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Sustainable Approach: Giving Trendy Look to Old Clothes

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Abstract

The textile industry is one of the most essential retail goods industries. According to UN Conference on Trade and Development (UNCTAD), the second most polluting industry is the textile industry. To counter this problem, most of the textile industries are applying the concept of sustainability. Sustainability is an important factor which aims to reduce environmental, social and ethical impacts, which in turn helps to reduce the dumping of textile waste on landfills and resulting pollution. The study aims to understand people's outlook on sustainability and creating a collection of new fashionable clothes by altering the second hand (old) clothes. A survey was conducted to understand the views of the potential customers on sustainable fashion and second-hand garments. A collection of re-fashioned garments was developed through upcycling. The respondents who participated in the first survey were asked to analyze the developed styles and give their ratings towards the upcycled garments. The study shows that people were fascinated with re-fashioned trendy clothes. The study will help the designers, producers, and retailers to utilize the results to design, promote, and sell upcycled styles.

Keywords: Sustainability; 3Rs; Secondhand garments; Re-fashioning; Upcycling

Introduction

Sustainability is a type of evolution which can meet the needs of the present generation without disturbing the future generations from meeting their own needs. The fashion industry is the most profitable as well as the most polluted industry in the world because they focus on cutting costs and economic growth and neglects environment and social goals as value. Sustainability has become of great interest to the textile sector, due to the fierce use of natural resources and exposure of penurious labor conditions. Since, the cultivation of natural fibers using pesticides are decreasing the fertility of the soil and polluting water, the textile industry has become a popular contributor to serious environmental concerns like air and water pollutions and health problems. The industrial processes consuming vast amount of water and then discharging the pollutants back into water bodies and the emerging fast fashion has readily reduced the apparel life cycle, resulting in increasing demand for clothing items, and increasing pressure on natural resources resulting in negative impacts on the environment [1]. Textile waste is one sort of municipal solid waste that has been growing rapidly in recent years. These wastes include the waste generated from streams of fiber, textile and clothing manufacturing process, commercial service and consumption which in turn has raised increasing concerns worldwide in developing novel circular textiles approach. As a matter of fact, disposal of textile waste and their management have resulted in increasing global concerns in recent years [2]. Textile and fashion industry is well known for over utilizing resources and undergoing manufacturing processes that are not environment friendly, ignoring the environmental and social losses [3].

Textile waste is produced in every phase or stage of the textile manufacturing process and even at the consumer's end [4]. The improper dumping of these textile waste results in negatively affecting the environment resulting in toxic water and air pollution, greenhouse emissions, scarcity of resources etc. Increased textile reuse and recycling could in turn reduce the production of virgin textile fibers and also avoid engineering processes further downstream in the textile product life cycle, thereby reducing environmental impact [5]. Reusing fibers from the textile wastes can avoid many of the polluting and energy intensive processes that are needed to produce textiles from the virgin materials [6].

The three types of textile waste categorized are shown in Figure 1. The pre-consumer textile waste is the processed fibers and waste produced during the production of finished yarns and textiles, technical textiles, nonwovens, garments including off-cuts, selvages, rejected material, etc. The post-consumer textile waste includes the garments or household textiles that are no longer consumed by the consumers because they are worn out, damaged, or have gone out of fashion. Industrial textile waste is generated from commercial and industrial textile applications including commercial waste such as carpets and curtains [7].

Figure 1: Types of textile waste.

Post-consumer textile waste goes to poor and underdeveloped countries in the form of second-hand clothing. Many rising companies are associated in the process of sorting waste. These companies excel in collecting these wastes from different places, sorting them, processing them, and then exporting the products made from these post-consumer waste to different markets. The process of sorting is done based on the fabric, color, quality and the garment's condition. After sorting the waste will be divided into wearable textiles and non-wearable textiles. Then the process gets more systematic to sort out summer wear from winter wear or men's from women's wear etc. Also 'diamonds'; the clothes that have premium value as they belong to a high value brand are also sorted separately. Then re-sorting is done to grade the materials and check whether sorting is done color wise. After the sorting process, the wearable textiles are sent to second-hand clothing market while the non-wearable textiles undergo mechanical and chemical processes to get converted into fibers to produce other garments [1].

Post-consumer textile waste can be managed in three ways: reuse, recycle and reclaim fibers and fabrics. Instead of dumping this type of waste, these can be distributed to charity organizations. Some supermarkets were seen launching schemes for buying old clothes from the customers and offering them discounts on their new purchases. The received old clothes were sorted, treated and redistributed to charity shops. For the ones that are not in good condition, they can be used as cleaning towels at home or even at the industries. It is also seen statistically that post-consumer textiles contribute largely in the second-hand clothing market. Recycling of post-consumer textiles requires only less energy and also produces minimum carbon dioxide emissions compared to any other processes. Recycling of these textile wastes includes breaking down of fabrics to fibers by processes like cutting, carding or other mechanical processes. Biodegradable cotton fabrics can be recycled to produce wiping cloth, napkins or rags or high-quality paper, the embroidered and Zari patches from old saris can be used to create cushion covers or quilts because of its aesthetic value. Most of the recycling of these types of waste can be done in households itself. Reclaimed fibers are produced by treating the fabric waste through various processes like cutting, rotating it in drums at a high speed to break down the fabric to its basic unit of fiber. This process is done for natural fiber products and the fibers can be used for blending purposes (wool fibers) or for non-woven fabric preparation. In case of man-made fibers, the fabrics are cut into small pieces and are melted to form granules which can be used to produce fibers [2]. The purpose of this research is to convert the post-consumer textile wastes to re-fashioned second-hand garments that can appeal to potential consumers. The study also involves a pre-survey conducted to understand the people's outlook on second-hand garments and the concept of sustainability. A collection of re-fashioned garments was developed based on the first survey. The post-survey was conducted to obtain the consumer's acceptance and ratings towards the developed upcycled garments.

Methodology

Pre-survey on people's opinion about sustainable fashion

A pre survey was conducted to understand the attitude of people towards the sustainable approach upcycling and using second-hand garments. A qualitative research method was used, and a questionnaire was prepared to gather the data. A total of 50 women participated in the survey. The women respondents

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targeted were in the age group of 18- 40 years. The sustainable approaches were explained to the participants. The pre-subject questions enquired are shown in Table 1. The results of the survey were analyzed thoroughly and interpreted into useful data that help in the development of innovative re-fashioned garments [8,9].

Table 1: Sample Questionnaire on People's Opinion About Sustainability and Secondhand Garments.

1) Name			
2) Age			
a) <18	b) 18-25	c) 25-35	d) >35
3) Occupation			
a) School student		b) College student	c) Other
4) Are you interested in sustainability?			
a) Yes		b) No	c)Maybe
5) Do you promote sustainability in any way?			
a) Yes		b) No	c)Maybe
6) Have you heard of the term 'Sustainable Fashion'?			
a) Yes		b) No	c) Maybe
7) Are you aware of the social, environmental and ethical impacts the fashion industry has on the world.			
a) Yes		b) No	c) Maybe
8) How do you dispose of unwanted clothes			
a) Donate to charity	b) Throw away	c) Hand down to younger siblings	d) Give it to friends.
9) Are you interested in DIY (Do It Yourself) clothes?			
a) Yes		b) No	c) Maybe
10) Are you interested in secondhand clothes?			
a) Yes		b) No	c) Maybe
11) If you can convert your old clothes to new fashionable ones, are you willing to try it on?			
a) Yes		b) No	c) Maybe
12) If a store launches a collection of secondhand clothes with new altered styles and fashion elements, are you willing to buy?			
a) Yes		b) No	c) Maybe

Post survey on developed products.

Post Survey was conducted on developed re-fashioned second-hand products to analyze the effectiveness and consumer acceptance towards developed re-fashioned garments. The survey was carried out with the help of the same group of women who participated in the pre-survey. The post survey was carried out to evaluate the visual appearance and the accepted price range of the products developed. The post survey questions enquired are shown in Table 2.

Table 2: Post Survey Questionnaire for The Developed Products.

1) Rate the following in terms of visual appearance.				
Dress developed from two shirts.				
Poor	Fair	Good	Very good	Excellent
The skirt and top developed from a night gown.				
Poor	Fair	Good	Very good	Excellent
Tie and dye jacket developed from a white turtleneck sweater.				
Poor	Fair	Good	Very good	Excellent
Long sleeved jacket from a T-shirt.				
Poor	Fair	Good	Very good	Excellent
Cropped rushed top from a T-shirt.				
Poor	Fair	Good	Very good	Excellent

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Cross body bag from an old shirt.				
Poor	Fair	Good	Very good	Excellent
Tie and dye T-shirt developed from a colour faded T-shirt.				
Poor	Fair	Good	Very good	Excellent
Fabric necklace developed from old jeans fabric.				
Poor	Fair	Good	Very good	Excellent
2) How much will you be willing to pay for the following products?				
Dress developed from two shirts.				
a) 399		b) 449		c) 499
The skirt and top developed from a night gown.				
a) 399		b) 449		c) 499
Tie and dye jacket developed from a white turtleneck sweater.				
a) 349		b) 399		c) 499
Long sleeved jacket from a T-shirt.				
a) 299		b) 349		c) 399
Cropped rushed top from a T-shirt.				
a) 299		b) 399		c) 499
Cross body bag from an old shirt.				
a) 199		b) 249		c) 299
Tie and dye T-shirt developed from a color faded T-shirt.				
a) 299		b) 349		c) 399
Fabric necklace developed from old jeans fabric.				
a) 199		b) 229		c) 249
3) Out of these collections, which one did you like the most *				
Dress developed from two shirts.	The skirt and top developed from a night gown.	Tie and dye jacket developed from a white turtleneck sweater.	Long sleeved jacket from a T-shirt.	
Cropped rushed top from a T-shirt.	Cross body bag from an old shirt.	Tie and dye T-shirt developed from a color faded T-shirt.	Fabric necklace developed from old jeans fabric.	
4) How will you rate the creativity of the collection				
Poor	Fair	Good	Very good	Excellent

Results and Discussion

Analyzing the results of the pre-survey

The results of the pre-survey on the attitude of people towards sustainable approach upcycling and using the second-hand garments are as follows:

a) About 94% of people who took the pre-survey were in the age group of 18-25.

b) About 86% of people were college students.

c) About 87.3% of people were interested in sustainability.

d) About 50.9% of the respondents had already tried to encourage sustainability in their own ways.

e) About 89.1% of the respondents were already familiar with the term sustainable fashion.

f) Also, about 89.1% of people were aware of the environmental, social and ethical impacts the fashion industry has.

g) From the survey data, about 49.1% of people were found to dispose of their unwanted clothes by handing them down to their siblings.

h) About 89.1% of people were interested in DIY (Do It Yourself) clothes.

i) About 87.3% of people were very much interested in secondhand garments.

j) About 92.7% of the respondents were willing to try their old clothes if they were converted into new fashionable ones.

k) According to the survey data, about 87.3% of people were willing to buy from a store that sells collections of secondhand clothes with new altered styles and fashion elements.

Innovative product development

After interpreting the results of the pre-survey on people's opinion about sustainability, upcycling was done with secondhand clothes. The upcycling was carried out using different techniques.

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The categories of garments developed using secondhand garments were dresses, skirt and top sets, outerwear, tops and accessories.

Dress: Secondhand shirts were converted into a knee length A-line dress with puff sleeves and square neck. The development of dress from secondhand shirts are shown in Figure 2.

Skirt and top set: A second-hand night gown was changed into a top with cords at the sides and an asymmetric skirt with pleats on one side. The development of top and skirt from secondhand night gown are shown in Figure 3.

Figure 2: Development of dress from shirt.

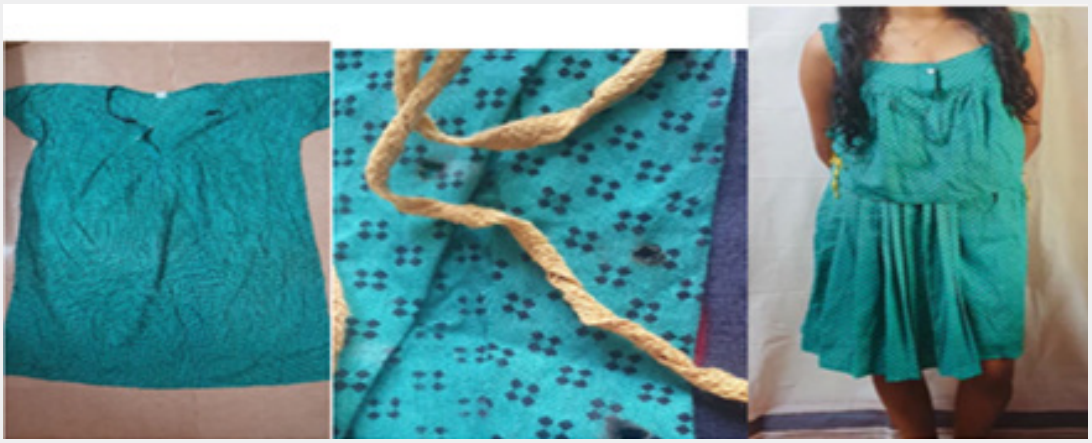

Figure 3: Development of top and skirt from night gown.

Outer wears

a) Cropped jacket: The white sweater was modified into a multistyled top using tie and dye technique. Natural dye, turmeric powder was used and to obtain the depth of colour the material was immersed well into the dye bath and kept in boiling temperature for about 5 hours. The development process is shown in Figure 4.

b) Full sleeve jacket: A full sleeved T-shirt was converted into to a long-sleeved jacket. The development of full sleeve jacket from secondhand T-shirt is shown in Figure 5.

Tops:

a) Crop top: A knitted top was converted into a cropped ruched top. The development of cropped ruched top from second hand knitted top is shown in Figure 6.

b) Tie and dye top: A color faded T-shirt was converted into a tie and dyed T-shirt. The development of a tie and dye T-shirt from the second hand black faded T-shirt is shown in Figure 7.

Accessories:

a) Cross body bag: The second-hand shirts were used to construct a new cross body bag and are shown in Figure 8.

b) Fabric Necklace: A denim fabric was converted into a fabric necklace as shown in Figure 9. The developed products using secondhand clothes are shown in Figure 10.

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Figure 4: Development of tie and dye jacket from sweater.

Figure 5: Development of long-sleeved jacket from a T-shirt.

Figure 6: Development of cropped ruched top from knitted top.

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Figure 7: Development of a tie and dye T-shirt from a faded black T-shirt.

Figure 8: Development of a cross body bag from shirt.

Analyzing the post-survey of the developed products

According to the post survey, the following percentages of the group were found to be rated excellent for the following refashioned garments:

a) 56% of respondents rated excellent for the visual appearance of dress developed from old shirts.

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b) 42% of respondents rated excellent for the visual appearance of the skirt and top set developed from night gown.

c) 64% rated excellent for the tie and dye jacket made from the sweater.

d) 68% for the flong-sleeved jacket made from the T-shirt.

e) 64% rated excellent for the cropped ruched top made from old T-shirt.

f) 62% rated excellent for the cross-body bag made from old shirts.

g) 70% rated excellent for the tie and dye T-shirt made from old color faded T-shirt.

h) 66% rated excellent for the fabric necklace made from old jeans.

i) According to the post survey, the following percentages were the highest regarding the price of the finished refashioned products.

j) 72% of respondents were willing to pay the price of Rs.449 for the dress made from shirts.

k) 56% of respondents were willing to pay the price of Rs.399 for the ruched cropped top made from an old T-shirt.

l) 70% of respondents were willing to pay the price of Rs.199 for the cross-body bag made from shirts.

m) 58% of respondents were willing to pay the price of Rs.349 for the long sleeve shrug made from a loose T-shirt.

n) 58% of respondents were willing to pay the price of Rs.399 for the tie and dye jacket made from a sweater.

o) 64% of respondents were willing to pay the price of Rs.349 for the tie and dye T-shirt made from a color faded T-shirt.

p) 52% of respondents were willing to pay the price of Rs.449 for the top and skirt set made from a night gown.

q) 66% of respondents were willing to pay the price of Rs.199 for the fabric necklace made from old denim fabric.

The consumer preferences towards developed products are shown in Figure 11. From the post survey results, 24% of the respondents liked the dress most followed by the tie and dye jacket (22%), tie and dye T-shirt (16%) and, the long sleeve shrug and cropped ruched top (14%).

Figure 9: Development of a fabric necklace from old jeans.

Suggestions for sustainable approach

a) Adopting sustainability in households: Instead of dumping clothes that are no longer needed, clothes in good condition can either be re-fashioned, handed down to friends or siblings or even can be forwarded to donation. In cases of clothes which are ripped or stained, they can be used as cleaning cloths or forwarded for recycling. In this way textile waste can be reduced in households.

b) Adopting sustainability in industries: Industries can collect all the pre-consumer waste (cut waste) and recycle it to make new products. In this way they can reduce the use of virgin materials and toxic dyes.

Problems faced during the study

a) It was hard to find the desired material and desired color since the number of fabrics were limited.

b) Fabric durability and strength were important factors and too old fabrics can't be altered into new ones as the fabric deterioration was noted.

c) Some materials were difficult to handle and sew.

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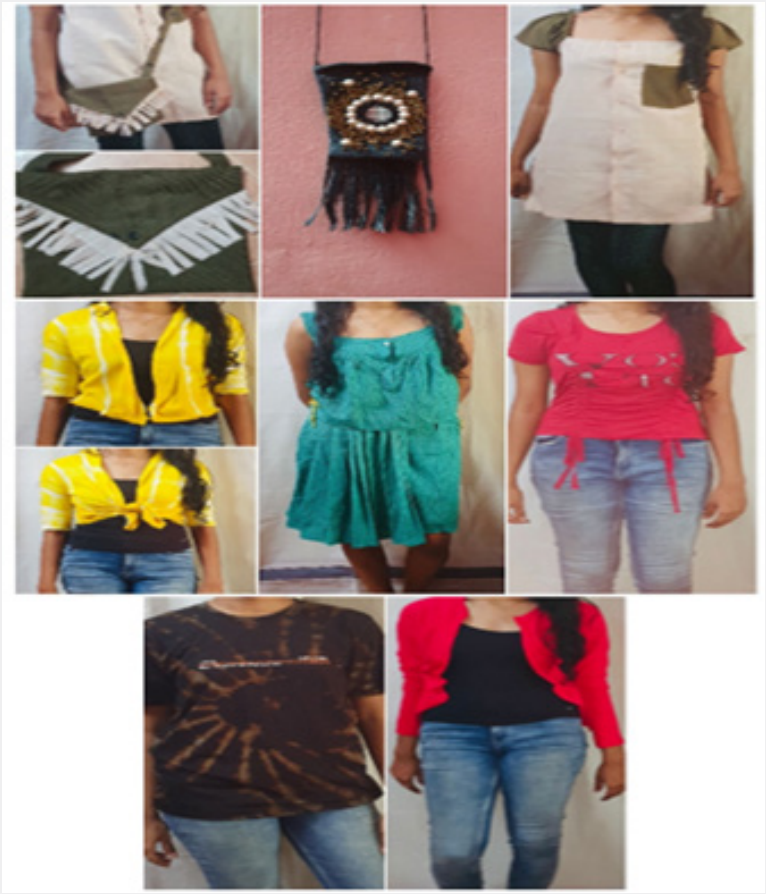

Figure 10: Developed products.

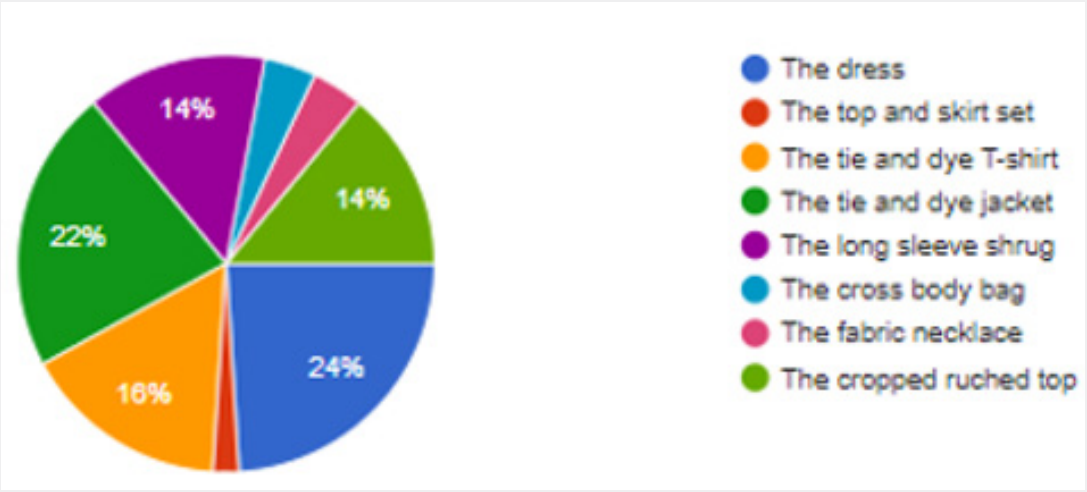

Figure 11: Preferred garment from the collection.

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Conclusion

Sustainability is an important factor in today's world that can significantly contribute to reducing the environmental burden of clothing. Not only manufacturers, but the consumers also need to change their attitude towards reusing clothes or wearing clothes made from recycled fibers. Designing for sustainability means developing products with low environmental impact and high social quality. To attain sustainability, the concept of 3 R's: reduce, reuse and recycle should be adopted. It is the order of priority of actions that has got to be taken to scale back the quantity of waste generated, and to enhance overall waste management processes and programs. The purpose of this article is to increase understanding of how textile consumption can become more sustainable. A pre-survey was conducted to learn about the view of the potential customers on sustainable fashion and upcycled second-hand garments. And products were developed supporting this survey's results. A collection was developed using secondhand clothes and a post survey was conducted to analyze the responses of the same respondents about the developed trendy products. The responses for the developed products were found positive. From the study, the results show that people were very much interested in upcycled garments which are altered and re-fashioned according to global trends. It was also evident that in the future, sustainability will not be just an option for manufacturers but a necessity to save resources for the future generation.

References

1. Kumar V, Agarwal TK, Chen Y, Wang L (2017) Contribution of traceability towards attaining sustainability in the textile sector. Textiles Cloth Sustain 3(5): 10.
2. Todor MP, Bulei C, Kiss I, Alexa V (2018) Recycling of textile wastes into textile composites based on natural fibers: the valorisation potential. Int Confer Appl Sci 477: 9-11.
3. Dissanayake DGK, Perera S, Wanniarachchi T (2017) Sustainable and ethical manufacturing: a case study from handloom industry. Textiles and Clothing Sustain 3(2): 10.
4. Aishwarya S, Jaisri J (2020) fibre2fashion.com. Harmful effects of Textile waste.
5. Sandin G, Peters GM (2018) Environmental impact of textile reuse and recycling - A review. J Cleaner Production 184: 353-365.
6. Lau YI (2015) Reusing pre-consumer textile waste. Springer plus 4(2).
7. Rani S, Jamal Z (2018) Recycling of textiles waste for environmental protection. Int J Home Sci 4(1): 164-168.
8. Broega AC, Jordão C, Martins SB (2017) Textile sustainability: reuse of clean waste from the textile and apparel industry," IOP Conference Series: Mater Sci Eng 254(19).
9. Mulla SS (2019) 3 R's of Sustainability in Textiles. Textile learner.

DOI: 10.19080/CTFTTE.2024.09.555752

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