

A STUDY OF CONSUMER AND CUSTOMIZATION FROM THE POINT OF VIEW OF AN EXPERIENCE

RIKA ITO¹ AND TAKANORI OSAKI²

¹Numerical Simulation Research Unit
Japan Aerospace Exploration Agency
7-44-1, Jindaiji-higashi, Chofu, Tokyo 182-8522, Japan
rito@chofu.jaxa.jp

²Department of Business Management
Meijo University
1-501 Shiogamaguchi, Tempaku-ku, Nagoya 468-8502, Japan
osaki@meijo-u.ac.jp

Received July 2015; accepted September 2015

ABSTRACT. *The age of mass-production, which has been going on for a long time, is changing due to market saturation and the maturity of the customers. In recent years, the needs of customers are diversified and there is great demand for the supply of products that meet those needs. From this kind of circumstance, customized products are beginning to attract attention. Customization has good and bad points in the same way that ready-made goods have. With a little patience you can get low-price ready-made goods on the spot compared to customization which, unlike ready-made products, requires time and money. On the other hand, there is something undoubtedly attractive about getting a product that specifically meets your needs. Therefore, how do regular consumers feel about customized products? For both companies that want to come up with new needs, and consumers who want a product that matches their needs, customization can be a new step. However, in research on customization that has been done up until now, there have been few trials that try and get the whole picture. In this research, we have carried out surveys and analysis in order to get a tendency of regular customers' intention on customization and we introduce our results.*

Keywords: Customization, Factor analysis, Factor, t-test

1. Introduction. Mass-production became possible thanks to the industrial revolution and it is now possible for consumers to get all kinds of products at low prices. However, in recent times, the market has begun to mature while continued saturation and the liberalization of trade. It means that it has become difficult to differentiate in products or services and the price cutting wars are intensifying. Excessive price wars put pressure on the profits of enterprises. They can be the cause of unstable employment and salaries, and may even ruin the company itself. To that end, marketing that avoids getting involved in price wars has become a very important subject. On the other hand, the needs of customers are diversified and there is great demand for the supply of products that meet those needs. This is the economic climate that has led to companies being flexible in their response to customers' needs, meaning customized products are beginning to attract attention.

These kinds of social trends, combined with research into customization have found the importance of customization and frequently the significance of customization has been discussed since around 1990 [1,2], and many kinds of research were put into practice. However, the focus of most of them was on mass customization. In order to make this a reality, a lot of research was carried out and a lot of lively debates were held [3,4]. From the 2000's onwards, there was a lot of clamor about the importance of the marketing

of collaborative value creation, or value being created through the mutual interaction of consumers and companies [5,6]. Also, research focused on purchasing behavior associated with customized products like consumer expressiveness [7], experience of using a past version of the product [8] and evaluation [9], is being carried out.

Even if you are not 100% satisfied with the product, you can get your hands on low cost, ready-made goods in an instant, while customized products take time and money to create. On the other hand, there is something undoubtedly attractive about getting a product that specifically meets your needs. For both companies that want to come up with new needs, and consumers who want a product that matches their needs, customization can be a step in a new direction. However, the customization hurdle is just as high as ever. In this research, we carried out a survey in order to get regular consumers' opinions on customization and to certify a general tendency of them through analysis. We introduce our analysis results in this paper.

In this section, we introduce the coverage of the survey and sampling method. In the next section, we explain the outline of the analysis. In Section 3, we report our analysis results and we make a conclusion in Section 4.

2. Outline of Analysis. We made a questionnaire about customization. The questionnaire aimed to certify consumer's intention, impression and motivation for customization. This survey was carried out online by a monitor from the survey company Macromill. The total number of interviewees was 720 (360 men and 360 women), aged between 20 and 50, and they were divided up into 6 age groups without any bias or polarizing. In these interviewees, those with an experience of customization and those without an experience of customization were mixed (experience: 196, no-experience: 514). Consideration was also given to where they lived in order not to have any tendency towards one city, area or region. It was carried out over the period from November 15th to 19th, 2013. We extracted 15 questions related to the attraction and concern about getting products. Those questions are varied, and the pleasure or personal preference for customization, for example, "You can get a product that matches your size. Is this attractive to you?", or "Do you worry about the increase in the price of the product?". Here we have to omit the questionnaires for want of space.

3. Analysis Results. The results of 720 peoples' answers from the survey were used as the basis for analysis. In this section, we introduce our results.

3.1. Summary of the interviewees. 27% of interviewees had some experience of customization and 73% interviewees did not. In regards to difference by gender, it was revealed that 22% of women had some experience with customization, while 32% of men did too. (Figure 1).

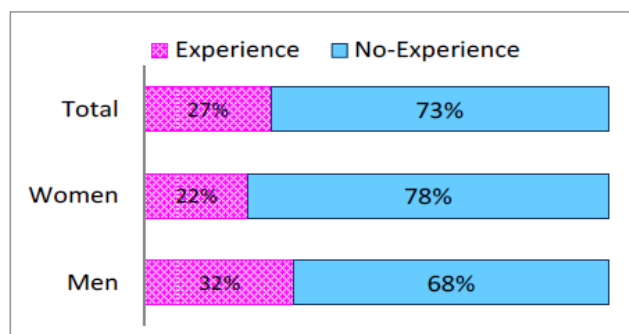


FIGURE 1. Ratio of men/woman with experience

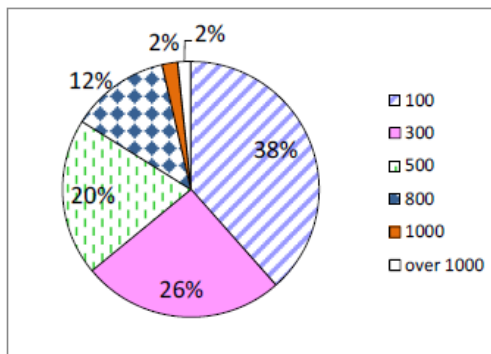


FIGURE 2. Number of people by yearly salary

As for income, people with a yearly salary of up to 5 million yen made up nearly 84% of the total interviewees, meaning that 16% people get a yearly salary higher than 5 million yen (Figure 2). The group with a salary of less than 100 million is the largest.

3.2. Analysis of the measuring of opinions on customization. In order to analyze the attraction or anxiety of customization for the consumer, we asked 15 statements. There are 5 options for each statement, ‘agree’, ‘slightly agree’, ‘neither’, ‘slightly disagree’ and ‘disagree’ as an answer. Upon checking the scoring distribution of answers for 15 statements, there are no particular options where over 75% of interviewees are concentrated, so we applied all items without exclusion for analysis.

Then factor analysis was performed on those 15 statements. The changes in eigenvalue were 6.02, 2.94, 1.25, and 0.86. Because there were three eigenvalues over 1.0, and taking the inclination into consideration, it is considered that three factors structure is appropriate. Then, we performed factor analysis once again as the three factors (principal factor analysis and Promax rotation). The final factor pattern matrix after rotation is shown in Table 1.

The cumulative contribution ratio before rotation was 63.12% for three factors. The first factor consists of 7 statements. In these statements, buying customized products is a kind of self-expression; it makes you different from others or the customizing process itself

TABLE 1. Factor pattern matrix

Item	Factor 1	Factor 2	Factor 3
Q5 Personality	0.8297	0.0196	0.0416
Q6 Show off	0.8185	0.0558	-0.2001
Q7 Unique	0.7473	-0.0032	0.0741
Q4 Originality	0.7226	0.0325	0.0972
Q9 Select	0.7054	0.0131	0.0802
Q8 Information	0.6384	-0.0730	0.1197
Q10 Opinion	0.6233	-0.0832	0.1774
Q13 Mental	-0.0008	0.9236	-0.0636
Q14 Physical	0.0333	0.8725	-0.0617
Q12 Time	-0.0310	0.8562	0.0498
Q15 Image	-0.0222	0.4372	0.3283
Q11 Price	0.0304	0.3770	0.2718
Q1 Size	0.0200	0.0434	0.8313
Q3 Design	0.2089	0.0422	0.6965
Q2 Taste	0.0654	0.0100	0.8098

is exciting etc. So these statements are related to mental self-satisfaction. Thus, we named this factor the ‘Mental Fulfillment’ factor. The second factor consists of 5 statements. In these statements, customized products are seen as expensive and risky. Furthermore, customized products require time and money. So we named this the ‘Anxiety’ factor. The third factor consists of 3 statements. These statements are related to attraction of products that meet consumer’s needs, size or design etc. So we named this factor the ‘Matching’ factor.

3.3. Relations among criteria under each factor. By investigating the mean value of criteria in each factor, we certified internal consistency among those criteria and each factor. The alpha coefficients of each factor are as follows. For ‘Mental Fulfillment’ $\alpha = 0.90$, for ‘Anxiety’ $\alpha = 0.83$, and for ‘Matching’ $\alpha = 0.88$, so enough values are provided. As for correlation of each factor, a value between Factor 1 and Factor 3 is strong (0.67), and the other correlation is weak (Factor 1 and Factor 2: 0.07, Factor 2 and Factor 3: 0.07).

3.4. Comparison of factor scores. We performed comparing factor scores by yearly salary and age.

Figure 3 and Figure 4 show the average of score points of all people and ratio of people with experience of customization. They have already had the opportunity to try customization. The higher point is more attractive in factor 1 (Mental Fulfillment) and factor 3 (Matching). In factor 2 (Anxiety), the higher point is more anxious. So in Figure 3, the people with 8-10 million yen per year feel much attraction in ‘Mental Fulfillment’ and ‘Matching’ and feel little anxiety. Considering experience, the real ratio of people with 8-10 \MM is the highest and linked to the result of factor analysis, and the people with



FIGURE 3. Factor scores by yearly salary

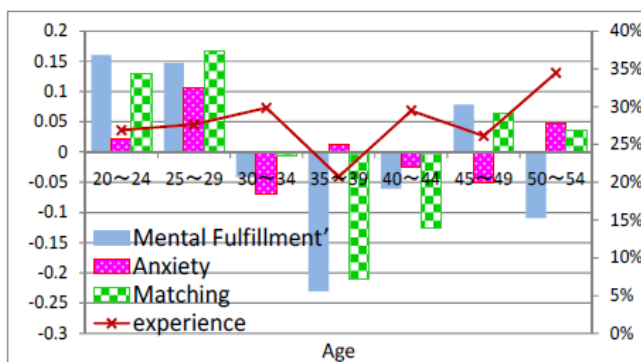


FIGURE 4. Factor scores by age

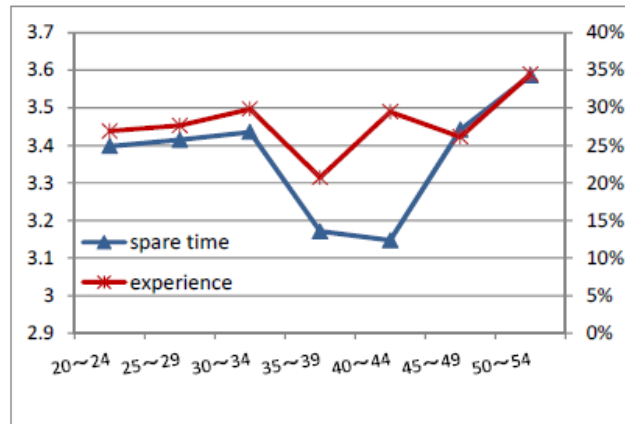


FIGURE 5. Spare time and experience

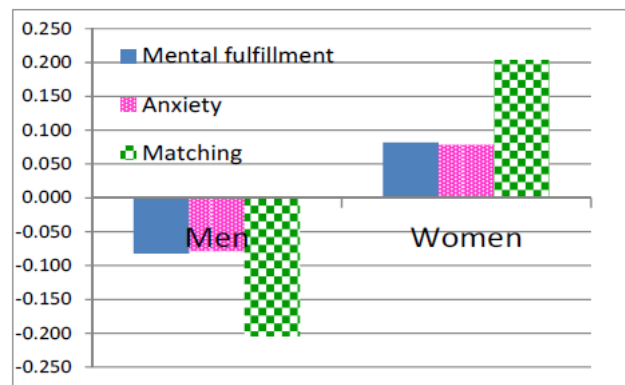


FIGURE 6. Factor scores by gender

higher salaries tend to have experience of customization. In Figure 4, the younger people feel attractive in Mental Fulfillment and Matching. In the ages 35-39, the people do not feel attractive in Mental Fulfillment and Matching. Considering experience, the real ratio of age 35-39 is the lowest. The people aged around late thirties tend to be responsible for their jobs. So we surveyed a relation of their spare time and experience. The correlation coefficients are 0.61. We show averages of five-point scale of a questionnaire about spare time by each age group and a ratio of experience in Figure 5. According to this result, a graph of spare time and experience is relatively closed. The people in their late 30s up to early 40s do not have much spare time.

The ratio of people with experience in their early 40s is high unlike the late 30s. However, Figure 4 shows both of the groups do not feel attraction in Mental Fulfillment and Matching factors compared with other age groups. Then it is considered that their spare time relates to attraction and the motivation of customizing products.

Next, we considered the factor scores of each factor from the viewpoints of experience and gender. Considering the total number of people, the factor scores of men are contrary to those of women. It is certified that the factor scores of men and women are significantly different with a t-test. It means that men and women have quite a different impression of customization (Figure 6). Next we separate each gender into two groups, experience and no-experience groups (Figure 7, Figure 8). Figure 7 and Figure 8 show that men and women with experience see the attraction in Mental Fulfillment and Matching, and both of them are not anxious about the risk of customization. It means a similar tendency is seen in men and women in case of experience.

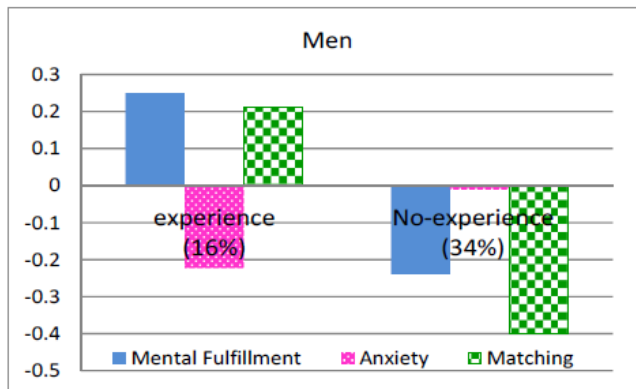


FIGURE 7. Factor scores by men

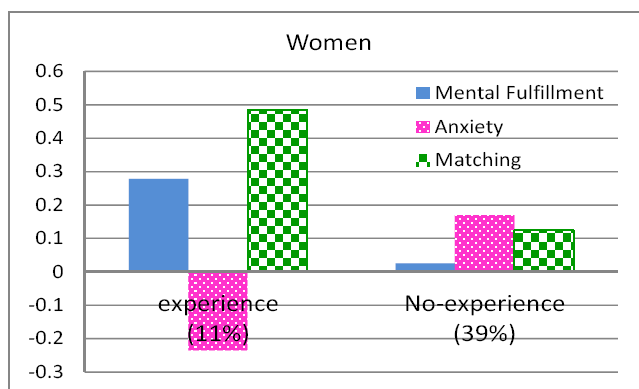


FIGURE 8. Factor scores by women

TABLE 2. t-test by gender (experience)

Factor	Men	Women	p-value
1	0.241	0.279	0.7760
2	-0.229	-0.237	0.9617
3	0.204	0.485	0.0110*

(*p < 0.05, **p < 0.01)

TABLE 3. t-test by gender (no-experience)

Factor	Men	Women	p-value
1	-0.240	0.026	0.0015**
2	-0.010	0.169	0.0245*
3	-0.402	0.124	0.0000**

(*p < 0.05, **p < 0.01)

So we performed a t-test to certify the difference of factor scores between men and women (Table 2). As a matter of fact, the differences are not seen in mental fulfillment and anxiety. The matching factor is significantly different (5%) but score points of both factors are large positive values. In case of no-experience, the tendency of men and women is completely different. According to results of the t-test, we got significant values in all factors (Table 3). Especially, all values of men are negative and those of women are positive. So in the case of men, they do not buy customization products because they do

not see the attraction in Mental Fulfillment and Matching. However, in the case of women, it is to be considered that their anxiety puts a stop to buying customized products.

4. Discussion and Conclusions. In order to understand consumers' intentions and behavior toward customization, the investigation was executed by a questionnaire and we analyzed the answers. The analysis gives us the following results. The number of people with an experience of customization is much fewer than those without any experience (27%:73%). With regard to gender, it is significantly shown that the number of men with an experience of customization is more than that of women. As for the relationship between salary and experience of customization, as the yearly salary is higher, the ratio of people with experience of customization in the same category grows up.

We performed the factor analysis in order to certify how many factors make a consumers' intention and which factors work strongly for customization. According to this analysis, the concerns of consumers about customization are made up of three factors, 'Mental Fulfillment', 'Anxiety' and 'Matching'. For total interviewees, interest in mental elements such as personal expression or enjoyment in the production process is the most interpretable element of customization. Concerning 'Anxiety', many consumers are more interested in 'Anxiety' elements than 'Matching' elements.

As for the gender gap, for all factors, men scored significantly lower than women. It means that men are not anxious as much as women are, but they do not see the attraction of having their needs met either. We are interested in this point, because the number of men who have customized before is significantly more than that of women. However, men do not feel a stronger attraction in 'Mental Fulfillment' or 'Matching'. Conversely, women feel attraction in 'Mental Fulfillment' or 'Matching' but many women have not experienced customization yet. It is considered that 'Anxiety' is considered a key factor, because women worry more about the elements in the 'Anxiety' factor than men do so. So it is possible that the 'Anxiety' factor puts a brake on customization for women.

In this study, we surveyed consumers' intentions and behavior toward customization and the relation between experience and yearly salary, age, and gender through factor analysis. These results give us one of important solutions for a decision on marketing strategy. In future studies, we would like to analyze relationships between attributes and customization or relationships between attributes and specific customized products, because demand for customization will increase more and more and also because it is expected that a carefully thought-out plan or close investigation will be required for market strategy.

REFERENCES

- [1] P. Kotler, From mass marketing to mass customization, *Planning Review*, vol.17, no.5, pp.10-47, 1989.
- [2] R. McKenna, Marketing in an age of diversity, *Harvard Business Review*, vol.66, no.5, pp.88-95, 1988.
- [3] S. Kotha, Mass customization: Implementing the emerging paradigm for competitive advantage, *Strategic Management Journal*, vol.16, no.S1, pp.21-42, 1995.
- [4] M. M. Tseng and J. Jiao, Concurrent design for mass customization, *Business Process Management Journal*, vol.4, no.1, pp.10-24, 1998.
- [5] J. N. Sheth, R. S. Sisodia and A. Sharma, The antecedents and consequences of customer-centric marketing, *Journal of the Academy of Marketing Science*, vol.28, no.1, pp.55-66, 2000.
- [6] C. K. Pralahad and V. Ramaswamy, Co-creation experiences: The next practice in value creation, *Journal of Interactive Marketing*, vol.18, no.3, pp.5-14, 2004.
- [7] N. Franke, P. Keinz and C. J. Steger, Testing the value of customization: When do customers really prefer products tailored to their preferences? *Journal of Marketing*, vol.73, no.5, pp.103-121, 2009.
- [8] K. Wilcox and S. Song, Discrepant fluency in self-customization, *Journal of Marketing Research*, vol.48, no.4, pp.729-741, 2011.

- [9] C. P. Moreau and K. B. Herd, To each his own? How comparisons with others influence consumers' evaluations of their self-designed products, *Journal of Consumer Research*, vol.36, no.5, pp.806-819, 2010.