◆研究論文◆

The Target Consumers for Mass Customization in the Korean Apparel Industry

韓国におけるマス・カスタマイズド・アパレル市場のターゲット消費者に対する研究

Jina Park
Doctoral Program, Graduate School of Media and Governance, Keio University
朴 眞娥
慶應義塾大学大学院政策・メディア研究科後期博士課程
Joohyeon Lee
Professor, Clothing and Textiles, Yonsei University
李 株炫
延世大学生活科学部衣類環境学教授

The purpose of this study was to research the target market for mass customized fashion products in Korea. This study proposed two models for mass customized fashion design processes and compared their efficiencies and appropriateness with those of the existing fashion design process. A survey was conducted with a sample of 150 females in their twenties and thirties living in Korea. The collected data were analyzed using a range of statistical methods. This study classified target consumers according to the levels of customization (low customization, medium customization, high customization), identified their characteristics, and analyzed the relationship between satisfaction and design elements. In sum, guidelines to develop the target market for mass customized fashion products in Korea were suggested.

本稿では、韓国におけるマス･カスタマイズド･アパレル市場のターゲット消費者に対するリサーチを行った。本研究ではマス・カスタマイゼーションのレベルが異なる二つのファッションデザインプロセスモデルを提案し、その効率性と適合性を既存の大量生産式デザインモデルのものと比べてみた。また、本稿ではマス・カスタマイゼーションのレベルによってターゲット消費者を分類し、その消費者群の特徴を調べ、商品に対する満足度とデザイン要素との関係を分析した。

Keywords: Mass Customization, Target Consumer, Customized Level, Design Element

1 What is Mass Customization?

Pine (1999) defined mass customization as the use of mass production techniques to assemble goods and services quickly that are also uniquely tailored to the demands of individual customers at prices comparable to mass-produced goods and services. Mass producers seek large volumes and repetition in production to drive down per-unit costs, and appeal to large customer groups or average customers (Berman, 2002). In contrast, mass customizing firms rely on small production lot sizes, appeal to the unique preferences of individual consumers, seek very low levels of inventory, and attempt to cut the costs of small production runs by reducing both set-up and changeover times. The end consumers determine what is produced based on their specific orders.

Determining the level of individualization characterizing truly mass-customized products seems to be a major point of contention in the mass customization debate. Westbrook and Williamson (1993) argue that successful mass customization systems should be able to mix true individualization with high part variety and standardized processes. Lampel and Mintzberg (1996) and Gilmore and Pine (1997) propose a continuous framework upon which mass customization may be developed; namely, mass customization can occur at various points along the value chain, ranging from the simple adaptation of products delivered by customers themselves, up to the total customization of product sale, design, fabrication, assembly, and delivery. Figure 1 illustrates the intervention of the customer in the manufacturing process. The degree of mass customization is determined by the stage in the manufacturing process at which the customer becomes involved. It is certain that the product will be customized very well if customers participate in the initial stage (for example, design or fabrication) of the value chain. That is, when a customer can participate in the stage of the *design*, the product is not only the most suitable for the customer, but can also become cheaper. In this research, we studied the characteristics of groups that prefer each *design process* of mass customization.

Gilmore and Pine (1997) identified four customization levels based mostly on empirical observation: collaborative (designers' dialogue with customers), adaptive (customers can alter standard products during use), cosmetic (standard products are

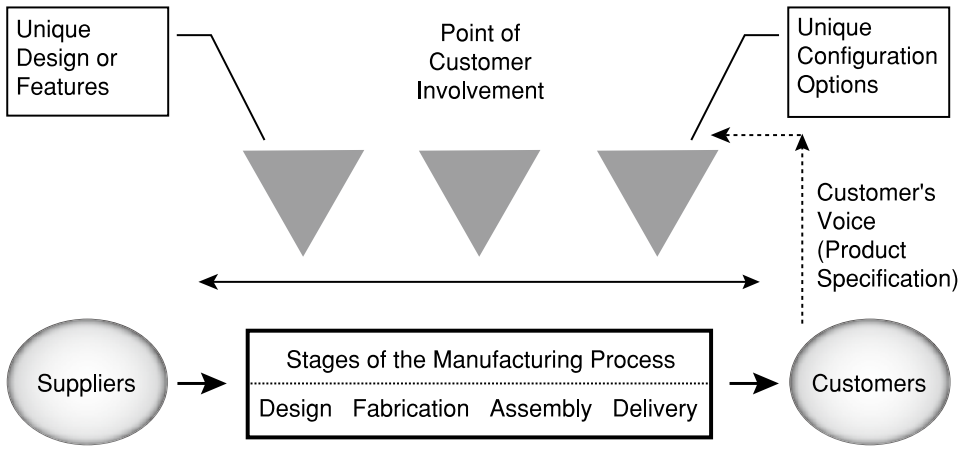

Figure 1 Point of involvement (Duray et al. 1999)

packaged specially for each customer), and transparent (products are adapted to individual needs). Spira (1996) developed a framework with four types of customization: customized packaging, customized services, additional custom work, and modular assembly. The combination of these frameworks led to eight generic levels of mass customization, ranging from pure customization (individually designed products) to pure standardization. Yang and Lee (2007) compared apparel brands' current status with consumers' expectations; consumers' expectations of mass customization were significantly higher than the level of implementation by apparel brands in the creation of customized products.

However, these studies do not provide sufficient information on the degree of customization required by the consumers, or the consumers' needs when they opt for product customization. Furthermore, it is not always good to raise the level of customization in mass-produced products; high-level customization has significant competitive benefits, but also involves complexity in the order process owing to too many combinations. It is important to determine the optimal level of customization, but there are few studies about existing groups who prefer a low-level customization process, especially concerning the design process. In this study, we assessed whether there are groups who prefer a low-level customization process and determined which design elements improve consumers' satisfaction according to the mass customized design process. We based our findings on experiments conducted on data from consumers shopping from an online store that was created for the purpose of this study.

2 Research Purpose

A flood of recent publications attests to the advent of the customization era. Lampel and Mintzberg (1996) indicated that from 1971 to 1980, an average of only twenty articles on customization appeared annually; from 1981 to 1990, 234 articles; and after 1990, 2,324 articles. Mass customization is growing in importance. Through mass customization, marketers can improve the product's fit with each customer's unique needs, raise the price of the final goods or services due to the degree of customization, and analyze opportunities due to continual dialogues with consumers (Berman, 2002). Customers demand variety when they differ in their preferences for a product's particular attributes. When products require matching different physical dimensions, customization may truly add value. Clothing is a good example; people have different body shapes, and they care deeply about a garment's fit (Zipkin, 2001).

However, it is clear that not everyone wants mass customization. Rather, each consumer demands different levels of customization (low, medium, high) according to the products or time of purchasing. Sometimes, consumers are easily overwhelmed in high variety categories because there are numerous options to consider. For example, *Choice Seation Gallery*, a customized sofa shop, made the following offer: "Choose from 500 styles, choose from 3000 fabrics, choose from 350 leathers." The problem is that each customer ultimately only wants one sofa. To design that ideal sofa, the customer needs to know what the attributes of sofas are, his/her preferences within those attributes, and which attributes are more or less important. Non-experts, or consumers new to the category, may not have that knowledge and thus may have difficulty in finding what they want. Accordingly, the huge number of potential options (150,000 fabric sofas, 17,500 leather sofas) may be confusing and overwhelming rather than beneficial (Huffman and Kahn, 1998). Therefore, companies need to research the characteristics of consumers who have a future requirement for mass customization, and optimize their design processes to their consumers. That is, companies have to measure

the preferences of consumers and tailor product offerings to these individual specifications.

The purposes of this study are to identify the characteristics of the target consumers for mass customized fashion products and to furnish apparel companies with data to plan mass customization. In addition, to determine the kinds of design elements that have strong influences on the consumers of each group (the groups that prefers *the model of mass production, Model A* or *Model B* where the levels of customization are different in each).

The study hypotheses are as follows.

H1: Maximizing levels of customization in the design process is not always the best.

H2: The design element that improves consumer satisfaction is different according to the mass customized design process that the consumer prefers.

3 Methodology

3.1 Study model

In this study, models were established by the degree to which each consumer participates in the design process. We set three study models *the model of mass production, Model A* and *Model B*, where the levels of customization are different in each.

3.1.1 The model of mass production

In the fashion industry, the mass production process is the process of creating ready-made clothes (Figure 2); in this process, designers decide on the season concept and plan styles, fabrics, colors, and details (for the purpose of this study, *detail* refers to a *belt*). In addition, they select the most suitable designs to reflect trends and that have high popularity.

3.1.2 Model A

Model A includes the participation of consumers in the design process; in Model A, firstly, designers decide the season concept and plan styles, fabrics, colors and details. In the following stage, designers show their style plans to a consumer and ask the consumer to choose the *style* that she likes most. The designers then display the combinations available in the *style* that the consumer chose in the preceding stage and the *fabrics* that they planned for, allowing the consumer to choose the combination that she likes prefers. Finally, the designers add the *colors* that they planned to the combinations of the *style* and the *fabric* that the consumer chose in the preceding stage; following which, the consumer chooses and evaluates the combination that she likes most (Figure 2).

3.1.3 Model B

Model B is a process that is *more customized* than Model A; namely, Model B adds *details* to the choice. Like Model A, first, designers decide on the season concept and plan styles, fabrics, colors and details. In the following stage, the designers show their style plans to a consumer and ask the consumer to select the *style* that she prefers. Then, the designers display the *style* combinations that the consumer chose in the preceding stage and the *fabrics* that they planned for, and let the consumer choose the combination that she likes most. In addition, the designers add the *details* that they planned to the combinations of the *style* and the *fabric* that the consumer chose in the preceding stage; then, the consumer chooses the combination that she prefers. Finally, the designers add *colors* to the combinations of the *style*, the *fabric* and the *detail* that the consumer chose in the preceding stage, and the consumer selects and evaluates these combinations (Figure 2).

3.2 Data source and instrument

The data were obtained from a survey of 150 females in their twenties and thirties who were

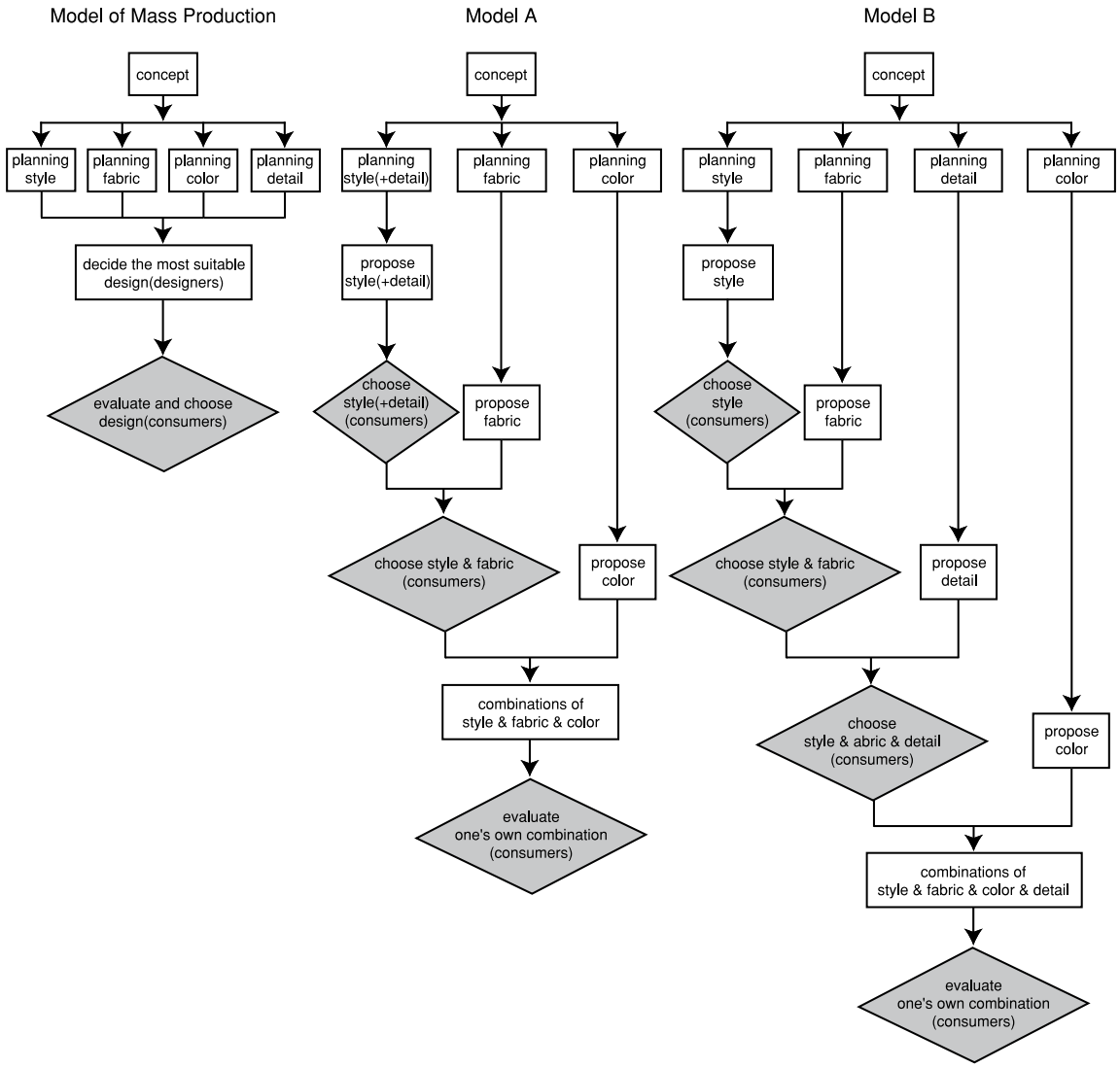

Figure 2 Study model

living in Seoul and Gyeonggi Province because they were considered to have high interest in mass customization. They were selected based on the purposeful sampling method via Seoul statistics data and the data of Dr. Lee.J, a professor at Yonsei University. We approached people who were living in Gangnam in Seoul in order to compare them with those living in the rest of Seoul (to determine the relations of the residence area and income level with the mass customization model) [1]. In 2002, there were 475,941 female residents of Gangnam, forming 9.3% of the 5,135,689 women living in Seoul. We intentionally collected data from Gangnam to represent a greater proportion of the population (28.0%), as the focus of this study was on women from Gangnam. Therefore, we regulated the ratio of the subjects and secured their willingness to participate in the research project. In addition, we administered questionnaires online and they provided their answers through a homepage specifically set up

for the study.

We administered the survey using fashion design examples (Figure 3); we specified that a subject should choose each article of clothing in relation to *one* piece, rather than the set, when she chose a jacket or a skirt. The content of the questionnaire was related to the preference for mass customized products (5 questions). In addition, the questionnaire included questions that evaluated preferences, the degree to which interviewees wanted to buy and wear the clothes provided in the fashion design examples in this study, and their preferences in relation to each design element. The constructs were measured with a 7- point Likert scale.

The research method was as follows. We created a virtual online store, selling clothes that could be customized. The subject ordered a total of 6 pieces (three jackets and three skirts) of clothing through each design process (two pieces per each design process). In addition, she answered questions asking about issues such as her satisfaction with each piece that she ordered. For the research method, according to each study model, firstly, in the mass production design process, the subject could choose two pieces of clothing (one jacket and one skirt) from a total of six designs (three jackets and three skirts), where a designer had already combined the style, material, detail, and color. Secondly, in mass customization design process A (lower-level customization), the subject could choose two pieces (one jacket and one skirt) from a total of fifty-four designs (two kinds of clothing × three styles × three materials × three colors); the subject could choose the style, material, and color in the order. Lastly, in the mass customization design process B (higher-level customization), the subject could choose two

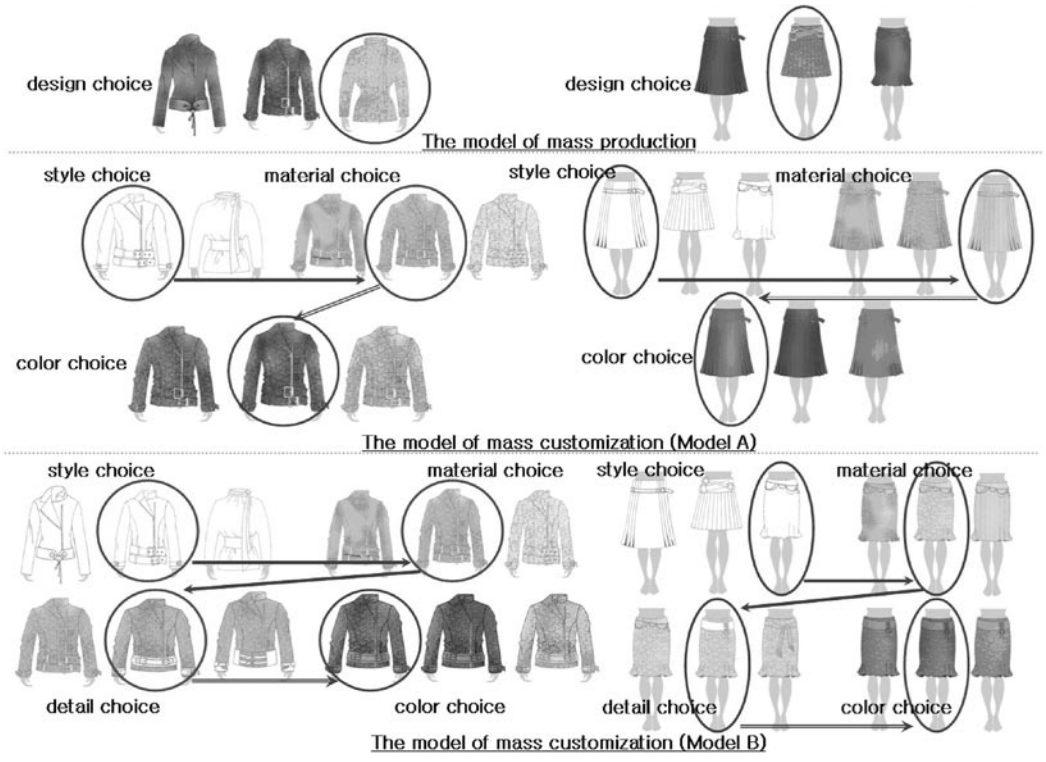

Figure 3 Research method (choice organization)

pieces (one jacket and one skirt) from a total of one hundred sixty-two designs (two kinds of clothing × three styles × three materials × three details × three colors); the subject could choose the style, material, detail and color in the order (Figure 3).

3.3 Data collection and analysis

The distribution and collection of the questionnaires were conducted through the Internet. Interviewees can experience a psychological burden or fatigue if the survey is paper-based because there was a total of 222 fashion design examples used in this survey; therefore, we created the survey in Photoshop and PowerPoint. The data were analyzed by frequency, correlation and multiple-regression, using SPSS 11.0 and Excel.

4 Results and discussion

4.1 Definition of the target consumer group accord to the design process

We classified the target consumers of mass customization according to the type of customized design process that they preferred (Figure 4). The group who preferred the models in the order of 1) the model of mass production, 2) Model A, 3) Model B was called *the group who prefers the model of mass production*. The group who preferred 1) Model A, 2) Model B, and then 3) the model of mass production was called *Group A* (Model A is more of a customized design process model than a mass production process). Lastly, the group who preferred 1) Model B, 2) Model A, and then 3) the model of mass production is called *Group B* (Model B is the most customized design process model) (Figure 4). We distributed the groups based on a standard according to the kind of design process that each subject preferred. In other words, the group did not change unless the first-ranked model that the subject preferred most changed, even if the second-ranked and the third-ranked model were in inverse order.

In the responses to the survey, there were two subjects who preferred the model of mass production, but we excluded them from the analysis, as the number of observations who fall into the group was too small. We analyzed the characteristics of the target consumer groups to examine the appropriate groups for the mass customization design process.

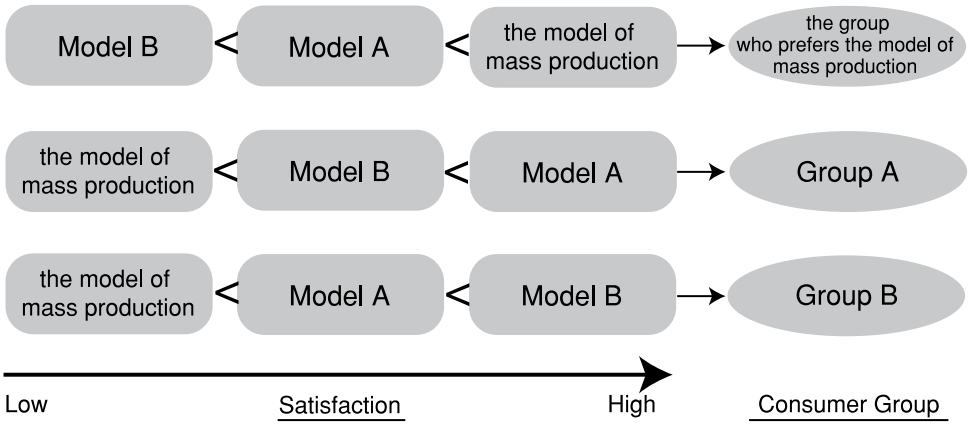

Figure 4 Definition of the target consumer group

4.2 The characteristic of Group A and Group B

Group A preferred the mass customized system, but took more satisfaction when in choosing clothes through Model A rather than Model B. In the end, Group A preferred a medium-level customization where consumers can choose the style, fabric, and color. The existence of Group A supports H1. That is, maximizing levels of customization is not always the best strategy to satisfy the consumers. Group B preferred the most customized process, where consumers could choose the style, fabric, color, and detail. Group B was satisfied with the process when consumers could take part in the design through comparatively more steps.

4.2.1 Demographics characteristics of target consumers

Group A included 22.7 % of the respondents; 44.1% of Group A were in their early twenties while 47.1%

Table 1 Demographic characteristics of the Group A and the Group B

		the Group A		the Group B	
	Characteristic	Number	Percent	Number	Percent
Age	20 ~ 24	15	44.1	54	52.4
	25 ~ 29	16	47.1	46	44.7
	30 ~ 39	3	8.8	3	2.9
Marital status	Never-married	32	94.1	94	91.3
	Married	2	5.9	9	8.7
Occupation	Student	12	35.3	54	52.4
	Housewife	1	2.9	3	2.9
	Self-employed	0	0	1	1.0
	Service	1	2.9	3	2.9
	Professional	7	20.6	13	12.6
	Office worker	10	29.4	22	21.4
	Jobless person	1	2.9	3	2.9
	Others	2	5.9	4	3.9
Place of residence	Seoul Gangnam	4	11.8	33	32.0
	Seoul except Gangnam	25	73.5	15	53.4
	Gyeonggi Province	5	14.7	10	9.7
	Others	0	0	5	4.9
Education	High school diploma	0	0	1	1.0
	College student	8	23.5	36	35.0
	College graduate	17	50.0	42	40.8
	Graduate student or above	9	26.5	24	23.3
Monthly average income of all family	Under US $2,000	5	14.7	10	9.7
	US $2,000 ~$3,999	10	29.4	16	15.5
	US $4,000 ~$5,999	7	20.6	22	21.4
	US $6,000 ~$7,999	6	17.6	26	25.2
	US $8,000 ~$9,999	3	8.8	11	10.7
	US $10,000 or above	3	8.8	18	17.5
Monthly average income of the person in question	None	4	11.8	28	27.2
	Under US $1,000	14	41.2	28	27.2
	US $1,000 ~ 1,999	8	23.5	36	35.0
	US $2,000 ~ 3,999	8	23.5	9	8.7
	US $4,000 ~ 5,999	0	0	1	1.0
	US $6,000 or above	0	0	1	1.0
Monthly average expense to buy clothes	Under US $100	11	32.4	23	22.3
	US $100 ~ 249	13	38.2	43	41.7
	US $250 ~ 399	7	20.6	25	24.3
	US $400 ~ 699	1	2.9	7	6.8
	US $700 or above	2	5.9	5	4.9

were in their late twenties (Table 1). The residents who were living in Seoul, except for Gangnam, made up the majority (73.5%). In the monthly average income of the family, people who were had a monthly salary of US $2,000~$5,999 formed 50% of the respondents. In addition, the average monthly income of the subject was usually under US $1,000. In other words, there were few people with a higher income in Group A. Furthermore, the greater part of the respondents had lower monthly expenses including clothing expenditure (under US $100 and US $100~249).

68.7% of the respondents belonged to *Group B* (Table 1). This percentage increased (i.e. the preference for mass customization products increased) by comparison with a preceding study's 53% (Lee, 2001). 52.4% were in their early twenties, and 44.7% in their late twenties. The most common occupation was student (52.4%); the percentage of college students rose in comparison to Group A by as much as 35.0%. Therefore, it is possible that the early twenties college student group will accept the customized design process. Residents of Seoul Gangnam made up 32.0%. Seoul Gangnam is the representative residential area of the higher-income bracket in Korea. The average monthly family income was US $6,000~$7,999. Moreover, judging from the statistics, those who earned US $10,000 or over made up 17.5%; this is a higher proportion that in the Group A. However, the monthly average income of the respondents was comparatively low overall; we assume this was because many respondents were college students in their early twenties.

4.2.2 Satisfaction measurement with design elements

In the case of Group A, we analyzed satisfaction

Table 2 Means and standard deviations of the design element preference for the Model A of the Group A

	Mean (ranking)	Median	Mode	Standard deviation
Style	5.22 (1)	5.25	5.50	.85
Fabric	4.91 (2)	4.50	4.50	.91
Color	4.87 (3)	4.50	5.50	.99
Detail	4.84 (4)	5.00	5.50	.93

Table 3 Regression analyses between satisfaction and design elements of the Group A

		Model summary			
		R	R^2	Significance probability F-variation	
Regression model[a] (color)		.881	.777	.000***	
Regression model[b] (color/detail)		.922	.849	.001**	
		ANOVA			
				F	Significance probability
Linear regression analysis	Regression model[a] (color)			111.304	.000***
	Regression model[b] (color/detail)			87.367	.000***
		Coefficients			
		B	Beta	t	Significance probability
Regression model[a] (color)	Constant	1.425		4.236	.000***
	Color	.715	.881	10.550	.000***
Regression model[b] (color/detail)	Constant	.782		2.393	.023*
	Color	.569	.701	8.365	.000***
	Detail	.280	.324	3.865	.001**

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

a: Regression model 1: model that included color (a statistically significant variable) by multiple-regression
b: Regression model 2: model that included color and detail (statistically significant variables) by multiple-regression

with the design elements in Model A because it was the most suitable process for Group A. As a result, Group A took satisfaction in order of style, fabric, color, and detail (Table 2).

In this study, we measured satisfaction in relation to style, fabric, color, and detail (4 questions), and the clothes as a whole (3 questions). In the case of Group A, there were strong correlations between preferences for the *style, fabric, color, and detail*, and design satisfaction; Pearson's correlation coefficient was .806, .616, .881, and .714, respectively. Color especially showed the highest Pearson's correlation coefficient, and the result was statistically significantly (r=.881, p<.001). We performed a stepwise regression analysis that included all elements. The regression analysis revealed a statistically significant relationship between *color and detail*, and design satisfaction (Table 3). The regression model including color and detail showed a statistically significant strong correlation with design

Table 4 Means and standard deviations of the design element preference for the Model B of the Group B

	Mean (ranking)	Median	Mode	Standard deviation
Style	5.16 (1)	5.00	5.00	.91
Fabric	4.85 (2)	5.00	5.00	.95
Color	4.84 (3)	5.00	5.00	.92
Detail	4.80 (4)	5.00	5.00	1.04

Table 5 Regression analyses between satisfaction and design elements of the Group B

		Model summary			
		R	R^2	Significance probability F-variation	
Regression model[a] (style)		.848	.719	.000***	
Regression model[b] (style/fabric)		.857	.730	.016*	
Regression model[c] (style/fabric/detail)		.864	.746	.045*	
		ANOVA			
				F	Significance probability
Linear regression analysis	Regression model[a] (style)			258.672	.000***
	Regression model[b] (style/fabric)			138.853	.000***
	Regression model[c] (style/fabric/detail)			96.836	.000***
		Coefficients			
		B	Beta	t	Significance probability
Rregression model[a] (style)	Constant	.854		3.393	.001**
	Style	.773	.848	16.083	.000***
Rregression model[b] (style/fabric)	Constant	.719		2.859	.005**
	Style	.641	.703	9.005	.000***
	Fabric	.168	.192	2.463	.016*
Rregression model[c] (style/fabric/detail)	Constant	.695		2.800	.006**
	Style	.550	.604	6.619	.000***
	Fabric	.142	.163	2.077	.040*
	Detail	.129	.161	2.031	.045*

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

a: Regression model 1: model that included style (a statistically significant variable) by multiple-regression
b: Regression model 2: model that included style and fabric (statistically significant variables) by multiple-regression
c: Regression model 3: model that included style, fabric and detail (statistically significant variables) by multiple-regression

satisfaction (r=.922, p<.001). The predictive validity of this multiple regression analysis was 84.9%. In the case of Group A, *color* had the strongest influence on design satisfaction (Beta=.701).

In the case of Group B, we analyzed the satisfaction with design elements in Model B because it was the most suitable process for Group B. Consequently, Group B preferred design characteristics in the following order: style, fabric, color, and detail (Table 4).

In the case of Group B, there were strong correlations between preferences for the *style, fabric, and detail*, and design satisfaction; Pearson's correlation coefficients were .848, .721, and .725 respectively; by contrast, color showed a weaker correlation with satisfaction (r=.609) compared with Group A (r=.881). The regression analysis revealed a statistically significant relationship between *style, fabric, and detail*, and design satisfaction (Table 5). The regression model including style, fabric, and detail showed a statistically significant strong correlation with design satisfaction (r=.864, p<.05). In the case of Group B, style had the strongest influence on design satisfaction (Beta=.604). Moreover, the results showed a significant relationship between the customized process where the consumer can select detail, and satisfaction in the case of Group B; therefore, if the opportunity to choose design elements is added, consumers' satisfaction will rise.

Therefore, *color* and *style* had the strongest influence on design satisfaction in the case of Group A and Group B, respectively; this supports H2.

5 Conclusions

The companies that customize their products must know their target customers. This study identified the characteristics of the target consumers of mass customized fashion products and the design elements that improve consumer satisfaction according to each design process that a consumer prefers.

This study presents the following managerial implications for mass customized apparel companies. Firstly, the target consumer groups were classified as Group A or Group B, according to preference for a particular design process. The results showed that maximizing the level of customization is not always the best strategy to satisfy the consumer, as demonstrated by the fact that the consumers in Group A preferred *medium-level* customization. The consumers in a different group desire a different level of customization; therefore, apparel companies need to give different levels of opportunity for selecting design elements in the design process.

Secondly, the characteristics of Group A, which preferred a medium-level of customization, were as follows; the majority was middle-class, and the greater part of the respondents had lower disposable income and lower monthly budgets for buying clothing. In addition, the design process models that were used in this study need to be corrected to attach importance to color relative to other design elements; because color had the strongest influence on design satisfaction in this group. For instance, there could be a design process in which consumers choose other design elements after they choose color. The characteristics of Group B, which preferred high-level customization, were as follows; the majority was in the high-income bracket; the majority was composed college students in their early twenties; style had the strongest influence on design satisfaction.

This study contributes to the apparel industry by providing information about a future demand for mass customization. Furthermore, the analysis of the relationship between consumers' satisfaction and design elements informs the factors that should be most emphasized in marketing for the target consumers.

We think that this study has limitations in that we cannot generalize its conclusions as characteristics

of the total consumer group in Seoul, because purposeful sampling and quota sampling were used in sample selection. However, it is clear that a group that prefers the *medium-level* customization exists, and the study also clarified the characteristics of the group that prefers each design process. This information will be useful for effective positioning and promotional strategies. In addition, it will be particularly effective as a reference when carrying out consumer research on mass customization on a large scale.

Note

1 Seoul Gangnam (Seocho-gu and Gangnam-gu) is the representative residential area of well-off people in Korea; the amount of property tax levied of Gangnam was 32.7% of that collected from all of Seoul in 2002. In addition, Gangnam provided 38.0% of the integrated land tax levied (Kim, S.J., Kim, S.K., and Lee, Y., 2004).

References

Berman, B., Should your firm adopt a mass customization strategy?. *Business Horizons*, 4, 2002, pp.51-60.

Gilmore, J. and Pine, B., The Four Faces of Mass Customization. *Harvard Business Review*, 75 (1), 1997, pp.91-101.

Huffman, C. and Kahn, B., Variety for sale: Mass Customization or Mass Confusion?. *Journal of Retailing*, 74(4), 1998, pp.491-513.

Lampel, J. and Mintzberg, H., Customizing Customization. *MIT Sloan Management Review*, 38, 1996, pp.21-30.

Lee, J., *A Study on the Fashion Design Process Model for Mass Customized Clothing*. Unpublished master thesis, Yonsei University, 2002.

Pine, B. and Davis, S., *Mass Customization: The New Frontier in Business Competition*. Harvard Business School Press, 1999.

Kim, S. J., Kim, S. K., and Lee, Y., *The present conditions analysis and the policy alternative plan about the economic differences of Gangnam and Gangbuk of Seoul City*. Seoul Development Institute, 2004.

Spira, J., Mass customization through training at Lutron Electronics, *Computers in Industry*, 30(3), 1996, pp.171-174.

Westbrook, R. and Williamson, P., Mass customization: Japan's new frontier. *European Journal of Management*, 11(1), 1993, pp.38-45.

Yang, H. and Lee, Y., Apparel Brands' Implementation and Customers' Expectation of Mass Customization. *The Korean Society of Clothing and Textile*, 31(5), 2007, pp.753-764.

Zipkin, P., The Limits of Mass Customization. *MIT Sloan Management Review*, 42(3), 2001, pp.81-87.

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