

RECYCLING WASTE FABRICS FOR INTERIOR DESIGNING: AN ENTREPRENEURSHIP VENTURE TO IMPROVE NIGERIAN ECONOMY

By

E. U. CHIDUME

*Department of Fashion Design and Clothing Technology,
Delta State Polytechnic, Ogwashi-Uku, Delta State*

Abstract

The study identified the various sources of waste fabrics and the uses of these waste fabrics. The techniques for recycling these waste fabrics and various interior designing articles that can be produced from these waste fabrics were also identified. A survey research design was used for the study. The population of the study was 32 Higher National Diploma students (in Fashion Design and Clothing Technology Department of Delta State Polytechnic Ogwashi-uku, Delta state Nigeria) and the sample used for the study were 16 Higher National Diploma II students. Questionnaire was used for data collection. Data was analysed using frequency distribution and mean. Major findings include that waste fabrics can be gotten from the industries and from homes among others. Recommendations based on the findings were also made in the study.

Introduction

Recycling is good business in any nation. This is because individuals can earn money from wastes and also the environment will also be sanitised by reusing these waste products. The process of recycling has many uses to individuals, society and the economy of any nation as a whole. Recycling according to Rouse (2018) is the process of reusing things that would otherwise be discarded as wastes. Recycling can help individuals to be gainfully employed by such individuals gathering waste and converting them to some useful products that can be sold out to the public. With this, individuals can earn a living through such means. When these individuals introduce such businesses in the society, it becomes a venture that can employ other people and by so doing the economy of the nation is improved. With these processes wastes are converted to wealth in the nation.

Wastes are major problems in most underdeveloped nations of the world. American Veterinary Medical Association (2018) explained that waste is everything that no longer has a use or purpose and needs to be disposed of. The idea of putting these wastes to use by converting them to useful products is a way of not only saving the lands in the nation from land pollution but also

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turning useless materials into useful products in the society. With this, instead of these wastes becoming problems to the nation, they tend to become a means of solving problems in the nation. This is a major issue that can come up with fabric wastes.

Fabrics are one of the most important waste materials available in most societies in Nigeria. Anomie (2018) stated that the words fabric and cloth are often used in textile assembly trades (such as tailoring and dressmaking) as synonyms for textile. Most of these fabric wastes are not easily biodegradable. Sometimes they stay on the lands permanently and cannot allow such lands to be used for farming or any other agricultural production. The good parts of these fabric wastes is that they can easily be converted to other products that can be used until the fabrics wear out to a stage where they can easily be biodegraded. Such products that can be produced from these waste fabrics abound in interior designing.

Interior Designing involves the decoration of the inner parts of a house using different articles. These different articles are mostly wholly made from fabrics and sometimes they are partly made from fabrics. The production of these articles for sales will definitely reduce the level of unemployment of many individuals in any nation. Reduction in the level of unemployment is conceivably a necessary condition for realization of increased income per capita (Obadan 2009). This is the major reason why self-employment or entrepreneurship is encouraged among individuals in the developing nations of the world.

Establishing entrepreneurship ventures is a very important function that is needed in every economy in order to help such economy to thrive. Thus entrepreneurship, according to Ombugadu (2007), involves recognising a business opportunity, mobilizing resources and persisting to exploit that opportunity. Igbo (2006) pointed out that an economist considers an entrepreneur to be one who brings resources, labour, materials and other assets into combinations that make their value greater than before and also introduces changes, innovations and a new order. This is exactly what happens in the conversion of waste fabrics to useful articles to be used in the decorations of homes. This does not only reduce the waste substances in the environment but also goes a long way improving the economy of the nation.

If the economy of any nation can be improved, then more entrepreneurs should be encouraged. If the future of a nation is put in mind, then, young people should be encouraged to get involved in businesses such as recycling of waste fabrics. The young people who are the future generation of every nation should be the target of every economic innovation needed in any country that

expects an economic change. This is because they are the people who are still strong enough to execute some difficult tasks; they still have the zest and the zeal to earn their living in life as long as there are no impediments and challenges on their way. Once these challenges are removed for these young people, many waste fabrics will find different uses in different homes in the society.

Bel and Fageda(2010) conducted a study on Empirical Analysis of Solid Management Waste Costs: Some Evidence from Galicia, Spain. This study analysed the factors that determined solid waste service costs. The results revealed economies of scale in municipalities of fewer than 50,000 inhabitants, such that cooperation between these municipalities could lead to cost savings. It also appears that private delivery is not cheaper than public delivery. Finally, designating a larger proportion of the total waste volume to recycling does not imply greater costs. This study is related to the present study, because both are looking for different means of managing wastes in different environments. The above study differs from the present study because it worked on the cost of managing wastes while the present study focused on fabric wastes management through the recycling and reusing processes.

Bouman(2001)also conducted a study on Empirical Evidence on Recycling and Trade of Paper and Lead in Developed and Developing Countries. The study noted that in recent decades, most countries have experienced substantial increases in recycling, and waste materials recovered in developed countries are exported for utilization in developing countries. The study also found out that countries that have actively participated in trade of recyclables have higher recycling rates than those with closed recycling systems. The above study differs from the present study because it worked on recycling of waste paper and lead, while the present study focused on recycling of fabric wastes. This study is related to the present study because both studies identified recycling of wastes to be good business in most economies of the world. This is majorly why it is important to recycle waste fabrics for interior designing to make it an entrepreneurship venture that will be used to improve the Nigerian economy.

Statement of the Problem

There are a lot of waste fabrics that litter Nigerian roads. Most of these fabrics are not easily biodegradable and so they form nuisance to the Nigerian environment. They have many sources in homes, industries and from tailors' shops. There is need to put these fabrics into other uses in order to improve the environment. These can also be used to improve the economic situation of the

nation as some of the produced materials can be sold by their producers and from that these individuals can earn a living from the sales.

Purpose of the Study

The major purpose of this study is to recycle waste fabrics for interior designing. Specifically, the study identified the following:

- sources of waste fabrics
- uses of these waste fabrics
- techniques for recycling these waste fabrics
- interior designing articles that can be produced from these waste fabrics

Research Questions

The study was guided by the following research questions:

- What are the different sources of waste fabrics?
- What are the uses of these wastes fabrics?
- Which techniques are necessary for recycling the waste fabrics?
- Which interior designing article can be produced from these waste fabrics?

Methodology

Area of Study: The study was carried out in Fashion Design and Clothing Technology Department of Delta State Polytechnic Ogwashi-Uku. This is one of the state Polytechnics in Delta State, Nigeria. Fashion Design and Clothing Technology Department of the polytechnic was chosen because there are a good number of individuals that are assumed to be knowledgeable in fashion and clothing. These individuals will be able to state some sources of waste fabrics and be able to presume the usefulness of these waste fabrics.

Population of the Study: The population of this study are the Higher National Diploma students of Fashion Design and Clothing Technology Department of Delta State Polytechnic Ogwashi-uku. These individuals were thirty-two (32) in number. These were the number of Higher National Diploma students that registered with the school Information Communication Technology (ICT) centre in 2018/2019 session (Delta State Polytechnic ICT centre 2019). This population was chosen because they were in Fashion Design and Clothing Technology Department and are assumed to be knowledgeable in identifying the sources of waste fabric and some possible ways of putting them to various uses.

Sample and Sampling Technique: The sample of this study is the Higher National Diploma II (HND II) students. These individuals are sixteen in number. They were chosen because they are in their final year in Fashion Design and Clothing Technology Department. They are assumed to have acquired enough knowledge in the area of fashion and design and are assumed

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to have produced waste fabrics in one way or the order, especially during their practical experiences. With this experience, they are in a better position to states these various sources and be able to think of how best to put them to different uses.

Instrument for Data Collection: The instrument for data collection was a structured questionnaire. It was developed based on the purpose of the study and intensive review of literature. It contained twenty-seven items. The face validation was done by three experts and the corrections from these experts were effected and this led to the final draft of the questionnaire that was utilized in this study. Test-retest reliability was used to test the reliability of the instrument using ten road side tailors in Ogwashi-uku. The two sets of scores were correlated using the Pearson Product Moment Correlation Coefficient. From the analysis, the correlation coefficient obtained was 0.80 which indicates a high correlation between the two sets of scores.

Method of Data Collection: Sixteen (16) copies of the instrument were administered directly to the group by the researcher alone. The mode of administration of the questionnaire was face to face or on the spot. These fifteen copies were completed correctly and returned, which indicates a 93.75% return. Guidance was given to the respondents in the collection of the data.

Method of Data Analysis: Data was organised using frequency distribution and the mean was used for data analysis. The mean scores were used to determine the perceived importance level expressed on a 4-point scale which was adopted for each of the items. A mean rating of 2.50 was used for decision making. The criterion level or the cut-off point was determined using the internal scale. The appropriate boundary of the mean was 2.50 and this was used as the cut off point because it was the upper limit of the mean. With this, when the average scores of respondents to an item were equal to or greater than the criterion level of 2.50, the item was accepted and if otherwise, the item was rejected.

Table 1: Mean scores of responses on the sources of waste fabrics

S/N	Sources of Waste Fabrics Remark	Mean (X)
1.	Industrial Mistakes	3.13
2	Agreed	
3	Pattern marker fallouts	3.20
4	Agreed	
5	Marker Making Fall Outs	2.60

6	Agreed	
7	Remnants from free hand cutting	3.33
8	Agreed	
	Old clothes from homes	3.00
	Agreed	
	Damaged products from factories	3.07
	Agreed	
	Spreading losses	2.67
	Agreed	
	Tailors' mistakes	3.27
	Agreed	

Table 1 shows that the sources of waste fabrics include industrial mistakes, pattern marker fallouts, marker making fall outs, among other sources.

Table 2: Mean scores of responses on the uses of waste fabrics

S/N	Uses of Waste Fabrics Remark	Mean (X)
1.	Sewing new clothes	3.47
2	Agreed	
3	Making an entirely different product from them	3.53
4	Agreed	
	Making a smaller size of the same product	2.67
	Agreed	
	Putting smaller pieces of fabrics together to make a big size of the same product	3.60
	Agreed	

Table 2 shows that the various uses of waste fabrics include the fact that they can be used to sew new clothes, make an entirely different product from them, make a smaller size of the same product, and, smaller pieces of such fabrics can be put together to make a big size of the same product.

Table 3: Mean scores of responses on the recycling techniques for the waste fabrics

S/N	Recycling Techniques	Mean (X)	Remark
1.	The use of patchworks	3.47	Agreed
2	The use of gums	3.00	Agreed
3	Making of folds	2.93	Agreed
4	Addition of designs	3.53	Agreed
5	Formation of styles	3.20	Agreed
6	Application of embellishments	3.73	Agreed

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7	The use of embroidery stitches Agreed	3.13
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Table 3 shows that the recycling techniques that can be employed to reuse waste fabric include the use of patchworks, gums, making of folds, among other techniques.

Table 4: Mean scores of responses on the interior designing articles from waste fabrics

S/N	Interior Designing Articles from waste fabrics	Mean (X)	Remark
1.	Bed sheets		3.00
2	Agreed		
3	Throw pillows		3.50
4	Agreed		
5	Fabric flowers		3.33
6	Agreed		
7	Head rests and hand rests		2.93
8	Agreed		
	Foot mats		3.00
	Agreed		
	Duvets		2.67
	Agreed		
	Table covers		3.07
	Agreed		
	Shoes racks	2.40	Disagreed

Table 4 shows that many interior designing articles can be made from waste fabrics. These include bed sheets, throw pillows, fabric flowers, head rests and hand rests, foot mats, duvets, and, table covers,

Findings The study identified the following:

- A. Eight (8) sources of waste fabrics (see Table 1)
- B. Four (4) uses of waste fabrics (see Table 2)
- C. Seven (7) recycling techniques for the waste fabrics (see Table 3)
- D. Seven (7) interior designing articles from waste fabrics (see Table 4)

Discussion of Findings

The respondents agreed that damaged products from factories and industrial mistakes can generate waste fabrics for producing interior designing articles. Industrial mistakes include fabric wastes generated by industrial processes and manufacturing. This shows that fabric waste can be generated in

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the industries. With this, Teracycle (2018) explained that industrial factory wastes are wastes generated in a factory during the manufacturing process, often in the form of product scraps, trims, overruns, punch-outs, or other processing wastes. The respondents also agreed that waste fabric can come from pattern marker fallouts. These are pieces of fabrics that come out after laying patterns on fabrics and cutting from them. A pattern, according to Igbo and Iloeje(2003) is a piece of paper drafted and cut to size and shape, used for cutting out fabric pieces for sewing out dresses while pattern layout is the way in which the parts of pattern are arranged on fabric while cutting fabrics. Markers, made in accordance to the patterns are attached to the fabric with the help of adhesive stripping or staples. Markers are laid in such a way that minimum possible fabric gets wasted during cutting operation. In any cutting operation even with the use of patterns, pieces of fabrics are usually cut out and thrown away.

The respondents also identified remnants from free hand cutting as a good source of waste fabrics. Free hand cutting is a term used to refer to a tailor sewing without the use of patterns. When pattern templates are not used in the cutting of a garment, big fabric remnants are wasted after cutting. When patterns are properly used for cutting a garment, there will still be remnants of fabrics that will not be used but these are usually very small. Since there is no way a design of any garment can be cut from another fabric without having small pieces of fabric that will not be put to use. Fabric losses can occur in the cutting room due to remnants that can be left aside as the bulk of fabrics are being cut. Old clothes from homes were also identified by the respondents as a good source of waste fabric. This supported the views of Mod (2018) which pointed out that many homes end up disposing of a lot of waste clothes and fabrics even when they are perfectly reusable.

It was also identified that spreading losses can generate waste fabrics. At the spreading stage, before cutting, fabric sheet is layered one above another maintaining pre-defined maker length and correct ply tension. Fabric is layered up to a certain height to avoid cutting quality problem. Spreading is done by manual layering or automatic layering machine can be used. During layering of the fabric, fabric edge is aligned at one side. When losses are encountered due to wrong spreading, they are called spreading losses. This can generate waste fabrics as Ahmed, Islam, and Ali (2019) pointed out that cutting, sewing, washing and finishing all section have specific defect which have different effects on the quality of a garment. This poor quality garments are usually tossed aside and they are taken to be sources of waste fabrics.

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Tailors mistakes were also identified as sources of fabric wastes. Ahmed, Islam, and Ali (2019) pointed out that it is better to identify an imperfection before other operations in order to avoid seam removal and re-sewing. These imperfections can be avoided by making sure that the separated garment components are numbered to ensure that in stitching, all components from the same layer are stitched together. When this is not properly done in sewing, the product becomes a mistake from the tailor and this is a form of fabric waste. Between the cutting and sewing processes, cut components may be passed through other processes like printing and embroidery. There is maximum chances of mixing of the components. If there is layer number in each component, then at the time of stitching only correct components will be stitched together. If this is not properly done by the tailor, it becomes a mistake that leads to waste of fabrics. Ahmed, Islam, and Ali (2019) added that defects in the garments making is a common phenomenon that hampers the smooth production rate and focus on poor quality products having an impact on overall factory economy. Open seams, wrong stitching techniques, non- matching threads, and missing stitches, improper creasing of the garment, erroneous thread tension and raw edges are some of these sewing defects which can affect the garment quality adversely and result to fabric wastes.

The respondents further agreed that the waste fabrics can be put to different uses which include the fact that they can be used to sew new clothes, make an entirely different product from them, make a smaller size of the same product, and, put smaller pieces of fabrics together to make a big size of the same product. This supported the views of Tonevitskaya (2019) who emphasized that recycling and reuse of materials is not new to the textile and apparel industry. These waste clothes and fabrics can be pieced and used to sew new clothing articles which can be reused again in the homes and outside the homes. These pieces of fabrics are the fabrics that can be recycled or be used to produce other interior designing articles. These articles are usually made using patch work techniques.

The respondents were also of the opinion that these pieces of fabrics can be put together using different techniques. These techniques include the use of patchworks, the use of gums, making of folds, addition of designs, formation of styles, application of embellishments, and the use of embroidery stitches. The use of embroidery stitches was in accordance with the views of McDonnell (2008) which stated that embroidery is by far the most common way of branding knitwear. Initially, it may have all started as a way to enhance, and, at the same time strengthen seams (Dupuis 2006). Presently, it is not just used to enhance or strengthen seams, the knits are used to form designs on fabrics and

it is also taken to be a form of art on clothing articles. With this, the pieces of fabrics can be designed in a way that they become very useful as other articles in the homes.

Bed sheets, throw pillows, fabric flowers, head rests and hand restsfoot mats, duvets, table covers were all identified by the respondents as some of the interior designing articles that can be made from these waste fabrics. Sloan (2020) emphasized that some people have a natural eye for design, such people will always find a way to turn these waste fabrics to articles that are designed in such a way that they are beautiful enough to be used for interior designing. When the fabrics are not heavily soiled or worn out, different articles can be made from such and it is usually difficult for people to be able to identify the difference between an old patched articles and the new ones.

Conclusion

The use of waste fabrics for interior designing is not just a good way of making money; it is also a good means through which waste materials can be brought to a minimum in any given society. The use of fabric waste materials for interior designing is a very good practical means of converting waste to wealth by fashion designers. If this is encouraged in any nation, it will help to sanitise the environment and encourage entrepreneurships with reduced capital expenditures on raw materials for the productions.

Recommendations:

Based on the findings of the study;

1. The Nigerian sanitation authorities should provide fabric disposal sites away from other wastes sites for homesand industries as this will help the reuse of these fabrics by keeping them in more sanitised forms ready for reuse
2. Government, schools and NGOs should establish entrepreneurship centres where individuals can be taught the different ways of producing interior designing articles from these waste fabrics

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