
THE QUALITY OF LEATHER PRODUCTS AS SEEN FROM THE USER'S VIEWPOINT

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Abstract. We are a group company of a major department store in Japan and are in charge of quality control and customer service of items we sold. We constantly monitoring the customer's voices, and we have the records of correspondence with customers since 1996, and we hold over 100,000 cases for all items of food, clothing, living and services. The record includes not only the customer's request but also the test result of each item before sales and the reproduction test result of based on the customer's offer. We use the database to build our quality standards of sales items and education of salespersons, but each records of correspondence are of course private. However, quality improvement of sales items is not simply a problem of self-solving within our supply chain. Therefore, using aggregated results, we want to clarify the type and level of problem of users of leather goods and want to lead to the overall quality improvement of supply items of scale that we can not alone. As a survey method, it is based on grouping all 7,000 records of leather goods in past decade by our original 'product-code' and 'consultation-code'. By using grouped results, we will clarify what kinds of items and what kind of complaints is more often in major sales items. Additionally, by using text extraction from the content of the customer's offer and grouping by manual operation, and totalization will be performed for each use period and for each product color. For example, it compares with the test result such as colour fastness. Referring to required performance items specified by ISO standards, the gap between customer's request and quality standard will be clarified. With the internationalization of the purchasing network of sales items, quality control based on setting various safety standards and quality standards is becoming increasingly important. In terms of the characteristics of leather, I think that there is probably a level that is impossible to realize, but not only the problems of regulations and safety but also the quality of the customer's viewpoint must be discussed.

1 Material and Method

Our customer's complaint received at the customer service center is collected to our exclusive database. From the database, we extract statistical analyzes.

The scope is 10 department stores in Japan, and it is a product complaint received in recent 11 years from 2008 to 2018. Furthermore, the total 13,652 cases including textiles, leather goods, living goods are analyzed. Of these, 4,864 cases are leather products.

2 Result and Discussion

2.1 Trend of Leather Items

We show an overview of the product complaints targeted by this survey. First, it is shown what kind of items (Leather Products) there are many product complaints in Table 1. You can see that there are many complaints about women's shoes and bags. These are also the main selling items of our department store.

Table 1. Items composition of Product Complaints

	Composition
Women's shoes	44%
Bags	31%
Men's shoes	9%
Wallet	6%
Belts	4%
Watch band	3%
Leather wear	2%
Furniture	1%
Gloves	<1%

Next, it is shown what kind of product complaints are common in major 2 items, women’s shoes and bags in Table 2. In women’s shoes, the problem of scratches and breaks (tears) is most frequent. And in bags, the problem of color and appearance change and scratches and breaks are frequent.

Table 2. Content of Complaints about Major Items

	Women's shoes	Bags
Color and Appearance Change	18%	38%
Scratches and Breaks	44%	36%
Health and Safety	18%	9%
Performance, Feeling of use	15%	6%
Other	5%	11%
Total	100%	100%

And, it is shown when product complaints are the most frequent in Table 3. Most of product complaints are in the initial purchase stage. If you look at the range that contains 80% of the whole, you can see the required durability length for each item. For example, women's shoes are more than three years and bags are more than five years. These are considered to be closely related to the usage period of the consumer.

Table 3. Complaints of the Offer Period from Purchase

	1 Mo	6 Mos	1 Yr.	3 Yrs.	5 Yrs.	10 Yrs.	Unknown	Total
Women's shoes	43%	19%	12%	11%	5%	3%	7%	100%
Bags	27%	21%	13%	16%	8%	7%	8%	100%
Men's shoes	29%	21%	10%	12%	9%	10%	9%	100%
Wallet	25%	31%	18%	10%	2%	4%	10%	100%
Belts	25%	20%	6%	16%	10%	11%	12%	100%
Watch band	17%	22%	11%	27%	8%	8%	7%	100%
Leather wear	17%	19%	19%	21%	15%	5%	5%	100%
Furniture	15%	16%	12%	16%	8%	26%	5%	100%
Gloves	57%	23%	9%	11%	0%	0%	0%	100%

Finally, we show the composition of the production country of the items in Table 4. Although many databases do not have records, domestic (made in Japan), made in China, and made in Italy are most frequent. While many Japanese fashion brands are domestic or made in China, imported ones are popular in Italy.

Table 4. Production Country of Offered Products

	Japan	China	Italy	Southeast Asia	Other	Unrecorded	Total
Women's shoes	27%	16%	6%	4%	6%	41%	100%
Bags	8%	19%	11%	2%	6%	53%	100%
Men's shoes	18%	8%	14%	6%	10%	43%	100%
Wallet	16%	13%	9%	1%	5%	56%	100%
Belts	13%	7%	20%	1%	4%	55%	100%
Watch band	5%	6%	2%	1%	30%	56%	100%
Leather wear	12%	31%	12%	0%	17%	29%	100%
Furniture	18%	4%	7%	0%	5%	66%	100%
Gloves	9%	11%	20%	3%	11%	46%	100%

2.2 Details of Leather Parts

We show that what kind of complaints are frequent and when they are frequent about women's shoes and bags in Table 5 and 6. Compared with women's shoes, the color and appearance change of the bag has many complaints over a long period of time.

Table 5. Content of Complaints about Women's Shoes

	1 Mo	6 Mos	1 Yr.	3 yrs.	5 yes	10 rest	Unknown
Color and Appearance Change	15%	4%	3%	2%	1%	0%	2%
Scratches and Breaks	13%	8%	6%	5%	1%	1%	2%
Health and Safety	10%	3%	1%	2%	0%	0%	1%
Performance, Feeling of use	8%	3%	2%	1%	0%	0%	1%
Other	1%	1%	1%	0%	0%	0%	0%
Total				100%			

Table 6. Content of Complaints about Bags

	1 Mo	6 Mos	1 Yr.	3 yrs.	5 yes	10 yrs.	Unknown
Color and Appearance Change	16%	14%	8%	10%	3%	4%	2%
Scratches and Breaks	4%	6%	6%	4%	2%	1%	2%
Health and Safety	3%	1%	1%	1%	0%	0%	1%
Performance, Feeling of use	3%	1%	0%	0%	0%	0%	1%
Other	2%	2%	1%	1%	0%	0%	0%
Total				100%			

2.3 Analysis of Typical Problem

2.3.1 Color and Appearance Change

The details of color and appearance change are shown in Table 7 and 8. In women's shoes and bags, color stain is the most common. Next to that, there are many discolorations.

Table 7. Content of Color and Appearance Change in Women’s Shoes

Women's shoes	1 Mo	6 Mos	1 Yr.	3 Yrs.	5 Yrs.	10 Yrs.	Unknown
Color Stain	28%	8%	4%	3%	0%	0%	5%
Discoloration	12%	5%	3%	4%	1%	0%	2%
Stickies and Cracks	1%	0%	1%	0%	1%	0%	0%
Stain from Outside	4%	2%	1%	0%	0%	0%	1%
Other	8%	1%	2%	1%	0%	0%	1%
Total				100%			

Table 8. Content of Color and Appearance Change in Bags

Bags	1 Mo	6 Mos	1 Yr.	3 Yrs.	5 Yrs.	10 Yrs.	Unknown
Color Stain	15%	11%	4%	5%	0%	0%	2%
Discoloration	7%	8%	7%	8%	4%	2%	1%
Stickies and Cracks	0%	0%	2%	1%	1%	5%	0%
Rough Break and Water Spots	3%	1%	1%	1%	1%	0%	0%
Stain from Outside	2%	3%	1%	2%	0%	0%	1%
Other	1%	1%	0%	1%	0%	0%	0%
Total				100%			

Next, it is shown that the test results of color fastness that have become a product complaint. Interestingly, consumers are more sensitive to color stain under dry conditions than wet conditions. It seems to be a problem for consumers that the dirt does not go down even after washing.

Table 9. Test Results of Color Fastness in Women’s Shoes

	1 or 1-2	2 or 2-3	3 or 3-4	4 or 4-5	5	Total
Dry Rubbing	3%	39%	28%	28%	3%	100%
Wet Rubbing	28%	45%	24%	3%	0%	100%

And it is shown in Table 10, what kind of colors are frequent in color stain. There were more problems with darker products than lighter colors. We think that dark stains are noticeable.

Table 10. Frequent color of Color Stain in Women’s Shoes

Color	Black	Red	Dark Brown	Dark Blue	Total
	70%	10%	15%	5%	100%

Finally, it is shown which part of the shoe is frequent in color stain. There were more lining problems than the upper.

Table 11. Offered Parts of Color Stain in Women’s Shoes

Parts	Boots Lining	Quarter lining	Upper	Linings	Total
	33%	24%	24%	19%	100%

2.3.2 Scratches and Breaks

It is shown a breakdown of Scratches and Breaks in Table 12 and 13. In both women's shoes and bags, there are many problems such as cracking of the leather surface and tearing around the seams.

Table 12. Content of Scratches and Breaks in Women’s Shoes

	1 Mo	6 Mos	1 Yr.	3 Yrs.	5 Yrs.	10 Yrs.	Unknown
Upper / Scratches and Cracks	7%	4%	1%	1%	0%	0%	1%
Upper / Breaks and Worn out	11%	9%	7%	4%	1%	0%	2%
Upper / Deformations	5%	1%	1%	2%	0%	0%	1%
Sole / Cracks and Breaks	1%	1%	0%	1%	0%	1%	0%
Sole / Worn out	1%	1%	0%	0%	0%	0%	0%
Sole / Others	0%	1%	0%	1%	0%	0%	0%
Heel / Detach and Deformation	6%	4%	3%	1%	1%	0%	1%
Adhesive Peeling Off	5%	2%	3%	3%	1%	0%	0%
Others /	3%	2%	1%	1%	0%	0%	1%
Total				100%			

Table 13. Content of Scratches and Breaks in Bags

Bags	1 Mo	6 Mos	1 Yr.	3 Yrs.	5 Yrs.	10 Yrs.	Unknown
Surface / Scratches and Cracks	3%	5%	10%	4%	1%	1%	1%
Body / Breaks and Worn out	5%	7%	6%	4%	2%	1%	3%
Lining / Breaks and Worn out	0%	0%	1%	0%	2%	1%	1%
Parts / Detach and Deformation	5%	4%	2%	3%	0%	2%	0%
Adhesive Peeling Off	0%	2%	4%	4%	1%	1%	1%
Others	3%	4%	1%	2%	1%	0%	1%
Total				100%			

2.3.3 Health and Safety

It is shown a breakdown of health and safety in Table 14 and 15. In women's shoes, there are many problems that cause shoe rubbing at the beginning of purchase.

Table 14. Content of Health and Safety in Women’s Shoes

	1 Mo	6 Mos	1 Yr.	3 Yrs.	5 Yrs.	10 Yrs.	Unknown
Sharps	6%	1%	2%	3%	1%	0%	1%
Unstable and slip	5%	3%	2%	1%	1%	0%	1%
Shoe sore	36%	10%	3%	4%	1%	0%	2%
Human damaged	4%	2%	1%	1%	1%	0%	0%
Bad Smell and Mildewed	4%	3%	0%	1%	0%	0%	0%
Others	1%	1%	0%	1%	0%	0%	0%
Total				100%			

In bags, sharp points are an issue at the beginning of purchase. A sharp point is the end of sewing, and if the finish is bad, it will damage the clothes.

Table 15. Content of Health and Safety in Bags

	1 Mo	6 Mos	1 Yr.	3 Yrs.	5 Yrs.	10 Yrs.	Unknown
Sharps	14%	11%	8%	3%	0%	3%	3%
Bad Smell and Mildewed	22%	8%	14%	3%	0%	0%	6%
Other	3%	0%	0%	3%	0%	0%	0%
Total				100%			

3 Conclusion

By the analysis of the product complaints, it revealed the major problem on the quality of leather products.

- 1) Depending on items, differences were found in the durability required by consumers. As a result of analyzing how long complaints are submitted after purchase, for example, I think that it is about 3 years for women's shoes, 5 years for bags, and nearly 10 years for furniture.
- 2) There were a lot of problems with color stain and appearance change, and problems with tear in any item. Consumers are also very strict about color fastness in the dry condition.
- 3) The leather products should be very strong, but there were a lot of tearing problems. Leather is thinner and more delicate than before. There are also many individual differences in intensity.
- 4) Most problems are purchased within one year, and quality control in a new condition is required.
- 5) This time we analyzed it in detail, we hope that the data can be used to further improve the quality of leather products, promote sales, and develop the leather industry.

4 Acknowledgement

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References

1. *JALT : Development and Practical Application Report for Japanese eco-leather (2008-2018)*