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Using the Transformation Concept in Creating Safari Multi-functional Fashion Designs for Women

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Abstract:

The modern fashion world is driven by fast fashion trends, and consequently the problem of over- consumption is occurred. Designers have a dramatic impact on reducing the material content of consumption and hence aggregate request on the environment through innovative designs which demand a new type of fashion practice based more on transformative acts and less on consumptive ones. The transformation process allow to raise the utility, functional possibilities and aesthetic properties of designs, thus transformable clothing has made progress to sustainability. This study aims to explore the feasibility of extending multi-functional product, and how to enable newly developed product to be both a safari clothing and various utilitarian items (backpack-sleeping bag-tent). The present study find that the multi-function transformation design is an effective way to solve material wastage of product manufacturing, improve utilization frequency of products and meet the basic needs of consumers

Keywords: multifunctional design; sustainability; safari; transformative designs; tent; backpack; sleeping bag.

الملخص

تغلب اتجاهات الموضة السريعة على عالم الموضة، وبالتالي تحدث مشكلة الافراط في الاستهلاك. لمصممين الأزياء تأثير كبير على الحد من استهلاك المواد الخام وتقليل الخطر على البيئة من خلال تصميمات الأزياء المبتكرة التي تتطلب نوعاً جديداً من الممارسات والتي تعتمد بشكل أكبر على مفهوم التحويلية وبشكل أقل على سياسة الاستهلاك. تسمح عملية التحويل بزيادة المنفعة والإمكانيات الوظيفية والخصائص الجمالية للتصميمات، وبالتالي فإن الملابس القابلة للتحول قد حققت تقدمًا نحو الاستدامة. تهدف هذه الدراسة إلى استكشاف إمكانية توسيع نطاق وظائف المنتج، وكيفية تمكين المنتجات بأن تكون ملابس للسفاري وفي نفس الوقت تتحول لتكون ذات وظائف نفعية مختلفة (شنطة للظهر-كيس للنوم-خيمة). وجدت الدراسة الحالية أن التصميم المتحول متعدد الوظائف هو وسيلة فعالة لحل هدر خامات التصنيع ، وتحسين وتيرة استخدام المنتجات وتلبية الاحتياجات الأساسية للمستهلكين.

الكلمات المفتاحية: التصميم متعدد الوظائف، الاستدامة، السفاري، التصميمات القابلة للتحول، خيمة، حقيبة الظهر، كيس النوم

1. Introduction:

Within the fashion industry the trend for ‘fast fashion’ has generated an exponential rise in the sale of inexpensive fashion garments that are often worn too little, washed too often and are too quickly discarded, which lead to major implications for the environment and society. Fashion designer in industry needs to consider further criteria within the company’s design brief and accept that the design brief should extend beyond the usual economically driven conventional criterion, to include criteria that will meet the needs of the environment and society. [1]

The fashion discipline is far behind, for example: industrial design in producing scientific environmental knowledge of designer's use, trying new design methods to solve problems in more creative ways, or engaging consumers in sustainable transformation processes. By definition design for environment include environmental consideration and specially life cycle thinking. The sustainable design approach adds to the aforementioned the ethical and social dimensions of the product, in its manufacturing, use and disposal phases. [2]

The transformable garments represent an actual group in the assortment of contemporary clothing, providing wide possibilities of obtaining multifunctional shapes. The transformable products include an ensemble of garments designed with diverse techniques and methods, both traditional and non-traditional. The morphological transformation techniques are based on the principles of reconstruction and transformation, facilitating the transformation of one product shape into another and transformation of elements in the interior of the same shape. [3]

Adaptability can manifest itself in many forms, for there are multiple attributes that comprise a product. Colour, silhouette, texture, pattern, function and detail all offer opportunities for manipulation and transformation. [4]

In existing types of transformable fashion design, garments can be worn in multiple ways, garment components can be taken apart and reassembled into any other possible forms, or even able to shift or conflate garments into functional objects. There has no restriction on fabric selection of a transformable garment, but fastenings such as zippers, snaps, buttons, strings, etc will be widely used among all types of transformable clothing. [5]

Traditional and transformable garments share the same first three stages of garment lifecycle (raw materials, industrial production and transportation). In contrast, the transformable garment lifecycle shows a clear difference in its last two stages. The fourth stage (consumer use) is markedly different than the traditional model, as the transformable garment design reflects a re-circulation of use and a longer garment lifestyle. [6]

The overall benefits of the transformable garment are: increase the possibility and variety of consumer use, diversity in style, reduction of waste, longevity of garment life, and potential enhancement of greater consumer satisfaction over time. The transformable garment can also, significantly, promote greater consumer involvement with sustainability practices. Instead of educating consumers about sustainability through the media or publications, the transformable garment can act as an active agent for ecological change by engaging the consumer through direct participation in fashion production. [7]

Transformable design can be categorized into five types: modular design; reversible design; folding and tying design; multi-functional design; and high technology design [5]. The present study based on multi-functional design.

Traditionally, the concept of functional clothing design addresses the ability of clothing to [8] perform multiple functions-from aesthetic to basic protection. 'Functional clothing' can therefore be defined as a generic term that includes all such types of clothing or assemblies that are specifically engineered to deliver a pre-defined performance or functionality to the user, over and above its normal functions. It can also be clothing that performs a purely aesthetic function like enhancing body shapes. [9]

Special synergies of apparel and technologies are required for embedding the functionality within the garment. Multifunctional fashion garment can be defined as clothing systems that

allow different uses in different scenarios, such as adaptation to diverse social situations or weather conditions, or just clothing that has different characteristics in different body areas in order to have different functional features. [10]

There are already some designers who have made exploration and trials on multi-functional transformable designs, such as an Italian design label Mandarina Duck designed the 'Jackpack' which is able to transform into a jacket. Furthermore, Japanese designer Masaaki Sato's 'Henshin' collection (tank-to-tote, sailor shirt-to-shoulder bag, and raincoat-to-garment bag, etc.) [5]; as well as Hussein Chalayan, Kosuke Tsumura, Vexed Generation and C P Company are developing ranges of multi-functional clothing for the urban environment, including parkas that convert into tents and sleeping bags. [11]

Zipper was invented for facilitating the opening and closing of articles and initially used at the opening of garments. Presently it is feasible to abandon conventional structuring method of garments, use the characteristics of zipper to restructure outdoor clothing and form unusual clothing design. Based on opening, closing and separating functions of zippers, multiple functional clothing designs can be realized, enabling raw materials for one product to satisfy the function of raw materials for two or more products. [12]

The present study adopts the transformable multi-functional design and technique processing in style design, reduce quantity of raw materials, satisfy consumers' desires and minimize their purchasing frequency, prolong the product lifespan, and explore the ability for developing new products to be both a clothes and a non-wearing practical article for safari use (backpack-sleeping bag-tent).

2. Material and methods:

Safari clothes is generally looser than common clothes and comfortable because the extent of safari sports activities is relatively high. It should be light in weight and focuses on the selection of fabrics, waterproof and breathable fabrics can meet functional requirements of designs that include both safari clothes and a non-wearing practical article (sleep bag and tent). Denim was used for the design that transform to backpack.

Waterproof breathable fabrics are designed for use in clothes that provide protection from the weather that is from wind, rain and loss of body heat. The term 'breathable' implies that the fabric is actively ventilated. Breathable fabrics passively allow water vapour to diffuse through them yet still prevent the penetration of liquid water [13]. Denim is a specific fabric in which stretch occurs, adding a comfort factor to workwear and casual wear. [14]

Multi-functional clothes, like conventional clothes, are made up by several pattern pieces together. These pieces, in turn, are joined with accessories comprising membranes, linings, buttons, zippers, tapes and waddings, to create a composite clothes. [15]

In present study zippers, grommets and straps were fixed to some positions of designs to change original structure of them, and thus enable clothing to have double functions.

The experimental products based on three designs, first one is a jacket in denim fabric, length 60 cm, which has extra zipper in hem and armhole and grommets in stand collar to help in transforming it into a backpack, as shown in figure 1.

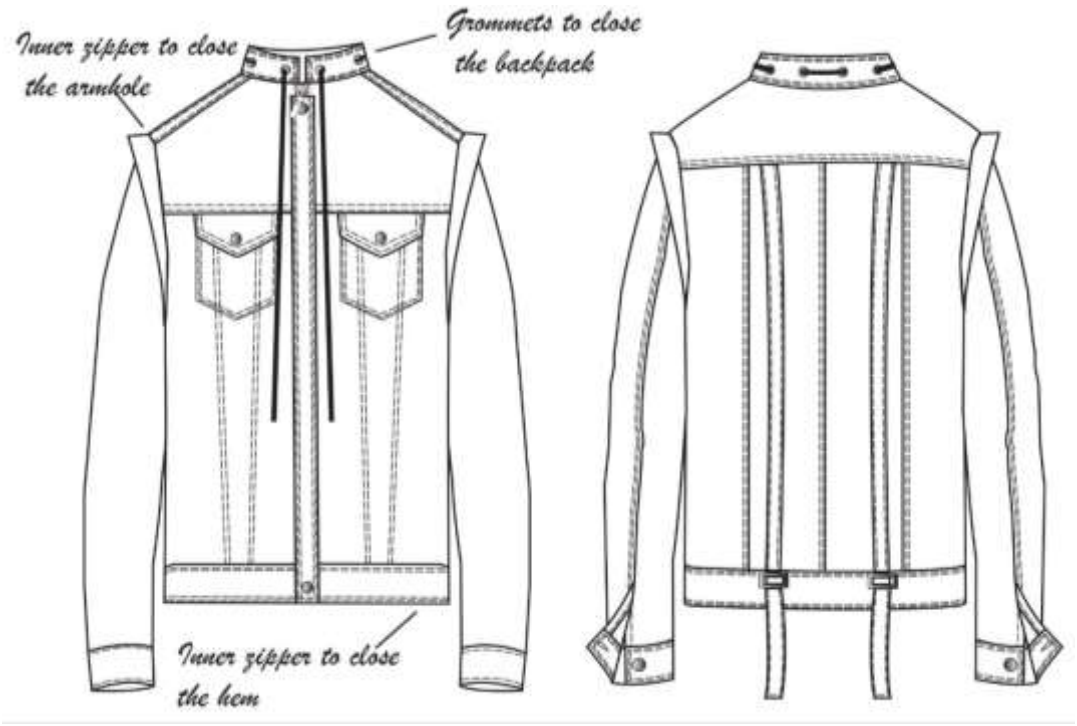

Figure 1

Second one is a jacket in waterproof fabric, length 80 cm, it has open-end zipper in hem, which is attached to extra piece (bag from the same fabric, length 80 cm, divided into two areas with a zipper in the middle to close the bag and an open zipper in the end edge to attach to the hem of the jacket) to transform the jacket into a sleeping bag, as shown in figure2.

Figure 2

The last one is a flare coat in light waterproof fabric for preventing moisture penetration and contamination due to contact with the ground, 125 cm length, it transforms into a tent. A single-person tent with single-layer fabric adopts four-sided pyramid structure with sharp top and square bottom, and the four sides are supported by the extendable aluminium alloy materials, and fixed to the bottom of the tent with straps. A simple one-person tent is about 125 cm high, its bottom width and length are about 100×100 cm. The bottom of the tent was transformed into a backpack for wrapping the tent poles, as shown in figure 3.

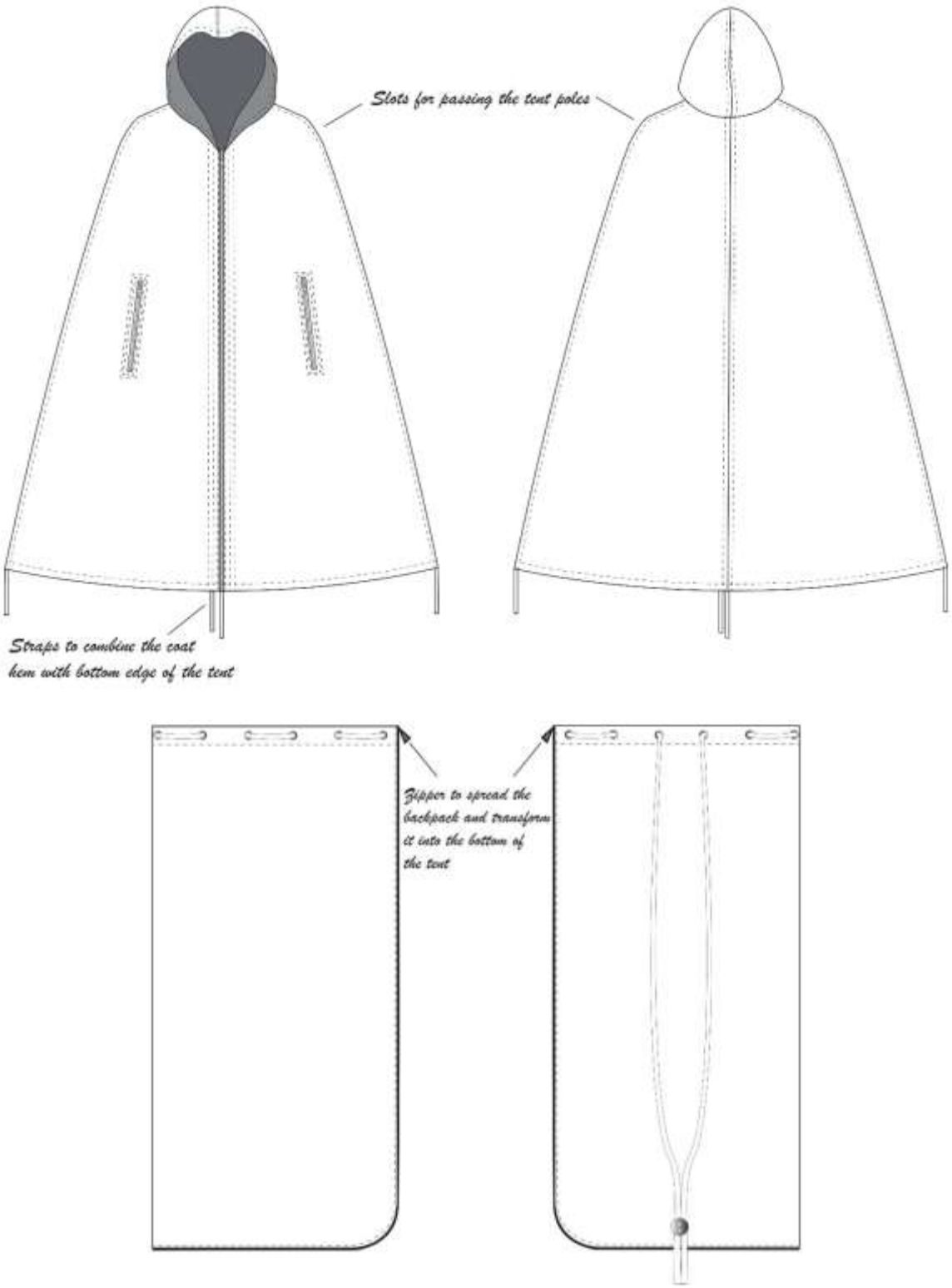

Figure 3

A decorative design was created to add aesthetics to the final products. It reflects the objects of the study and the features of the Safari multi-functional clothes. It has been applied to the three products by using manual printing and embroidery, figure 4.

Figure 4

3. Results and Discussion:

The transformation between two types of products is based on associated functions and consistent functional requirements. The transformation between safari clothes and non-wearing practical articles (backpack-sleeping bag-tent) requires the basic conditions of similar service environment and the same functional requirements.

The present experimental products provide safari clothing which can be transformed into various utilitarian items such as back packs, sleeping bag, and tent. The experimental products based on transformable multi-functional designs, which minimize the articles that the consumer carry and maximize the use of every article.

Figure 5 a, b. is a front and back view of the first experimental product, which was changed into a backpack by use of zippers. Steps of transforming safari jacket into a backpack: flip the sleeves into the jacket, as shown in figure 5 c; pull the zipper at the armhole to close this area. Armhole zipper should be flexible nylon zipper instead of metal zipper causing unsmooth armhole, the opening and closing of zipper were hidden under the armpit, as shown in Figure 5d; pull the zipper in the front centre line, as shown in figure 5e; pull the inner zipper at the hem, as shown in figure 5f; pull out the straps to close the backpack, thus a backpack is formed as shown in figure 5g; hang the backpack bands, as shown in figure 5h; and carry the backpack on double shoulders, as shown in figure 5i.

Figure 5a

Figure 5b

Figure 5c

Figure 5d

Figure 5e

Figure 5f

Figure 5g

Figure 5h

Figure 5i

Figures 6 a, b &c are a front and back view of the second experimental product, which was changed into a sleeping bag by use of zippers. Steps of transforming a safari jacket and a bag into a sleeping bag: spread the folded area in the bag inside-out, as shown in figures 6d& 6e; combine the jacket and the bag through the open-end zipper in the jacket hem and the edge of the bag, as shown in figure 6f; and thus the sleeping bag is formed, as shown in figures 6g, 6h& 6i.

Figure 6a

Figure 6b

Figure 6c

Figure 6d

Figure 6e

Figure 6f

Figure 6g

Figure 6h

Figure 6i

Figures 7 a, b &c are a front and back view of the last experimental product, which was changed into a tent. Steps of transforming a safari coat and a bag into a tent: pull out the straps from the edge of the bag, as shown in figure 7e; spread the bag to form the bottom of the tent, as shown in figure 7f &g; insert the pole through the slot along the side seam and pass it through the another side seam in a diagonal direction (it is the same as the method for another pole, which is passed through the slot at the front centre line and back centre line) and pass the four short poles (each length is one metre) through slots in the coat hem, as shown in figure 7h; combine the tent with its bottom by straps to assemble the tent, as shown in figure 7i; and thus the tent is assembled, figure 7j. The transformation process takes about ten minutes.

Figure 7a

Figure 7b

Figure 7c

Figure 7e

Figure 7f

Figure 7g

Figure 7h

Figure 7i

Figure 7j

4. Conclusion

The clothing manufacturing is facing the situation of serious material wastage. And multi-function transformation design is an effective way to solve this problem and to cater to consumers' demanding for new products. The functional transformation between safari clothing and a non-wearing practical article for safari use, can meet the basic needs of consumers, stimulate their purchase desire, improve utilization frequency of products and extend the application scope of products, prolong life cycle of products and accordingly enhance the market competitiveness of products.

The present experimental products provides safari clothing which can be transformed into various utilitarian items such as back packs, sleeping bag, and tent, which improve the utilization rate and frequency of apparel fabrics to reduce the total consumption of apparel materials, and try to use raw materials for one garment to satisfy the function of raw materials for two or more garments. The successful transformation between safari clothing and safari practical articles helps to find out a feasible approach to solve the contradiction between mass production of fashionable apparel products and individualized demands of consumers and promote ecological consumption.

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