

# Upcycling-Approach towards Ecofriendly Textile

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**Abstract**—Textile and Apparel waste is considered to be the most polluting element emitted from the textile and apparel industry. In addition, the textile and apparel industry use huge amount of water, energy, chemicals and raw material throughout the supply chain. The textile and apparel industries release a large amount of effluents, which contain toxic and hazardous pollutants degrades the environment very badly. In modern Era, it is most important to consider the environmental issues of fast production of textile and apparel and all the excess fabric waste incurred in this process. Fabric waste breaks down in landfills to form methane which is very harmful for the environment and mother earth. This culture of waste demands new ways of reuse excess fabric material. Upcycling can be powerful means to makeup this. . Upcycling refers to reuse of a garment where its quality remains the same or is increased by various construction, designing and embellishment techniques. For example by covering stained or torned clothing by appliqué work, reusing a material or product and giving it another function, such as turning old saree into a evening gown. Upcycling of apparel is a physical process of reusing apparel waste by renovating and redesigning them with greater value as per latest fashion trend. Upcycling is a result of many factors including rising waste disposal problems, green consumerism and eco-fashion.

**Keyword:** Textile, Apparel, Environment Upcycling.

## 1. INTRODUCTION

Challenges such as environmental pollution and depletion of natural resources, developing more textile and apparel material then required has increased the load on mother earth. Environmental issues are increasing with every passing second, affecting the life, nature as well as world in total. Textile and fashion industries are considered as the major sources of environmental pollution. (Ozek,2017).The steps involved in the growing of fibers to delivery of products, all contribute in damaging the environment as well as life in one or the other way. Up to 8,000 different chemicals are used to turn raw materials into clothes, including a range of dyeing and finishing processes. Approximately one quarter of world consumption of insecticide is spent for textile industry (Ozek, 2017). In modern Era, it is most important to consider the environmental issues of fast production of textile and apparel and all the excess fabric waste incurred in this process. Fabric waste breaks down in landfills to form methane which is very harmful for the environment and mother earth. This culture of waste demands new ways of reuse excess fabric material. Upcycling can be powerful means to makeup this. Upcycling refers to reuse of a garment where its quality remains the same or is increased by various construction, designing and embellishment techniques. For example by covering stained or turned clothing by appliqué work, reusing a material or product and giving it another function, such as turning old saree into an evening gown. (Annonymous, 2016). Upcycling of apparel is a physical process of reusing apparel waste by renovating and redesigning them with greater value as per latest fashion trend. Upcycling is a result of many factors including rising waste disposal problems, green consumerism and eco-fashion. The area of upcycling is a rich source of innovative design in the fashion and accessory industries. Taking the above points into consideration, a pilot study was conducted with the following objectives:

1. To study the consumer awareness regarding the upcycled garments and their market availability.
2. Consumer opinion regarding the relation between upcycling and environmental protection
3. Consumer opinion regarding the preferences of developed upcycled garments

## 2. METHODOLOGY

The present methodology is divided into two phase i.e. experimental and assessment phase to collect and analyse the data related to upcycled garments.

**2.1 Experimental Phase**

1. *Collection of pre-apparel waste:* Pre apparel waste was collected from boutiques of Hisar. The collected waste was segregated in two categories; as usable and non usable, by evaluating the appearance through visual observation.
2. *Development of garments:* the collected fabric were arranged and combine through stitching technique and garments for kids i.e. in the age group of 1 to 6 were prepared.

**2.2 Evaluation Phase**

A self-made questionnaire was formulated for evaluating the acceptability of the respondents towards upcycled products created from fabric waste. Twenty female respondents under the age group of 25-35 year were selected. The evaluation was done on the following parameters:

- a. Awareness regarding upcycled garments.
- b. Preferences for developed upcycled garments.

**3. RESULT AND DISCUSSION**

In the present study, total six products were developed and exhibited to take the preferences and opinion of respondents. These designs and patterns were created using techniques of interlacing, pasting etc. through machine stitching. The products developed are presented in the table 3.1

**Table 1: Products developed by using waste/discarded material**

Material	Final Product	Material	Final Product	Material	Final Product
Discarded Pant	Baby Pant 	Suit yoke and waste textile	Baby Frock 	Waste left over material	Top 
Pant	Waist Coat 	Discarded skirt	Shrug 	Leftover fabric	Frock 

**3.1 Consumer awareness regarding upcycled garments**

Data presented in table- 2 reveals that majority of the respondents (80%) were not aware about the upcycling of textile and apparel waste and only 20% of the respondents were aware about the same. Result also indicates that 16% of the respondents were aware about the market availability of upcycle garments. A similar study conducted by Kushwah & Swami (2016) discussed the lower parentage of the respondents about the awareness of concept of upcycling garments.

**Table 2: Awareness regarding upcycling amongst the respondents**

Parameters	n=20 (Data in ( % ) indicates percentage)			
	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Awareness of Upcycling of textile and apparel waste	6	(20)	14	(80)
Awareness regarding the market availability of upcycled garments	7	(16)	13	(84)

### 3.2 Opinion regarding the relation between upcycling and environment protection

The data presented in table 3 elucidate the respondents opinion regarding the relation between upcycling and environment protection. Majority (85%) of the respondents agreed that upcycling and environment are related to each other and upcycling can help to reduce the waste generated by textile landfill, which in turn can help to protect natural resources. A similar study was conducted by Teli et. al.(2015) and their finding revealed that upcycling is necessary for producing new things as well as to meet the increasing demands by using more greener approach of recycling. Moreover, by making use of already existing materials the consumption of new raw materials for new products can be reduced, which can result in reduction of energy usage, air pollution, water pollution and CO<sub>2</sub> emissions; hence making it an incremental step towards achieving zero waste.

**Table 3: Opinion regarding the relation between upcycling and environment protection**

Parameters	n=20 (Data in ( ) indicates percentage)		
	Agree	Neutral	Disagree
Relation between upcycling and environment protection	17(85)	2(10)	1(5)

### 3.3 Consumer opinion regarding the preferences of developed upcycled garments

Consumer opinion regarding the developed upcycling garments are presented in table: 3. The results are collected on the basis of two parameters i.e. innovative design and suitability. The results indicate that 70% of respondents agree that designs are innovative and 90% find them suitable for age group of 1 to 15. A similar study conducted by Ojha & Tiwari (2014) appreciated for developing the upcycled products like bags, coasters etc. with discarded or waste fabrics.

Parameters	n=20 (Data in ( %) indicates percentage)			
	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Innovative design	14	(70)	6	(30)
Suitability	18	(90)	2	(10)

## 4. CONCLUSION

To reduce the chemical impact of textile product and landfilling we should look for other alternatives such as reuse, recycling and upcycling which are more eco-friendly and safe for health. There is a huge amount of textiles which ends up in landfill every year and upcycling is one of the most effective ways to address this problem. As a researcher we should educate the people for green initiative.

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