Interactive Effect of Textile Pattern and Garment Style on Garment Impression

Liu YANG*, Lu LIU **, KyoungOk KIM ***, and Masayuki TAKATERA ***

* Graduate School of Medicine, Science and Technology, Shinshu University, 3-15-1 Tokida, Ueda, Nagano 386-8567, Japan
** Graduate School of Science and Technology, Shinshu University, 3-15-1 Tokida, Ueda, Nagano 386-8567, Japan
*** Faculty of Textile Science and Technology, Shinshu University, 3-15-1 Tokida, Ueda, Nagano 386-8567, Japan
takatera@shinshu-u.ac.jp

Abstract: We investigated the interactive effect of garment style and textile patterns on garment impression. We used eight textile patterns and three garment styles to generate twenty-seven simulated garment images: three images of unpatterned garments and twenty-four images of patterned garments. We then conducted a sensory evaluation of these stimuli using the semantic differential method. Eight images of textile patterns were also used in the sensory evaluation. A two-way ANOVA with multiple comparisons using the Tukey method indicated that when the impressions of a garment and textile pattern were different, the impression of the garment with that textile pattern was closer to the impression of the textile pattern. When the impressions of a garment and textile pattern were similar, the impression of the garment with that textile pattern was emphasized compared with the unpatterned garment. Our data indicate that the textile pattern has a more significant effect on the garment impression than the garment style. Thus, both the textile pattern and garment style affect the impression of a garment.

Keywords: Garment impression, Textile pattern, Garment style

1. INTRODUCTION

The impression generated by a garment is related to whether a consumer will decide to purchase it. Two factors can affect the impression of a garment. One is textile pattern. Kato [1] and Naito et al. [2] used three-dimensional garment simulation to investigate the impression created by a one-piece dress with various textile patterns of textile. Fukatsu and Ishihara [3] discussed the effect of color and stripe pattern on the degree of “suzushii” or “cool feeling” of men’s shirts. Their results showed that for one garment style, the impression was correlated with the textile pattern. The other factor in garment impression is garment style. Yamagata and Ishihara [4] investigated the formality of ladies suits using two regular textile patterns. They showed that the design of the suit strongly influenced the garment impression. Ohtake et al. [5] investigated the impression of skirts with different textile pattern images. However, among these studies, no researchers have determined which of the two factors has a greater impact on garment impression.

Thus, to explore the interactive effects of textile pattern and garment style on garment impression, we investigated the impression of textile pattern alone using garments with and without patterned textile.

2. EXPERIMENTS

2.1 Stimuli

We selected eight textile pattern samples [6], shown in Figure 1, to be used in the experiments. To remove the effects of color on evaluation, the pattern images were monotonized using Adobe Photoshop CC 2018 (Adobe Systems Co., Ltd., CA, USA).

We selected three garment styles: an H-line one-piece dress, a flared one-piece dress, and trousers. The garment patterns were designed for an avatar with a designated dress size (height: 162 cm, bust: 80 cm, waist: 62 cm, hip: 89 cm) using an apparel design program (Alpha Myu, Yuka and Alpha Co., Ltd., Tokyo, Japan). The dresses were simulated in a three-dimensional simulator (CLO...
Enterprise, CLO Virtual Fashion LCC., Seoul, Korea). For impression evaluation, the front view of the garments was captured without a textile pattern (Figure 2).

![Image](https://via.placeholder.com/150)

**Figure 2**: Simulated garments without patterned textile

The textile patterns were applied for each garment style. The front view of the garments with patterned textile was also captured as stimuli. Figure 3 shows the three garments with textile pattern A.

![Image](https://via.placeholder.com/150)

**Figure 3**: Simulated garments with textile pattern A

The stimuli for impression evaluation were: eight images of the textile patterns, three images of garments without a textile pattern, and twenty-four images of garments with textile patterns.

### 2.2 Evaluation questionnaire

Impression evaluations of the prepared stimuli were collected using an online Japanese questionnaire (www.wjx.cn). We selected 10 pairs of Japanese adjectives for describing impressions generated by textile patterns and garment styles, as shown in Table 1. Forty subjects (10 Japanese and 10 Chinese men; 10 Japanese and 10 Chinese women; aged 18–32 years) rated their impressions of the stimuli using a seven-point semantic differential scale.

We used a two-way analysis of variance to evaluate the differences in the impressions of the textile patterns and garment styles, as reflected by the scores for each pair of adjectives. The score for the garment with unpatterned textile was considered to represent the baseline (score of 0). We conducted multiple comparisons tests using the Tukey method.

### Table 1: Adjectives for impression evaluation

| Adjective pairs | English | Japanese |
|-----------------|---------|----------|
| a | Dislike | Like | 嫌い | 好き |
| b | Western style | Japanese style | 洋風な | 和風な |
| c | Vulgar | Refined | 下品な | 上品な |
| d | Simple | Complicated | 簡単な | 複雑な |
| e | Rough | Elegant | 粗野な | 優雅な |
| f | Out of fashion | Fashionable | 流行おくれの | 流行の |
| g | Quiet | Active | 寂やか | 活動的 |
| h | Feminine | Masculine | 女性的 | 男性的 |
| i | Classic | Modern | 古典的 | 現代的 |
| j | Childish | Adult-like | 子供っぽい | 大人っぽい |

### 3. RESULTS AND DISCUSSION

Figure 4 shows the evaluation scores for the unpatterned garments, textile pattern A, and garments with pattern A. Pattern A were evaluated as being more Japanese, refined, complicated, elegant, quiet, and classic. Unpatterned garments were evaluated as more Western, simple, and modern. Conversely, garments with textile patterns were evaluated as being Japanese, complicated, elegant, and classic. When the impressions of a garment and textile pattern were different, the impression of the garment with that textile pattern was closer to that for the textile pattern. When the impressions of a garment and textile pattern were similar, the impression the garment with that textile pattern was emphasized compared with the unpatterned garment.

Table 2 shows the significant differences among the evaluation scores. For garment style, significant differences were found for all adjective pairs except adjective pair f (Out of fashion - Fashionable), (p < 0.01).

For textile pattern, significant differences were found for all adjective pairs (p < 0.01). For textile pattern × garment style, all adjective pairs except adjective pairs f (Out of fashion - Fashionable) and i (Classic - Modern) showed significant differences. This means that the textile patterns and garment styles had interacting effects on the evaluation scores for all adjective pairs except f and i. The lack of significant differences found for adjective pairs f and i may relate to variations in participant background.
knowledge and interest in fashion.

Figure 5 shows the evaluation scores for adjective pair a (Like - Dislike). Tables 3 and 4 show the corresponding multiple comparison test results for adjective pair a, and Table 5 shows the main effects test results. The results indicate that garment style affected the evaluation score for textile patterns A and B only. However, textile pattern affected the evaluation score for almost all of the garment styles. Therefore, the textile pattern of a garment appears to have a greater impact on the garment impression than the garment style.

Table 2: Significant differences in evaluation scores

| Factor | Adjective pairs | a | b | c | d | e | f | g | h | i | j |
|--------|----------------|---|---|---|---|---|---|---|---|---|---|
| Garment style only (no garment) | A | D | * |   |   |   |   |   |   |   |   |
| Textile pattern only H-line one-piece dress | B | D | * |   |   |   |   |   |   |   |   |
| Textile pattern only Flared one-piece dress + A | C | E | **|   |   |   |   |   |   |   |   |
| Cloth pattern E | F | * |   |   |   |   |   |   |   |   |   |

*: p < 0.05 **: p < 0.01

Table 3: Results of multiple comparison test for textile pattern and each garment style (Dislike - Like)

| Garment style | Compared textile pattern | Significant difference |
|---------------|--------------------------|------------------------|
| Textile pattern | A | D | * |   |   |   |   |   |   |   |   |
|                | B | D | * |   |   |   |   |   |   |   |   |
| H-line one-piece dress | C | E | **|   |   |   |   |   |   |   |   |
|                | D | * |   |   |   |   |   |   |   |   |   |
| Flared one-piece dress | E | F | * |   |   |   |   |   |   |   |   |
| Trousers       | F | * |   |   |   |   |   |   |   |   |   |

*: p < 0.05 **: p < 0.01

Table 4: Results of multiple comparison test for garment style and textile pattern (Dislike - Like)

| Textile pattern | Compared garment styles | Significant difference |
|----------------|-------------------------|------------------------|
| A Trousers     | Textile pattern only (no garment) | * |
| B H-line one-piece dress | Textile pattern only (no garment) | ** |
| Flared one-piece dress | Textile pattern only (no garment) | ** |
| | Trousers | ** |

*: p < 0.05 **: p < 0.01

Table 5: Results of main effects test (Dislike - Like)

| Compared factors | Significant difference |
|------------------|------------------------|
| A Garment style  | * |
| B                | ** |
| Textile pattern  | Textile pattern only (no garment) | ** |
|                  | H-line one-piece dress | ** |
|                  | Flared one-piece dress | ** |
|                  | Trousers | * |

*: p < 0.05 **: p < 0.01

4. CONCLUSION

We investigated the interaction effect of textile pattern and garment style on the impression of garments. Our data indicate that both textile pattern and garment style affect
the impression of a garment in terms of preference, activity, and complexity. However, the textile pattern appears to have a greater impact on garment impression than the garment style. Thus, designers should not only focus on the garment style, but also on the selection of textile patterns to modulate the impression of the garment to match the design concept.

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