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Upcycling: Innovative way of textile waste management

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Abstract

The environmental impact of the textile and fashion industry is becoming a mainstream issue. Not only production but consumption of textiles also produces waste. To overcome this problem upcycling is a creative project which definitely helps to reduce the textile and apparel waste and save natural resources. Upcycling of apparel is a physical process of reusing apparel waste by renovating and redesigning them with greater value as per latest fashion trend. Discarded or unused clothes which are not in fashion can be given completely new look to match with current fashion trends by different construction, designing and surface embellishment techniques. Apparel waste can be upcycled in number of ways. They may be made entirely from discarded or unused apparel. They can be created from pre-apparel waste that is left on the factory floor and post-apparel waste i.e. discarded or old or unused garments.

Keywords: Environment, textile waste, upcycling

Introduction

Over the past two decades, the rhythm of fashion has accelerated towards 'fast fashion'. This is a concept dominated by consumption and fast changing trends, leading consumers to buy more cloths because they are more affordable but finally discarded only after one season. As we move forward to the 21st century, the textile product industries are facing with a monumental challenge and an opportunity, what to do with textile waste? As consumers continue to buy, waste will continue to be created, further compounding the problems of what to do with discarded waste, apparel and home furnishing. Textile waste can be classified as either pre-consumer or post-consumer waste. Pre-consumer waste consists of by-product materials from the textile fiber and cotton industries that are re-manufactured for the automotive, aeronautic, home building, furniture, mattress, coarse yarn, home furnishings, paper, apparel and other industries. Post consumer waste is defined as any type of garment or household article made from manufactured textiles that the owner no longer needs and decides to discard (Wang *et al.*, 2003) [4].

The environmental impact of the textile and fashion industry is becoming a mainstream issue. Not only production but consumption of textiles also produces waste. Over one million tons of textiles are discarded annually, mostly from domestic sources, of which only 25 per cent are recycled. This breaks down in 70 per cent second hand clothes and shoes, 8 per cent fibre reclamation, 9 per cent filling materials 7 per cent industrial wiping cloths and 6 per cent miscellaneous waste (bags, zips etc). It is estimated that up to 95 per cent of the textiles that are land filled each year could be reused by recycling and upcycling. For proper management of textile waste; recycling and upcycling have become pertinent indeed. (Annonymous, 2016). Bairagi (2015) [2], studied about recycling of textiles in India and discussed the current scenario of industrial recycling of textile waste. Cotton pre-consumer waste is recycled and exported from India to other countries after meeting the requisite criteria for a variety of applications such as paper production, surgical items (bandages and pads), tissue paper manufacturing, and bedding. Textile waste management can work in four ways i.e. Source Reduction (e.g. avoiding waste generation, internal reuse of waste, reuse in other products etc), Incineration (It is a process of burning the solid waste to recover the heat energy), Land Fills -Textile waste in landfill contributes to the formation of leach ate as it decomposes, which has the potential to contaminate both surface and groundwater source. To overcome this problem upcycling is a creative project which definitely helps to reduce the textile and apparel waste and save natural resources. Upcycling of apparel is a physical process of reusing apparel waste by renovating and redesigning them with greater value as per latest fashion trend. Discarded or unused or clothes which are not in fashion can be given completely new look to match with current fashion trends by different construction, designing and surface embellishment techniques.

Apparel can be upcycled in a number of ways. They may be made entirely from discarded or unused apparel. They can be created from pre-apparel waste that are left on the factory floor and post-apparel waste i.e. discarded or old or unused garments. (Anonymous, 2014) [1]. The various types of good quality attractive textile products could be prepared from used textiles as a source of income generation for rural masses. (Goel and Goel, 2011) [3].

Results

Assessment of developed utility articles on various parameters

The data presented in Table-1 revealed that all the developed upcycled utility articles i.e. clutch, shoes organizer, hand bag and bag organizer constructed by utilizing pre & post apparel waste and new textile material were assessed highly acceptable in terms of utility and workmanship with WMS 2.61-2.90 while bag organizer and shoes organizer in terms of

embellishment technique with WMS 2.31 and 2.00 respectively and multipurpose basket in terms of embellishment technique with WMS 2.13 were found acceptable by the consumers.

On the basis of average scores wall pocket got Ist rank with average score 2.78 and clutch got IInd rank with average score 2.66 followed by bag organizer got IIIrd rank with average score 2.64 and shoes organizer with 2.60 average score ranked IVth. The handbag got Vth rank with average score 2.56 followed by multipurpose basket with average score 2.46 secured last rank i.e. VIth rank.

Thus, all the upcycled utility articles except multipurpose basket, bag organizer and shoes organizer in terms of embellishment technique were found highly acceptable with WMS ranging between 2.34-2.90 due to various grounds i.e. save energy, money, time and initially these products are eco-friendly and conserve the natural resources.

Table 1: Assessment of developed upcycled utility articles on various parameters

Sr. No.	Utility articles	Combinations of apparel waste	Construction and designing techniques	Embellishment techniques	Utility	Workmanship	Average Score	Ranks
			WMS	WMS	WMS	WMS		
1	Clutch	P A W	2.44	2.79	2.61	2.81	2.66	II
2	Shoes organizer	P A W	2.77	2.00	2.79	2.85	2.60	IV
3	Wall pocket	P+ P A W	2.83	2.51	2.87	2.90	2.78	I
4	Handbag	P+P A W	2.56	2.34	2.66	2.69	2.56	V
5	Bag organizer	P A W+NTM	2.73	2.31	2.82	2.71	2.64	III
6	Multipurpose basket	P A W+NTM	2.46	2.13	2.56	2.72	2.46	VI

WMS- Weighted Mean Score, Highly acceptable 2.34-3.00, Acceptable 1.67-2.33, Least acceptable 1.00-1.66, PAW – Post Apparel Waste, P-Pre, NTM- New Textile Material

Conclusion

Interest in upcycling is a result of many factors including rising waste disposal problems, green consumerism and eco-fashion. For economic and environmental reasons, it is becoming necessary to utilize as much fabric waste as possible. What is being thrown away is often beautiful and usable for designer who can approach such waste material in a creative way. It is a good way to utilize time, energy and money invested on clothing thus will also create sustainability in clothing.

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