endorsements), aligning with theories of conspicuous and cultural consumption (Sahin & Nasir, 2022; Pret et al., 2016). Middle-income consumers, representing the dominant group in this study, seek a balance between cultural depth and practical utility. Contextualized packaging (e.g., family sets) appeals strongly to them, suggesting a key role in mainstreaming cultural products. While low-income tourists are price-sensitive, strong cultural identity cues can override cost concerns, highlighting inclusive potential when symbolic resonance is effectively embedded (Yu & Littrell, 2005).

Education and Cultural Capital

Educational attainment shapes how tourists interpret design meaning. Higher-educated individuals emphasize authenticity, traceability, and cultural knowledge, positioning souvenirs as expressions of identity and cultural literacy (He, 2012; Tian et al., 2020). University-educated consumers respond most positively to innovative and functional designs—an overlooked group in previous research. Meanwhile, tourists with lower education levels depend on simplified visual cues but can still engage meaningfully through icon-based storytelling or guided interpretation.

Although ANOVA results showed limited income effects, the SEM analysis revealed that high-income groups exhibit stronger preferences for symbolic and aesthetic value, while educational level remains consistently associated with symbolic decoding capacity. These findings reinforce the structuring role of cultural capital in consumer response.

Methodologically, the triangulation of ANOVA and SEM proves valuable. While ANOVA detects group-level variance, SEM captures latent interactions, validating the importance of mixed methods in understanding nuanced consumption patterns.

In sum, this study goes beyond isolated variables to reveal how demographic traits interact with design features to shape souvenir consumption. These insights offer theoretical enrichment to tourism consumer research and practical implications for targeted product development and cultural branding.

Implications

Theoretical Contributions

This study confirms the hypothesized pathways linking demographic characteristics, design attributes, and purchase intentions. It outlines the explanatory scope of demographics, revealing that gender, age, income, and education reshape design preferences through four interrelated mechanisms: social role expectations, generational

cultural cognition, economic capital, and cultural capital. This enriches the contextual application of gender role theory and cultural capital theory.

Furthermore, by combining demographic segmentation with the evaluation of design attributes, this research deepens our understanding of how individual factors influence souvenir purchasing—an area previously dominated by functionalist or emotionalist perspectives. Introducing the concept of "design attribute preference" demonstrates that demographic factors moderate tourists' perceptions and responses to design features, offering a more nuanced insight than simply treating demographics as control variables.

Practical Contributions

The findings offer several managerial implications. First, designers should adopt gender-responsive strategies by differentiating design priorities: enhancing emotional and aesthetic cues for female tourists while emphasizing practicality and symbolic meaning for male tourists. Second, product innovation should be tailored by age group. For younger tourists, integrating augmented reality technology and customizable features can boost engagement; for older groups, design should focus on visual appeal, usability, and symbolic recognition.

Additionally, income-based market segmentation is advised. Developing tiered product lines—luxury, mid-range, and affordable options—can satisfy varying economic capacities and symbolic value expectations while maintaining cultural integrity. Communication strategies should also consider educational differences. Storytelling formats for souvenirs should be diversified: simplified visuals and icons for less-educated consumers and deeper narratives with provenance cues for highly educated consumers. Heritage design education can also be incorporated into souvenir displays.

Finally, sales channels should be contextualized to different consumer logics. Female and middle-income tourists respond well to immersive or emotionally resonant settings, whereas older tourists prefer convenient locations near exits or service points.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

While this study is rigorous and objective, it has some limitations. First, the focus on Chinese tourists calls for future cross-cultural comparisons to test the framework's generalizability across diverse cultural and tourism contexts. Additionally, the online survey method may not fully represent all demographic groups, particularly rural and elderly populations. Longitudinal tracking of souvenir purchasing behavior could provide more detailed insights.

Moreover, the study assessed general design attributes, focusing on three main dimensions; future research could incorporate emerging dimensions such as sustainability, digitalization, or deeper personalization.

Lastly, purchase intention does not always translate into actual behavior. Future studies could integrate field experiments or point-of-sale data to triangulate findings with real-world consumer behavior.

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Conflict of Interest Statement

The authors declare no conflict of interest.

Author Contributions:

Xiaolin Jin led the research and was responsible for the conceptualisation, manuscript writing, data analysis, and visualisations; Faridah Sahari supervised the research design and provided guidance on the development of hypotheses and methodology; Shaik Azahar Shaik Hussain contributed to the critical revision of the manuscript, with particular focus on the analytical framework and logical structure.

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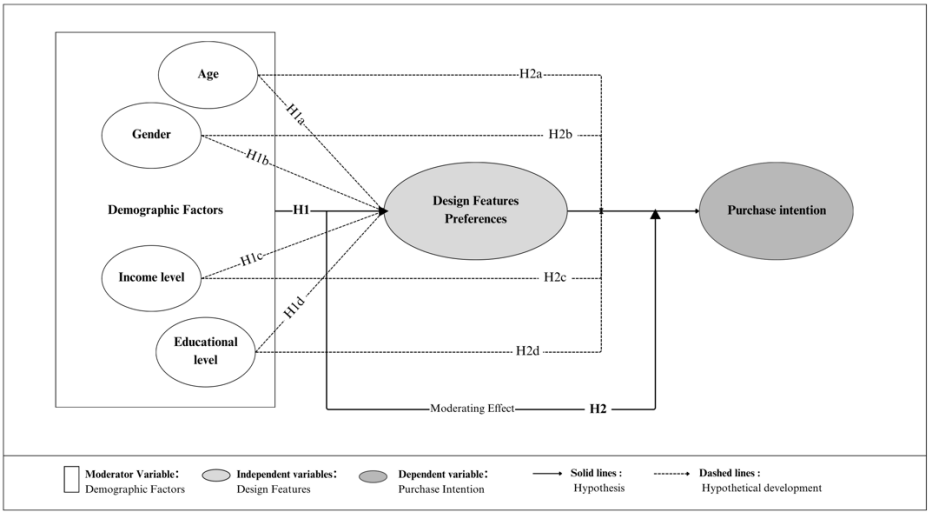


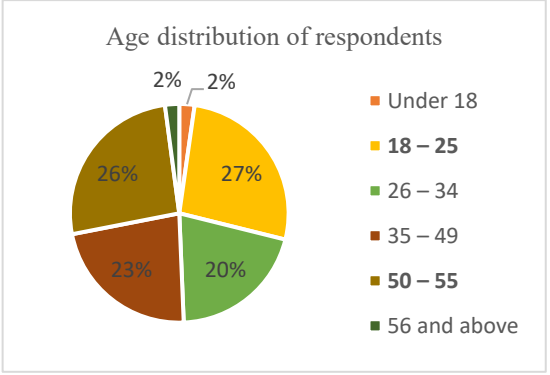
Note: The diagram illustrates the direct effects of demographic factors on design preferences (H1), and their moderating effects on the relationship between design preferences and purchase intention (H2).

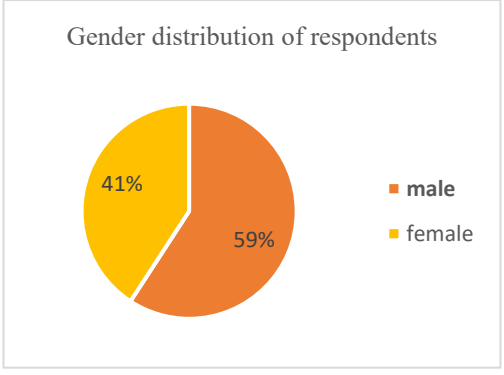
Figure 1. Conceptual Framework of the Study

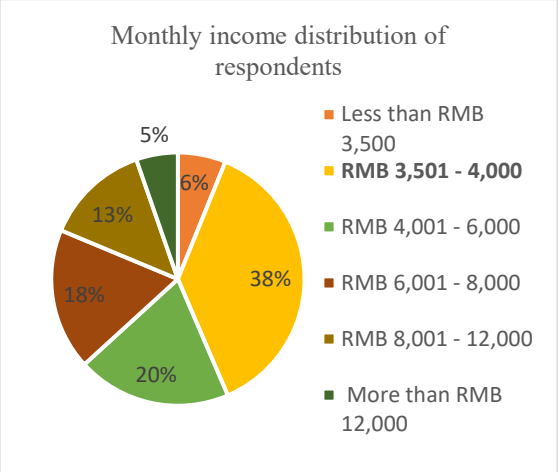
Table 1. Demographic Profile of Survey Respondents (N = 620)

Demographic profiles	Total No.	Percentage (%)	Cumulative Percentage (%)
Age			
Under 18	14	2.26	2.26
18 – 25	165	26.61	28.87
26 – 34	127	20.48	49.35
35 – 49	140	22.58	71.94
50 – 55	161	25.97	97.9
56 and above	13	2.1	100
Gender			
Male	367	59.19	59.19
Female	253	40.81	100
Monthly income			
Less than RMB 3,500	38	6.13	6.13
RMB 3,501 - 4,000	232	37.42	43.55
RMB 4,001 - 6,000	122	19.68	63.23
RMB 6,001 - 8,000	112	18.06	81.29
RMB 8,001 - 12,000	83	13.39	94.68
More than RMB 12,000	33	5.32	100
Education			
High School	51	8.23	8.23
Associate Degree	203	32.74	40.97
Bachelor Degree	205	33.06	74.03
Master Degree	114	18.39	92.42
Doctoral Degree	47	7.58	100
Note: RMB = Renminbi (Chinese Yuan). Income brackets are self-reported monthly earnings.			

Figure 2. Demographic Profile of Interviewees (Visualized)







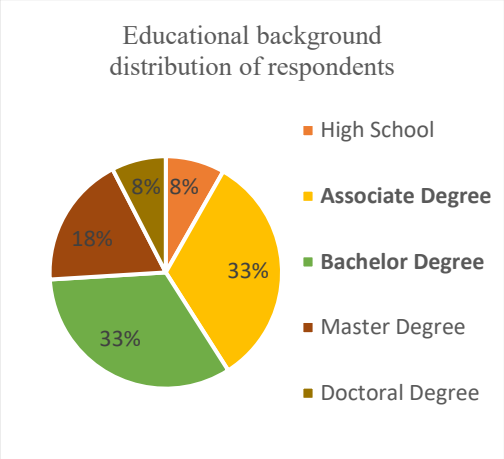


Table 2: Independent Samples t-Test for Gender

	Gender		*t* value	*p* value
	Female	Male		
Design Features	0.785	0.926	3.66	0.059*
Purchase Intention	0.671	0.892	6.698	0.011**
Note: *$p < 0.05$, **$p < 0.01$				

Table 3: Age One-way ANOVA

	Age Group						F	*p* value
	18 – 25	50 – 55	35 – 49	26 – 34	>56	<18		
Design Features	0.685	0.728	0.986	0.954	0.632	0.885	2.815	0.021**
Purchase Intention	0.904	0.601	0.816	0.642	0.721	0.903	3.087	0.013**
Note: *$p < 0.05$, **$p < 0.01$								

Table 0: Monthly Income One-way ANOVA

	Monthly Income Range (RMB)						F	*p* value
	4,001-6,000	6,001-8,000	8,001-12,000	3,501-4,000	>12,000	<3,500		
Design Features	0.924	0.903	0.628	0.955	0.601	0.747	1.088	0.372
Purchase Intention	0.85	0.687	0.531	0.815	1.025	0.601	1.673	0.149

Table 5: Education Level One-way ANOVA

	Highest Level of Education					F	P
	Doctoral Degree	Associate Degree	Bachelor Degree	High School	Master Degree		
Design Features	0.32	0.924	0.929	0.795	0.754	3.052	0.021**
Purchase Intention	0.561	0.912	0.798	0.515	0.651	3.263	0.015**
Note: *$p < 0.05$, **$p < 0.01$							

Table 6: H1 hypothesis verification table based on variance analysis

Research Hypothesis		*p* value	Results
H1	H1a	0.021**	Supported
	H1b	0.059*	Not Supported
	H1c	0.372	Not Supported
	H1d	0.021**	Supported

Table 7: H1 SEM Fit Indices

Fit index	χ^2/df	RMSEA	NFI	IFI	CFI	GFI	AGFI
Evaluation Criteria	$1<\chi^2/df<3$	<0.08	>0.9	>0.9	>0.9	>0.9	>0.9
Model Standards	1.114	0.014	0.979	0.998	0.998	0.968	0.96

Table 8: Path Coefficient Table of the SEM – Design Features

Path			B	β	S.E.	C.R.	p
DF	< ---	Age	0.161	0.167	0.041	3.903	***
DF	< ---	Gender	0.608	0.249	0.099	6.175	***
DF	< ---	Income	0.181	0.202	0.039	4.694	***
DF	< ---	Education	0.170	0.150	0.047	3.572	***
CT1	< ---	DF	1	0.952			
CT2	< ---	DF	0.860	0.803	0.028	30.296	***
CT3	< ---	DF	0.823	0.803	0.027	30.323	***
CT4	< ---	DF	0.81	0.79	0.028	29.19	***
CT5	< ---	DF	0.834	0.801	0.028	30.156	***
A1	< ---	DF	0.832	0.806	0.027	30.569	***
A2	< ---	DF	0.842	0.803	0.028	30.353	***
A3	< ---	DF	0.780	0.769	0.028	27.525	***
A4	< ---	DF	0.772	0.79	0.026	29.166	***
A5	< ---	DF	0.787	0.782	0.028	28.552	***
A6	< ---	DF	0.795	0.793	0.027	29.417	***
U1	< ---	DF	0.836	0.802	0.028	30.260	***
U2	< ---	DF	0.795	0.791	0.027	29.253	***
U3	< ---	DF	0.777	0.786	0.027	28.896	***
U4	< ---	DF	0.799	0.785	0.028	28.778	***
U5	< ---	DF	0.766	0.792	0.026	29.363	***
U6	< ---	DF	0.824	0.806	0.027	30.627	***
U7	< ---	DF	0.809	0.793	0.027	29.422	***

Note: ***p<0.001; Design Features=DF; Care and Travel=CT; Aesthetic=A; Unique=U

Table 9: H1 Hypothesis Verification Table Based on SEM

Hypothesis	SEM paths	β	p value	Results
H1	H1a: Age →Design Features	0.167	***	Supported
	H1b: Gender → Design Features	0.249	***	Supported
	H1c: Income → Design Features	0.202	***	Supported
	H1d: Education → Design Features	0.150	***	Supported

Note : ***p<0.001

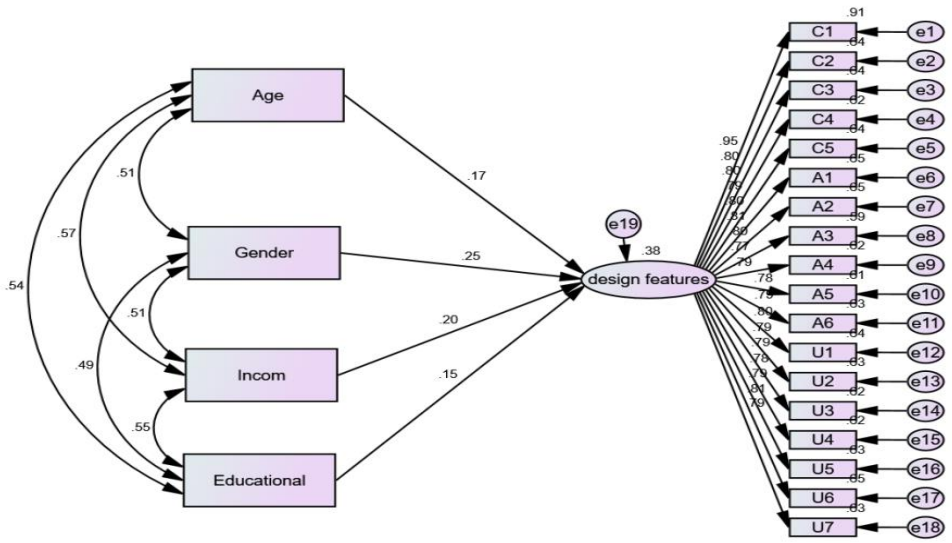


Figure 3. H1 SEM model

Table 10: Comparison of the Results of ANOVA and SEM

Hypothesis	ANOVA Results	SEM Results	Contradictions
H2a	Age is significant p=0.021	Age is significant p<0.001	The conclusions are consistent
H2b	Gender is not significant p=0.059	Gender is significant p<0.001	The direct effect of gender on design feature preference is not significant in ANOVA, but the path coefficient is significant in SEM
H2c	Income is not significant p=0.372	Income is significant p<0.001	ANOVA shows no effect of income, but SEM shows a significant effect of income
H2d	Educational is significant p=0.021	Educational is significant p<0.001	The conclusions are consistent

Table 11: Moderating effect coefficients of age

	Model 1	Model 2
X (Design feature)	0.179***	0.143***
W (age)	0.265***	0.235***
X*W (design feature * age)		0.172***
F	124.891***	120.365***
R^2	0.288	0.309
Adjusted R^2	0.286	0.307
Note : *** P<0.001		

Table 12: Moderating Effect Coefficients of Gender

	Model 1	Model 2
X (Design feature)	0.200***	0.112***
W (gender)	0.565***	0.514***
X*W (design feature * gender)		0.299***
F	103.294***	94.005***
R^2	0.332	0.365
Adjusted R^2	0.330	0.362
Note : *** P<0.001		

Table 13: Moderating Effect Coefficients of Income Level

	Model 1	Model 2
X (Design feature)	0.170***	0.138***
W (income level)	0.253***	0.236***
X*W (design features * income level)		0.159***

F	127.838***	122.466***
R^2	0.293	0.312
Adjusted R^2	0.291	0.310
*Note : ***P*<0.001		

Table 14: Moderating Effect Coefficients of Education Level

	Model 1	**Model 2**
X (Design feature)	0.201***	0.185***
W (education level)	0.280***	0.266***
X*W (Design features* education level)		0.189***
F -number	112.252***	109.316***
R^2	0.267	0.312
Adjusted R^2	0.264	0.310
*Note : ***p*<0.001		

Table 15: H2 Hypothesis Verification

Research Hypothesis		**MV**	**X*W**	**P**	**Decision**
H2	H2a	Age	0.172	***	Supported
	H2b	Gender	0.299	***	Supported
	H2c	Income Level	0.159	***	Supported
	H2d	Education Level	0.189	***	Supported
*Note : ***p*<0.001 ; Moderator Variable= MV ; Interaction effect coefficient=X*W					