

# Characteristics of the Design and Production Process for Italian- and Japanese-Made Tailored Jackets in the Global Market

Tsuyoshi Otani, KyoungOk Kim, Keiko Miyatake, Kimiko Sano  
and Masayuki Takatera

**Abstract** We studied differences in the production processes of high-end garments manufactured in Japan and Italy and intended for sale on the global market. We analyzed the roles of *modélistes* from these countries to understand how differences in their work styles influenced the characteristics of the final products. A jacket designed by a Japanese designer was produced in both Japan and Italy. We compared the components of each jacket before and after assembly. In Japanese garment factories, work can only progress after previous steps have been inspected. Conversely, Italian workers only inspect the final product. There was also a difference in the use of keeping tape and interlining. It is common for Italian *modélistes* to select the sub-material, depending on the design. However, cost and production volume is more important in Japan. Although advanced production technology exists in Japan, there is a “lost art” that has disappeared in the trial and error conducted in the pursuit of efficient production: an expert’s control of the production process, which takes more time. However, this “lost art” is still used in Italy. This should be considered when analyzing the globalization of fashion in Tokyo.

**Keywords** Global market • Tailored jacket • Italian-made jacket • Japanese apparel • *Modélistes* • Craftsmanship

---

T. Otani · K. Kim (✉) · M. Takatera  
Faculty of Textile Science and Technology, Shinshu University, 3-15-1 Tokida, Ueda,  
Nagano 386-8567, Japan  
e-mail: kimko@shinshu-u.ac.jp

K. Miyatake  
Kyoritsu Women’s University, 2-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 101-8437, Japan

K. Sano  
Nitto Boseki Co., Ltd, Tokyo, Japan

## 1 Introduction

We examined the issues surrounding the manufacture of ready-to-wear clothing. Ready-to-wear is known in the fashion industry as make-to-stock (MTS). There are two basic functions of clothing: protection and adornment. Clothing that is judged to have a high proportion of the latter is simply referred to as “fashion.” Fashion companies oversee some or all aspects of the design, manufacture, and sale of fashion. In this chapter, the term “fashion business” refers to all aspects of this process. The term “products for the global market” refers to products intended for sale throughout the world. In this study, we assess the design process of fashion clothing based on the following assumptions.

### *1.1 Attributes of Fashion Clothing*

Fashion clothing, as referred to in our study, is not art. Art is a finished product, and evaluation takes place afterward. However, when a work of art is completed, it never transforms into another work. The clothing in this study is not intended as art. It is a product, a commodity to be sold (i.e., exchanged for money). Because fashion clothing is MTS, it is necessary to prepare all aspects of design, production, and sale in advance. Moreover, the effect of mass production is based on the relationship between the fixed costs—such as a percentage of period costs—and the manufacturing costs. Therefore, in a large-scale business, a significant amount of funding can come from unspecified sources. Large-scale businesses can make a significant amount of profit. Thus, it is more effective for fashion companies to market globally, rather than limit themselves to their domestic market. In this case, hiring staff with a high level of proficiency in clothing designs that are accepted in global markets is important for companies wishing to maintain a high international presence. In other words, fashion designers must have design talents and skills that are in demand on the global market. These are different elements than an artist must take into consideration.

### *1.2 The International Presence of Japanese Fashion Clothing*

Japan’s presence on the international clothing market is informed by the following:

- (a) Most fashion clothing supplied to the Japanese domestic market depends on overseas companies’ capabilities for design, production, and/or sales. 95 % of the fashion business in Japan is dependent on imports [1], including raw materials.
- (b) Exports of raw materials and finished fashion clothing made in Japan are very low.

- (c) The amount of fashion clothing that is made by Japanese fashion companies and shipped to foreign markets (i.e., outside of Japan) is also small. In addition, these companies tend to be small and their overseas sales ratios are very low. In 2010, the total exported amount was 50 billion yen (approximately 500 million USD). However, the imported amount was 250 billion yen (2.5 billion USD) [1].
- (d) It is also uncommon for foreign fashion companies to employ Japanese designers, or for Japanese designers to be hired or commissioned by foreign fashion companies to promote their designs, production, and sales. Moreover, when this does occur, it is generally with the ultimate intent of pattern-making within the design process or for sales in the Japanese market.

As seen from the above points, the Japanese fashion business has a high international component in terms of imported product sales within the Japanese market, but its international presence in other fields (i.e., exports of finished products, talent, or raw materials) is very low. In particular, Japanese designs play a very small role on the international fashion stage.

### ***1.3 Modélisme and Stylisme in the Design Process***

The process of creating clothing designs is divided into functions of *stylisme* and *modélisme* [2]. In French, *stylisme* is the stage at which designers (*stylistes*) create and design templates for ready-to-wear lines. *Modélisme* occurs when pattern-makers (*modélistes*) take those designs and create prototypes for the season. In traditional *maison de couture*, the design department takes charge of the *stylisme* and the *atelier* department is responsible for the *modélisme*. A creative director oversees both departments. Recently, however, companies known for “fast fashion” have been increasing their presence in the fashion business. Fast fashion businesses wait until the season has begun and then quickly make inexpensive copies of the most sought-after looks [3]. In fast fashion, a team consisting of designers and merchandisers comprehensively operates both departments based on an integrated database of information processing systems [4].

Because we have a significant interest in the *stylisme* of ready-to-wear lines produced by a *maison de couture* (known as *nouvelle couture*, high-end ready-made clothes), we primarily address *modélisme* by conducting reverse-engineering and product-design experiments.

It is difficult to directly observe the creative director’s design process (*stylisme*). *Stylisme* may be affected by the *modélisme* and manufacturing steps. There is a complementary and sometimes confrontational relationship between *stylisme* and the management and sales departments, which are fields in which a creative director may not have very much experience.

Our previous study dealt extensively with these issues [5, 6]. In this report, while we address *modélisme* according to the data obtained in the design and production experiments, we do not focus as much on the analysis of *stylisme*.

## 1.4 “Tokyo Fashion”

When we think of “Japanese fashion,” there is no universal image. When we think of “New York fashion” or “Paris–Milan fashion,” prominent *maisons* and companies spring immediately to mind. The names of famous designers are often synonymous with their houses. Although they would be artists in their own right, they are better-known as fashion designers and creative tastemakers.

In this respect, even though Tokyo is the world’s second largest fashion market [1] (second only to New York), a particular image does not dominate our collective consciousness. Therefore, for purposes of this study, we will assume that the product manufacturers and wholesalers in Japan and the Japanese retail department stores (Isetan, Takashimaya, Mitsukoshi, etc.), because of their market and sales volume influence, represent Tokyo fashion.

Aside from the aforementioned participants, there are other types of fashion companies in the Japanese market, such as select shops (United Arrows Ltd., Ships Ltd., and Beams Inc.), casual fashion businesses (Point Inc. and Shibuya 109), specialty store retailer of private label apparel (SPA) (Fast Retailing Co., Ltd.), and discount chains. However, it is difficult to claim that these companies are representative of Tokyo Fashion, as their combined sales volume is still lower than any one of the major department stores [1].

## 1.5 Characteristics of the Design Process

Italian apparel industry is evaluated as a successful case [7]. Thus, we selected an Italian-made jacket as an example of successful global fashion. A tailored jacket is a good example of a garment that requires a high level of skill and technique to produce. We compared Tokyo and Milan fashion to understand the effects of the design process on the global market. This study details the typical characteristics from the knowledge obtained by the experimental design in a series of our research projects.

## 1.6 Experimental Design of a Tailored Jacket fo the Global Market

In our example, we will examine how luxury ready-to-wear tailored suits for sale in Milan are designed.

Although the overview of the design process examined in this experiment has already been explained, the results of our experiments are introduced based on the manufacturing process and by considering the tasks of the *modélisme (atelier)*.

In a *maison de couture*, the entire process is controlled by a creative director in charge of the design and its final specifications. The creative director is also

responsible for sales in each season. For *haute couture*, each garment is made in-house at the *atelier*.

However, *nouvelle couture* is manufactured at a mass-production factory that is unconnected to the *maison de couture*. The *atelier* handles the design and production of a sample for an exhibition or runway show, while a trial product for mass production is made by a mass-production factory. After the creative director confirms and checks the trial product and production processes and places the order at the factory, the factory begins production.

A *modéliste* (pattern-maker) plays a major role at the *atelier*. Although some think a *modéliste* is superior to a designer, this is not the case. If there is a difference of opinion between a *modéliste* and the creative director, it is the creative director who makes the final decision. Even though it is said that the designer draws the original illustration and makes notes on the design, it is the creative director who strongly influences a customer's decision to purchase because he or she is also responsible for marketing the clothing line. *Modélistes* assist in making the actual garments from the designer's illustrations and notes. Although a *modéliste's* work is an important part of the production process, their position is supportive and not well-defined; their work has not been examined in studies on clothing construction. Nonetheless, a *modéliste's* work is important for the affective engineering and end result of the final garment [8–10]. However, we performed this investigation because the specifics of production processes for high-end garments are still unclear.

In this study, we examined the differences in Japanese and Italian production processes for *nouvelle couture*. To do this, we designed and produced a women's tailored jacket in Japan and Italy; we accomplished this by only using Italian production processes. In this chapter, we describe the details of each stage of the production process.

We compared jackets manufactured in Japan according to Italian production processes. We also compared the garment parts before and after assembly, as well as the ironing treatments and usages of interlining and keeping tape.

## 2 Experimental Design and Production

### 2.1 Producing a Tailored Jacket in Japan and Italy

We prepared two jackets as experimental samples. They were both designed by a Japanese designer. The designs were produced in both Japan and Italy. Table 1 shows the design and production system for the jacket samples.

We selected a designer who had been working as a designer of ladies' garments to be the creative director in charge of the entire production process. This designer established the garments' concept and then drew an illustration for a jacket (Fig. 1).

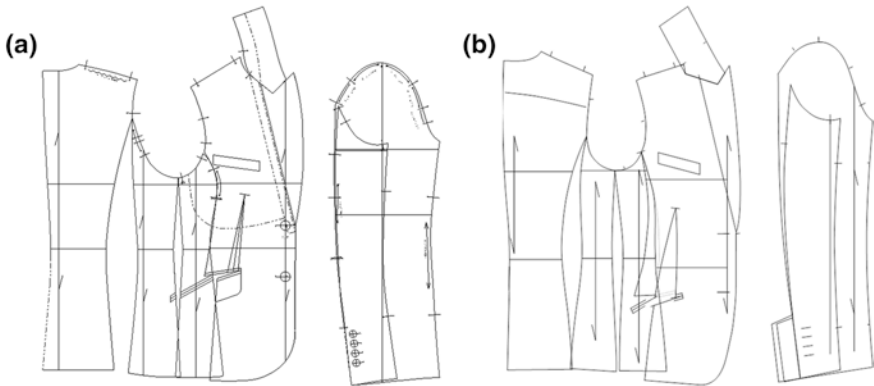
**Table 1** Design and production conditions for jacket samples

	Design name		
	J jacket	I jacket	I jacket 2
Designer	All three samples were made from a design by a Japanese designer		
Patterns	Japan	Italy	Italy
<i>Modéliste</i>	Japanese working in Osaka, Japan	Japanese working in Milan, Italy	Japanese working in Milan, Italy
Production factory location	Osaka, Japan	Milan, Italy	Osaka, Japan

**Fig. 1** Illustration of jacket design [5]

We chose *modélistes* and factories in both Japan and Italy to produce the designed jackets. Both jackets were produced using Italian production processes. The steps of the producing processes are as follows:

1. The creative director designed a jacket. She prepared an illustration and notes on the design.
2. *Modélistes* in both Japan and Italy produced trial products of the jacket.
3. The creative director and the *modéliste* in Japan inspected the trial products. The Japanese pattern was revised after inspection; specifically, the patterns for the silhouette, armhole, and sleeve were modified.
4. The patterns were converted into a CAD system format. The specification was for production of 100 pieces to be made in Japan. These converted patterns became the final patterns.
5. The production factories in Japan and Italy produced jackets using the final patterns (J Jacket and I Jacket, respectively).



**Fig. 2** Jacket patterns made in Japan (a) and Italy (b)

6. The *modéliste* in Japan made a jacket with patterns made in Italy according to the Italian production system (I Jacket 2) to compare the results of each pattern with same textile, sub-materials, and skills.
7. We compared the production process stages between Japan and Italy by comparing J Jacket and I Jacket 2. The evaluation points were:
  - (a) Comparing the body and sleeves before assembling the parts.
  - (b) Comparing the front, side, and back styles of the samples.

## 2.2 Results and Discussion

### 2.2.1 Characteristics of the Design Process for Patterns in Japan and Italy

Figure 2 shows the body and sleeve patterns made in Japan (a) and Italy (b). We interviewed both the Japanese and Italian *modélistes* about the pattern-design process of each country. During the interviews, we investigated the characteristics of the pattern-design process of each country. *Modélistes* have their own basic patterns, so our *modéliste* designed the jacket patterns in Italy using jacket patterns drawn from his basic stock. These patterns have been improved little by little over time. The patterns are also influenced by the trends of the times. The process of pattern design of Italy was as follows:

1. Several basic patterns were stocked by the *modélistes*.
2. The *modéliste* selected the most appropriate patterns based on the designer's illustration and concepts.
3. The *modéliste* created a new pattern using his basic patterns but incorporating the new design.

In Japan, however, basic patterns are selected from the previous season's designs. The process of pattern design of Japan was as follows:

1. The *modéliste* looked for necessary patterns from similar designs and products from the past.
2. Patterns were chosen from among past patterns.
3. Design patterns were made by assembling the chosen patterns to match the design.

There were differences between the pattern-making process in Japan and Italy. The Italian process was based on the *modéliste's* personal *kansei* and experience, while the Japanese process was based on previous data. The Italian method took more time than the Japanese. Similarly, with the making of suits, it took more time to produce a garment using Italian processes.

### 2.2.2 Comparing Jacket Parts Before and After Assembly

Figure 3 shows the finished jackets. To examine each production stage, we compared the components of I Jacket 2 and J Jacket before and after assembly (Table 2).

#### (a) The shape of armhole on sleeve and body

Figure 4 shows the armhole set in the body, and Fig. 5 shows the sleeves. There was a difference in the length and width of the front and back armhole curves. The shape of the armhole in I Jacket 2 was square while that of J Jacket was round. The shape of the armhole was also different. The armhole line of I Jacket 2 and J Jacket are known as "cat's eye" and "egg," respectively. Therefore, we found that there would be a few differences between the shapes of the final product showing in Fig. 11.

These differences also made a difference in the wearing of the garment and the comfort of the wearer. The armhole in the body of each jacket also corresponded to the shape of the sleeve cap, which made some differences in comfort.

The comfort and fit of a garment can only be evaluated by actually wearing it. Comfort is dependent on the customer's figure and final taste of any given country. A question thus arises: "Will the design for the domestic customer's preference be suitable to the international market?" This can be further analyzed by initiating studies on globalization of garment manufacturing.

#### (b) Amount of space in the bust

Figure 6 shows that the darts around the bust of I Jacket 2 were more generous than that of J Jacket. Furthermore, I Jacket 2 showed a more three-dimensional shape in the bust even when laid out flat. In the curve of the front panel line, a large curvature was visible in J Jacket (Fig. 6b). Therefore, there was a different amount of ease in the busts that made a three-dimensional shape. The different amount of shaping means there is difference between the angles of the



**Fig. 3** Finished jackets. **a** I jacket. **b** J jacket. **c** I jacket 2



I Jacket



J Jacket

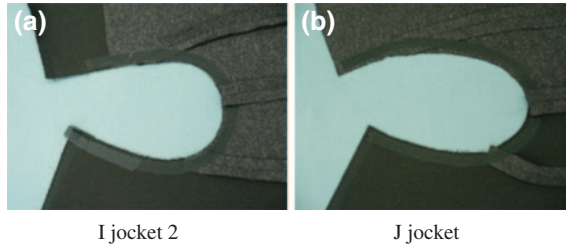


I Jacket 2

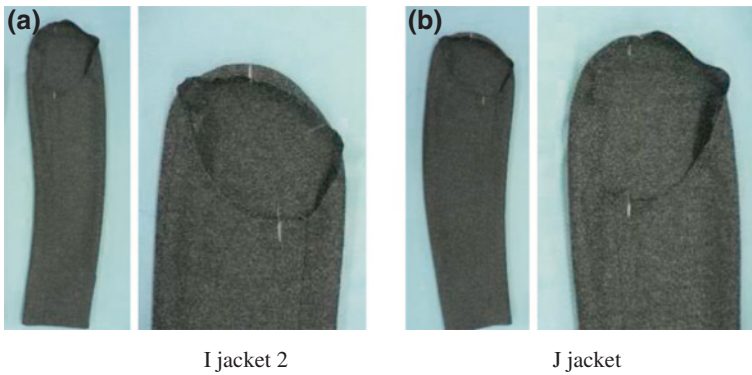
sewing line curves. This discrepancy might arise from differences in the basic patterns, as the pattern naturally has a strong influence on the silhouette of a garment.

**Table 2** Measured sizes of jackets made in Japan and Italy (in centimeters)

Part Jacket	Shoulder width	Bust	Waist	Bottom width	Armseye width	Sleeve width	Length	Sleeve length	Armseye depth	Armhole length
J jacket	38.9	90.6	76.5	92.4	13.0	31.5	61.6	65.8	22.0	45.5
I jacket and I jacket 2	38.0	90.5	79	99.5	12.5	31.3	58	62.6	20.8	42.2



**Fig. 4** The armhole in the body. **a** I jacket 2. **b** J jacket



**Fig. 5** Sleeves. **a** I jacket 2. **b** J jacket

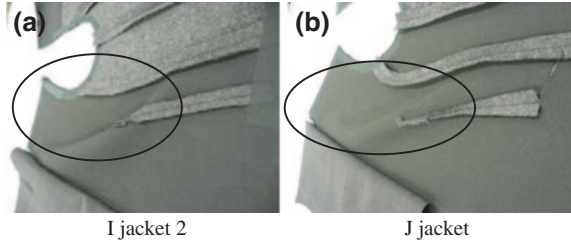
(c) Around the armholes

Even though the side panel lines of I Jacket 2 showed similarities in their length and lines, the side panels of the J Jacket showed significantly asymmetrical lines (Fig. 7). The differences in those lines in I Jacket 2 and J Jacket are not just a result of differences in the patterns. They result in higher production efficiency in sewing. Moreover, it was also related to the properties of the materials used. These differences might arise from the differences in working environments and the sensibilities of the garment manufacturers.

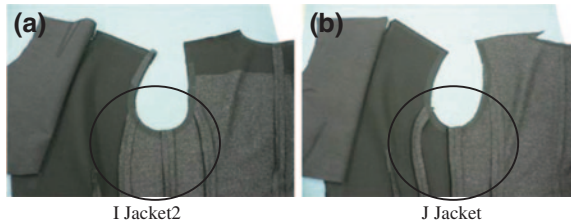
(d) Laminated area with adhesive interlining

The area of the front that was laminated with adhesive interlining was different between J Jacket and I Jacket 2 (Fig. 8). The laminated area with adhesive

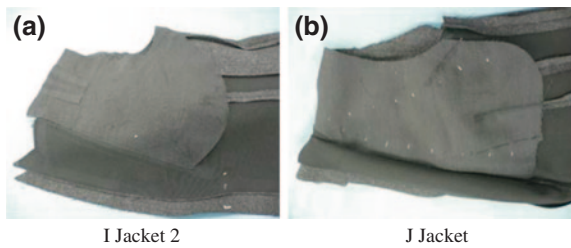
**Fig. 6** The circled areas highlight the amount of darting in the bust. **a** I jacket 2. **b** J jacket



**Fig. 7** Armholes. **a** I jacket 2. **b** J jacket



**Fig. 8** Jacket body and portions with interlining. **a** I jacket 2. **b** J jacket



interlining on the bust was related to both shape retention and workability [11]. Therefore, it was necessary to consider the balance between the quality of the product and workability in the design steps.

(e) Sleeves

We also found differences in the armhole curves and shapes, and the width of the upper arm of the sleeves (Fig. 9). The cylindrical portion of I Jacket 2 sleeve fell almost vertically. The lower arm (the part from elbow to wrist) was bent toward the front. Furthermore, the cuff line of I Jacket 2 faced forward and the back style was slightly bent.

(f) Comparison of jackets from the front

Figure 10 shows the differences between the jackets' front sections. They are as follows: (1) The angle of the chest and waist pockets; (2) the curve of the front hem; (3) the shape of the line edge of the lapel; (4) the position of the collar gorge; and (5) the line of the collar gorge.

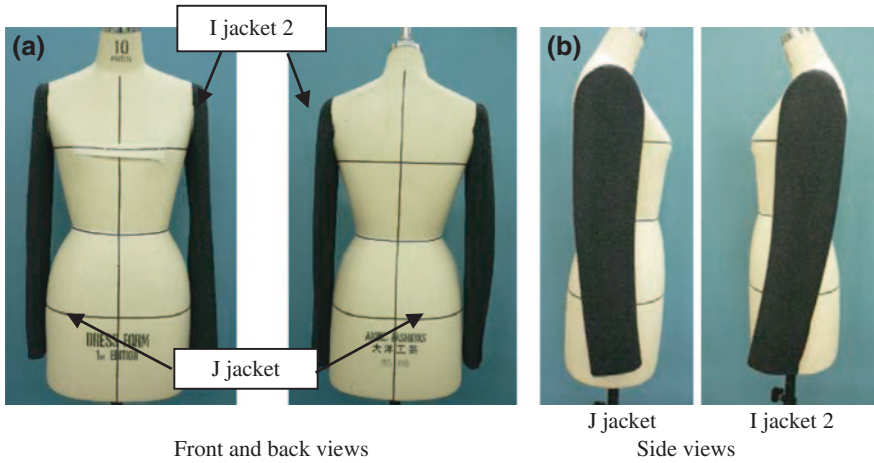


Fig. 9 Sleeves showing comparison of angles. a Front and back views. b Side views

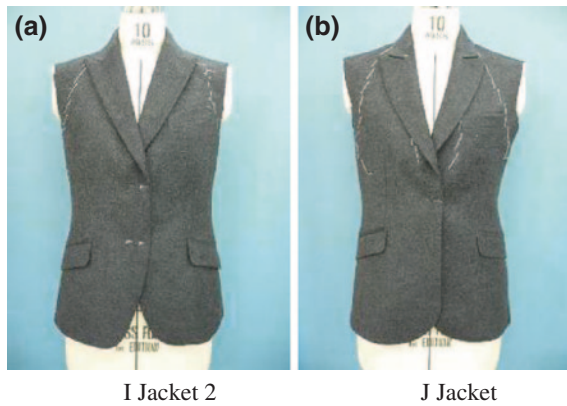


Fig. 10 Front body. a I jacket 2. b J jacket

These differences originate from the pattern-drawing stage. There are two approaches to drawing patterns. The first considers changes in trends over time. The patterns are based on the proportional positions calculated from the height and the circumference of the current style. In the other approach, the patterns are based on visual judgment by both designer and the *modéliste*. In this visual judgment, the style and the silhouette are mainly considered.

(g) Comparison of jackets from the side

From the side, we observed differences in the overlapping position of the left and right body in the waist and in the length of the armscye (Fig. 11). The Italian *modéliste* said that the position of the overlapping part in the waist is the current

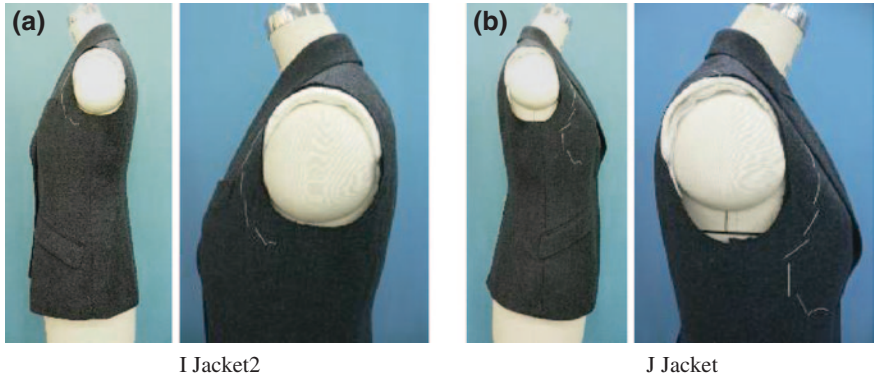


Fig. 11 Side body. a I jacket 2. b J jacket

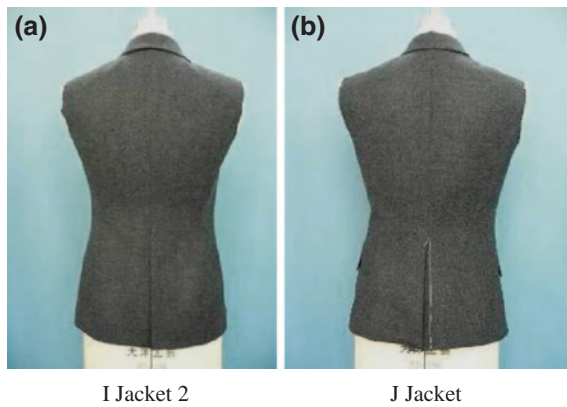


Fig. 12 Back body. a I jacket 2. b J jacket

style. Thus, it might depend on the preferences of the producer and the consumer. We observed similar tendencies in the depth of the armhole.

However, the cylindrical part of J Jacket was slightly bent forward; the cuff also faced forward. In addition, the cuff shape was round and the back was straight. Changes in the sleeve were affected by the different design patterns of the sleeve and differing preferences of silhouette in each country. Differences between the ironing processes and the sewing process also affected the sleeve shape. Without adjustable ironing treatment and sewing process, the suitable curve of sleeve cannot be obtained.

(h) Comparison from the back

We observed differences in the silhouette of the panel lines around the waist and in the shape of the vent (Fig. 12). The styling of the back of the body was the starting point of the drawing pattern (especially from the back center) and was also an important component of the balance of the whole garment. We also

considered the overall balance and productivity in matching the fabric to the garment for the back style.

### 3 Conclusions

There were considerable differences between the appearances of the I Jacket 2 and the J Jacket. Naturally, the design of the finished product was influenced by the production process. Therefore, it was essential to have precise instructions for product designs. Careful examination and inspection of production processes was also very important.

We concluded that the differences in production processes between Japan and Italy were due to the intended purpose of the finished products. The hierarchies of the production staff were also different in Japan and Italy. There are significant differences in the workflow between Japanese and Italian manufacturers. In Japan, any given stage can only proceed once the results of the previous stages have been thoroughly inspected. After confirming the designer's opinions of the design, Japanese workers finish the production process faithfully according to the provided specifications. Conversely, the Italian method only considers the quality of the final product. Additionally, *modélistes* in Italy have the prerogative to voice their opinions about the sewing and other techniques used during production.

We found that the specification sheets provided to the garment factories in Italy are very simple documents. We also found differences between the tape and sub-materials used in each factory, which affected the outcome of the final products. In Italy, it is common for the factory and *modéliste* to select the sub-materials (such as the multi-puff and keeping tapes) depending on the design. In Japan, however, cost and production volume are more important when producing a sample; for example, the selection of shoulder pads is carried out by designers. As for the interlining, this is jointly decided upon by the designer and the *modéliste*—the factory simply follows their decisions. Therefore, in Italy, if fabrics are specified through a simple specification sheet and patterns, the factory can produce a sample there. When the order moves to the sewing factory, the garment is primarily under the control of the factory personnel.

Our primary conclusion is that although advanced production technology exists in Japan, there is a “lost art” absent from the process: the expert personal touch in *modélisme*, which requires more time. Because of the continued pursuit of more efficient production processes, this level of craftsmanship has nearly disappeared in Japan. However, it is still in use in the fashion houses of Italy. For the globalization of Tokyo fashion to be successful, we must remember and consider the utility of this “lost art.”

We believe this study can contribute to further understanding of garment manufacture and fashion design. We hope this study will also be helpful for the advancement of the globalization of Tokyo fashion.

**Acknowledgments** We thank Dr. Masahiro Sugawara. This work was supported by JSPS fellows and JSPS KAKENHI Grant Numbers 23240100 and 24220012.

## References

1. Ministry of Economy, Trade and Industry of Japan, Recent Trends in the Textile and Fashion Industry. [www.meti.go.jp/committee/summary/0004638/004\\_03\\_00.pdf](http://www.meti.go.jp/committee/summary/0004638/004_03_00.pdf). Accessed in 20 May 2013
2. Renfrew E, Renfrew C (2009) Developing a collection (basic fashion design). Ava Publishing, Switzerland
3. Seiichi Y (2010) Fashion dictionary. Senkenshinbunsha, Japan
4. Otake T, Ebitani T, Seto K, Hino N (2012) Fast fashion-infiltration! backstage of high speed supply chain-. *Nikkei Business*, 11.05, pp 25–41 (in Japanese)
5. Shoji B, Morikawa H, Otani T (2010) The possibility of predicting luxury brand: Lanvin, Balenciaga as examples. In: Proceedings of KEER2010, USB, pp 1908–1916
6. Kakuta M, Takatera M, Yanagida Y, Ikeda K, Otani T (2010) Reproducibility of Kansei property of textile fabric. A case study of high-end silk fabric. In: International conference on Kansei engineering and emotion research 2010 (KEER2010), pp 1380–1389
7. Owen N, Jones AC (2003) A comparative study of the British and Italian textile and clothing industries. Crown Copyright, DTI/Pub, UK
8. Miyatake K, Toshie M (2012) Product design of Dolce and Gabbana, vol 58. Bulletin of the Faculty of Home Economics, Kyoritsu Women's University, pp 29–43 (in Japanese)
9. Suzuki A, Otani T (2010) Design and manufacturing process of Maison P in Paris. *Sen'i Torendo* 84:32–39 (in Japanese)
10. Ikeda K, Otani T (2010) Experiment on designs and production of Pret-A-Porter that can be sold in Paris and Milano: production and evaluation of ready-to-wear samples from Japan and France. *Sen'i Torendo* 85:35–42 (in Japanese)
11. Kim K-O, Sonehara S, Takatera M (2013) Quantitative assessment of jackets appearances with bonding adhesive interlinings using two-dimensional and three-dimensional analysis. *Int J Affect Eng* 12(2):177–183