



Differences in Consumers' Evaluation of Product Design Values by Thinking Style

Jaehye Suk and Kee Ok Kim^(✉)

Sungkyunkwan University, Seoul, South Korea
kokim@skku.edu

Abstract. This study examined the effects of consumers' purchase thinking style on their evaluation of product design values in relation to two product types, refrigerators and dining tables. Data were collected from 300 Korean consumers aged in their 30s to 50s from December 7th to December 15th in 2017. SPSS 22.0 was used to conduct repeated measures ANOVA and regression analyses on the data. Consumer thinking styles were classified into rational and experiential, and product design values were classified into rational, kinesthetic, and emotional through exploratory factor analysis. The results were as follows. First, consumers' concern for rational design value was slightly higher for refrigerators than for dining tables, while emotional design value was evaluated in the opposite direction. Second, adjusted R^2 s indicated that socioeconomic background and product design value explained consumers' experiential thinking styles better than rational thinking styles. We found that consumers' evaluations of product design values differed by their thinking style and product type. Understanding consumers' thinking styles could enhance product designers' knowledge on consumer purchasing preferences.

Keywords: Dual-process theory · Rational thinking style
Experiential thinking style · Situation Specific Thinking Style

1 Introduction

Novak and Hoffman [1] developed the Situation Specific Thinking Style (SSTS) by applying Dual Process Theory [2] to the two qualitatively different systems of consumer information processing in purchase situations. This study examined consumers' purchase thinking style relating to two product types, refrigerators and dining tables, and the effect of their thinking styles on their evaluation of the product design values.

2 Methods

2.1 Participants

Data were collected from 300 Korean consumers aged in their 20s to 40s from December 7th to December 15th in 2017. Quota sampling was applied by gender and age. Participants all registered through a professional market research organization.

Table 1. Description of the respondents

		(N=300)
		Frequency (%)
Gender	Male	150 (50.0)
	Female	150 (50.0)
Age	20-29	100 (33.3)
	30-39	100 (33.3)
	40-49	100 (33.3)
	50-59	100 (33.3)
Household income per month (KRW) ^a	Less than 4 million	113 (37.7)
	4-7 million	109 (36.3)
	Over 7 million	78 (26.0)
Education	High school or less	31 (10.3)
	College/University	235 (78.3)
	Graduate school or higher	34 (11.3)

Note. a KRW 1 million = USD 926.18

The sample characteristics are presented in Table 1. SPSS 22.0 was used to analyze the data, specifically, to conduct repeated ANOVA and regression analyses.

2.2 Measurements

Consumer thinking style was measured using the 12 items generated by Novak and Hoffman [1]. These 12 items were divided into two hypothetical constructs: rational

Table 2. Exploratory factor analysis: consumer thinking style

	Rational	Emotional	Explained variance (%)	α
I used my gut feelings	.840		32.153	.872
I used my instincts	.834			
I relied on my sense of intuition	.832			
I used my heart as a guide for my actions	.799			
I trusted my hunches	.762			
I went by what felt good to me	.584			
I reasoned things out carefully		.810	26.487	.833
I was very aware of my thinking process		.791		
I tackled this task systematically		.768		
I applied precise rules to deduce the answers		.727		
I approached this task analytically		.686		
I figure things out logically		.632		
Cumulative explained variance (%)	58.641			
KMO	.855			

and emotional thinking styles. Rational and emotional thinking styles were measured with six items each.

On the basis of previous studies by Ravasi and Stiglian [3], and Homburg et al. [4], eleven items for measuring product design values were constructed. These were classified into three hypothetical constructs: rational, kinesthetic, and emotional design values. Rational design value was measured by three items while kinesthetic design value by four items, and emotional design value also by four items. To validate the scales and test their reliabilities, exploratory factor analyses (EFAs) and Cronbach's α tests were performed as shown in Tables 2 and 3.

Table 3. Exploratory factor analysis: design values

	Refrigerator			Dining table		
	Factor loading	Explained variance (%)	α	Factor loading	Explained variance (%)	α
<i>Rational</i>						
Reliability	.758	39.233	.805	.776	40.256	.812
Quality/function	.721			.730		
Durability	.730			.748		
<i>Kinesthetic</i>						
Convenience	.801	11.187	.799	.789	11.301	.803
Ease of use	.701			.727		
Simplicity	.698			.673		
Harmony of space	.739			.743		
<i>Emotional</i>						
The latest	.824	10.257	.829	.853	10.378	.831
Discrimination	.753			.726		
Design	.761			.798		
Feeling	.735			.704		
Cumulative explained variance (%)	60.677			61.935		
KMO	.853			.892		

3 Results

3.1 Consumer Thinking Style and Product Design Value: EFAs

To investigate consumer thinking style and product design value of the two different products, EFAs using varimax rotation were conducted, as shown in Tables 2, 3, and 4. For consumer thinking style, two factors were extracted, namely, rational and emotional, which cumulatively explained 58.64% of data variation. For product design

Table 4. Repeated measures ANOVA

	Group		Source	SS	df	F	Bonferroni
	Refrigerator ^a	Dining table ^a					
Rational	4.198 (.590)	4.056 (.602)	Treatment	3.034	1	34.789 ^{***}	A > B
			Error	26.077	299		
Kinesthetic	3.902 (.531)	3.863 (.557)	Treatment	.220	1	2.764	
			Error	23.842	299		
Emotional	3.493 (.614)	3.573 (.613)	Treatment	.960	1	11.463 ^{**}	A < B
			Error	25.040	299		

* $p < .05$, ** $p < .01$, *** $p < .001$

Note. ^aMean (SD)

value, three factors were extracted, namely rational, kinesthetic, and emotional, which cumulatively explained 60.68%, and 61.94% of the variance for refrigerator and dining table, respectively.

3.2 Product Design Values by Product Type

As shown in Table 4, repeated ANOVA was conducted to analyze the differences in product design values of the two different product types. Consumers viewed rational design value more highly for refrigerator than for dining table ($p < .001$), while emotional design value was evaluated in the opposite direction ($p < .01$). Kinesthetic value of product design was not significantly different between the two product types.

3.3 Consumers’ SSTS Toward Refrigerator and Dining Table

Consumers’ SSTS toward refrigerator and dining table were analyzed using regression models, as shown in Table 5. Four regression models were statistically significant and the variance inflation factor for each independent variable was less than 1, indicating multicollinearity was not present.

Adjusted R^2 s indicated that socioeconomic background and product design value explained consumers’ experiential thinking styles (adjusted $R^2 = 42.0, 38.0$, respectively) better than rational thinking styles (adjusted $R^2 = 28.5, 29.9$, respectively). Men were more likely adopt rational thinking styles than women, while experiential thinking styles did not differ by sex. Rational product design values were significant for all thinking styles regardless of the product type, while emotional product design values were only significant for experiential thinking styles. Kinesthetic product design values were significant for both thinking styles for refrigerator, while they were only significant for rational thinking styles for dining table.

Table 5. Consumers' SSTS toward refrigerator and dining table

	Refrigerator				Dining table			
	Rational SSTS		Experiential SSTS		Rational SSTS		Experiential SSTS	
	B	β	B	β	B	β	B	β
<i>Sociodemographic variables</i>								
Female	-.178	-.161**	-.024	-.018	-.150	-.054**	.043	.032
Age	.005	.064	-.007	-.083	.002	.004	-.008	-.093
Education ^a								
University	.090	.067	-.061	-.037	.069	.093	.027	.017
Graduate	.129	.074	-.163	-.076	.190	.120	-.141	-.066
Household income ^b								
Middle	-.014	-.013	-.028	-.021	.190	.072	-.036	-.026
High	.120	.095	-.025	-.016	.144	.083	.028	.018
<i>Design values</i>								
Rational	.314	.335***	-.166	-.144*	.384	.059**	-.147	-.130*
Kinesthetic	.242	.232**	.195	.152*	.142	.069*	.139	.114
Emotional	.047	.076	.659	.595**	.042	.052	.656	.592***
F	14.267***		25.093***		15.196***		21.345**	
R ²	.307		.438		.320		.398	
Adj. R ²	.285		.420		.299		.380	
Durbin-Watson	1.926		1.959		1.927		2.042	

* $p < .05$, ** $p < .01$, *** $p < .001$

Notes. ^aReference group: High school or less

^bReference group: Low income (less than KRW 3 million)

4 Conclusion

In conclusion, consumers' evaluations of product design values differ by their thinking styles and by product types. This implies that understanding consumers' thinking styles could enhance product designers' knowledge on consumer preferences and, therefore, could enhance consumer satisfaction by fulfilling appropriate product design values.

References

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