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Textile Selection for Clothing Design by Visual Information

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Abstract: Clothing designers select textiles for clothes in the process of clothing design. The experiments are conducted to find out how far clothing designers can select textiles for clothes only by the visual information. Textiles for the experiment were selected in the condition that those are used for jackets, long pants and skirts sold in Japanese department stores. Eight chemical crape georgette textiles were selected. The images or movies to show visual information of the textiles were discussed with some experienced clothing designers and determined seven kinds of images such as a close up of cloth or gather. The images were taken in a dark room and the textiles are well-illuminated. The subjects were told the guideline of clothing design and asked to draw a clothing design picture. The subjects were asked to watch the visual images of the eight textiles on the computer screen, and to rate each textile if it is suitable to their clothing design on a scale of one to ten. After that, the textiles were handed to the subjects, and then they were asked to rate in the same manner. The method to transfer information of textile is verified to compare the rate in the case of textile images and in the case of sight and haptic of real textile. It is suggested that textiles for clothes can be selected to some extent only by visual information.

Keywords: clothing design, textile selection, visual information, online.

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1. INTRODUCTION

Recently, online shopping for various products is increasing whether as business to business or

business to consumer every year. Online trade for clothing is established to some extent. Though there is some online trade for textiles but it is hard to say that the online trade is popular compared to other products. In the existing site for online textile trade, textiles are searched by type or composition, and photos of the searched textiles are displayed on screen. It is difficult to transfer information about clothes or textiles compared to other products via the Internet, because it is not easy to transfer sense such as hand feeling via the Internet. Bergamasco et al. studied to transfer remotely hand feeling of textile [1]. It is difficult to apply this technique to online shopping, as a large apparatus was constructed for this study. There are many studies about online shopping. There are some studies to extract and evaluate factors of apparel online shopping [2-4], or to evaluate the effect of virtual try-on [5-7]. But study about textile online shopping has not been found. One of the way to transfer information about textile is to substitute other sense which can be transferred via the Internet for a sense which can't be transferred. There have been many studies to substitute visual sense for tactile sense [8-11], but for the textile information transfer another substitution has to be needed. We focused on textiles and considered what kind of information has to be transferred to understand textiles better via the Internet.

2. EXPERIMENT

2.1. Preparation of photos and movies

We got interviews with two experienced apparel designers who are experts to deal with textiles how to examine textiles when they choose textiles for their apparel designs. A designer had worked for a Japanese apparel company and designed clothes for Japanese department stores. The other designer had worked for a Japanese department store, and participated in the work of pret-a-porter in Paris. It was shown that sensory qualities and color and pattern of textiles are important for apparel designers to choose textiles. Sensory qualities of textiles are important for apparel designers if it is possible or not to form silhouette of clothes they designed with the textiles. Sensory qualities of textiles may be related to dimensions such as thickness or static or dynamic mechanical properties of textiles. Though colors or patterns must be very important factors, here those factors are not considered by conforming colors of textiles for the experiments as much as possible. Various kinds of photos and movies were proposed to transfer characteristics of textiles, and among those, eight kinds of photos and movies that are thought to be effective were adopted with advices of the experienced apparel designers.

(1) Photo of the textiles overlaid on a dummy (Kypris 9A2). The dimension of the textile is 1m by 1m, and took two photos of warp line drape and bias drape for each textile.

(2) Photo of magnified surface of the textiles. The dimension of the textile is 20cm by 1m, and the textiles are overlaid over a cylindrical object to cause curvature in the surface of the textiles.

(3) Photo of the textiles overlaid on a an human arm. The dimension of the textile is 20cm by 1m.

(4) Photos of gathers. The gather is applied to the neckline of the dummy. The dimension of the textile is 70cm by 70cm. Two directions of warp and bias of gathering are made. The photo of the gather with entire torso of the dummy and the photo of the magnified image of the gather are taken.

(5) Photos illuminated form backside of textiles. The dimension of the textile is 1m by 1m. The directions of the light are from upside, level, and downside.

(6) Movie of textile movements while it is hanging and fanned from the bottom. The dimension of

the textile is 70cm by 70cm. A commercially available dryer is used to fan.

(7) Movie of textile movements while it is wrapped around a mannequin and the mannequin is shaken. The dimension of the textile is 1m by 1m. The magnitude of the fluctuation was about 30 cm and the frequency was about 1 Hz.

(8) Movie of textile movement when it is balled up by hand and then expands. The dimension of the textile is 20cm by 20cm

Fig. 1 shows examples of textile images.

Figure 1: Examples of textile images

2.2. Experimental procedure

The experiment was conducted under the condition that the subjects designed clothing and choose textiles for the designed clothes. The textiles that may be able to utilize for the designed clothes were collected and photos and movies described above were made from the textiles. The photos and movies of each textile are shown to the subjects, and then the subjects rate the degree of fitness of each textile to make designed clothing. Then, subjects watch and touch each real textile, and then the subjects rate the degree of fitness of each textile to make designed clothing same as the case of photos and movies. The degree of coincidence of the rating in both cases is examined.

2.3. First experiment

To see the possibility to select a textile by watching photos and movies for clothing, the experiments were conducted with two experienced apparel designers and an active apparel designer. The clothing designed for the experiment is set to the dress with thin textile with drapes. According to the setting of the dress, apparel designers were asked to design clothing. An example of the designs is shown in Fig. 2.

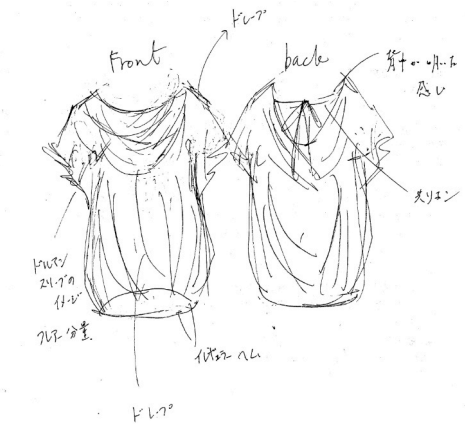

Figure 2: Design example

Through this process, three apparel designers have an idea of clothing in their mind. We gave information about the clothing designed for the experiment to a textile dealer and asked the dealer to select the textiles for the experiment. Fourteen kinds of textiles are selected for the experiment. In this experiments, to exclude the factor of color, colors of the textiles are conformed to beige. In the first stage, the subjects watched the photos and movies of 14 textiles. The order to watch the textiles was determined by random numbers, and the order was the same for three subjects. To show the photos and movies of the textiles, HP Pavilion dv6-6c0 computer, Nanao FlexScan S2410W display and Microsoft Office 2013 PowerPoint were utilized. There was no time limit to watch and it was allowed to go back and forth to watch the photos and movies of the textiles. The subjects rated on a scale of one to ten the degree of fitness of each textile to make designed clothing. After that, the subjects watched and touched each real textile. The order to watch the textiles was determined by random numbers, but the order is different from the order to watch the images. The dimension of the textiles to watch and touch was 20cm by 20cm, and the experiments were conducted in the ordinal environment of a room. The subjects evaluated the textiles in the defined order. As in the case of images, the subjects rated on a scale of one to ten, and the subjects could go back and forth to watch and touch the real textiles.

2.4. Second experiment

The next experiments are conducted in more practical conditions. The designed items are set to the full items (suit, skirt and ants for ladies) made with georgette of middle thickness for sales in Japanese department stores. The subjects of the experiments are 14 university students in design and dressmaking course. The students have been studied how to design and make clothing. We asked the subjects to draw apparel design under the condition of the experiments. The textiles utilized for the experiments were selected by a experienced apparel designer form crape georgette swatches of intermediate thickness in a textile company. Eleven textiles were selected for the experiments. The textiles consist of triacetate, polyester and polyurethane. Name and composition of the textiles are shown in table 1.

Table 1: Name and composition of the textiles for second experiment

No.	Name	Composition
01	Soir pearl soft georgette	TA60% + PE40%
02	CELINE DCM	TA70% + PE30%
03	DIAME MDG	TA71% + PE29%
04	Lionel 2WAY	TA88% + PU12%
05	Soir pearl double cross SNR	TA60% + PE40%
06	Princess tiara	PE100%
07	Soir pearl back satin	TA80% + PE20%
08	High twist GGT	TA88% + PE9% + PU3%
09	TIS crape satin	TA79% + PE21%
10	Soir pearl double WEET	TA60% + PE40%
11	NOG honey	TA70% + PE30%

TA : triacetate, PE : polyester, PU : polyurethane

In this experiments, colors of the textiles are also conformed to beige to exclude the factor of color. Computer hardware and software for the experiments and the way to watch the images or textiles are the same as before. The way to evaluate the textiles is also the same as before.

3. RESULT AND DISCUSSION

3.1. Results of the first experiment

The result of the experiments is shown in Fig. 3. The three graphs are the results of three subjects. The vertical axis means rating and the horizontal axis means textile no. The red bars show the rating by images and blue bars show the rating by real textiles. Most of the differences of the rating for the images and the real textiles are about 1, and the average is 1.3. Few of them are more than two and one is more than four. From the results, it is more or less possible to evaluate textiles by images. In the experiments, rating differences of thick textiles are rather big and that of thin and shiny textiles are small. Some differences were observed for thin and dull textiles. The biggest difference was observed in a sick textile. The subjects may misunderstand to see the movie in which the textile is wind-whipped like other textiles. Though there are some cases that the textile information was not properly transmitted, it was suggested that textile information can be transmitted to some extent.

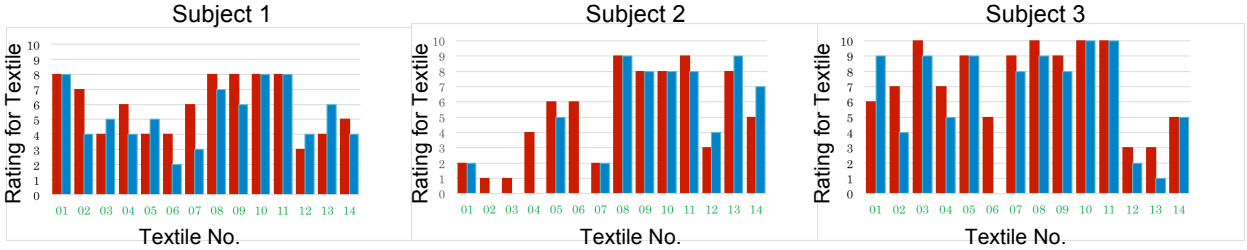

Figure 3: Results of the first experiment for three subjects. Red bars show rating by textile image and blue bars show rating by real textile.

3.2. Results of the second experiment

The average difference of the rating for the images and the real textiles is 1.5. This value is almost the same as before. The colors of the sample textiles are conformed to beige in the former experiment, but the sample textiles were selected from broad range of textiles. For this experiment, sample textiles were selected from narrower range of textiles than the former experiment. The situation of this experiment is harder than the former experiment because the subjects of this experiment are students but designers. After the experiment, the subjects were interviewed and they remarked that it is hard to detect the thickness of the textiles. There is room for improvement of the way of presentation of textile properties by images, and it is expected to decrease the error.

4. CONCLUSION

In this study, it is suggested that textile information can be transmitted to some extent in the situation of textile selection for apparel design. But there are many challenges. It is very difficult to show color of textile accurately on screen and we have many problems such as illumination, display calibration and so on. As various information is attached to textile, it is necessary to confirm how much designers perceive textiles with the information. Much more research is necessary to decide what kind of photos and movies are needed and what kind of images are not needed to transmit textile information.

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