Abstract—Consumers always have a preference for style design when they buy clothes. The purpose of the serialized design of brand clothing modeling is to cover the corresponding target customer groups to the largest extent with its similar clothing products. In this paper, the research on the clothing modeling serialized design is refined into the research on the association study of it and the clothing modeling design, based on the artistic design theory about the basic principle of formal aesthetic sense. Through the analysis of several cases using the aesthetic law of the points, lines and surfaces of art design in the design of clothing series, this paper summarizes the law of the continuous design of clothing series.

Keywords—brand clothing; modeling design; art design theory; serialization; continuity

I. INTRODUCTION

In a broad sense, clothing modeling design refers to the design of overall appearance of clothing. In the process from the planar effect picture to the realization of the garment, the modeling design is the overall outline and local detail shape design of the garment in addition to the factors such as color and fabric, and is prior to the stage of the garment style design of the plane plate making or three-dimensional cutting [1]. The serialized design of apparel modeling refers to the combined design technique formed by two (or more) garments with the same or similar principle of formal aesthetic sense and obvious correlation in modeling [2]. The research on the serialized design of apparel modeling involved in this paper is mainly the research on the association law of apparel modeling series in the stage of planar effect picture based on principle of formal aesthetic sense of art design. The main purpose of clothing serialization is to cover the corresponding target customer groups to the largest extent with its homogeneous clothing products. At the same time, it also provides more consumption options of the same type for similar consumer groups [3]. Therefore, the study on the serialization rule of clothing modeling has high economic value and market significance.

II. THE POINTS, LINES AND SURFACES IN CLOTHING MODELING

The existing clothing modeling design theory is only a simple continuation of the art design theory, and the method of formal aesthetic sense has not been applied to the research of clothing modeling design in detail [4]. Therefore, the serialized study of clothing modeling must be combined with the basic principle of formal aesthetic sense of art design theory and refined into the association study of clothing modeling. In the theory of art design, the aesthetic principle of point, line and surface has the most direct association with the clothing modeling design in the stage of planar effect picture. According to the area and shape characteristics of different clothing modeling, the clothing modeling is classified into three design methods of point, line and surface, and the association rules of serialization of clothing modeling are summarized in this classification method:

A. Points in Clothing Modeling Design

Relatively dense local shapes can be regarded as the design of the points taking the clothing as a whole, such as the dense local shapes of collar, sleeve top, cuff, pocket and other parts.

B. Lines in Clothing Modeling Design

The lines or combination of lines having a special aesthetic feeling can be regarded as the design of lines, such as the structure line of special form aesthetic feeling and outer contour line or decorative line combination on the body parts of the garment.

C. Surfaces in Clothing Modeling Design

The outer contour with special design style is regarded as the design of the surfaces, for example, the blouse and O-shaped shirt can be developed to associative series design with special contour design.

The serialization of apparel modeling includes two levels of commonness and individuality: "commonness" means that each style of the same series must have the same or similar design style, thus forming a series [5]. The commonness in the serialization of clothing modeling is mostly manifested in the same or similar outline style of garment, that is, the obvious common visual symbol between each style is
formed in the way of "surface" design in clothing modeling [6]. This commonality makes it easy to form a sense of series among styles and it is the dominant factor that can be easily identified. At the same time, it also leads to the similarity of modeling effect with large area and high proportion among garments of the same series. As shown in "Fig. 1", they are a series of four cute and lovely styles of women's clothes. In this series, the common denominator in each silhouette style is the shortened shoulder line. The upper bust line on garment body or the combination structure above it and wide pendulum structure with large area under the bust line are united in wedlock, constituting the lovely and cute "blouse" style of the overall outline. When there are no obvious identical or similar elements in the local modeling, the outline style commonality of their surfaces constitutes the serialized styling style.

![Fig. 1. "Commonness" in the clothing serialization.](image1)

The "individuality" in the serialization of clothing modeling refers to the continuous design of one or more special local modeling in the serialized clothing, so as to form the association of the overall modeling in the series. This kind of personalized local modeling is often called the detail design element, which plays an important role in the research of clothing modeling design rules. As shown in "Fig. 2", the three garments A, B, C and C form obvious similar symbols with unique pleated collar shapes. Although the pleated collars of the three styles are different in terms of modeling, the principle of formal aesthetic sense of modeling is the same: namely, the continuity design of a particular local modeling, whose line combination form of modeling becomes the "individuality" in the same series of clothing.

![Fig. 2. "Individuality" in clothing serialization.](image2)

III. CONTINUOUS DESIGN OF POINTS, LINES AND SURFACES CLOTHING MODELING SERIES

A. Continuous Design of Points

Point continuous design is divided into direct continuation and indirect continuation. Direct continuation design is based on some dense local modeling of clothing. On the premise that the organizational form of local modeling and the basic structural function of clothing remain unchanged, clothing of a series can form a series through the changes in the size, direction and position of the modeling. As shown in "Fig. 3", the collar parts of the three styles A, B and C all belong to the large stand collar style and their common feature in modeling is that they all have decorative stretch pleats. The collar of style A is a decorative pleat around the neck; the collar of style B is a decorative pleat at the back half circle of the neck, and the inverted direction of the pleat is different from that of style A. However, it is obvious that there is continuation of style A in the modeling style of style B. It is mainly because the unique shape of the collar decorative pleats still maintains the similarity of the basic formal aesthetic sense under the condition of changed inverted direction. The decorative pleats on the collar of style C and style B vary in size and position, but they also maintain the continuity of style, which is mainly because the modeling matched with these styles is also a single-piece stand collar, that is, the local modeling environment is similar, so that the collars of style B and C still have similar aesthetic appeal.

The styles of A, B and C have obvious features of serialized and continuous design on the collar. Since the
collar only takes a small size as a local part in the whole, the modeling of "points" itself cannot affect the obvious serialization effect of the overall modeling style. Except for the collar, there are other common design of "points" in the modeling design of style A, B, and C: the decorative pleats inside the sleeve elbow of style A, on the waist of style B and under the bust line of style C are all dense modeling of "points". Although the position and direction of the points are different, they play the same role in the overall shape of clothing. Therefore, when the design of "points" cannot form a series of modeling symbols due to its small size, the clothing modeling can be gradually developed from "individuality" to "commonness" by adding "points".

Fig. 3. Continuous design of "points" case 1.

The indirect continuous design of points is based on a certain intensive shapes. On the premise of keeping the combination form of the shape unchanged, it forms a subtle continuous design effect by changing or blurring the shape of basic functional parts of clothing. Direct continuous design of points can also be combined with indirect continuous design to show the serialization effect. As shown in "Fig. 4", the collars of A, B and C are similar in the form of modeling combination: The collar part of style A is a stand collar with a large "V" shaped collar piece; the collar part of style B is a standing collar with a small "V" standing collar; the style C has the same stand collar with closed fit stand collar. But there are distinct differences in the functional area of clothing to which the collars belong. Style A has a wide collar shape with outward collar piece close to the shoulder point, and the collar embraces the shoulder collar, and thus its functional area is blurred. The collar part of style B is connected with the sleeve part, and they form the raglan sleeve structure. Similarly, the basic form of standing collar is also blurred. The collar part of style C is closer to the traditional stand collar shape. With obvious differences of the functional areas of style C, style A and style B, their collar styles still have the continuation, not as bold, though. Therefore, the continuous design of this point modeling is called "indirect continuous" design. At the same time, the direct continuous design formed by the pleated line modeling under the waists of A, B and C play an important role in the obvious serialized visual effects. Enlarging the area ratio of the same or similar modeling of "points" can also strengthen the changeable serialized effect of the clothing styles.

Fig. 4. Continuous design of "points" case 2.

B. Continuous Design of "Lines"

Continuous design of "lines" in the modeling of clothing mainly refers to the serialization effect formed by structure line or decorative line of clothing with the same or similar combination of lines. The structure line of clothing generally include dart lines, princess seams and other cutting lines designed for the purpose of fitting [7]. The decorative line of clothing refers to the lines or combination of lines designed only for aesthetic purposes. In the modeling design of clothing, the design of "lines" is one of the very important design elements, which can play a clear symbolic
identification role in the serialized clothing. As shown in "Fig. 5", the structure line on the waist of style A belongs to the sleeve princess seam, and the structure line on the waist of style B belongs to the princess seam. Although the positions and shapes of the lines in the waist and under the waist of styles A and B are different, the curve combination forms between them are similar. Both have similar combinations of inversion curves, which occupy a large proportion of the area and occupy a prominent position and these elements contribute to the obvious serialization effect between A and B. There are obvious differences between the collar and sleeve of the C and D styles, but with similar curve combinations around the waist, the two styles also form certain serialization of visual effects. The serialization effect formed by style C and D is not as strong as that formed by style A and B, though. The reasons are analyzed as follows: the serialization degree formed by the continuous design of "lines" in the clothing modeling mainly depends on the proportion of the area occupied by the line combination in the overall modeling: when the area proportion is small, the modeling of the line combination tends to be the "individuality" factor in the serialized modeling; when the area proportion is gradually increased, the modeling of line combination tends to be the "commonality" factor in the serialized modeling.

![Fig. 5. Continuous design of "lines" 2.](image)

C. Continuous Design of "Surfaces"

The continuous design of "surfaces" in clothing modeling refers to the same or similar outer contour to form a series of visual effects between clothing styles. In the brand series of clothing, it is the simplest and commonest modeling design method of clothing serialization to use the same or similar outer contour as the main continuous element to produce obvious serialization effect among the clothing styles [8]. As shown in "Fig. 6", the outer contour of A, B and C are similar, but there are slight differences in the outer contour due to the different shapes of the inner contour. For example, the style A has a sleeve top structure and large ruffled lapel on the collar part; style B has a common rotator cuff construction with a double-layer collar; the sleeve part of style C has a raglan sleeve structure, and the collar part is a combination of lapel and stand collar. The sleeve parts of the three styles differ slightly while their collars differ greatly. But look from outside, the outer contour of the collar and rotator cuff is similar, and the shortened shoulder line and the structure of garment body arrow at the top and wide at the bottom, make them resemble the outer contour of the "blouse". The above factors contribute to an obvious serialization effect in these three garments.

![Fig. 6. Continuous design of "surfaces" 1.](image)

The continuous design of "surfaces" on the clothing modeling is to form the subtle differences between different styles of clothing through local changes of "point", under the premise of maintaining the general uniform style. In other words, it refers to improving the degree of differentiation of "individuality" under the premise of maintaining "commonness", to improve the sense of unity of overall product style and the difference and diversity of specific products under the same brand. As shown in "Fig. 7", the serialization of style A, B and C is still a continuous design of "surfaces" and the overall shape of the clothing is the cute style of "blouse" style. But the difference of the outer contour modeling of the collar and sleeve among the three styles A, B and C is far greater than that of the previous design case. The brand clothing design may use this design method, namely, strengthening the difference of local
"points" design to transform the style, which can expand the age scope of consumers of the same modeling style.

Fig. 7. Continuous design of "surfaces" 2.

IV. CONCLUSION

Through the analysis of the above design cases about the application of points, lines and surfaces in the modeling design of the brand clothing series, the following conclusions are drawn: the contour shape formed by the "surfaces" in the serialized design of the clothing modeling is easier to become the "commonality" of the clothing series with the larger the area. However, it is the design of points and lines, which is the design of "individuality" in serialized garment modeling that makes the difference between simple copy and continuous design. In the modeling of serialized clothing, commonality and individuality can coexist, or they can also exist as the associated factors in the serialization. When the similarity of the modeling surface is high, it is necessary to enhance the sense of difference in the clothing series through the individualized points and lines. When the continuous design of points and lines occupies a low proportion in the overall modeling, it is necessary to increase the number of points or expand the covering area of lines to form a more obvious modeling surface. Therefore, the elements of point, line and surface in clothing modeling complement each other and can be transformed into each other under certain conditions. Mastering the rules of principle of formal aesthetic sense of points, lines and surfaces is also the key to the flexibility of serialized clothing modeling design.

REFERENCES