

# Linking product design to consumer behavior: the moderating role of consumption experience

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**Background:** Previous investigations of product design broadly link aesthetic, functional, and symbolic designs to sales growth, high turnover, and market share. However, the effect of product design dimensions on consumer willingness-to-buy (WTB) and word-of-mouth (WOM) is virtually ignored by consumer researchers. Similarly, whether the consumption experience can differentiate the effect of the three product design dimensions on WTB and WOM is completely unknown. Using categorization theory as a lens, our study aims to explore the effect of product design dimensions on consumer WTB and WOM directly and indirectly through the moderation of the consumption experience.

**Methods:** A convenience sample of (n=357) Chinese and (n=277) Korean shoppers was utilized to test the hypotheses in the fashion apparel industry.

**Results:** Our results showed that the aesthetic design was more prominent in capturing consumer WTB for both Chinese and Koreans. Similarly, the aesthetic design was more salient in enhancing WOM for Chinese, whereas the symbolic design was more promising in terms of improving WOM for Koreans. Further, our moderation results demonstrated that the consumption experience could differentiate the effects of the three product design dimensions on consumer WTB and WOM for Chinese. By contrast, the consumption experience could only interact with the aesthetic design to improve WOM for South Koreans.

**Conclusion:** To the best of authors' knowledge, the present study is one of the initial attempts to link three product design dimensions with consumer WTB and WOM in the fashion apparel context and explored whether consumption experience competes or complement with three product design dimensions to shape consumer WTB and WOM for Chinese and Koreans.

**Keywords:** product design dimensions, willingness-to-buy, word-of-mouth, consumption experience, China and South Korea

## Introduction

Product design refers to “a set of constitutive elements of a product that consumers perceive and organize as a multidimensional construct comprising the three dimensions of aesthetics, functionality, and symbolism” (P. 4).<sup>1</sup> Aesthetic design refers to the perception of the beauty or physical appearance of a product.<sup>1-3</sup> Functional product design refers to the basic functionality of a product and/or a product's intended purpose.<sup>1,4,5</sup> Similarly, the symbolic design focuses on the specific meanings or signs that communicate status, self-image, and/or social roles on the basis of visual elements.<sup>1-2</sup> Product design has been recognized as one of the prominent determinants of companies' competitive advantage and the driver of performance.<sup>1,6,7</sup> Recognizing that superior design can differentiate products by creating and communicating value to customers, thus improving customer

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acquisition and retention,<sup>5,7</sup> both brand managers and design researchers have noted the importance of product design and have linked superior design to new product success.<sup>2</sup> Therefore, product design significantly affects consumer evaluation of a product. Similarly, the study by Homburg et al<sup>1</sup> noted that it is crucial for practitioners to adopt a conceptualization and operationalization of product design that recognizes the different dimensions of product design (i.e., aesthetic, functional, and symbolic), a perspective we take in this research.

Although much progress has been made in conceptualizing and measuring the three product design dimensions,<sup>1</sup> as well as in better understanding their antecedents and consequences,<sup>2,6,8,9</sup> several gaps remain. First, the extant literature suggests that product design influences consumer behavior,<sup>2,10</sup> and a considerable amount of research has focused on one or two dimensions of product design.<sup>11</sup> However, only a few studies have linked the three product design dimensions in their entirety with consumer behavior.<sup>1,6</sup> Additionally, to date, no study has systematically connected the three dimensions of design to consumer behavior, such as consumer willingness-to-buy (WTB) and word-of-mouth (WOM), in the context of the fashion apparel industry. Therefore, this study fills this research gap and explores all three product design dimensions as possible drivers of consumer behavior outcomes, such as consumer WTB and WOM.

Second, this study investigates the moderating effect of the consumption experience on the relationship between the three product design dimensions and consumer WTB and WOM. Marketing scholars view the consumption experience as an interaction of the consumer with the product that is at once pleasurable, memorable, and meaningful.<sup>12–14</sup> Prior research has tested moderating variables, such as product innovation, consumer knowledge,<sup>5</sup> loyalty intentions,<sup>15</sup> individual tastes/preferences, situational factors,<sup>2</sup> and heterogeneity, on the relationship between the three product design dimensions and customer satisfaction.<sup>16</sup> However, consumption-specific moderators (e.g., the consumption experience) have been neglected in the product design literature. Therefore, this study fills the gap in the literature and uses the consumption experience as a moderating variable, which we believe is an important contribution to the product design literature.

Third, cultural background is one of the strong determinants of consumers' perceptions of product design,<sup>2,5</sup> and it is important to explore the influence of culture on consumers' evaluations of product design from a global perspective. Therefore, using a sample of Chinese and South Korean consumers, this study contributes to the literature by exploring the effect of product design dimensions on consumer WTB and WOM in collectivistic countries.

Overall, the purpose of this study is to contribute to the growing body of product design literature in three ways. First, our study contributes to exploring the effects of aesthetic, functional, and symbolic design on consumer WTB and WOM. Second, our study contributes to exploring the moderating effect of the consumption experience on the relationship between the three product design dimensions and consumer WTB and WOM. Finally, we contribute to generalizing the results across two samples drawn from China and South Korea and explore which product design dimension(s) is (are) more salient to the improvement of consumer WTB and WOM in China and South Korea.

## Conceptual framework and hypotheses

Product design is considered one of the “Four Ps” of the marketing mix, which is conceptualized as a multidimensional construct comprising three dimensions<sup>1</sup> that communicate functional, aesthetic, and symbolic information.<sup>1,2,10</sup> Functional product design refers to the basic functionality of a product and/or what a product is supposed to do.<sup>4–5</sup> For example, the functionality of the cell phone is to make and receive telephone calls and short message services, while the functionality of the wristwatch is to determine the time of day. Similarly, the aesthetic design refers to the perceptions of a beauty<sup>2</sup> or physical appearance of a product.<sup>3</sup> The symbolic design focuses on specific meanings or signs that communicate status, self-image, and/or social roles on the basis of visual elements.<sup>1,2,4</sup>

Both consumer scholars and brand managers have noted the importance of product design. Thus, research has revealed that beautifully designed products (e.g., aesthetic design) may create the initial impression<sup>17</sup> and gain recognition in a crowded market.<sup>8</sup> It may provide sensory pleasure<sup>2,4</sup> and please one or more of consumers' senses,<sup>3</sup> which may lead to improving product/brand preference,<sup>7,18</sup> repurchase intention,<sup>1</sup> sales growth,<sup>19</sup> turnover,<sup>20</sup> and market share,<sup>6</sup> which are the main objectives of practitioners today.<sup>21</sup> Orquin and Thøgersen<sup>22</sup> examine the influence of new traceability labels on consumers' WTB via affective evaluations of the product and find the prominent impact of traceability labels on the WTB of a chocolate bar. Given the background of these findings, we expect that the evaluation of aesthetic product design significantly improves consumer behavior, such as consumer WTB and WOM. The link between aesthetic product design and consumer behavior (e.g., WTB and WOM) is a cornerstone of categorization theory, which posits that product/brand designs can be categorized on the basis of concrete or abstract attributes.<sup>23–24</sup> Thus, we propose the following relationships:

Hypothesis 1a – The aesthetic dimension of product design positively influences consumer WTB.

Hypothesis 2a – The aesthetic dimension of product design positively influences WOM.

As reported earlier, the functional design aims to ensure the basic functionality of a product that consumers evaluate rationally on the basis of tangible attributes such as quality and durability.<sup>23</sup> Empirical studies have shown that a product that meets customer utilitarian and/or instrumental expectations can lead to enhanced customer satisfaction<sup>11</sup> and purchase intention,<sup>25</sup> and it may improve sales<sup>6</sup> and market share.<sup>19</sup> In a similar vein, recent studies guided by categorization theory have demonstrated that when functional design fulfills functional goals, it may reduce the probability of a painful experience,<sup>26</sup> which, in turn, may improve attachment<sup>5</sup> and behavioral responses.<sup>23</sup> Furthermore, the study by Cheah et al<sup>27</sup> uncovered the links among luxury brand values, social influence, and vanity and their influence on WTB and found that influence to be significant. Relying on this evidence and categorization theory, it is rational to postulate that when a product meets customer utilitarian needs, it may enhance customer WTB and willingness to spread positive WOM. Thus, we formally propose the following relationships:

Hypothesis 1b – The functional dimension of product design positively influences consumer WTB.

Hypothesis 2b – The functional dimension of product design positively influences WOM.

Research on product symbolism suggests that customers respond emotionally to the symbolic attributes of a product,<sup>1,4</sup> as these attributes may allow consumers to express self-image<sup>28</sup> and extended self;<sup>17</sup> these attributes may also allow consumers to signal their status<sup>29</sup> and affiliation with individuals/social group.<sup>30</sup> Similarly, research has linked symbolic design to consumer behavior, such as product commitment,<sup>31</sup> loyalty,<sup>32</sup> engagement,<sup>33</sup> and product preference.<sup>34</sup> Furthermore, Poushneh and Vasquez-Parraga<sup>35</sup> investigated the relationship between augmented reality and WTB through user experience and revealed significant links between them. In line with this evidence, we expect that consumers' expressions of a product's symbolic design are positively related to their WTB and WOM. Consequently, we formally propose the following relationships:

Hypothesis 1c – The symbolic dimension of product design positively influences consumer WTB.

Hypothesis 2c – The symbolic dimension of product design positively influences WOM.

Holbrook and Hirschman<sup>36</sup> conceptualized the consumption experience as multidimensional and included hedonic

dimensions, such as emotions, feelings, pleasure, and fantasies. Li et al<sup>37</sup> suggest that consumption experience can be classified as high and low according to product characteristics. This argument is consistent with categorization theory, which posits that product/brand designs can be categorized on the basis of concrete or abstract attributes.<sup>23–24</sup> Given that, research has documented that highly visually appealing (e.g., aesthetic design) products can influence brand choice and elicit positive consumption experiences.<sup>38</sup> Furthermore, the empirical research noted that consumers are always seeking highly pleasant consumption experiences and choose aesthetically designed products with the expectation of obtaining memorable experiences.<sup>39</sup> Based on these findings, we expect that the consumption experience would moderate the relationship between aesthetic product design and consumers' WTB and WOM, such that the moderated relationship will be stronger when the consumption experience is high compared to when the consumption experience is low. Thus, we formally propose the following relationship:

Hypothesis 3 – The consumption experience positively moderates the relationship between aesthetic product design and (a) WTB and (b) WOM, such that the moderated relationship will be stronger for high consumption experiences than for low consumption experiences.

Consumer researchers agree that functional design is linked to a lower level of consumption experience,<sup>1,4</sup> deeper levels of product evaluation,<sup>10–11</sup> and stronger brand attachment and loyalty.<sup>2,5</sup> These results are consistent with the findings of a recent study by Candi et al,<sup>23</sup> which linked the functional product design to consumer behavioral responses in the moderated mediation relationship of product involvement and emotional arousal and showed that the effect of functional design on consumer behavioral responses through emotional arousal is stronger for high involvement products than for low involvement products. Furthermore, studies have shown that when the product information is increased, the judgment certainty about the product will also increase in the same proportion.<sup>40,41</sup> It is generally perceived that multiple consumption experiences enable consumers to accumulate product information, and the resulting certainty in decisions will be considerable.<sup>42</sup> Therefore, through frequent consumption experiences, cognitive decisions based on these attitudes become linked with high certainty and will more efficiently predict consumer behavior, such as purchase intention and brand preference appraisals.<sup>4,11</sup> Together, these findings suggest that the consumption experience can moderate the relationship between functional design and consumer WTB and WOM, such that the moderated relationship will be

stronger for high consumption experience than for low consumption experience. Hence, we hypothesize the following relationship:

Hypothesis 4 – The consumption experience positively moderates the relationship between functional product design and (a) WTB and (b) WOM, such that the moderated relationship will be stronger for high consumption experience than for low consumption experience.

Many scholars have shown that consumers prefer symbolically designed products that enable them to communicate lifestyle, self-image, and personal values to their social circles over a purely utilitarian possession.<sup>43</sup> Research has shown that consumers usually protect their self-image through the consumption of symbolic products that display a certain image to both the individuals and their social environment.<sup>38</sup> The study by Celsi et al<sup>44</sup> asserted that the consumption experience is perceived as a binding connection between consumers who share their experiences. Consumers derive social value by increasing their interactions with their friends and family. The Arnold and Reynolds<sup>45</sup> showed that socializing with others is one of the key drivers of shopping. Therefore, consumption experiences carry symbolic and social values for consumers.<sup>38</sup> Based on these rationales, we expect that the consumption experience would moderate the relationship between symbolic product design and consumer WTB and WOM, such that the moderated relationship will be stronger for high consumption experience than for low consumption experience. Accordingly, we propose the following hypothesis:

Hypothesis 5 – The consumption experience moderates the relationship between symbolic product design and (a) WTB and (b) WOM, such that the moderated relationship will be stronger for high consumption experience than for low consumption experience.

## Study I Research methodology

### Participants

Initially, 450 survey questionnaires were distributed to Chinese shoppers (e.g., fashion apparel shoppers) in the major cities of China, including Beijing, Shanghai, Shenzhen, and Wuhan. After a thorough evaluation of returned questionnaires, we removed 18 responses of participants who were found to be unengaged as evidenced by giving the same response for every single item; 75 other responses were also dropped from the analysis due to having incomplete answers.<sup>46</sup> The final usable sample size was 357 (63% women, mean 24.7 years of age, SD=4.1 years). The effective response rate was 79.33%. Table 1 presents the demographic characteristics of the apparel shoppers in greater detail.

**Table 1** Sample characteristics (Study I)

Criterion	Characteristics	Valid %
Age (years)	M	24.70
	SD	4.10
Gender	Female	63.0%
	Male	37.0%
Education	Intermediate	4.50%
	Bachelors	46.60%
	Postgraduate	48.90%
Profession	Student	52.50%
	Job (part-time)	30.80%
	Running business	10.20%
	Others	6.50%
Income	Under 2000 RMB	40.80%
	2000–5000 RMB	49.70%
	5000–8000 RMB	5.00%
	Above 8000 RMB	4.50%

**Note:** Sample size=357.

**Abbreviations:** SD, standard deviation; M, mean.

### Ethical statement

This study was reviewed and approved by the Ethics Review Committee for South Korea and Huazhong University of Science and Technology Wuhan, China. All respondents were told that they would be taking part in a short consumer behavior survey and that they could quit the survey at any time and without any penalties during or after the participation. All respondents produced informed written approval as per the Declaration of Helsinki.

### Procedure

All the respondents were given a survey with a cover letter with the following preamble:

Many people think of themselves as being emotionally attached to some celebrities (e.g., movie actor, actress, model, or singer). Similarly, consider an apparel brand such as Zara, H&M, Uniqlo, Gap, C&A, Meters Bowne, Ochirly, Septwolves, Calvin Klein, and Gucci, or consider any other apparel brand that you very much prefer and would love to wear.

Next, participants were asked to complete a 10-minute survey by indicating their agreement with a series of statements denoted XYZ (e.g., brand) that mapped onto the dependent (e.g., WTB and WOM), independent (e.g., aesthetic, functional, and symbolic design), and moderating variables (e.g., consumption experience). Further, the shoppers were approached in the above-mentioned retail outfit, and they were offered small gifts in exchange for their participation.

### Measure

Our study followed the recommended survey development procedures of Dillman.<sup>47</sup> First, all the items in our ques-

tionnaires were translated from English to Chinese by two Chinese professors fluent in English. In the second phase, by following the double-translation procedure, the Chinese version was checked through backward translation separately by another two independent professional translators. Ultimately, a few minor changes were incorporated into the Chinese version after a comparison of the original and translated English questionnaires. We used the scale developed by Homburg et al.<sup>1</sup> to assess the product design. The scale comprises three dimensions – aesthetics, functionality, and symbolism – and contains nine items. Similarly, respondents showed their WTB with three items adapted from Beneke et al.'s research.<sup>48</sup> Further, we assessed WOM with three items adapted from Maxham and Netemeyer's<sup>49</sup> study. Moreover, the consumption experience was assessed through a four-item scale adapted from Holbrook and Hirschman's<sup>36</sup> study. Finally, all the responses were measured on a five-point Likert scale (from 1="strongly disagree" to 5="strongly agree"), and the internal consistencies of the product design scale (aesthetics  $\alpha=0.926$ , functionality  $\alpha=0.801$ , and symbolic  $\alpha=0.924$ ), the WOM scale ( $\alpha=0.907$ ), the WTB scale ( $\alpha=0.912$ ), and the consumption experience scale ( $\alpha=0.940$ ) were above the recommended threshold.<sup>50</sup> The details on scale items are listed in the Supplementary materials.

## Analysis of results

### Structural equation modeling results

To test the direct effects of product design on consumer WTB and WOM, structural equation modeling (SEM) was performed in AMOS. 22.0. The results of SEM suggest that the hypothesized model (Figure 1) fits the data very well: chi-square=1.605, comparative fit index=0.999, goodness

of fit index=0.998, adjusted goodness of fit index=0.973, Tucker–Lewis index=0.994, root mean square error of approximation=0.041, and standardized root mean square residual=0.010. Figure 2 presents the overall structural equation model results with standardized path coefficients.

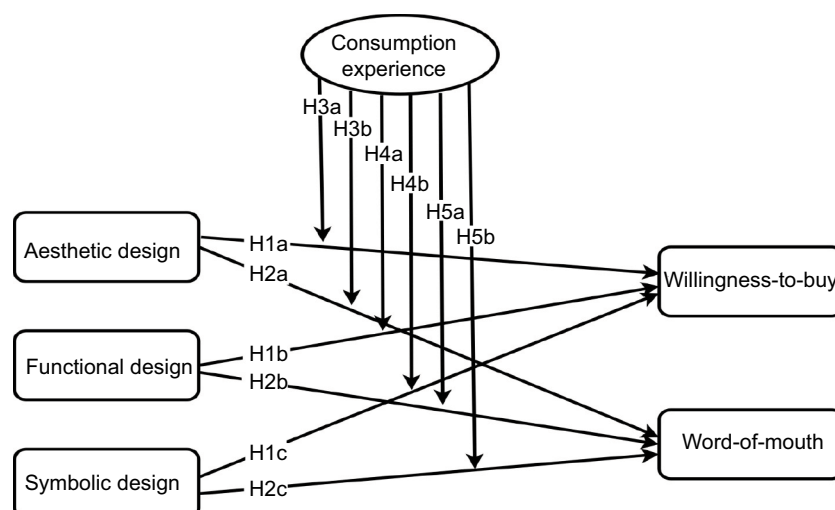
H1a states that the aesthetic product design positively influences consumer WTB. Our results supported this notion ( $\beta=0.393, p<0.001$ ). Likewise, H1b posits that the functional product design influences consumer WTB. The results also supported this contention ( $\beta=0.138, p<0.05$ ). H1c proposes that the symbolic product design positively influences consumer WTB. Our results supported this contention as well ( $\beta=0.214, p<0.001$ ).

Similarly, H2a states that the aesthetic product design positively influences WOM. The results supported this hypothesis ( $\beta=0.287, p<0.001$ ). H2b says that the functional product design positively influences WOM, which was also supported by our results ( $\beta=0.179, p<0.01$ ). H2c states that the symbolic product design positively influences WOM and received support ( $\beta=0.244, p<0.001$ ).

### Tests of moderation: consumption experience

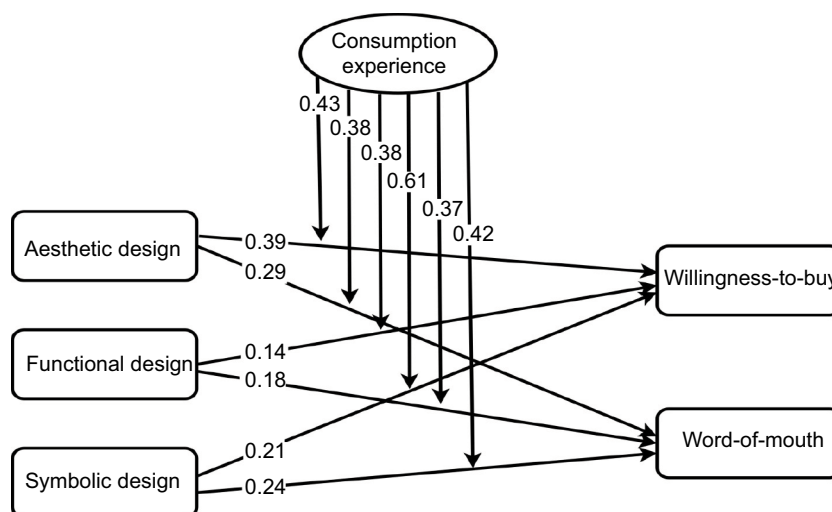
Hypotheses 3–5 relating to the moderation of consumption experience were tested in SPSS 21.0 using the procedure suggested by Barron and Kenny<sup>51</sup> and Preacher et al.<sup>52</sup> Tables 2 and 3 display the results of the moderating effect as well as the conditional effect.

H3a posits that the consumption experience moderates the effect of aesthetic design on consumer WTB. Consistent with our expectation, the results show a significant positive effect of the aesthetic design  $\times$  consumption experience interaction term ( $b=0.434, p<0.05$ ) on consumer WTB. To further under-



**Figure 1** Proposed theoretical framework.





**Figure 2** Estimated theoretical framework (Study 1).

**Table 2** Moderation results (Study 1)

**Moderation of consumption experience**

**Regression results for willingness-to-buy as a dependent variable**

Predictor	$\beta$	t	p-value	F	Adjusted R <sup>2</sup>
Aesthetic design	0.840	10.64	0.000	96.12	0.45
Consumption experience	0.363	2.815	0.005		
Aesthetic design $\times$ consumption experience	0.434	2.739	0.006		

Consumption experience $\pm 1$ SD	Conditional effect	SE	z	p-value	LLCI	ULCI
Low	0.55	0.073	7.53	0.000	0.404	0.689
High	0.76	0.059	12.77	0.000	0.642	0.875

**Moderation of consumption experience**

**Regression results for willingness-to-buy as a dependent variable**

Predictor	$\beta$	t	p-value	F	Adjusted R <sup>2</sup>
Functional design	0.759	8.347	0.000	69.43	0.37
Consumption experience	0.394	2.786	0.006		
Functional design $\times$ consumption experience	0.382	2.221	0.027		

Consumption experience $\pm 1$ SD	Conditional effect	SE	Z	p-value	LLCI	ULCI
Low	0.49	0.081	6.05	0.000	0.33	0.65
High	0.68	0.071	9.59	0.000	0.54	0.82

**Moderation of consumption experience**

**Regression results for willingness-to-buy as a dependent variable**

Predictor	$\beta$	t	p-value	F	Adjusted R <sup>2</sup>
Symbolic design	0.757	8.909	0.000	75.05	0.384
Consumption experience	0.413	2.897	0.004		
Symbolic design $\times$ consumption experience	0.370	2.208	0.028		

Consumption experience $\pm 1$ SD	Conditional effect	SE	z	p-value	LLCI	ULCI
Low	0.55	0.079	7.02	0.000	0.398	0.708
High	0.74	0.072	10.33	0.000	0.603	0.886

**Abbreviation:** LLCI, lower limit confidence interval; SE, standard error; ULCI, upper limit confidence interval.

**Table 3** Moderation results (Study 1)

<b>Moderation of consumption experience</b>						
<b>Regression results for word-of-mouth as a dependent variable</b>						
<b>Predictor</b>	<b><math>\beta</math></b>	<b>t</b>	<b>p-value</b>	<b>F</b>	<b>Adjusted R<sup>2</sup></b>	
Aesthetic design	0.757	9.081	0.000	74.10	0.381	
Consumption experience	0.360	2.643	0.009			
Aesthetic design $\times$ consumption experience	0.378	2.264	0.024			
<b>Consumption experience <math>\pm 1</math> SD</b>	<b>Conditional effect</b>	<b>SE</b>	<b>z</b>	<b>p-value</b>	<b>LLCI</b>	<b>ULCI</b>
Low	0.40	0.062	6.44	0.000	0.278	0.523
High	0.55	0.039	14.04	0.000	0.471	0.625
<b>Moderation of consumption experience</b>						
<b>Regression results for word-of-mouth as a dependent variable</b>						
<b>Predictor</b>	<b><math>\beta</math></b>	<b>t</b>	<b>p-value</b>	<b>F</b>	<b>Adjusted R<sup>2</sup></b>	
Functional design	0.840	9.221	0.000	68.573	0.36	
Consumption experience	0.600	4.230	0.000			
Functional design $\times$ consumption experience	0.608	3.521	0.000			
<b>Consumption experience <math>\pm 1</math> SD</b>	<b>Conditional effect</b>	<b>SE</b>	<b>z</b>	<b>p-value</b>	<b>LLCI</b>	<b>ULCI</b>
Low	0.33	0.068	4.86	0.000	0.196	0.463
High	0.57	0.046	12.46	0.000	0.479	0.659
<b>Moderation of consumption experience</b>						
<b>Regression results for word-of-mouth as a dependent variable</b>						
<b>Predictor</b>	<b><math>\beta</math></b>	<b>t</b>	<b>p-value</b>	<b>F</b>	<b>Adjusted R<sup>2</sup></b>	
Symbolic design	0.756	8.788	0.000	70.56	0.37	
Consumption experience	0.481	3.341	0.001			
Symbolic design $\times$ consumption experience	0.420	2.476	0.014			
<b>Consumption experience <math>\pm 1</math> SD</b>	<b>Conditional effect</b>	<b>SE</b>	<b>z</b>	<b>p-value</b>	<b>LLCI</b>	<b>ULCI</b>
Low	0.41	0.062	6.67	0.000	0.289	0.532
High	0.58	0.049	11.98	0.000	0.488	0.679

**Abbreviations:** LLCI, lower limit confidence interval; SE, standard error; ULCI, upper limit confidence interval.

stand the moderating effect, we used the statistical significance test of Preacher et al.<sup>52</sup> and plotted the interaction effect using one SD above and below the mean score for consumption experience.<sup>53</sup> The results of the plot test show that although an aesthetic design is positively associated with consumer WTB, the aesthetic design is likely to be more effective at improving consumers' WTB when the consumption experience is high than when the consumption experience is low (Figure S1). We further conducted a slope test that confirmed that the aesthetic design has a stronger effect on consumer WTB for high consumption experience ( $\beta=0.76$ ,  $p<0.01$ ; CI=0.642–0.875) than for low consumption experience ( $\beta=0.55$ ,  $p<0.01$ ; CI=0.404–0.689). Similarly, the results of H3b show a significant positive effect of the aesthetic design  $\times$  consumption experience interaction term ( $b=0.378$ ,  $p<0.05$ ) on WOM. The results of the plot and slope test (Figure S2) further indicate that the aesthetic design has a stronger effect on WOM for high consumption experience ( $\beta=0.55$ ,  $p<0.01$ ; CI=0.471–0.625) than for low

consumption experience ( $\beta=0.40$ ,  $p<0.01$ ; CI=0.278–0.523). Thus, H3a and H3b were supported.

H4a and H4b predicted that the consumption experience moderates the effect of functional design on consumer WTB and WOM. The results show a significant positive effect of the functional design  $\times$  consumption experience interaction term on WTB and WOM ( $b_{\text{WTB}}=0.382$ ,  $p<0.05$ ;  $b_{\text{WOM}}=0.608$ ,  $p<0.05$ ). Further, the plot and slope test (Figures S3 and S4) revealed that these paths had a stronger magnitude effect on consumer WTB for high consumption experience ( $\beta=0.68$ ,  $p<0.05$ ; CI=0.54–0.82) than for low consumption experience ( $\beta=0.49$ ,  $p<0.05$ ; CI=0.33–0.65); similarly, there was a stronger positive effect on WOM for high consumption experience ( $\beta=0.57$ ,  $p<0.05$ ; CI=0.479–0.659) than for low consumption experience ( $\beta=0.33$ ,  $p<0.05$ ; CI=0.196–0.463). Thus, both H4a and H4b were supported as per the expectations.

Finally, H5a and H5b proposed that the consumption experience moderates the effect of symbolic design on

consumer WTB and WOM, respectively. As expected, the results show the significant positive effect of the symbolic design  $\times$  consumption experience interaction term on consumer WTB and WOM ( $b_{\text{WTB}}=0.370$ ,  $p<0.05$ ;  $b_{\text{WOM}}=0.420$ ,  $p<0.05$ ). We conducted a plot and slope test to further explore the conditional effect of symbolic design on consumer WTB. The results show that although a symbolic design is significantly associated with consumer WTB, symbolic design is likely to be more effective at improving consumer WTB when the consumption experience is high ( $\beta=0.74$ ,  $p<0.05$ ;  $\text{CI}=0.603\text{--}0.886$ ) than when the consumption experience is low ( $\beta=0.55$ ,  $p<0.05$ ;  $\text{CI}=0.398\text{--}0.708$ ; Figure S5). Likewise, for WOM, the results of a plot and slope test (Figures S6) indicate that symbolic design has a stronger effect on WOM for high consumption experience ( $\beta=0.58$ ,  $p<0.05$ ;  $\text{CI}=0.488\text{--}0.679$ ) than for low consumption experience ( $\beta=0.41$ ,  $p<0.05$ ;  $\text{CI}=0.289\text{--}0.532$ ). Together, these findings fully support hypotheses H5a and H5b. All the direct and moderated path coefficients were statistically positive and significant at the 0.05 level. The overall results show that all the three product design dimensions have a significant direct impact on Chinese consumers' WTB and WOM and that the three product design dimensions significantly interact with the consumption experience to improve consumers' WTB and WOM.

## Discussion

Study 1 has contributed to extending product design research in two ways. First, Study 1 has explored whether aesthetic, functional, and symbolic product designs improve Chinese consumers' WTB and WOM and which product design dimension(s) is (are) more promising to enhance their fashion apparel WTB and WOM. Our results show that aesthetic design is an important dimension for capturing consumers' WTB and WOM (0.393 and 0.287), followed by symbolic (0.214 and 0.244) and functional (0.138 and 0.179) designs. These findings are in line with previous research,<sup>1</sup> which reported that the three product design dimensions have a considerable influence on consumer decision making.

Similarly, Study 1 explored whether the three product design dimensions interact with the consumption experience to improve Chinese consumers' WTB and WOM. For instance, the magnitude of the direct effect revealed that aesthetic design is positively associated with consumer WTB and WOM ( $b_{\text{WTB}}=0.393$  and  $b_{\text{WOM}}=0.287$ ); our moderating results demonstrated that the effects of aesthetic design on consumer WTB and WOM were greater after adding consumption experience into the regression model

( $b_{\text{WTB}}=0.434$  and  $b_{\text{WOM}}=0.378$ ). These results suggest that the consumption experience significantly interacts with aesthetic design to further enhance consumers' WTB and WOM. Our findings are consistent with previous studies,<sup>36,39</sup> which suggest that consumers are always looking for highly pleasant consumption experiences and choose aesthetically pleasing design products with the expectation of obtaining memorable experiences. Moreover, for functional design, Study 1 also showed that the moderation of the consumption experience significantly enhances the relationship between functional design and consumer WTB and WOM ( $b_{\text{WTB}}=0.382$  and  $b_{\text{WOM}}=0.608$ ). These findings suggest that multiple consumption experiences enable consumers to accumulate more product information, which, in turn, enables them to buy more willingly and spread positive WOM publicly. Finally, the moderation of consumption experience significantly improves the relationship between symbolic product design and consumer WTB and WOM ( $b_{\text{WTB}}=0.370$  and  $b_{\text{WOM}}=0.420$ ). These findings corroborate the studies of Belk<sup>17</sup> and Brakus et al,<sup>38</sup> which revealed that consumers usually enhance their social image through the consumption of distinctive products and that they love to share their consumption experiences with friends, family, and colleagues.

The results of Study 1 are interesting and very encouraging, but leave unanswered questions such as whether the trend/pattern of the effects (e.g., product design dimensions on consumer behavior) is consistent in another cultural context and whether consumption experience interacts significantly with three product designs to improve consumer WTB and WOM in another cultural setting. These gaps provided the motivation for conducting Study 2.

## Study 2 Research method

Moving beyond Study 1, the aim of Study 2 is twofold. First, it is designed to essentially replicate and generalize the previous study (i.e., Study 1) by providing additional evidence and support of hypotheses for the effect of product design dimensions on consumer WTB and WOM and which product design dimension(s) is (are) more promising for explaining consumer WTB and WOM in the South Korean context. Second, Study 2 determines whether the effects of product design dimensions on consumer WTB and WOM can be differentiated by the consumption experience.

### Participants and measures

In South Korea, we recruited participants in three ways. First, fashion apparel shoppers were approached in shopping



mall (e.g., Times Square, IFC Mall, Central City, Gijang Mart, and West Edmonton Mall) of Seoul and Busan. Second, adults were approached in the theme parks in Seoul. Finally, Korean students were contacted to participate in the survey in exchange for small gifts. In total, 277 respondents participated in the survey, and the age of the respondents ranged from 18 to 35, with a mean of 25.43 years. A total of 58.5% were females, 57.4% were students, 22.7% had a part-time job in Seoul or Busan, and 34.3% had a monthly income of 200,000–300,000 KRW; see Table 4 for the sample characteristics.

**Table 4** Sample characteristics (Study 2)

Criterion	Characteristics	Valid %
Age (years)	M	25.43
	SD	3.28
Gender	Female	58.50%
	Male	41.50%
Education	School	10.80%
	College/bachelors	37.50%
	Masters	46.90%
Profession	Others	4.70%
	Student	57.40%
	Job (part-time)	22.70%
	Running business	15.90%
Income	Others	4.00%
	Under KRW 100,000	15.20%
	100,000–200,000 KRW	22.40%
	200,000–300,000 KRW	34.30%
	300,000–350,000 KRW	23.80%
	Over 350,000 KRW	4.30%

**Note:** Sample size=277.

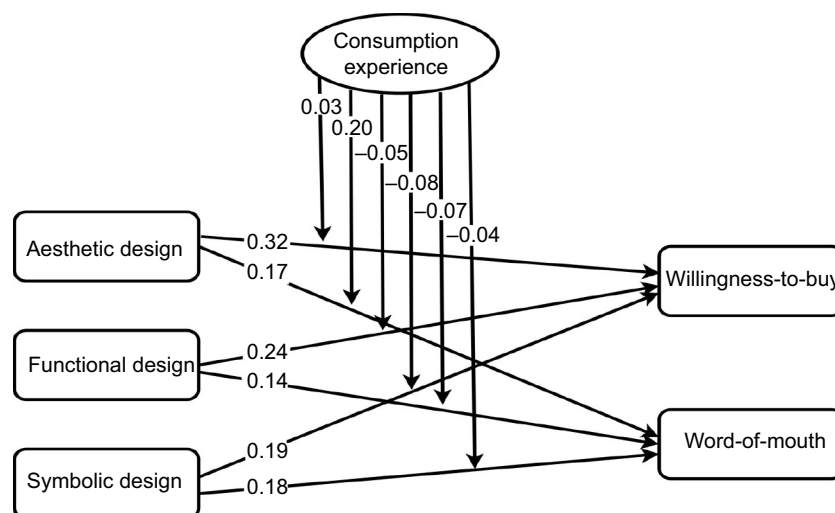
**Abbreviation:** SD, standard deviation; M, mean.

All the measures were identical to those employed in Study 1 (e.g., product design dimensions, consumer WTB, WOM, and consumption experience), and we applied the procedure of Study 1 to Study 2 and translated all the items from English to Korean. Items were rated on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistencies of the product design scale (aesthetics  $\alpha=0.865$ , functionality  $\alpha=0.850$ , and symbolic  $\alpha=0.933$ ), WOM scale ( $\alpha=0.987$ ), WTB scale ( $\alpha=0.918$ ), and consumption experience scale ( $\alpha=0.860$ ) were also above the recommended threshold.<sup>50</sup>

## Results

### SEM results

We ran a structural equation model with the maximum likelihood method to address the objectives of Study 2 in AMOS. 22.0. A hypothesized model shown in Figure 3 yielded a good fit: ratio of mean chi-square to degrees of freedom=2.20, comparative fit index=0.950, goodness of fit index=0.987, adjusted goodness of fit index=0.952, root mean square error of approximation=0.066, and standardized root mean square residual=0.049. The results of the full structural equation model appear in Table 5 and show that the aesthetic, functional, and symbolic designs had a significant effect on consumers' WTB ( $\beta_{\text{aesthetic design}}=0.322, p<0.001$ ;  $\beta_{\text{functional design}}=0.247, p<0.001$ ;  $\beta_{\text{symbolic design}}=0.187, p<0.001$ ). Thus, H1a, H1b, and H1c were supported. Similarly, the effects of aesthetic, functional, and symbolic designs on WOM were statistically significant ( $\beta_{\text{aesthetic design}}=0.174, p<0.01$ ;  $\beta_{\text{functional design}}=0.139, p<0.01$ ;  $\beta_{\text{symbolic design}}=0.182, p<0.01$ ). Consequently, H2a, H2b, and H2c were also supported by our results.



**Figure 3** Estimated model (Study 2).

### Tests of moderation: consumption experience

Next, we applied the procedure explained by Barron and Kenny<sup>51</sup> and Preacher et al<sup>52</sup> to test the moderating effects of the consumption experience on the relationship between product design dimensions and consumer WTB and WOM across samples drawn from South Korea. Tables 6 and 7 show an insignificant interaction effect of aesthetic design

and consumption experience on consumer WTB ( $b=0.033$ ,  $p=n.s.$ ). Thus, H3a was not supported.

Similarly, the moderation analysis shows the significant interaction effect of aesthetic design and consumption experience on WOM ( $b=0.197$ ,  $p<0.05$ ). To further understand whether the effect of aesthetic design on WOM is salient for high or low consumption experience, we employed the statistical significance test of Preacher et al<sup>52</sup> and plotted the interaction effect using one SD above and below the mean of the consumption experience.<sup>53</sup> The results of the plot and slope test (Figure S7) show that the effect of aesthetic design on WOM is salient when the consumption experience is high ( $\beta=0.52$ ,  $p<0.01$ ;  $CI=0.253-0.794$ ), but not when the consumption experience is low ( $\beta=0.14$ ,  $p=n.s.$ ;  $CI=-0.091$  to  $0.362$ ). In a similar vein, Tables 6 and 7 show the insignificant interaction effect of functional design and consumption experience on consumer WTB ( $b=-0.05$ ,  $p=n.s.$ ) and WOM ( $b=-0.08$ ,  $p=n.s.$ ). Therefore, H4a and H4b were not supported. Finally, Tables 6 and 7 reveal the insignificant interaction effect of symbolic design and consumption

**Table 5** Structural equation modeling results (Study 2)

Hypotheses	Paths	Standardized estimates (China)	Standardized estimates (South Korea)
H1a	AD→WTB	0.393***	0.322***
H1b	FD→WTB	0.138*	0.247***
H1c	SD→WTB	0.214***	0.187***
H2a	AD→WOM	0.287***	0.174**
H2b	FD→WOM	0.179**	0.139**
H2c	SD→WOM	0.244***	0.182**

**Note:** \*\*\* $p<0.001$ , \*\* $p<0.01$ , \* $p<0.05$ .

**Abbreviations:** AD, aesthetic design; FD, functional design; SD, symbolic design; WOM, word-of-mouth; WTB, willingness-to-buy.

**Table 6** Moderation results (Study 2)

Moderation of consumption experience						
Regression results for willingness-to-buy as a dependent variable						
Predictor	$\beta$	t	p-value	F	$R^2$	
Aesthetic design	0.392	6.04	0.000	17.38	0.160	
Consumption experience	0.163	3.07	0.002			
Aesthetic design $\times$ consumption experience	0.033	0.485	0.628			
Consumption experience $\pm 1$ SD	Conditional effect	SE	z	p-value	LLCI	ULCI
Low	0.36	0.085	4.21	0.000	0.192	0.527
High	0.43	0.102	4.18	0.000	0.225	0.626
Moderation of consumption experience						
Regression results for willingness-to-buy as a dependent variable						
Predictor	$\beta$	t	p-value	F	$R^2$	
Functional design	0.251	4.18	0.000	11.85	0.115	
Consumption experience	0.158	2.88	0.004			
Functional design $\times$ consumption experience	-0.051	-1.00	0.320			
Consumption experience $\pm 1$ SD	Conditional effect	SE	z	p-value	LLCI	ULCI
Low	0.30	0.070	4.30	0.000	0.163	0.438
High	0.20	0.086	2.35	0.020	0.032	0.370
Moderation of consumption experience						
Regression results for willingness-to-buy as a dependent variable						
Predictor	$\beta$	t	p-value	F	$R^2$	
Symbolic design	0.166	3.23	0.001	9.71	0.096	
Consumption experience	0.187	3.43	0.001			
Symbolic design $\times$ consumption experience	-0.074	-1.51	0.132			
Consumption experience $\pm 1$ SD	Conditional effect	SE	z	p-value	LLCI	ULCI
Low	0.24	0.064	3.73	0.000	0.113	0.365
High	0.09	0.076	1.23	0.219	-0.056	0.244

**Abbreviation:** LLCI, lower limit confidence interval; SE, standard error; ULCI, upper limit confidence interval.

**Table 7** Moderation results (Study 2)

<b>Moderation of consumption experience</b>						
<b>Regression results for word-of-mouth as a dependent variable</b>						
<b>Predictor</b>	<b><math>\beta</math></b>	<b>t</b>	<b>p-value</b>	<b>F</b>	<b>R<sup>2</sup></b>	
Aesthetic design	0.330	3.76	0.000	5.53	0.057	
Consumption experience	−0.004	−0.05	0.958			
Aesthetic design × consumption experience	0.197	2.12	0.035			
<b>Consumption experience ± 1 SD</b>	<b>Conditional effect</b>	<b>SE</b>	<b>z</b>	<b>p-value</b>	<b>LLCI</b>	<b>ULCI</b>
Low	0.14	0.115	1.17	0.241	−0.091	0.362
High	0.52	0.137	3.81	0.000	0.253	0.794
<b>Moderation of consumption experience</b>						
<b>Regression results for word-of-mouth as a dependent variable</b>						
<b>Predictor</b>	<b><math>\beta</math></b>	<b>t</b>	<b>p-value</b>	<b>F</b>	<b>R<sup>2</sup></b>	
Functional design	0.195	2.44	0.015	3.09	0.033	
Consumption experience	−0.009	−0.12	0.901			
Functional design × consumption experience	−0.083	−1.22	0.224			
<b>Consumption experience ± 1 SD</b>	<b>Conditional effect</b>	<b>SE</b>	<b>z</b>	<b>p-value</b>	<b>LLCI</b>	<b>ULCI</b>
Low	0.28	0.093	2.97	0.003	0.093	0.460
High	0.11	0.114	0.99	0.319	−0.111	0.339
<b>Moderation of consumption experience</b>						
<b>Regression results for word-of-mouth as a dependent variable</b>						
<b>Predictor</b>	<b><math>\beta</math></b>	<b>t</b>	<b>p-value</b>	<b>F</b>	<b>R<sup>2</sup></b>	
Symbolic design	0.218	3.23	0.001	4.02	0.042	
Consumption experience	0.012	0.17	0.864			
Symbolic design × consumption experience	−0.037	−0.59	0.559			
<b>Consumption experience ± 1 SD</b>	<b>Conditional effect</b>	<b>SE</b>	<b>z</b>	<b>p-value</b>	<b>LLCI</b>	<b>ULCI</b>
Low	0.26	0.084	3.04	0.003	0.090	0.420
High	0.18	0.100	1.82	0.071	−0.015	0.378

**Abbreviation:** LLCI, lower limit confidence interval; SE, standard error; ULCI, upper limit confidence interval.

experience on consumer WTB ( $b=-0.07$ ,  $p=n.s.$ ) and WOM ( $b=-0.04$ ,  $p=n.s.$ ).

## Discussion

Study 2 mirrors Study 1 and extends its findings by providing additional evidence from the South Korean context, insofar as both studies reveal that aesthetic, functional, and symbolic product designs positively improve consumer WTB and WOM. Specifically, in Study 1, it was found that the aesthetic design appeared to be a stronger predictor of consumer WTB, followed by symbolic and functional designs. Similarly, in Study 2, the aesthetic design also appeared to be a stronger predictor of consumer WTB, followed by functional and symbolic designs. Thus, the aesthetic design seems to be more prominent for both the Chinese and the South Korean apparel context.

Further, in Study 1, the aesthetic design was more prominent in capturing WOM, followed by the symbolic and functional designs. In contrast, Study 2 shows that the symbolic design is more promising for improving WOM, followed by the aesthetic and functional designs. Thus, the aesthetic design is more salient to enhancing WOM in China, whereas the symbolic design is more prominent in improving WOM in South Korea.

In contrast to Study 1, Study 2 revealed the insignificant interaction effect of aesthetic, functional, and symbolic designs on consumer WTB, suggesting that the consumption experience had a trivial influence on consumer WTB. Similarly, the consumption experience insignificantly interacts with functional and symbolic designs to improve WOM except in the case of aesthetic design, where the consumption experience significantly interacts with aesthetic design

to improve WOM. The plausible explanation of this finding is that China and South Korea are culturally different countries in terms of uncertainty avoidance based on Hofstede's cultural typology.<sup>54,55</sup> Academic research has demonstrated that Chinese consumers score relatively high on uncertainty avoidance, while South Koreans are characterized more by a willingness to take risks and try new innovative products.<sup>56,57</sup> This suggests that the consumption experience possesses more importance for Chinese consumers, while it is less important for South Korean consumers. Together, our results demonstrate that the consumption experience can differentiate the effects of three product design dimensions on consumer WTB and WOM in the Chinese context. By contrast, the consumption experience can only interact with aesthetic design to improve WOM in the South Korean context.

## Managerial implications

The findings of this research have several important implications for theory and practice. First, our study contributes to extending the notion of categorization theory, which suggests that product/brand designs can be categorized on the basis of concrete or abstract attributes. Based on categorization theory, studies 1 and 2 explored the effects of the three product design dimensions on consumer WTB and WOM across samples drawn from China and South Korea and found that the aesthetic design is more prominent in capturing WTB and WOM in the Chinese and South Korean contexts. Our findings further demonstrate that symbolic dimension can also play a promising role in influencing Chinese and South Korean consumers' WTB and WOM in the apparel industry, which is contrary to brand managers' common knowledge, as they often consider consumer WTB and WOM in a cognitive (functional) and rational manner. Therefore, enhancing consumer WTB and WOM involves not only cognitive (functional) judgments, but also aesthetic and symbolic designs. Therefore, practitioners in the luxury fashion apparel industry may consider the framework of this study to design brands that include aesthetic and symbolic elements.

Similarly, Study 1 reveals the prominent role of the consumption experience in the relationship between the three product design dimensions and consumer WTB and WOM. This finding implies that an apparel industry should be structured in such a way to successfully manage customer experience and that delivering apparel products/brands with consistent and positive consumption experiences is essential to capturing Chinese customers' WTB and WOM. Thus, practitioners of the apparel industry in China may consider and measure product design through the consumption experience

as a performance indicator and as a standard for assessing the company's product design performance against competitors' product design performance. Product design expenditures can be justified through this evaluation. In contrast, Study 2 reveals that the moderating effect of the consumption experience on the relationship between product design (e.g., functional and symbolic designs) and South Korean consumers' WTB and WOM was insignificant and that the consumption experience can only differentiate the effect of aesthetic product design on South Korean consumers' WOM. Thus, fashion apparel practitioners should carefully consider the framework of this study and design aesthetic brands with consumption experiences.

Finally, for products with high consumption experience, the aesthetic dimension takes precedence and is directly related to consumers' WTB and WOM. The functional and symbolic dimensions also enhance consumer behavioral outcomes through high consumption experience. Therefore, brand managers should not expect that perceived appearance and beauty (aesthetic design) automatically evokes consumers' behavioral responses; instead, marketing strategies should be crafted that distinctly communicate aesthetic design that stimulates consumers' WTB and WOM. Moreover, managers should also ensure that symbolic and functional dimensions meet or exceed consumer expectations, while also paying attention to communicating the symbolic and functionality of a brand.

## Limitations and future research directions

Our theoretical and practical implementation of product design established the basis for advanced research into understanding how product design through the consumption experience functions. Like any study, this research has some limitations, which open up several avenues for further studies.

First, our two studies explored the effects of aesthetic, functional, and symbolic design dimensions on consumer WTB and WOM in the apparel context across China and South Korea. Hence, the findings of our studies are more appropriate for the apparel industry and may not be generalized to another context. We call for future research to validate the results of this study in the service and online brand context.

Second, our study explored the moderating role of consumption on the relationship between the three product design dimensions and consumer WTB and WOM. Future research may benefit from considering other moderating variables, such as popularity cues and scarcity cues. Empirical studies

have shown that consumer WTB and WOM are highly influenced when brands are very popular (e.g., Zara) and when brands are not easily available.<sup>58–60</sup> Therefore, future research may essentially explore the interacting effect of product design dimensions and cue type (scarcity vs. popularity) on consumer WTB and WOM.

Third, future research may benefit from exploring gender differences (e.g., male vs. female customers) and age differences (e.g., young vs. older customers) and investigate whether the effects of aesthetic, functional, and symbolic designs on consumer WTB and WOM is/are related to men or women and young or old customers.

Fourth, future research may also integrate intrinsic motivation into the relationship between the three product design dimensions and consumer WTB and WOM and explore whether the product design dimensions enhance or undermine consumer intrinsic motivation and subsequent consumer WTB and WOM.

Finally, the majority of targeted samples from studies 1 to 2 were young students who were studying in the major business schools of China and South Korea. The sampling might have an issue with generalizability, as the young apparel shoppers do not represent all segments of the society. Therefore, we call for future research to include older customer segments, which substantiates our model and hypotheses.

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## Disclosure

The authors report no conflicts of interest in this work.

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## Supplementary materials

### Scale items

#### Aesthetic product design

1. XYZ apparel brand is visually striking.
2. XYZ apparel brand is good-looking.
3. XYZ apparel brand looks appealing.

#### Functional product design

1. XYZ apparel brand is likely to perform well.
2. XYZ apparel brand seems to be capable of doing its job.
3. XYZ apparel brand seems to be functional.

#### Symbolic product design

1. XYZ apparel brand would help me in establishing a distinctive image.
2. XYZ apparel brand would be helpful to distinguish me from the mass.
3. XYZ apparel brand would accurately symbolize or express my achievements.

#### Willingness-to-buy

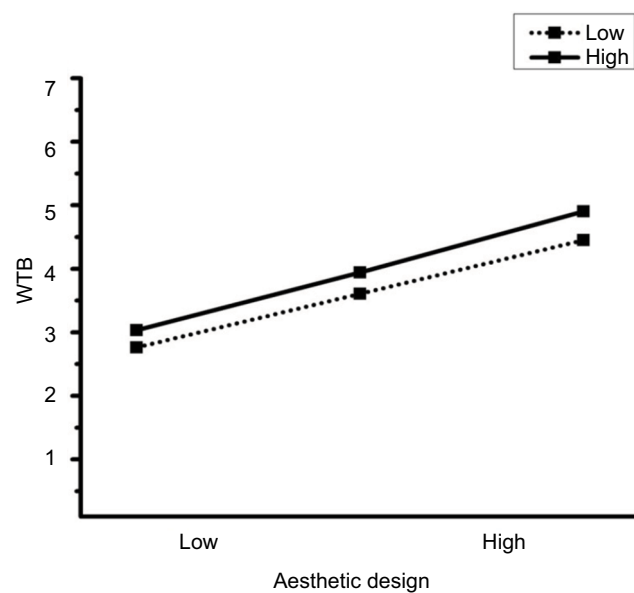
1. It is likely that I will buy XYZ apparel brand.
2. I will buy XYZ apparel brand next time when I need clothes.
3. I will definitely try the XYZ apparel brand.

#### Word-of-mouth

1. I would likely say positive things about XYZ apparel brand.
2. I would recommend this XYZ apparel brand to my friends.
3. If my friends were looking for fashion clothing, I would tell them to buy XYZ apparel brand.

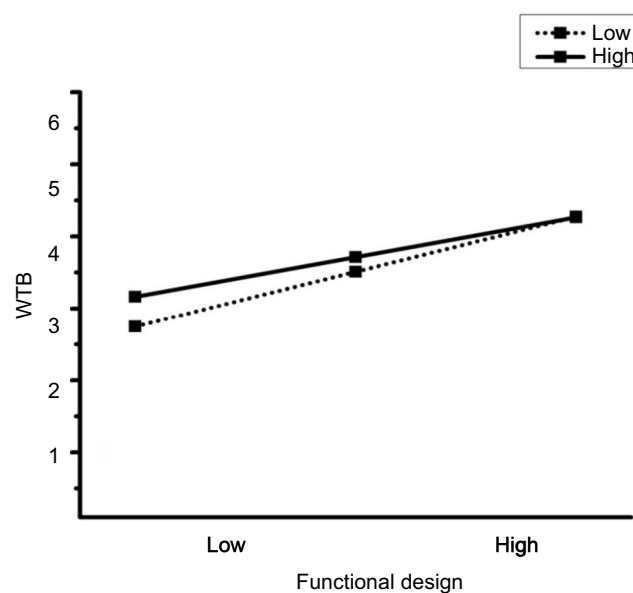
#### Consumption experience

1. I have invested more time on this XYZ apparel brand.
2. I have invested and spent much more money on this XYZ apparel brand.
3. I have been using this XYZ apparel brand for a long time.
4. I have been frequently using this XYZ apparel brand.



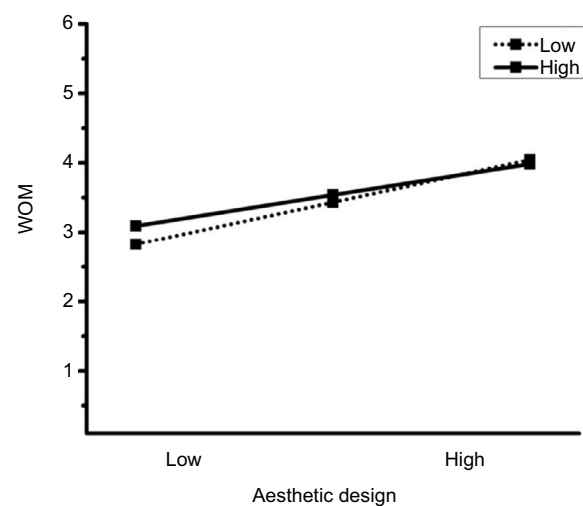
**Figure S1** The moderating effect of consumption experience between aesthetic design and WTB (Study I).

**Abbreviation:** WTB, willingness-to-buy.



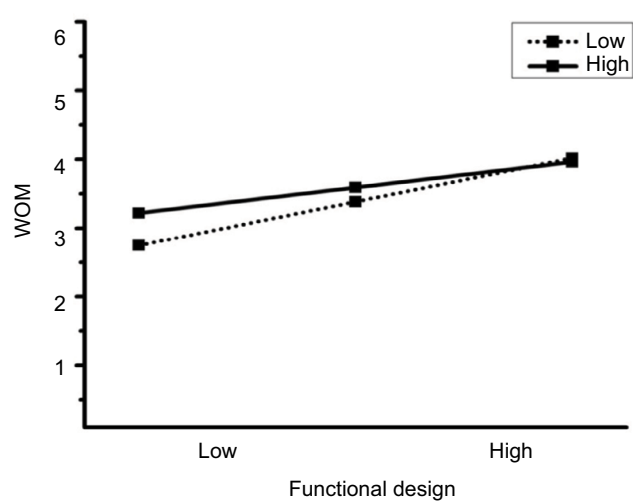
**Figure S3** The moderating effect of consumption experience between functional design and WTB (Study I).

**Abbreviation:** WTB, willingness-to-buy.



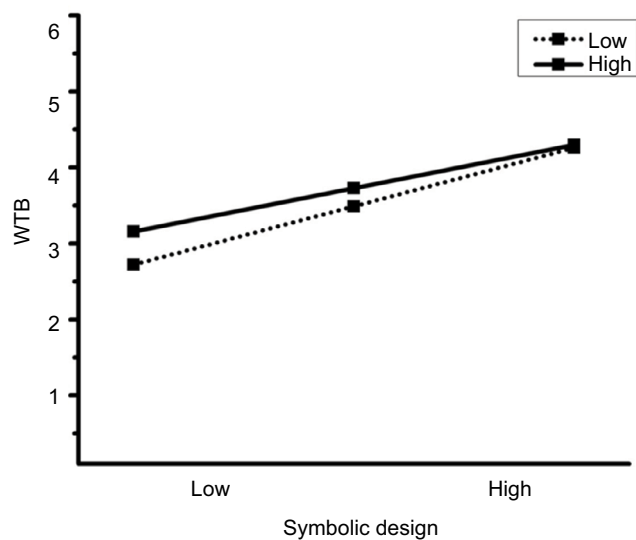
**Figure S2** The moderating effect of consumption experience between aesthetic design and WOM (Study I).

**Abbreviation:** WOM, word-of-mouth.



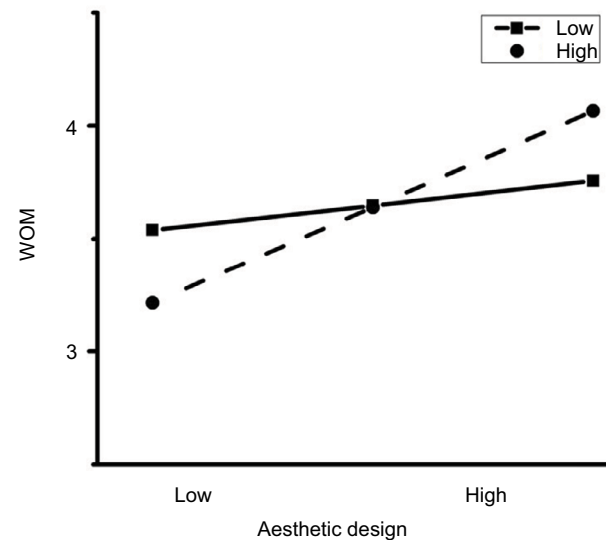
**Figure S4** The moderating effect of consumption experience between functional design and WOM (Study I).

**Abbreviation:** WOM, word-of-mouth.



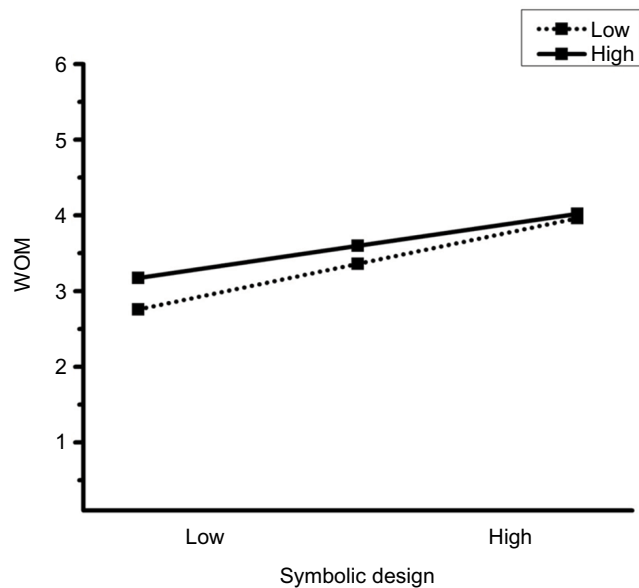
**Figure S5** The moderating effect of consumption experience between symbolic design and WTB (Study 1).

**Abbreviation:** WTB, willingness-to-buy.



**Figure S7** The moderating effect of consumption experience between aesthetic design and WOM (Study 2).

**Abbreviation:** WOM, word-of-mouth.



**Figure S6** The moderating effect of consumption experience between symbolic design and WOM (Study 1).

**Abbreviation:** WOM, word-of-mouth.

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