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Research on Dividing Modeling of Female Suits Based on Cognitive Psychology

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Abstract: According to apparel modeling aesthetics of consumers, in this paper, the detail modeling dividing lines of female suits were selected as subject. And with the evaluating indexes defined, the dividing modeling was classified and the control points of dividing lines were found. Then 90 images of women suits with different dividing modeling were drawn. And the experimental data of 64 students aged from 19 to 26 years old from Soochow University were collected by software named E-prime. At last, with data processing software called Excel and SPSS, the differences of evaluating indexes were analyzed and the best positions of control points were found. Thus, the best dividing modeling of women suits were obtained.

Key words: Dividing line, female suits, E-prime, cognitive psychology

INTRODUCTION

Segmentation was a common shaping method used in women clothes, which could strength detail design and make clothes meet women's curve figures (Lv, 2006). For crisp modeling of female suit, segmentation could make suit's structure more stereoscopic and reflecting career women's ably neat.

Cognitive psychology was emerged in middle 1950s in western countries, which studied people's high-level psychological process. Modern psychological research showed that cognitive and emotional factors of subjects had a close relation that emotion could affect people's perception, thinking and behavior. E-prime, psychological experiment software, was employed based on visual cognition. The experimental data could be automatically stored by E-prime and used for preliminarily analysis (Hairston and Maldjian, 2009).

With the development of economical society, people's demands for apparel were no longer functions, but psychological needs from visual aesthetic. So many scholars studied consumers' awareness for apparel aesthetic with the method of cognitive psychology. In this paper, the software of E-prime was used to research dividing modeling of female suit and the best dividing modeling of female suit was obtained at last.

DIVIDING LINE

Types and functions of dividing lines: As a main way of fit shaping, the types of dividing lines were varied. From the

shapes' point of view, dividing lines could be classified as straight division, curve division and free division. And straight division could further classified as horizontal division, oblique division and vertical division (Wang, 2011a; Yao, 2012).

Dividing lines had functional and decorative effects. And functional effect meant that apparel with segmentation appropriately showed body features at the premise of meeting body structure and normal activities, showing aesthetic feelings of stereoscopic modeling. While decorative effect meant apparel with segmentation could beautify special body or match some apparel modeling (Lin, 2012).

Selection of dividing lines: With large numbers of pictures of female suits researched, dividing lines were usually used to achieve results of fit. And the shapes of dividing lines were varied, also were the numbers. Considered the operability and convenience of experiments, princess line and knife line which were used commonly in female suits were researched in this paper.

Princess line meant a middle dividing line starting from shoulder, crossing the chest and waist and extending downward. The princess line also called "straight knife line", which had gathered shoulder dart, chest dart and waist dart. And knife line meant a middle dividing line starting from armhole, crossing the chest and waist and extending downward. Both princess line and knife line could make body slender and upright, so they were usually used in female suit (Wang, 2008).

EXPERIMENTS

Evaluating Indexes Defined: Female suit was one kind of business suits, so sense of business was important for aesthetic of female suit. And sense of preference was reflection of people's personal aesthetic. So in this paper, business and preference were selected as two evaluating indexes to estimate the aesthetic of female suit with dividing lines.

Control points defined: Before this paper, Panel members had already determined the best waist, length and hem of female suit through experiments and obtained the best basic style of female suit (Fig. 1). In this paper, based on the best basic style and ignoring other factors, only the princess line and knife line (collectively called dividing line below) which were used commonly in female suit were mainly studied. And one piece of female suit had one dividing line.

The dividing line in this paper was belonged to curve line, so at least three points were needed to determine its shape. Considered experiments' operability, three control points, called respectively starting point, middle point and terminal point, were selected. And the position of starting point was at shoulder line or armhole line. The position of terminal point was at the middle of hem. And considered the curvature of chest, the position of middle point was at BP point.

Levels of control points: With the reference of the dividing lines' actual modeling, the starting point was divided into 10 levels and five at the shoulder line, five at the armhole line. The middle point was divided into 3 levels and the same to the terminal point. Thus, the specific levels are as follows (Fig. 2): (1) Starting point: quartering the shoulder line and putting the five dividing points as 5 levels (marked as J1,J2,J3,J4,J5), then dividing the front armhole line into 6 levels and putting the middle 5 dividing points as 5 levels (marked as J6,J7,J8,J9,J10); (2) Middle point: based on BP point of the pattern, moving separately 1, 2 and 3 cm in parallel to side seam and putting this 3 points as 3 levels; (3) Terminal point: putting the middle point of hem as one level and based on this point, moving separately left and right 2.5 cm, then putting this 3 points as 3 levels (marked as B1,B2,B3).

Images drawn: According to the selection and levels of control points, 90 images of female suits with dividing line were drawn totally. Figure 3 showed the starting point's change when the middle point at P2 and the terminal point at B2. Figure 4 showed the middle point's change when



Fig. 1: Basic suit



Fig. 2: Levels of points



Fig. 3: Female Suit with 10 Levels of J

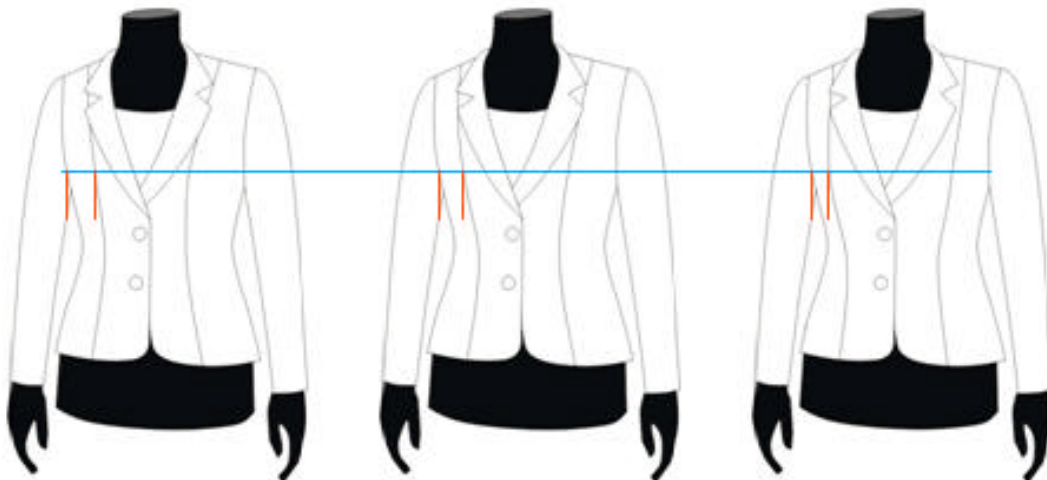


Fig. 4: Female Suit with 3 Levels of P

the starting point at J3 and the terminal point at B2. Figure 3-5 showed the terminal point's change when the starting point at J3 and the middle point at P2.

Subjects: Young people have a close sense and personal cognition of apparel change and most of them like suit when they go into formal working places. Thus, in this experiment, female suit were selected as objects and 64 students aged from 19 to 26 were selected randomly from Soochow University as subjects. And ensuring the reliability of the experimental results, half

subjects were boys and half were girls, half were fashion profession and half were not fashion profession.

Apparatus: The apparatus was a computer installed software of E-prime 2.0, whose monitor was 17 inches, 1024*768 resolution, 16 colors and 75 Hz refresh rate. And the experimental time was 2013.4.16 to 2013.5.8.

Experiment process: When the experiment started, the subject sat in the front of the computer, the middle of computer screen shown "+", reminding the subject of



Fig. 5: Female suit with 3 levels of B

starting experiment, then the screen showed randomly one of the evaluating indexes (“reference” or “business”) and then an image of female suit with dividing line showed on the screen. Subject was required to make an exact decision whether his first feeling coincided with the word shown before when seeing female suit in image. If the sense coincided with the word, subject pressed the specific key in the keyboard; otherwise, he pressed another. The next picture would not be shown until subject made judgment by pressing the keyboard. Then data could be collected by E-prime to show choices and codes of image.

In this experiment, each image showed two times, corresponding respectively to two evaluating indexes. And before the experiment, the subject was asked to get familiar with the processes of trial and button operation and then he was required to do preparative tests in several units (Wang, 2011b).

DATA ANALYSIS

After the experiment, data were exported with the software of E-studio and filtered with the software of Excel 2007. Then through the software of SPSS 13.0, data were further analyzed.

Difference analysis of reference: The main effect results of three control points for reference were shown as Table 1. The F value of the starting point was 37.302 and the Sig. value was 0.000 (below 0.01). Thus, the reference effect of the starting point was very significant. The F value of the middle point was 4.137 and the Sig. value was 0.016(below 0.05), which meant the reference effect of middle point was significant. The F value of the terminal point was 2.908 and the Sig. value

Table 1: Main effect results of reference

Source	F	Sig.
J	37.302	0.000
P	4.1370	0.016
B	2.9080	0.055

Table 2: Duncan’s multiple analysis for J

J	N	Subset									
		1	2	3	4	5	6				
10	576	0.2795									
2	576		0.4219								
1	576			0.4306							
3	576				0.4688						
4	576					0.5069					
9	576						0.5122				
5	576							0.5469			
6	576								0.6267		
7	575									0.6574	
8	576										0.6892
Sig.		1.0000	0.1230	0.1540	0.1900	0.2840	0.2660				

was 0.055 (slightly above 0.05). So the reference effect of the terminal point was borderline significant. To sum up, the positions of starting point, middle point and terminal point all had significant effects on the evaluation of reference, thus, multiple analysis of three control points were needed.

Reference analysis of starting point (J): The results of Duncan’s multiple analysis about starting point (J) were shown as Table 2. When the starting point at level 10, the score was lowest. Second were level 1, 2, 3. The scores of level 7 or 8 were better and the difference between level 7 and 8 was not significant, but the score of level 8 is highest. So starting point at level 8 was most favorite position.

Reference analysis of middle point (P): The results of Duncan’s multiple analysis about middle point (P) were

Table 3: Duncan's multiple analysis for P

P	N	Subset	
		1	2
1	1920	0.4990	
2	1920	0.5031	
3	1919		0.5399
Sig.		0.7900	1.0000

Table 4: Duncan's multiple analysis for B

B	N	Subset	
		1	2
3	1920	0.4922	
2	1919		0.5242
1	1920	0.5255	
Sig.		1.0000	0.9340

shown as Table 4-3. It could be seen from Table 3 that, when the middle point at level 1 or 2, the scores were lower. The score of level 3 was significantly different from other levels. And the level 3 was the most favorite position with the highest score.

Reference analysis of terminal point (B): The results of Duncan's multiple analysis about terminal point (B) were shown as Table 4. From Table 4, terminal point at level 3 got the lowest score. And the scores of level 1 and 2 were better with no significant difference. The highest score was at level 1, so the level 1 of terminal point was the most favorite position.

Difference analysis of business: The main effect results of three control points for business were shown as Table 5. The F value of the starting point was 8.403 and the Sig. value was 0.000 (below 0.01). Thus, the business effect of the starting point was very significant. The F value of the middle point was 1.273 and the Sig. value was 0.004 (below 0.01), which meant the business effect of middle point was also very significant. The F value of the terminal point was 0.043 and the Sig. value was 0.828 (above 0.05). So the business effect of the terminal point wasn't significant. To sum up, the positions of starting point and middle point had significant effects on the evaluation of business, while the terminal point had no significant effect. Thus, only starting point and middle point needed multiple analyses.

Business analysis of starting point (J): The results of Duncan's multiple analysis about starting point (J) were shown as Table 6. We could see that when the starting point at level 10, the score was lowest. Second were level 1, 2, 9. Level 6, 7, 8 had better scores with no significant differences and the highest score was at level 6. So when the starting point was at level 6, the business feeling of female suit was strongest.

Table 5: Main effect results for business

Source	F	Sig.
J	36.968	0.000
P	5.601	0.004
B	0.189	0.020

Table 6: Duncan's multiple analysis for J

J	N	Subset				
		1	2	3	4	5
10	576	0.3681				
9	576		0.4931			
1	576		0.5017			
2	576		0.5469	0.5469		
3	576			0.5851		
4	576				0.6545	
5	576				0.6580	
8	576					0.7187
7	576					0.7240
6	576					0.7326
Sig.		1.0000	0.0700	0.1740	0.9020	0.6450

Table 7: Duncan's multiple analysis for P

P	N	Subset	
		1	2
1	1920	0.5687	
2	1920		0.6099
3	1920		0.6161
Sig.		1.0000	0.6850

Business analysis of middle point (P): The results of Duncan's multiple analysis about middle point (P) were shown as Table 7. It could be seen from Table 7 that, when the middle point at level 1, the scores was lowest and level 2 had no significant difference with level 3. The highest score was obtained at level 3, which meant when middle point at level 3, the business feeling of female suit was strongest.

CONCLUSIONS

In this study, with the research method of cognitive psychology, the women suit with dividing line was studied. And the following conclusions were obtained:

- Difference of reference: The starting point, middle point and terminal point all had significant effect on sense of reference. And when the starting point at level 8, middle point at level 3 and terminal point at level 1, the evaluating score was highest. Thus, the style named J8P3B1 was the top favorite female suit (Fig. 6)
- Difference of business: The starting point and middle point had significant effect on sense of business, while the terminal point hadn't. And when the starting point at level 6 and middle point at level 3, the evaluating score was highest. Thus, the style named J6P3 was the best female suit in business sense (Fig. 7 was J6P3B3)



Fig. 6: J8P3B1



Fig. 7: J6P3B3

To sum up, in the 90 images drawn in this paper, for young people, the top favorite women suit was J8P3B1 and the strongest female suit in business sense was J6P3. The conclusions obtained in this paper laid a foundation for further research to dividing modeling of female suit and supplying a method to study aesthetics of apparel structures.

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