

## The Effect of Clothing Interest and Fashion Innovativeness on Olfaction of Apparel Product

Eunah Yoh · Kyu-Hye Lee\*<sup>†</sup>

Dept. of Fashion Marketing, Keimyung University

\*Dept. of Clothing & Textiles, Hanyang University

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### Abstract

This study investigates the combined effect of clothing interest and fashion innovativeness on dimensions of scent quality (pleasantness, intensity, familiarity, and congruency) to understand which dimensions of scent quality have significant positive effects on the appeal of scented apparel products. The survey data were statistically analyzed. A structural equation modeling using LISREL was conducted to test the model. Results indicate that clothing interest has a significant impact on scent quality attitude. Positive evaluations of the product were most strongly influenced by the pleasantness quality of the scent. Intensity and familiarity were factors that affected the approach of consumer responses toward scented products. Congruency was not a significant scent quality in generating positive responses for apparel products among consumers.

**Key words:** Clothing interest, Fashion innovativeness, Scent quality, Olfaction of product, Product liking

### I. Introduction

Many retailers and marketers have applied scent as an important technique to differentiate their products and retail environments because of the effect of scents on positive attitude formation and purchase decisions (Bone & Ellen, 1999). Reflecting this market trend, since 1990, a growing number of studies (i.e., Fiore et al., 2000; Knasko, 1995; Mattila & Wirtz, 2001) have been devoted to the study of ambient scent effect on consumer responses. Results of these studies suggested the possibility of positive influence of scents on consumers' responses when the scents were appropriately applied to the environment. Emitting scents in store environments and inserting odor microcapsules in textiles have been two important ways to apply scents in the apparel industry.

Although fragrances are being applied to an increasing variety of consumer products from household

cleaning products, food, cosmetics to fashion items in the market, there have been few studies (Bone & Ellen, 1999; Bone & Jantrania, 1992; Laird, 1932; Strugnell & Jones, 1999) focusing on the antecedents and consequences of olfaction. Some prior research indicated that scented products obtained a higher level of product preferences.

Prior studies on scented products focused only on the unidimensional aspects of scent quality. Pleasantness was the opt-referred quality of scent in scent perception judgment (Hirsch, 1992; Knasko, 1989). Intensity of scent was somewhat frequently mentioned quality (Donnovan et al., 1994; Donovan & Rossiter, 1982). There have also been studies dealing with a congruency dimension of scent (Bone & Jantrania, 1992; Mitchell et al., 1995). Familiarity was another scent quality that was handled as a key driver of human responses in the psychology field (Ayabe-Kanamura et al., 1998; Herz & Cupchik, 1993).

Product evaluation such as product likings may be affected by scent quality and different dimensions of

<sup>†</sup>Corresponding author

E-mail: khlee@hanyang.ac.kr

scent quality may play different roles in the process.

Clothing interest is consumers' relevance to the product and is regarded as an important variable to take into account because it may be a central factor shaping attitude toward the product. Scented apparel products can be considered as an innovative product. Consumers' innovativeness or risk taking tendencies may have significant effects on acceptance of scent quality.

The purpose of this study is to investigate the dimensionality of scent quality. Dimensionality issue was often mentioned in the previous studies about scented product shopping but empirical evidences has not been provided (Bone & Ellen, 1999; Herz & Cupchik, 1993; Knasko, 1995). The joint effect of clothing interest and fashion innovativeness on dimensions of attitude toward scent qualities of apparel products will be studied. In addition, attitude toward which dimensions of scent quality have significant positive effects on likings of scented apparel product will be investigated. These results may contribute to adding knowledge of consumer behavior on scented apparel products.

## II. Literature Review

### 1. Scented Apparel Product

Apparel products tend to evoke a mid to high level of involvement among consumers, since a large portion of textile products may closely relate to the consumer's self-identity (Jensen et al., 1989). Spangenberg et al. (1996) suggested that products invoking a low level of consumer involvement might not be appropriate in examining the scent effect on purchase intention. As indicated by Floch (1988), hedonic value is important in shopping for fashion and apparel items. Scents applied to products has a hedonic nature (Jain & Srinivasan, 1990), thus, scented apparel products covering a wide range of fashion items are considered to be appropriate to test the effect of hedonic factor on the consumers' responses toward scented products. There is no certain thematically matching scents in apparel products (e.g., flower scents in flower) and no stereotyped linkages between scent and products (e.g., dishwashing detergent with lemon

scents). Therefore, a wide range of scents from hub, flower, and fruit to chocolate can be applied to the apparel products to be sold in the market.

Scented apparel products have been consistently developed and provided in the market. According to Yoh (2005), many national brand companies have introduced scented apparel products in a wide range of apparel products (e.g., *innerwear* - Labora, Iklim; *socks* - BYC, Intarsia; *tie* - Cheil Industries, Maestro; *sportswear* - Head, LG fashion; *men's suit* - Manstar, Rogatis; *fur* - ATY; *bag* - 1492 miles, solbit industries; *bedding* - Agabang; *car seat* - Hyundai motors, *carpet* - Hyosung carpet, etc.). Through empirical studies, Yoh (2005) found that the most often experienced scents of apparel products were hub scents including Lavender, Jasmine, and Rosemary. In addition, small decorative commodity, socks and bedding were three item categories that were most experienced by consumers.

### 2. Olfaction of Product: Scent Qualities

Scent qualities have been adopted in diverse research studying the effect of product and ambient scents on consumers' responses. First, among diverse scent qualities, pleasantness has been a dominant dimension in prior studies (Richardson & Zucco, 1989). Pleasantness has been reported to be a key factor influencing consumer responses (Donnovan et al., 1994; Donovan & Rossiter, 1982; Fiore et al., 2000; Hirsch, 1992; Knasko, 1989; Mattila & Wirtz, 2001; Spangenberg et al., 1996). It indicated that hedonic meaning of odor dominates the human perception (Engen, 1982). Thus pleasantness is a representative quality among hedonic values of scent.

Second, some researchers insisted that intensity of odor plays a somewhat different role in scent perception (Doty et al., 1978; Richardson & Zucco, 1989). Researchers (Doty et al., 1978; Henion, 1971; Richardson & Zucco, 1989) reported that, over an optimal level, as scent intensity increases pleasantness of scent decreases. Prior researchers (Ayabe-Kanamura et al., 1998; Brauchli et al., 1995) recognized the importance of scent intensity and regarded it as a single dimension in scent perception judgment.

Third, one of the rarely adopted aspects in scent research related to consumers' responses is familiarity. Especially, scent familiarity has been treated as a crucial factor in cross-cultural studies (Ayabe-Kanamura et al., 1998; Doty et al., 1985). Ayabe-Kanamura et al. (1998) incorporated three aspects of scent quality-familiarity, intensity, and pleasure in their study. They reported a positive relationship between familiarity and pleasantness of odors. Familiarity has been known to be a key driver of human responses in the psychology field (Ayabe-Kanamura et al., 1998). Therefore, it can be considered to be one of the dimension of scent quality.

Fourth, groups of researchers who explored scented products (Bone & Jantrania, 1992) and ambient scents (Fiore et al., 2000; Mitchell et al., 1995) recognized the significance of congruency dimension in scent quality. According to Knasko (1995), scent congruency can be manipulated on a hedonic basis. Some researchers (i.e., Herz & Cupchik, 1993) included scent congruency as part of pleasure (or pleasantness), assuming a close relationship between scent congruency and pleasantness. On the other hand, Bone and Ellen (1999) suggested a close relationship between scent familiarity and congruency by stating that familiarity with an odor would be a precursor to congruity judgment. The following hypothesis regarding dimensionality of scent qualities was generated.

H<sub>1</sub>: There are four dimensions of attitude toward scent qualities (pleasure, intensity, familiarity, and congruency) of apparel products.

### 3. Clothing Interest and Fashion Innovativeness as Antecedents of Scent Qualities

Clothing interest is consumers' relevance to the product and is regarded as an important variable to take into account because it may be a central factor shaping perception toward the product. Kaiser (1997) wrote that "... interest in clothes is closely aligned with the behavioral dimension of attitudes in terms of how people spend time, money, and attention relative to clothing". If consumers are interested in the product category of the fashion, they may intensively consider diverse information such as price, brand, design

or quality of the product (Mowen & Minor, 1998). One of the factors can be the olfactory aspect of the product. Therefore, as product interest increases, elaboration on product scent quality information increases. Interest in fashion items covering many of apparel products could be an important factor affecting perceptions of fragranced apparel products.

Prior researchers (Goldsmith & Hofacker, 1991; Midgley & Dowling, 1993) found the close relationship between interest in the product category and adoption of an innovative product. Scented apparel products can be considered as an innovative product. Consumers' innovativeness or risk taking tendencies may have the significant effect on acceptance of scent quality. According to Roehrich (2004), innovativeness is a tendency to buy new products earlier than others and to be attracted by new products. According to Rogers (1995), the innovativeness of adopters might affect innovation adoption, more directly perceptions on innovations. Accordingly, Kim et al. (2010) found the impact of consumer innovativeness on perception of a pop-up retail store which is another good example of innovation in the fashion field.

The following hypotheses were generated based on previous findings on clothing interest and fashion innovativeness. In addition, since this research place assumption on scent quality dimensionality, sub-hypotheses on each dimension of scent qualities were also suggested.

H<sub>2</sub>: Clothing interest has positive influence on consumers' attitude toward scent qualities of the apparel products.

H<sub>2-1</sub>: Clothing interest has positive influence on consumers' attitude toward pleasantness of scented apparel products.

H<sub>2-2</sub>: Clothing interest has positive influence on consumers' attitude toward intensity of scented apparel products.

H<sub>2-3</sub>: Clothing interest has positive influence on consumers' attitude toward familiarity of scented apparel products.

H<sub>2-4</sub>: Clothing interest has positive influence on consumers' attitude toward congruency of scented apparel products.

H<sub>3</sub>: Fashion innovativeness has positive influence on

consumers' attitude toward scent qualities of apparel products.

H<sub>3-1</sub>: Fashion innovativeness has positive influence on consumers' attitude toward pleasantness of scented apparel products.

H<sub>3-2</sub>: Fashion innovativeness has positive influence on consumers' attitude toward intensity of scented apparel products.

H<sub>3-3</sub>: Fashion innovativeness has positive influence on consumers' attitude toward familiarity of scented apparel products.

H<sub>3-4</sub>: Fashion innovativeness has positive influence on consumers' attitude toward congruency of scented apparel products.

#### 4. Effect of Product Scents on Product Liking

Prior researchers have examined the effect of scent quality on information processing behavior, product evaluation, attitude toward and/or buying intention of products. Many prior researchers recognized relatively positive relationships between scent presence and such variables (Hirsch, 1992; Spangenberg et al. 1996) since appropriately applied scents stimulate to influence mood, resulting in positive evaluations on the scented object or object in the scented environment (Baron, 1990).

Bone and Jantrania (1992) found that congruent scents improved evaluations of scented products more than incongruent scents. Mitchell et al. (1995) also found congruent ambient odors allow consumers spend more time in information elaboration than incongruent odors. Fiore et al. (2000) found that appropriate and pleasant ambient scent increased buying intention of women's sleepwear, however, no influence of scent was found on attitude toward the same product. Little research was done to examine the effect of scent intensity and familiarity on consumers' responses.

However, specific findings conflicted according to scent quality dimensions, dependent variables included and given situations (Bone & Ellen, 1999). Specifically, studies examining a relationship between scent pleasantness and consumers' product likings showed conflicting results. Spangenberg et al. (1996) found effect on ambient scent although they found positive

evaluations on environment and merchandise. Knasko (1989) found that customers lingered longer in the pleasantly scented fine jewelry shop, but found no evidence for increasing purchase intention. Although prior research did not directly report each scent quality dimensions using different conceptualizations and different product categories, a general effect of scent quality on product likings can be inferred. Therefore the following hypothesis and sub-hypotheses were suggested.

H<sub>4</sub>: Consumers' attitude toward scented apparel products has positive influence on product liking.

H<sub>4-1</sub>: Consumers' attitude toward pleasantness of scented apparel products has positive influence on product liking.

H<sub>4-2</sub>: Consumers' attitude toward intensity of scented apparel products has positive influence on product liking.

H<sub>4-3</sub>: Consumers' attitude toward familiarity of scented apparel products has positive influence on product liking.

H<sub>4-4</sub>: Consumers' attitude toward congruency of scented apparel products has positive influence on product liking.

### III. Methods

#### 1. Sample and Procedure

To generate responses from consumers, a web survey was conducted. The aim of using the web survey method is to assess a nation-wide sample with experiences in use or purchase of scented apparel products at a lower cost. Since only a few scents could be tested in the experimental setting, survey method was selected for the data collection to obtain a wide range of responses toward diverse kinds of scents of apparel products in the market. In order to reduce limitations of data depended upon recall, participants were guided to fill the questionnaire while smelling their own scented products.

Sampling and data collection were handled by a highly recognized company specialized in the web survey. Participants were recruited by e-mail invitations that included a short introduction to the study, a

request to participate and the hyperlink to the web questionnaire to 40,000 people listed in panel of sampling company. In results, 702 people who have used or purchased scented textile products within the past 12 months participated in the web survey. Excluding unusable data, a total of 530 responses were used for the data analysis. Males were 46% and females were 54%. Most of respondents were in age of 20's (51%) and 30's (41%) while only 8% of respondents were in 40's. About 64% of respondents had undergraduate diploma. Household income of the respondents was normally distributed with median of the category at the \$20,000-\$30,000 range.

## 2. Questionnaire

### 1) Clothing Interest and Fashion Innovativeness

Clothing interest was measured by three items such as "I usually have one or more outfits that are of latest style", "An important part of my life is dressing smartly", and "I am very interested in latest fashion", referring to Kim and Lee (2000). Referring to Roehrich's innovation scale (2004), fashion innovativeness was assessed by three items including "I am much interested in buying new and different products", "I am usually among the first to try new products", and "I try new products before my friends and neighbors". These items were assessed by 5-point highly unlikely/highly likely Likert scales. Reliabilities were .90 for clothing interest and .86 for fashion innovativeness.

### 2) Attitude toward Scent Qualities

Four scent qualities generated from the literature were measured by three five-point semantic differential bipolar scales for each pleasantness, intensity, familiarity, and congruency. Measures for each scent quality were adopted from previous research (Ayabe-Kanamura et al., 1998; Brauchli et al., 1995) and modified through pretest

Following Fishbein and Ajzen (1975), each attitude toward scent quality score was multiplied by the importance weight of each questionnaire item. The importance of each scent quality item was measured through five point Likert scale.

### 3) Liking of the Scented Product

One five point highly agreeable/highly not agreeable bipolar scale was used. Respondents were asked to check the rate of agreement on "I like scented textile products".

## 3. Model Testing

In order to test the influence of clothing interest and fashion innovativeness on consumers' attitude toward scent qualities and the influence scent quality attitude on product liking, a conceptual model was developed. Clothing interest and fashion innovativeness were the two exogenous variables and product liking was the endogenous variable. Attitudes toward each scent quality dimension were mediating variables. Items measuring each latent variable were the indicators for the model. A structural equation model using LISREL was conducted to test the model. For the statistical significance of parameter estimates (*t*-values), this study takes the conservative criteria of 2.00 as an absolute *t*-value of statistical significance (Byrne, 1998).

## IV. Results

### 1. Dimensionality of Scent Quality

To determine whether multiple indicators for each scent quality comprise one factor dimension, exploratory factor analyses were conducted. Four factors--pleasantness, intensity, familiarity, and congruency--were confirmed (Table 1). Factor loadings were ranged between .73 and .90, and communalities were ranged between .55 and .86. Factor loadings above .55 (Nunnally, 1967) and not higher than .30 on other factors (Kline, 1998) were considered as evidence for construct validity. Hypothesis 1 was supported.

### 2. Model Testing

The conceptual model was estimated with maximum-likelihood using LISREL VII with covariance matrix as the input to the data. The *Chi*-square estimate of the hypothesized model was 318.11 ( $df =$

Table 1. Factor analysis of scent quality items

Variables	Factor Items	Loading	Communality	
Pleasantness	Pleasant/Unpleasant X Importance of pleasure	.82	.73	Eigenvalue=2.30
	Enjoyable/Not enjoyable X Importance of enjoyment	.86	.80	Percent of variance explained=19.20
	Delightful/Not delightful X Importance of delight	.83	.72	
Intensity	High/Low in intensity X Importance of intensity	.80	.65	Eigenvalue=2.34
	Rich/Light X Importance of richness	.80	.66	Percent of variance explained=19.46
	Strong/Mild X Importance of strength	.77	.61	
Familiarity	Not strange/Strange Mild X Importance of strangeness	.80	.66	Eigenvalue=2.23
	Familiar/Unfamiliar Mild X Importance of familiarity	.85	.81	Percent of variance explained=18.55
	Accustomed/Not accustomed Mild X Importance of accustomedness	.84	.78	
Congruency	Congruent/Incongruent X Importance of congruency	.85	.80	Eigenvalue=2.47
	Fit/Unfit X Importance of fitness	.90	.86	Percent of variance explained=20.58
	Appropriate/Inappropriate X Importance of accustomedness	.86	.83	
				Cumulative percent of variance explained=70.80

137). The goodness-of-fit index (GFI) was .94, and the adjusted goodness-of-fit index (AGFI) was .92. A rough guideline of acceptance level is .90 (Bentler & Bonett, 1980). Therefore, the measures of fit indicate that the model fits the data well. Modification indexes were considered for a possible significant direct path from exogenous variable and endogenous variable in the model. However, no significant modification indexes for latent paths were detected.

### 1) Effect of Clothing Interest and Fashion Innovativeness on Scent Quality Attitude

Effects of clothing interest and fashion innovativeness on scent quality attitude were accessed through the structural path of the hypothesized model (Fig. 1). Overall, Hypotheses 2 and 3 were partially supported.

There were significant and positive effect of clothing interest on attitude toward pleasantness ( $\gamma = .17, t=3.0$ ), familiarity ( $\gamma = .12, t=2.1$ ), and congruity ( $\gamma = .20, t=3.6$ ). However, attitude toward intensity of the apparel product scent was not significantly influenced by clothing interest. Hypotheses 2-1, 2-3, and 2-4 were supported but Hypothesis 2-2 was not supported.

Fashion innovativeness had significant influence on attitudes toward pleasantness ( $\gamma = .19, t=3.5$ ), and intensity ( $\gamma = .13, t=2.2$ ). Attitudes toward familiarity and congruity of the apparel product scent were not significantly influenced by fashion innova-

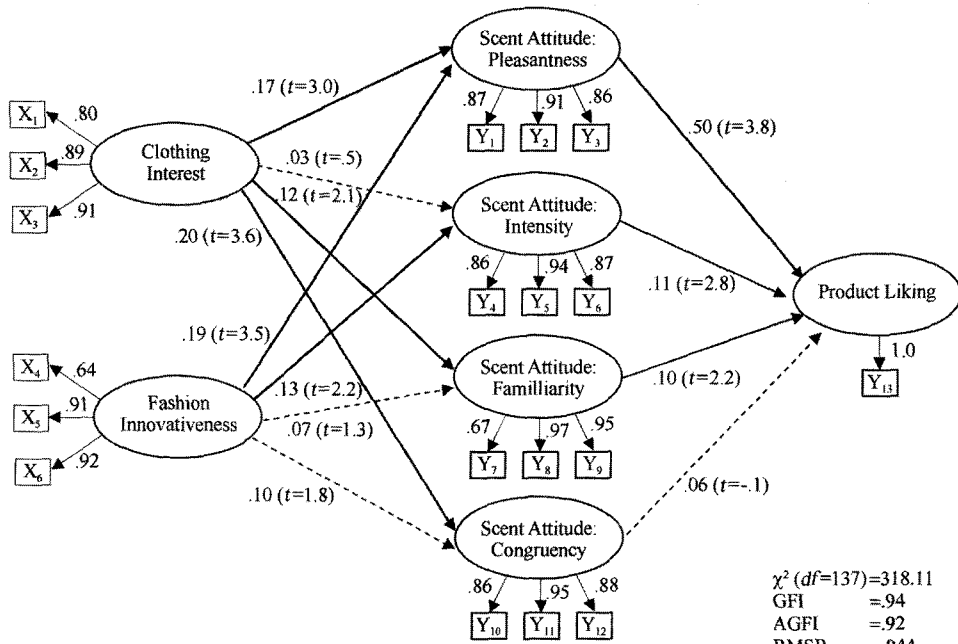
tiveness. Hypotheses 3-1 and 3-2 were supported but Hypotheses 3-3 and 3-4 were not supported.

### 2) Effect of Scent Quality Attitude on Product Liking

There were significant and positive effect of pleasantness ( $\beta = .50, t=8.8$ ), intensity ( $\beta = .11, t=2.8$ ), and familiarity ( $\beta = .10, t=2.2$ ) on the liking of the scented products. Compared to the strong effect of pleasantness, relatively light influences of intensity and familiarity were observed, indicating that consumers may show more positive attitude toward scented products as scent pleasure increases, scent arousal-intensity decreases, and scent is more familiar to users. No significant influence of congruency was found on liking of the apparel. Prior research also reported non-significant influence of scent congruency on attitude although reported significant influence of scent congruency on product evaluations (Bone & Jantrania, 1992; Mitchell et al., 1995). Hypotheses 4-1, 4-2, and 4-3 were supported but Hypothesis 4-4 was not supported.

## V. Discussion and Conclusions

This study explored the relationships among scent quality dimensions and the effects of scent quality on liking of scented products. The roles of product interest and fashion innovativeness as antecedents to



Note: Standardized path coefficients are indicated; t-values are in parentheses; the dotted arrow indicates insignificant paths.

Fig. 1. The influence of clothing interest and fashion innovativeness on scented apparel product likings.

scent quality attitude were also investigated. Major findings were as follows. First, attitude toward scent quality of apparel products are confirmed to be multidimensional. Pleasantness, intensity, familiarity and congruency of scent quality of apparel products were confirmed to be empirically existed.

Second, clothing interest showed significant positive effects on pleasantness, familiarity and congruency of scent quality. Scent intensity was not influenced by clothing interest. Innovativeness for fashion product has a significant positive effect on pleasantness and intensity dimensions of scent quality. Scent familiarity and congruency were not significantly affected by fashion innovativeness. Therefore, the significant roles of clothing interest and involvement in attitude toward the scent qualities were confirmed, however, the significance may vary in accordance with individual scent quality dimension. Marketers who may target involved consumers in fashion should focus more on pleasantness, familiarity and congruity of the scent. Marketers who target fashion leaders may want to focus more on pleasantness and intensity of

the scent. In order to lead more people, product developers may want to consider whether intensity of product scents is in a preferable range and whether scents are familiar enough to target customers in addition to considering pleasantness of the product scent. In addition, to target consumers who are more interested in fashion, scented products should be able to generate more pleasant, familiar and congruent feelings to users. The role of attitude toward scent congruency may be carefully applied to the product. It may attract involved consumers but may not lead product likings. Scented products can be considered as innovative products. But to target innovative consumers such as fashion leaders scent intensity of the product should be carefully managed.

Third, scent quality dimensions, specifically pleasantness, intensity, and familiarity, were factors affecting positive evaluation of the scented products. The results confirm the literature showing conflicting results in related research (Donnovan et al., 1994; Fiore et al., 2000; Spangenberg et al., 1996). Congruency was not a significant scent quality generating positive

evaluations of apparel products among consumers. No significant direct effect from clothing interest and fashion innovativeness on product liking were detected.

Finally, pleasantness was the most important scent quality among scent quality dimensions of apparel product. Not only it had a significant effect on product liking, it is also influenced by clothing interest and fashion innovativeness.

Future research should include diverse product categories to enhance generalizability of findings in apparel product category. Data were collected through a web-survey. Although web-survey methods were inevitable to get a nation-wide sample of consumers who have experiences in use or purchase of diverse scented textile products, generalizability of study findings may be limited due to voluntary sampling accessed via web. If the same research variables are tested in an experimental setting, the results could be different. Since several researchers reported cultural differences in scent perception (Ayabe-Kanamura et al., 1998; Schleidt et al., 1981), the study result could have a cultural bias. More cross-cultural studies exploring scent-approach behavior relationships are needed. Some findings were conflict to previous research or new in this study. Future research should be dedicated to figure out further evidences of study results.

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