

Systematic construction of the design process: systematic design model based on clothing style

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Abstract: Under the background of industrial production, standardized operation and efficient fashion design has become a predictable requirement. Systematic design advocates the integration of standardized design concepts into the process of fashion design and establishes the theoretical basis of systematic fashion design. In this paper, based on the design innovation practice of clothing enterprises, through the creation of systematic style design activities, simplify the behavior rules of clothing enterprises design, make clothing style design behavior standard and effective.

Keywords: systematization, clothing style design, standardization, design practice

1. Introduction

Systematic design is to simplify the design process and develop a set of standardized rules, unified and coordinated design of each element size rules, so that they are common and interchangeable. Just like the modular theory proposed by Le Corbusier, its purpose is to make architectural and industrial design conform to human body scale and have harmonious proportion relationship so as to control the dimension relationship in design. Its core is to use the psychological reaction of series changes to generate the aesthetic feeling of order and establish a new quantitative system system [1]. In the 1920s, The German architect Nigro made an important division of labor among the various components of the house, forming independent parts to adapt to large-scale industrial production [2]. Thus it can be seen that the systematic design concept in western architectural design has long been formed, that is, to establish a new quantitative system of architectural design in line with the human body scale.

The systematic design concept is mainly reflected in the process of exploring external things in the early stage, focusing on the scale of human body, which is consistent with the human body in modern clothing design. The human body is taken as the reference standard in modern clothing design, and the physiological and psychological beauty of human body is taken as the starting point of product design, which reflects the people-oriented design proposition in design. However, the design behavior of clothing is established under the requirements of a large number of design practices and high efficiency, and there are few theoretical studies on it.

Based on the systematic design behavior in fashion design, this paper aims to summarize its positive effect and theoretical basis on fashion design. Large-scale clothing style design, there is inevitably standardization and effectiveness of the requirements, in the design and expansion process to protect the style characteristics, deduce the series of expanded style, which is exactly in line with the typical characteristics of systematic design. At the same time, the characteristics of systematic design are not limited to the expansion of clothing style design. In-depth research on the behavior process of clothing style design is also helpful to deepen the theoretical framework of clothing style design, improve the application value of standardization and timeliness of systematic clothing style design behavior.

2. Methodology

Product design consists of a large number of elements design behavior. Designers' technical skills, aesthetic interests and creative ideas form different ways of presentation in the design, and these changing elements form different forms of design works. Similarly, there are corresponding "quantitative" elements in the design process, such as fixed elements used to define design objects and

limit design behaviors, which form the basis of systematic design of clothing styles. Quantitative factors exist in the systematic design process of clothing style, which repeatedly affect the design process. The repeatability of quantitative design elements forms the unity of design elements resources, and the efficiency of clothing style design can be improved through continuous utilization.

2.1 Size and shape of human body

Clothing modelling design in the human body as a basis for the design, can let the clothes wear comfortable, accord with human body physiological characteristics to form the harmonious aesthetic feeling, fully master the physical characteristic and and its basic data, analysis of the structure of human body form and motion law, and combining the aesthetic law, perfect the clothing structure, can form the ideal harmonious aesthetic standards [3]. The characteristics of the human body are not constant, nor do they exist in the same proportion.

However, enterprise style design practice is different from individual style customization, which is based on the common characteristics of the human body. Statistics are used to generalize anthropometric data into quantification, i.e., garment size (Figure. 1). The style design of clothing enterprises is to simplify the design process according to the standards of various sizes.

Height	Weight (KG)														
	41	43	45	47	50	52	54	56	59	61	63	65	68	70	72
150.0cm															
152.5cm															
155.0cm	S	S	S	S	S										
157.5cm						M	M	M	M						
160.0cm										L	L	L	L		
162.5cm															
165.0cm															
167.5cm															
170.0cm															
172.5cm															
175.0cm															
178.0cm															

Figure 1: Division of common garment size range

The garment style design process takes the size given by the enterprise as the design standard, and provides the size basis for garment size, garment proportion and sample production (Figure. 2). The proportion of garment size is regarded as uniform and unchangeable in style design, that is, design quantification.

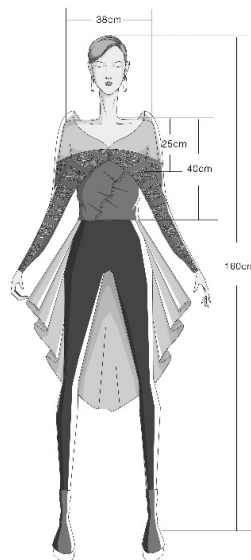


Figure 2: Garment size standard

2.2 Basic shape elements

Fashion style and form design is to express the design concept through the change combination of shape elements, these shapes include clothing profile, structural change and clothing component shape. The large-scale change of garment profile is mainly to make some slight adjustments to the popular profile, while the changes of structure shape and components are often adjusted and combined on the basis of selection. (Figure. 3)

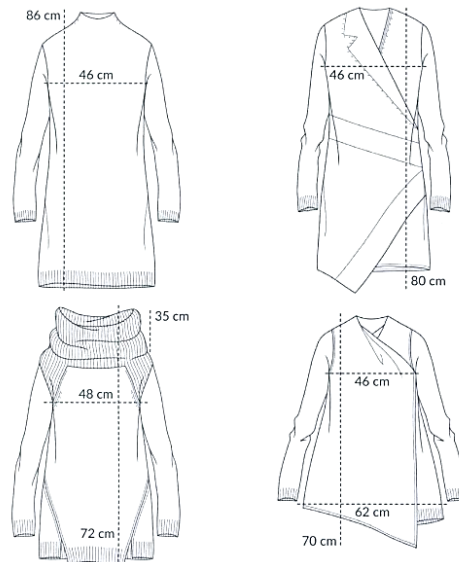


Figure 3: Fine tuning of elements in clothing design

Thus, the selection, combination and change of elements are the main characteristics of the fashion design process, and the basic elements exist as the logical starting point of the design. The quantitative clustering of fashion fashion shape elements in a short period provides the scope of shape definition in fashion cycle for fashion development of garment enterprises.

2.3 Series design concept

The concept of serialization is a typical feature of ready-to-wear style design. Garment product development is often not a single piece of style design, but large-scale style change development. The most important feature is quantity, and ready-to-wear collections are made up of bulk styles. In addition, the common elements and mutual personality elements between styles are the constituent conditions of garment series.



Figure 4: commonness and individuality in series design

The common elements of clothing series design are the common points of style, which is the connection of clothing serialization. The sense of series is embodied in the same design concept and style, which is realized by similarity in form, tone, material, pattern, decoration and technology, thus

producing a sense of continuity in vision and a sense of unity in psychology. It can be seen that the expansion of styles and the continuous extension of common elements in clothing series design are the external manifestation of serial design and constitute the quantitative elements in the process of clothing design (Figure. 4).

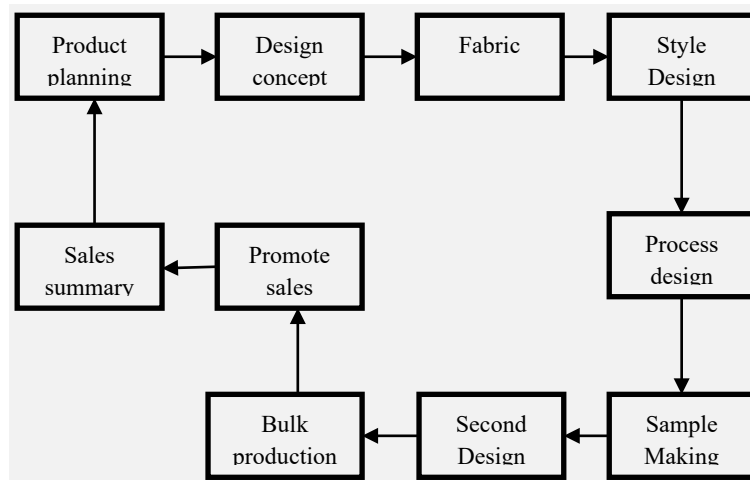


Figure 5: Garment design process of enterprises

2.4 Clothing style design behavior

The behavior of fashion style design itself also has systematic characteristics. In the process of quarterly style development, design activities are usually carried out in accordance with certain rules. Market research, style drawing, sample production and other standardized activities can orderly complete the batch design tasks of enterprises, which is also in line with the law of efficient commodity market. Therefore, controllable design behavior itself also constitutes the quantitative process of clothing style development. (Figure. 5)

2.5 Appearance of fabric



Figure 6: Similar knitted fabric performance

Fabric is the expression medium of garment style design, presenting a variety of appearance characteristics. However, clothing enterprises themselves are operating classification, which limits the scope of enterprise style design and fabric use. Under the influence of regional economy and social division of labor, there are external factors that restrict the business scope of clothing. Therefore,

designers of enterprises often use specific types of fabrics for garment style development, and there is a unified concept of appearance characteristics and performance of these fabrics. In the process of style design, when the color and texture of the line drawing are not emphasized, the appearance of the style is often very similar (Figure. 6). This fixed appearance feature of the fabric forms the quantitative design.

3. Results and discussion

Design software simplifies the behavior of clothing style copy and change, and is also the technical basis for the establishment of systematic models of clothing design. The design application of computer software technology has become an important way to establish systematic model of fashion design and draw fashion styles.

3.1 Establishment of dynamic standards for human body

The garment design and production process mainly consists of designing styles, making samples and producing garments. The drawing of the style is related to the designer and the producer, and the drawing of the designer has requirements for proportion and technology. Dynamic beautiful and appropriate proportion of human body drawing templates can facilitate clothing design behavior, but also the best basis for style and craft production. In addition, the large-scale production of clothing needs high efficiency, requiring style design behavior to focus on the performance of clothing style details, and the repetitive human body drawing process should be simplified. The suitable body shape resource library saves a lot of time for the development of clothing styles, while the body shape resource library is established according to the data resources of enterprise consumer groups, to ensure the simplification of a lot of meaningless repetitive operations in the process of style design.

Establishment process: In the process of women's fashion design, the dynamic characteristics of front, side and back in different aspects are drawn by computer drawing software based on the female body with 8 heads as the benchmark, so as to establish the resource library of fashion design body shape. And then through the selection of three kinds of human body shape and dynamic performance of different styles, can achieve the purpose of standardized design. The positive dynamic data was the highest. (Figure. 7)

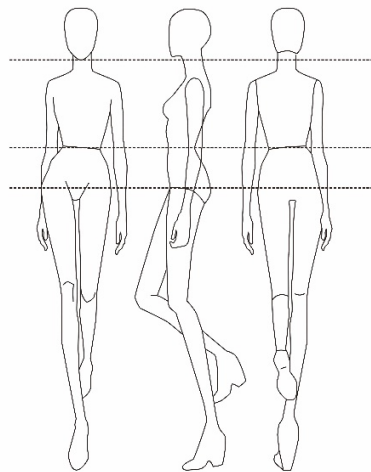


Figure 7: Front, side and back female body dynamics

3.2 Establishment of sizing standards

Sizing is one of the most standardized elements in the design and production process of garment enterprises. In general, the size benchmark for ready-to-wear is usually the garment size. Garment length, sleeve length and other sizes are always changing in the process of garment design. Different types and styles bring different requirements for sizes in garment design. As the same type of clothing enterprises can develop uniform size standards, to adapt to the consumer body, dress occasions, dress habits and other relevant requirements.

Establishment process: In the women's design style library, based on consumer measurement data and clothing habits, this example establishes a standard human body template, and through the auxiliary line in the drawing software, defines the process of clothing style design, such as medium short style, medium long style and long style respectively. The setting of auxiliary line provides a size reference for style design, forming a uniform style of clothing style design, catering to the clothing design and the clothing habits of design objects. (Figure. 8)

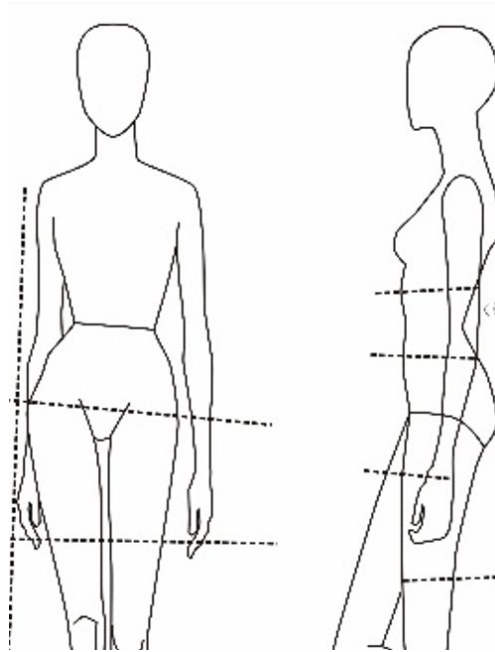


Figure 8: Women's style design control line

3.3 Establishment of shape element library

Fashion style design design many shape elements, fashion trends and solid design experience can just build up the clothing shape elements library. These reproducible shapes and component shapes form the basic units of the garment shape element library. The selection, modification and combination of different shapes in the library provide many sources for the serial design of garment styles.

Establishment process: market research is carried out in the product development of enterprises, and popular shape elements are collected and summarized. The designer draws the clothing style profile library and component library by computer drawing software. At the same time, attention should be paid to the dynamic proportion of the human body, the good size of the garment and the fabric have an impact on the garment form. (Figure. 9)

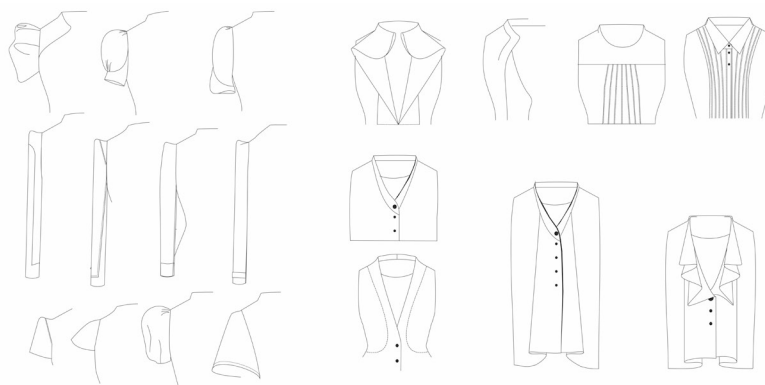


Figure 9: Women's style design control line

3.4 Style design and application expansion

In the process of garment style development, the integration of design concepts constantly brings

about the emergence of new styles. However, designers' design behaviors also involve a large number of selection and adjustment of shape elements in the existing styles. This kind of behavior process is contrary to the demand of high efficiency of garment style mass design. Therefore, in order to simplify the repetitive operation of style design and improve the efficiency of clothing design, it is required to establish a standardized, accessible and easily modified style shape library and human body resource library.

Application process: Firstly, the profile elements in the garment style and shape library are extracted, and the profile is adjusted according to the design concept. Secondly, the shape of the parts in the garment style and shape library is similarly transferred and applied to the adjusted style profile, so as to adjust the shape changes in line with the design aesthetics and design concepts, and carry out combined design to complete the development of typical styles. Finally, the design elements of typical styles are applied, supplemented by the shape elements in the style and shape library, to complete the style development of clothing series. (Figure. 10)

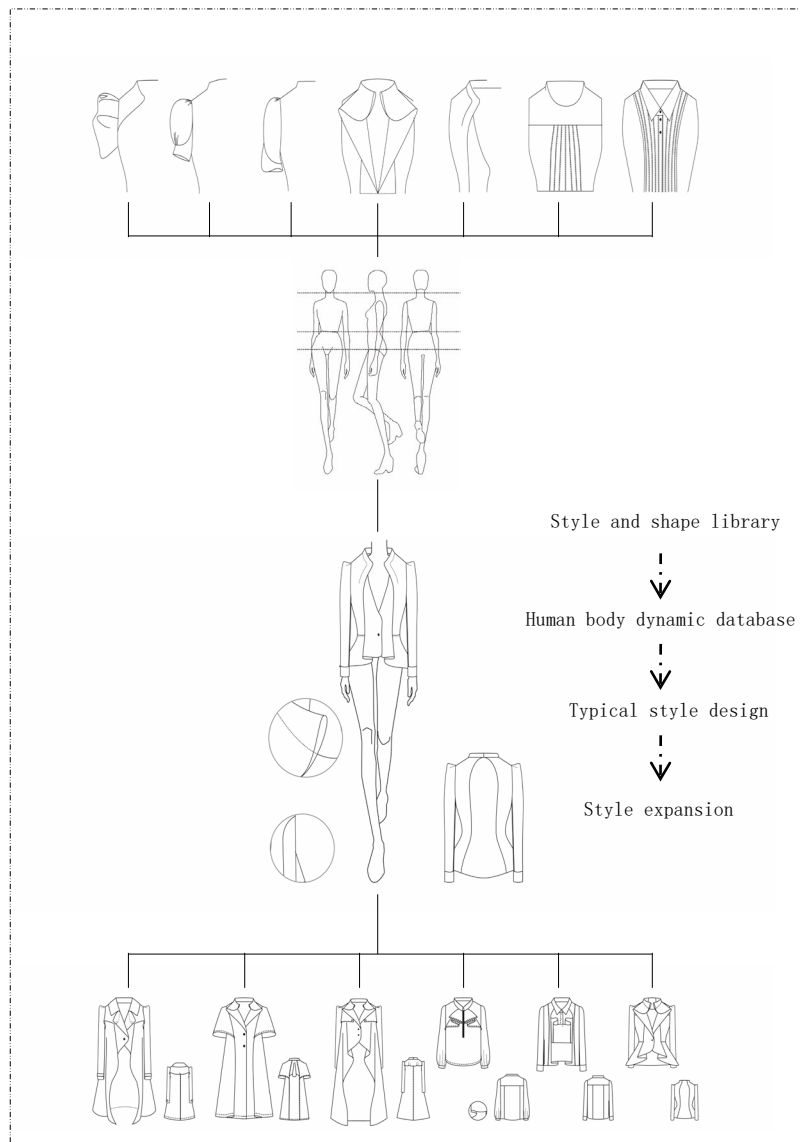


Figure 10: Women's style style design and series style expansion

4. Conclusion

Under the premise of industrialization, the garment style development behavior is characterized by changeability, high efficiency and mass quantity, so the garment style design behavior must be characterized by high efficiency and repeatability. Design behavior under systematic design theory establishes quantitative behavior elements that can be repeated in clothing style design, constructs

design elements library that can be repeated, and deploys systematic design process in an orderly manner. All of the above are conducive to the standardization of style design activities of garment enterprises, reduce the time loss of design behavior, and simplify the operation behavior of designers, thus improving the work efficiency of product development for garment enterprises.

Acknowledgments

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