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Surdurulebilir Bir Tasarim Ornegi; Kulotlu Corabin Brikoloj ve Dekonstruksiyon Yontemiyle Degerlendirilmesi

A sustainable design example: Evaluation of pantyhose with bricolage and deconstruction method

Feride Hasret, 1, Ankara Hacı Bayram Veli University, Graduate Education Institute Fashion Design, Fashion Design Department, Turkey

Saliha Ağaç, Ankara Hacı Bayram Veli University Faculty of Art and Design Fashion Design Department Lecturer, Fashion Design Department, Turkey

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Ozet

Calisma kapsaminda kadinlarin en cok tukettikleri, ince ve esnek yapisindan kullanim omru az olan kulotlu corap surdurulebilirlik baglamında degerlendirmeye alinmistir. Cikis noktasini kulotlu corabin komur ve petrolden cikan kimyasallarin birlestirilmesiyle elde edilen naylon malzeme icerigiyle biyolojik olarak parcalanamamasi ve dogada yok olma suresinin uzun olmasi bakimindan dogaya verdigi zarari azaltmaya yonelik atik coraplarin deneysel uygulamalarla geri kazandirilmasi olusturmaktadir. Bu baglamda kulotlu corap ileri donusum kavrami altinda ele alinarak brikoloj ve dekonstruksiyon yontemleriyle 8 deneysel tasarım gerceklestirilmistir. Deneysel tasarim sureci sonunda; corabın dikim islemlerine uygun oldugu, deforme olusturmadigi, esnek yapisina ragmen giysi turlerinin uretiminde kullanildiginda formumun bozulmadigi gorulmustur. Geleneksel susleme teknikleri (tepme kece, kordon tutturma, enkuruste, pachwork) uygulamalari esnasinda hasar almadigi, kullanılabilirligi acisindan yuksek sonuclar verdigi, fantezi giyim turlerinde alternatif malzeme olarak kullanılabilecegi, dar gelen giysilerin genisletilmesi isleminde kullanilabilecegi, her bir parcasinin degerlendirilerek yaratici tasarimlar gelistirilebilecegi gorulmustur. Calismada atik durumundaki kulotlu corabın giyim ve moda alaninda etkin, islevsel, estetik acidan deger kazandirilmasi ve tekrardan kullanima dahil edilmesi amaclanmistır. Atik miktarini azaltarak surdurulebilirlige saglayacagi katki, uygulamalar sonucunda var olan malzemelerin yerine kullanilmasiyla alternatif malzeme olmasi ve bireylerin yaraticiliklarini gelistirmesi acisindan onemli bulunmaktadir.

* ADDRESS FOR CORRESPONDENCE: Feride Hasret, Ankara Hacı Bayram Veli University, Graduate Education Institute Fashion Design, Fashion Design Department, Turkey

E-mail address: ferideehasret@gmail.com

Anahtar Kelimeler: Atik, Kulotlu Corap, Brikolaj, Dekonstruksiyon, Surdurulebilir Moda.

Abstract

The developments in technology, industry and economy during the 21st century have affected all sectors, as well as the fashion industry. The effects of those developments have been seen as fast fashion and fast consumption which caused the fashion industry to be ranked as second among the industries seriously damaging the environment. Within the scope of sustainable fashion, the concepts of recycling and upcycling have come up with reducing environmental damage, pollution prevention and liveable environment. Within the scope of this study, pantyhose, which is used mostly by women and has a low usage due to its thin and flexible structure, was evaluated in the context of sustainability. The starting point is the recovery of waste socks for reducing environmental damage by experimental implementations in terms of the biodegradability of the pantyhose with the content of nylon material derived by combining coal and chemicals from oil and the long period of extinction in nature. Therefore, examining pantyhose with the concept of upcycling, eight experimental designs were made with bricolage and deconstruction methods. At the end of the experimental design process, it has been observed that the socks were suitable for the sewing process, were not deformed and were not misshaped, despite their flexible structure when used in the production of clothing types. It has been observed that pantyhose is not misshaped during the implementations of traditional decoration techniques (compressed felt, cord fastening, encrusted applique and patchwork); it showed great results for usability; it can be used as an alternative material in fancy clothing, for widening narrow clothes and to make creative designs using each part. In this study, it was aimed to reuse the wasted pantyhose and to add effective, functional, aesthetic value to pantyhose in the clothing and fashion industry. The pantyhose is important for its contribution to sustainability by reducing the amount of waste, as a result of implementations being used as an alternative to other materials and being suitable for improving the creativity of individuals.

Keywords: Waste, pantyhose, bricolage, deconstruction, sustainable fashion.

1. Introduction

The fashion industry is described as the second largest and most disruptive industry polluting the environment as a global supply chain employing 58 million people worldwide (Moorhouse & Moorhouse; 2018, pp. 7–8). Following the developing technology and industrialisation in the globalising world, with the concept of fast fashion of individuals in modern communities, impermanence, innovation, excessive unconscious consumption, change in socio-economic levels and shortening of product usage periods are shown as the reasons for the increase in the amount of waste. In this context, fast consumption causes irresponsible use and rapid exploitation of natural resources.

Textile wastes are collected under two groups as pre-consumption and post-consumption. Pre-consumer waste is from by-products from the textile, fibre and cotton industries regenerated for the automotive, aerospace, home construction, furniture, bedding, home furnishings, paper, apparel and other industries; post-consumption waste consists of any clothing or household items made from manufactured textiles that the owner no longer needs and decides to dispose of. It is stated as discarded clothes because it is worn, damaged, grown or outdated (Katkar & Bairgadar, 2020).

In addition to causing environmental pollution due to the long destruction periods of wastes in nature, their lack of composting properties and the release of harmful emissions, they also cause adverse effects on living conditions. In this context, with the depletion of limited resources, the increase in environmental pollution and the focus on the solution of the waste problem, with the environmentalism movements that started in 1970, the concept of recycling had emerged. With the concept of recycling, which is defined as re-inclusion and re-evaluation of wastes in the production process, it is aimed to protect natural resources by reducing the damage caused by wastes to the environment (Kozak, 2010, p. 65).

With the introduction of the concept of sustainability in 1987, along with sustainable fashion movements that incorporate the philosophy of recyclable, long-lasting, high-quality products, a trend has emerged against the use of clothes that harm ecological life, unnecessary shopping, injustice of workers in production and unnecessary waste of water and energy (Akbulut, 2012, pp. 39–40). The importance of ‘eco-fashion’ or ‘sustainable fashion’ (Gurcum & Yuksel, 2012, p. 48), which is defined as environmentalist in general terms, is increasing day by day in the context of repairing the destruction in nature, using the resources correctly and gaining awareness of responsibility.

Sustainable products in fashion and textile, which have wide and comprehensive content, can be included in closed loop, can be dismantled, long-lasting, long-lasting, durable, recyclable / reusable after use, produced from local sources, have traditional features etc. Many strategies have emerged (Sherburne, 2009, pp. 3–32; Yildirim, 2017, p. 485). In this context, sustainability is considered as an effective and efficient waste management in order to reduce the use of clothes, which are the gains of fast fashion, and to recycle unused, outdated, idle or waste clothing, depending on the demand for excessive consumption (Guner & Cegindir, 2019, p. 788).

When designing the product according to the principle mentioned in the book from cradle to cradle, which was first introduced by Stahel in the 1970s and reconsidered in the early 21st century by McDonough and Braungart, the product should be designed and produced by considering the multiple life cycles, and when the product life cycle is completed, it is technically and biologically produced. It should be recycled by participating in the life cycle again (Niinimaki, 2013, p. 18). Although recycling and upcycling, which are among the ecological approach concepts, seem to have the same content, recycling is the use of waste materials in the production of new products by separating them by chemical–physical processes and transforming them into raw materialsand upcycling is defined as adding new value to the product as a result of processes applied in conjunction with creative processes to extend the life of products that have completed their useful life. In addition, the authors stated that upcycling, which they express as a clean nature, economically equality, safe and healthy, fair world, is an improved form of recycling (McDonough & Braungart, 2013, p. 12). With upcycling, it is aimed to reduce garment and textile waste by recycling idle or worn out, damaged and faulty garments.

In order to meet consumer demands, adding on the original product gain aesthetic value in the process of transforming used or faulty clothes into new products, cutting it into a different form, disassembling it and transforming it into a new product design was carried out using the 4Rs ‘reduce, reuse, recycle, improve (reduce, reuse), (recycle, recover)’ (Alison, 1998, pp. 25–49) and also ‘deconstruction, reconstruction, undesigning / redesigning’.

Within the scope of the study, the elements of bricolage and deconstruction that can adapt to the work carried out with recycling and sustainable approaches were evaluated. In addition to bricolage and deconstruction elements of the waste or idle pantyhose, which are frequently used by women and whose service life is short, regardless of their quality ratio, different ornamentation and manipulation techniques were used in the study. The main purpose of the study is to reveal the aesthetic and functional aspects of out-of-use and idle products and to enable these products to be reused. The study is important in terms of preventing the damage of the nylon / lycra socks, which are recycled and recycled, to the environment by reducing the waste rates to a great extent, by improving the creativity of individuals and by being an alternative material option according to the area to be used.

1.1. Historical process of pantyhose

Initially, socks can be defined as a garment that is used for protection from cold, for covering, health and hiding defects, just like all clothing elements. It is among the most frequently used clothing items by women, although its lifespan is short. Thanks to the changes it has undergone, to the developing technology, the aesthetic elements gained and the effect of fashion trends, it has turned into a fashion accessory. Today, it is considered as a fashion element by creating a separate segment rather than being used as a protection instinct and accessory.

When socks are examined in the historical process, in the first written sources, it was described a shoe made of animal hair, called Piloi, in 8th century BC, the ancient Greek poet Heseidos (URL 1, 2020). It is stated in the excavations that the first knitted socks were used by the Egyptians between 800 and 1000 A.D (Gilson & Roberts, 2000: 9 as cited in Agac & Balkis, 2017, p. 504). While socks were produced as hand knitting until the end of the 16th century, machine production started with the invention of the knitting machine by William Lee in 1589. By developing the machine invented by Strutt Lee in the 18th century, the sock gained more flexible and leg form features. In the 19th century, it started to be produced as backless, tubular socks with the developed circular system machines. In the context of the process, more aesthetic

and thin socks have started to be obtained with the widespread use of silk as well as materials such as cotton, linen and wool in socks production. The discovery of the first synthetic fibre called polyamide by Wallace Hume Carothers in 1930, after the cost of silk was high and a new material was needed to meet the demand for thin socks in modern women's appearance, was recorded as an important development in history. The discovery that it has a silky structure and the DuPont company declared that the newly produced fibre was strong, agile and as thin as a spider web, and began producing nylon stockings in 1939 and was put on sale in 1940 (URL 2, Bellis, 2020). With the durability, flexibility and low cost of nylon socks, it had left silk in the background. The second important development is that with the discovery of Lycra (Spandex), which was defined as a highly elastic artificial yarn in 1959 by the DuPont company, socks are now thin, have high elasticity, adapt to the body and the shortening of the skirts; the emergence of legs (URL 3, csd, 2020) has taken its place as a fashion element. In the same period of time, Allen Gant Senior's thought of how to develop this product on the question of how to combine panties and socks with his wife and inspired by his wife's practice by sewing the pieces together, with the support of his colleagues Arthur Rogers, JO Austin and Irvin Combs, he invented the world's first pantyhose called 'Panti-Legs'. (URL 4, Caputo, 2009).

In light of the developments experienced, there was a huge increase in socks sales, a total of 4 million women in 4 days in America, 50,000 people in Macy's store in New York in just 6 hours, and 40,000 people in Pittsburgh waited in front of a small socks store (URL 5, Kaya, 2020). In the first year of nylon stockings on the market, a total of 64 million nylons and nylon products were sold (URL 6, Altunkan, 2019). These examples reveal the interest and demand for socks. In order to meet the increasing demand and expectations, the product had to be developed in terms of comfort, performance and aesthetics. However, when the pantyhose was evaluated according to the time schedule, there was a decrease in the quality ratio, it turned into a product that escapes, knees up, wears out, finger-part is immediately pierced when women use it once, and this situation has encouraged continuous consumption. Continuous innovation that arose along with fast consumption led to an increase in consumption. According to an Asda 2016 study, a woman from England spent an average of £3,000 on tights during her lifetime (URL 7, Hunt, 2016), the Socks Professional Committee shows that nearly 400 million pairs of socks were sold in Turkey in 2016 (URL 8, Ozatay, 2017).

By encouraging continuous consumption, it affects the users financially and also harms the nature with the wastes it generates before and after consumption due to the material content of socks. Especially since nylons are not biodegradable with their main material obtained by combining chemicals extracted from coal and petroleum, it is predicted that the degradation of the fabric may take 30–40 years. Since it is worn directly on the skin, it increases water consumption due to frequent washing, and it reaches the ocean and spreads along the food chain with the release of harmful substances in water. In this context, in order to contribute to sustainability, it is necessary to work on the recycling of pantyhose for the widespread use in the field of clothing.

Within the scope of the study, the contribution to sustainability was emphasised in the designs created by using pantyhose bricolage and deconstruction elements.

1.2. Bronze and reconstruction clutches

In the study, within the scope of recycling waste socks, bricolage and deconstruction techniques were used based on concepts such as reuse, deconstruction and reconstruction.

The concept of bricolage, adopted by Claude Levi-Strauss in 1967 and showing its effect by spreading to different disciplines, is expressed as the evaluation of different materials, old or new, by bringing them together. It is a useful method in analysing a handicraft-based sustainable textile application, using limited resources in a finite range of possibilities. He drew attention to the points such as producing bricolage products as a professional or amateur designer, requiring craft skills as knowledge or intelligence, having essence or subjectivity and offering alternatives to the consumer (Vuletich, 2014: 8). Since bricolage has improvisation in its nature, unlike traditional design processes, it changes the definition and value of the material in hand and combines ideas in an original composition (Kwong, 2017, p. 611).

The person dealing with Derrida bricolage is defined as a worker (bricolator) who can produce products with the tools, techniques and materials he has (Fogg, 2014, p. 499). Bricolage, which includes the design made by evaluating the existing materials, includes the redefinition of the tasks of the existing material (Yang, 2018, p. 1047). In this direction, within the scope of re-evaluation of the existing products, it is related to recycling and sustainable fashion and has become a content used by fashion designers (Fogg, 2014, pp. 498–501).

The concept of reconstruction, on the other hand, refers to taking apart a structure and saving various materials for reuse or recycling. It is applied as an alternative to traditional demolition (Ayan, 2013, p. 21). Deconstruction, which corresponds to dismantling, covers many phenomena such as dismantling, demolishing, building and erection. The aim here is to break up the thought structures and put them back together (Saydam, 2009, pp. 160-165).

The concept of construction (deconstruction) was introduced by Derrida in 1967. 'It is a method based on critical questioning of the existing structure against the ready-made values offered to us' (Ambrose & Harris, 2012, p. 282 as cited in Evecen, 2019, p. 923). It aims to create a different perception of beauty and aesthetics by breaking the rules. In this direction, clothes are disassembled, reversed and assembled to form a new form. Far from the traditional clothing concept, the opposite of the garment frees the designer by showing itself with the outward, ripped, pale or torn surface appearance of the garment (Ambrose & Harris, 2012, p. 79). Reconstruction is the fashion trend that aims to change these criteria by questioning the aesthetic habits related to body proportions and beauty criteria (Loschek, 2009, p. 186) by bringing a different perspective to the clothing field with the breakdown of the rules imposed by force on clothing.

It is very important for a clean nature cycle to reduce waste and idle products that occur before or after production in the textile and fashion sector and to diversify the work carried out within the scope of sustainability.

1.3. Related studies

Turiya Magadlela (1978–…) is an artist who lives in South Africa and transfers her experience and passion to fabric-based works, inspired by the people, politics and violence of the city she lives in. Magadlela stretches easily available fabrics such as pantyhose and prison overalls on the canvas and transforms the fabrics to create abstract compositions (URL 1. https://bienal.iksv.org/tr/sanatcilar/turiya-magadlela). Trying to raise awareness by addressing different social problems, such as racist sexism, Magadlela uses different colours and combinations of socks in this direction. She emphasised gender segregation, sexuality, racial violence and harassment with this approach in her work titled S'Maidical 2019, exhibited at the Istanbul Biennial. At the same time, the first week of the event drew attention to the workers by sewing socks with a sewing machine.

Figure 1. Turiya Magadlela 'Girls of the Nation'; a carpet made of pantyhose, 600 × 600 cm (F. Hasret Photography Collection, 2020)

Figure 2. Sarah Lucas, Nice Tits, 2011 (https://www.bbc.co.uk/programmes/p01hw2mr/p01hw24c)

Figure 3. Sarah Lucas, 'Realidad' 2011 (https://www.artsy.net/artwork/sarah-lucas-realidad)

Sarah Lucas (1962–…), the artist who focuses on identity, is absurd and uses social norms in her work; she has been transforming found objects and everyday materials since the late 1980s (URL 9, 2018). On the basis of her work, recalling how to collect old tights on the grounds that it might happen, taking sexual relations, death and destruction, she classifies her works as 'naked facts' (Shikhaliyeva, 2019, p. 17). In her works, food, furniture, pantyhose and concrete transform the most commonly used materials into genitals, fragmented human bodies and obscene sculptures (2020).

Rosa Verloop (1965–…) draws attention with her nylon sculptural works. In her works, she created a different application area for nylon pantyhose used for different purposes. When creating nylon sculptures (Pictures 2 and 3), she regularly uses needles to create interesting, layered facial structures by moulding, folding and squeezing socks (URL 10, 2015). Verloop has provided an organic structure with the natural appearance of skin-coloured nylon stockings, and its endless and easy-to-form feature is happening. In her works, the artist demands that she merges the figures in the life cycle between birth and death by adding his own life experiences, thoughts and feelings and that people reveal their own inner feelings (freedom, courage, fear, attention, eroticism, security etc.) when they look at the work. Working on deformed human bodies, portraits and human limbs in general, the artist states that it is the main purpose of believers to feel different emotions when they look at their work (URL 11, Verloop, 2020).

Figure 4. Rosa Verloop 'Me, myself and I' 2017 (https://www.rosaverloop.com/kunstwerk/244865903_Me%2C+myself+and+I+2017.html#.X3HzJmj7TIU, 2020)

Figure 5. Prof. Kemal Can 'Beliz Technique' 'I found forty-one medallions on the road' (Ozer, 2011, p. 142)

Prof. Kemal Can (1962–…) is an artist who works with cartoons, illustrations fibre art in the environment. In his works, he reflects the images of concrete dialogues he establishes with the materials. He applies his works with the 'Beliz Technique' (Özer, 2011: 139) using synthetic materials such as tulle, velcro and women's socks developed by him, and the 'Kayra Technique' using different types of yarn and interlining (Jorayev, 2011, p. 170).

Figure 6. 'Pantyhose sculpture' 2005 (https://www.deviantart.com/directorj/art/Project-Pantyhose-17816966 2020)

Various creative works such as 3D scuffing are achieved by combining wire, wood, pantyhose, gesso (lining regulates the texture and absorbency of the surface) and paint. In addition to artists, it is implemented as a project in individual applications and schools. Apart from the structure, there are studies in which brooches were made using socks with wire.

Figure 7. Christine Heiszer 'The Pantyhose Dress' (http://artbysusanlenz.blogspot.com/2013/04/runaway-runway-2013.html , 2020)

Susan Lenz participated in the competition organised by Columbia Design League's annual fundraiser Runaway in 2013 with the name Christine Heiszera. Within the scope of the competition, she prepared the design of waste products of consumers using pantyhose and she came in second place. With the implementation phase of the design, she created a woven surface by stretching the socks onto the nails without breaking them apart, leaving the pieces on the hem of the garment to form a fringe and completed the bustier. Using a pair of socks in the head section as an accessory, the two legs were divided into two in separate positions and attached with an elastic band, and the hair image was created with socks and felt with fringed ends (URL 12, Lenz, 2013).

Figure 8. 'Body' made of recycled pantyhose (https://www.vix.com/pt/bdm/casa/o-que-fazer-com-meia-calca-velha-13-ideias-incriveis-para-reaproveita -la, 05.2020)

Figure 9. 'Rabbit' made of recycled pantyhose (http://www.goodlifer.com/2012/11/design-education-inspiration-at-the-ethical-fashion-show-in-paris/ , 05. 2020)

Figure 10. 'Mat' made of recycled pantyhose (https://i.pinimg.com/originals/75/38/14/753814def42488dbe683ec477b45c16a.jpg, 05. 2020)

In Jean Ray Laury's book '*The Pantyhose Craft*' (1978), examples of creative applications of evaluating pantyhose are included. Today, the most well-known ones are mats, washcloths, soap bags, hair clips, lampshades and bags. In addition to these applications, it is seen that it is also used in toy-making. It is also known that ballerinas and skiing athletes use pantyhose as a body to protect from cold. In light of the studies examined, it is seen that pantyhose has a wide scope regarding its usage area. When combined with creative ideas, it can turn into a work of art, give social political messages and refer to the symbolism imposed on women. With the applications in handicrafts, it is seen that the living space can be used functionally at every moment. Another reason for preference is the flexibility, colour tones, gloss–dullness and easy shape of the socks produced from silk–nylon.

Within the scope of the research, it is seen that it is not used both aesthetically and functionally in the field of clothing. In this direction, it is necessary to test the applicability of pantyhose to eight different garment decoration techniques and to adapt it to garments, to give a garment form by dividing it into pieces in the context of deconstruction, and to support it by combining it with different materials using the bricolage method. In the experimental project, it is important to question the widespread and functional usability of pantyhose on clothing and contribute to sustainability and creativity as a result of the designs obtained.

2. Method

The aim of the study is to contribute to sustainability as a result of re-evaluation of pantyhose, which has an important production–consumption ratio in the textile and fashion sector, by saving it from its waste or idle state, with different techniques and approaches. In this direction, the capsule collection, which is related to sustainable fashion and emphasises handwork and craftsmanship, emphasises the elements of chocolate and decoration. Based on the idea of evaluating each piece of pantyhose, cultural sustainability has been tried to be achieved with traditional ornamentation and manipulation techniques. In this direction, the applied researches, which provide the actual solution of the problems by evaluating the information produced and aim to increase the benefit by developing information about the problems, constitute the method of the study (Gurbetlioglu, 2018, p. 26). Applied research is the empirical application of the knowledge produced or being produced (Karasar, 2008). As a data collection tool, designs were created by trying them within the scope of applied research. Sustainable clothing designs created by using the explanatory, interpretative and exploratory features of the purpose of the study were examined in this context and interpreted in accordance with the purpose of the study.

In the first stage of the study, visual and written sources were scanned, the data obtained and the examples made in the field were evaluated and transferred in accordance with the scope of the research. In the implementation phase, the technical details of the capsule collection were created by using bricolage and deconstruction elements. Traditional ornamentation and manipulation techniques were also utilised in terms of reflecting the pantyhose to the design technically, aesthetically and functionally.

The capsule collection consists of eight pieces of clothing. Socks used in the collection consist of nylon pantyhose in waste and idle condition, in Sahara, bronze and skin colours. Each design has been created by using different techniques such as gathering, appliqué and fastening, or these techniques are included in the decoration detail. Various number of design trials have been carried out in terms of design products, the compatibility of these techniques with the materials used, their easy shape, giving the garment an aesthetic appearance and revealing its functional aspect. Designs suitable for these qualities were selected and these designs were produced as the final product. As a result of the study, the designs were analysed with a sustainable approach, taking into account their contribution to the field and the environment and necessary suggestions were made.

3. Results

In this section of the research, there is an experimental collection study consisting of eight pieces and recycling of tights in waste or idle state by re-evaluating them with chocolate and deconstruction techniques. Different techniques have been applied in each part of the collection created, and products have

been designed to appeal to a different purpose. The usage areas of the designed products are discussed and the designs are evaluated as aesthetically and functionally according to their usage patterns.

3.1. Scope of work

Different types colour tones (Sahara, bronze and skin) were used, which were faulty and completed their service life. The designs are supported with denim and combed cotton fabric, which are in waste state, in order to show the different usage ways of the pantyhose, and the joining steps of the products are applied by machine stitching or hand stitching according to the characteristics of the model. In order to change the use and value of all parts of the waste and idle pantyhose, the models are designed using the bricolage and deconstruction method.

3.2. Bricolage in the study

The elements of creating unique designs by combining the material available with the vehicle, knowledge, intelligence and craftsmanship are mentioned. In the deconstruction elements, the elements of rejecting traditional clothing rules, making production techniques transparent, changing the phenomenon of beauty and aesthetics, disassembling and reshaping the parts and removing the parts from their general form are emphasised in the designs. Cileroglu and Balci (2018, p. 18) used the definitions and explanations of deconstruction and the examples made by fashion designers. In line with the scale they created by evaluating the information about the use of the decoration in clothing, the decoration elements and clothing design elements were also reflected in the design. In this context, in designs and deconstruction; 'changing the structure of the fabric, lack of out-of-form structure' and intertextuality; 'association of clothing feature, relocation' and reconstruction it is possible to see the effects of 'recycling' items.

Detailed explanations of the elements related to the use of socks with different techniques and approaches on the models and visual analysis of the designs are shown in Visual 1.

Visual 1. Front, back and detailed view of the model (F. Hasret 2020)

When Visual 1 is examined, we see a bustier design made using the intertext element of the deconstruction in the model. Intertextuality is expressed as the mixing of materials that will not come together, handling them as dysfunctional and aimless. The design can be evaluated under the concepts of use of electrical elements and unusual form in clothing. Electrical design elements use different fabrics, clothing types and styles together and unusual forms in clothing. Differentiation of the body shape of the garment by using stitches and nippers in different ways (Sorger & Udale, 2013, p. 128) is defined as creating volume, the use of filling material and the creation of multi-storey structures (Cileroglu & Balci, 2018, p. 21).

In the bustier pattern, the draping technique, which is a method of transforming into physical expressions by giving form and energy to the stocking over the rehearsal mannequin (Kiisel, 2018, p. 6), was used. To create the texture on the front surface of the design, the drapes, which give aesthetic value, flexibility and functionality to the garment and creates a textural and visual effect (Hazir, 2006, p. 80), are created by taking the end of the rubber part and shirring the part that will come to the waist line on the body. In this design, the mesh and elastic parts of two different shades of tan socks are used. The braid on the chest of the garment was prepared by braiding the strips prepared from the single leg of the sock in the form of a braid and attached to the beginning of the drape. In the back part of the design, the transparent feature of the socks is highlighted. The bustier is completed by combining the strips prepared from socks at the hem of the front and back pieces.

With the elasticity of the stockings, the closure detail was not added to the bustier, it was observed that the product could be put on and taken off easily and its form did not deteriorate. It has been observed that the socks are suitable for fabric manipulations such as drape and gathering due to their structural characteristics. It is thought that using functional and applicable materials, such as socks, as alternative materials in high-cost evening dresses will provide benefits in the field of design.

Visual 2. Front, back and detailed view of the model (F. Hasret 2020)

When Visual 2 is examined, the bustier design was made by using the deconstruction element in the model. Kwon (2007) defines deconstruction as rejected design principles, an unusual lack of form in clothing pieces and changing the structure of the fabric. In this study, a flywheel form was given to the piece obtained by cutting from the leg of the sock, using the shirring technique. Thus, the deconstruction technique by changing the structure of the socks was used in the study. In the design, volume is given by using two layers of flywheel parts. In the bustier design, it is seen that the stockings are suitable for shirring, which consists of dense, small pleats (Fanning and Cooke, 1996 cited in Akpinarli & Bulat, 2020, p. 173), which is formed by carving stitching from one end of the fabric to the desired place or by shirring adjustment on the machine and reducing the abundance of the fabric. A piping piece made of combed cotton fabric is added to the additional end of the bustier in order to give the garment dynamism and increase the visuality. As the closure feature of the design, laces made of combed cotton fabric coming out from both side seams of the front piece of the garment and turning back are used.

In the study, different models can be designed and beach clothes can be produced by considering the quick drying feature of the stockings, such as transparent low-cut bustier, where socks are used for functional or visual purposes. In this way, the use of different materials such as socks in the design area can be activated.

In the subgroup of the model examined in Visual 2, a skirt design was made by using the bricology technique. The design emphasises the improvised feature of bricolage, due to the use of waste parts. The length of the design is determined according to the dimensions of the waste fabric used in the skirt. The patterns on the skirt are completed with the enkuruste technique, which is used for ornamentation in

clothing and to complete the clothing with the addition of other fabrics when the fabric is not grown (Pektas & Atlamis, 2020, p. 54). The socks used in this study emphasise the ornamental feature of the wreck. In this context, it is seen that socks can be used in traditional decoration methods and create different approaches. In addition, the enkuruste technique can be easily applied in repairing damaged clothes.

Visual 3. Front, back and detailed view of the model (F. Hasret 2020)

In the model in Visual 3, the bricolage technique, which MacKenzie (2017, p. 123) expressed as a method of combining new and different pieces and styles and revealing a whole, was used. The blouse design was made with this method. In the design, it is emphasised that jeans on the front and back parts and the socks on the side parts can be used together with two different materials. Accordingly, the closure detail is not included in the garment. The same approach can be used to expand garments that are tight or shrink over time. This process is considered important in terms of its contribution to the prolongation of the service life of the garments and to the sustainability by creating the clothing cycle.

Linda Vachon's work was used on the front of the design (Figure 3). Original form of the work transferred to the surface. The work was interpreted by using combed cotton fabric on the body, and socks in two different colours on the face, hair and lips. The eye and nose details of the work have been made clear by hand stitching and the work has been completed.

Visual 4. Front, back and detailed view of the model (F. Hasret 2020)

In the model in Visual 4, a skirt design was made using the zero waste pattern design and patchwork technique. The skirt design has been applied with a zero waste pattern design, drawing attention to the sustainable approach and leaving zero waste behind. The skirt is obtained by determining the waist in the centre of the rectangular form and has the form of a handkerchief skirt as in the image.

The patchwork technique, which is applied as decoration on the model, is expressed as the fabric surface design applied by combining the piece fabrics to form a modular unit shape and repeating the unit shapes using diagonals and hexagons (Bursaligil, 2020, p. 92). In this study, patchwork was handled and interpreted with the same technique but with a different approach. The unit forms covering the whole surface in the design were used as triangular forms by evaluating the waste parts of the socks used in other designs. The triangular forms are placed in a single layer and fixed with machine stitching to create a different colour combination on the skirt. It is thought that the patchwork technique is similar to the deconstruction technique in terms of the use of the socks by deconstructing them.

Depending on the feature to be applied in the design, the use of more than one layer of the socks or its interpretation by supporting it with different materials (interlining, fibre etc.) can increase the aesthetic and visual effect. It is thought that using different hand sewing techniques as an alternative in the process of combining unit shapes on the surface in the patchwork technique can be an example of creative approaches to the field of design.

Visual 5. Front, back and detailed view of the model (F. Hasret 2020)

When Visual 5 is examined, the blouse design was made using the bricolage technique in the model, and a zero waste pattern design was used in the application of the pattern. In the blouse design obtained with a square form, front decoration is applied, The back is the part where the fastening ropes returning from the side and the closure that allows the garment to fit into the body. On the front of the design, there is an ornament applied with a cord attachment technique. Koç and Koca (2016, p. 249) described this traditional embroidery technique as laying a thick thread or cord on the fabric and attaching it with another thread. In this design, the part obtained from the leg part of the sock is divided into two equal parts and the part obtained is made into a cord shape and attached to the front part of the garment. It is thought that the application will create an alternative to the traditional hand embroidery technique and the material approach used in cord attachment and will bring a different perspective. Artistic works can be obtained by strengthening creativity with different thicknesses and different colour combinations.

Visual 6. Front, back and detailed view of the model (F. Hasret 2020)

In the model in Visual 6, the reconstruction element of the deconstruction technique was used. The dress was designed by using the socks in different forms. The model is designed as trapsan by using a single layer of socks. While designing, the dimensions and flexible structure of the socks are taken into consideration. In this direction, the pattern of the designed model was prepared with the draping technique, and attention was paid to the joints of the pieces and the fit of the garment to the body. In the study conducted on the transformation of the sock into a different product by distorting its structure, the new pieces obtained by changing the form of the waist and leg parts of the stockings were adapted to the design. The waist elastic of the sock on the front part of the dress is matched with the hem, benefiting from the visual and functional properties of the tire. On the back part, using different length pieces, the hemline is left short and an asymmetrical appearance is obtained. In the last stage of the work, the parts were combined with machine sewing and the garment was completed. The whole design has ornaments in circular form applied with needling felt technique. Needling felt is defined as the needling process of synthetic felt, which is horizontal or vertical on the fabric, until the fibre is mixed (fused) with the needle of the felt (Gok, Ozdmeir & Ozdemir, 2019, p. 563). In the study, needling felt technique was used, but a different approach was adopted as it was applied on socks. It was observed that needle strokes did not cause any deformation on the surface of the sock and that different materials such as socks are suitable for the work to be carried out with this method. Although the trapsan dress of this size is not suitable for use in daily life, it is thought that the socks can be used for show purposes by including them in stage costumes with different designs.

Visual 7: Front, back and detailed view of the model (F. Hasret 2020)

In the model in Visual 7, as in the 6th model, the reconstruction element of the deconstruction technique was used. The dress was designed by using the socks in different forms. The concept of intertextuality was used in the design feature of both models. In this direction, the displacement approach,

which is free from aesthetic or moral concerns, where logic is not valid and thought manifests itself (Breton, 2009, p. 31), is discussed as the subject of the study under the thematic approach of surrealism. Displacement is expressed as the interpretation of objects using different ways outside the real area of use (Cileroglu & Balci, 2018, p. 21).

In the design phase, the model was prepared by taking the size feature of the sock into consideration. With this in mind, the dress was designed in four parts and the pattern was prepared in such a way that the piece joints of the dress form a cup. The first piece is the piece that has checkerboard tissue applied in the front, cut longer than the other three pieces and rotates from the neck to the back, allowing the tissue to continue and ending at the back waist. Other parts are the side cut and back skirt pieces. The first piece in this model, which stands out and is defined as the front and back, with the decoration detail of the design, is made of socks in two different colours. Stripes were prepared from the legs of the socks and a texture was formed by passing them through one in the cross direction to give a checker-like appearance. Creative designs can be created by adding different techniques and materials to the application while creating the checkerboard pattern. It is thought that it can be used not only as a dress, but also as accessories (pocket and collar details) and decorations, such as checkers for different purposes, by combining them with different materials.

Visual 8. Front, back and detailed view of the model (F. Hasret 2020)

When Visual 8 is examined, the body design was made in the model by using the displacement approach in the context of the deconstruction method. In the body design was designed as transparent, the pieces corresponding to the elastic and crotch parts of the socks were used by giving the bustier form on the body. In the other main piece, the sock is cut from the net and body form, collar and armhole are given and the garment is fitted to the body with shoulder seam. It is thought that the body design applied by making use of the transparent feature of the sock will create an alternative material to the tulle. The main factor in the formation of this idea is that the sock is more flexible and easy to shape than tulle as a material, and that it is obtained from waste parts.

The decorations on the chest of the garment are important in terms of referring to the zero waste garment design and drawing attention to the sustainable approach. In this context, as it is used in the ornamentation detail of the model, patterns can be obtained with the shrinking technique by combining the toe parts of socks in different colours and can be used as decoration feature on the surfaces. In the study, pieces obtained from the toe of socks in different colours were shrunk and a flower form was obtained. Flower forms on the transparent blouse, on the other hand, are stitched by hand, giving the appearance of a bustier.

4. Conclusion and Discussion

Within the scope of the research, the problem of the deformation of pantyhose, one of the most used clothing types by females, after a few uses was focused on. The aim of the study is to reduce the damage caused by the pantyhose, which is not used and generates waste, to the environment and to contribute to sustainability. In this direction, clothing designs have been created by taking into account the technical, functionality and creativity elements in order to re-use pantyhose in the field of clothing and fashion. As a result of questioning the applicability of socks as a design product in fashion, it is aimed to spread the usage area and to bring a different perspective to the sector. The main purpose of the study is to show in designs that wearable and usable products can be obtained from waste pantyhose in the field of fashion.

In the study, the technical, functional, aesthetic, form and volume properties of the material were examined in the samples made in different areas with the pantyhose and it was tried to establish a connection between clothing designs. Socks are used for different purposes as functional and aesthetic waste after use. It has been observed that socks, which are mostly used in products such as fibre, buckles, mats, lampshades, with their functional features, interpreted the aesthetic feature of the artists with a creative and innovative perspective in their works.

Bricolage and deconstruction techniques were used for the clothing collection produced in the study, and it was emphasised in which areas the socks could be used. In order to refer to sustainability, designs are evaluated with ornamentation and manipulation techniques compatible with zero waste coverage. Accordingly, despite the thin, flexible and small size of the pantyhose, it can be used in blouses, bustier and dress types; in decoration techniques, it can be used in cord attachment, needling felt, encrustation and applique types. With regard to manipulation techniques, it has been determined that it can be used and applied to obtain volumetric textures such as drape, shirring and flywheel. While creating the models in Visuals 1, 2, 6–8, the draping technique was used, while obtaining the models seen in Visuals 3–5, the zero waste mould design was used. When the application stages of pantyhose using the draping technique are evaluated, it is seen that the socks take an easy form and provide comfort while applying. The models in which the zero waste pattern design was applied were prepared with pantyhose and the usage areas of the socks were tried to be diversified by supporting them with different decoration techniques.

When evaluated in terms of ornamentation techniques, the pantyhose is thought to bring a different approach in the field since it is used with an alternative approach instead of traditional materials in the cord attachment and patchwork technique (Visual 4–6). Combining different waste pieces on the garment with pantyhose by stylising various patterns (abstract or concrete) brings a modern interpretation to the applique technique applied in the field of decoration (Picture 3). Based on these practices and thoughts, it is assumed that using waste socks as surface material or decoration will contribute to obtaining creative, aesthetic, modern and functional products with different techniques. In summary, it can be said that pantyhose can be used as an alternative material in areas where different materials are used; it can enhance appearance, add aesthetic value, in both the main material in garment creation and surface decorations. In all the techniques applied, it was observed that the stockings were shaped without any damage and their structure was not damaged.

It is thought that by re-evaluating the pantyhose, which is frequently used as a fashion object, the rate of waste and the damage to the environment can be reduced. At the same time, in addition to the contribution of this approach to sustainability, products such as socks in the sector can be used instead of different materials and the cost rate in design can be reduced.

In the study, socks were used with their original structure without any process. In future studies, different studies can be achieved by changing the structure of the sock (hardening, losing its flexibility and lining-based stretch material alternatives on the substrate).

The techniques used in the study are techniques that can be easily applied individually. Converting products that become waste after use, such as socks, into renewable designs with different approaches will contribute to both sustainable applications and the acquisition of creative products, when individuals want to repair

their personal clothes or renew them by adding aesthetic value. At the same time, it is also important in terms of transferring continuity to generations in cultural context by using traditional decoration methods.

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Pictures List

Picture 1. Turiya Magadlela “Girls of the Nation”; a carpet made of pantyhose; 600 × 600 cm (Hasret, F., Photography Collection, 2020).

Picture 2. Sarah Lucas, Nice Tits, 2011 (https://www.bbc.co.uk/programmes/p01hw2mr/p01hw24c) Date of Access: 29.05.2020

Picture 3. Sarah Lucas, “Realidad” 2011 (https://www.artsy.net/artwork/sarah-lucas-realidad) Date of Access: 29.05.2020

Picture 4. Rosa Verloop "Me, myself and I" 2017

https://www.rosaverloop.com/kunstwerk/244865903_Me%2C+myself+and+I+2017.html#.X3HzJmj7TIU, Date of Access: 29.05.2020.

Picture 5. Prof. Kemal Can "Beliz Technique" "I Found Forty-One Medallions on the Road" 142

Picture 6. "Pantyhose Sculpture" 2005, https://www.deviantart.com/directorj/art/Project-Pantyhose-17816966 Date of Access: 30.05.2020.

Picture 7. Christine Heiszer “The Pantyhose Dress”, http://artbysusanlenz.blogspot.com/2013/04/runaway-runway-2013.html, access date: 14.09. 2020.

Picture 8. "Body" made of recycled pantyhose (https://www.vix.com/pt/bdm/casa/o-que-fazer-com-meia-calca-velha-13-ideias-incriveis-para-reaproveita -la, 05.05 2020)

Picture 9. "Rabbit" made of recycled pantyhose (http://www.goodlifer.com/2012/11/design-education-inspiration-at-the-ethical-fashion-show-in-paris/, 05.06. . 2020)

Picture 10. “Mat” made of recycled pantyhose (https://i.pinimg.com/originals/75/38/14/753814def42488dbe683ec477b45c16a.jpg, 05. 2020)