

EXPLORATION OF TEXTILE WASTES FOR ART PRODUCTION IN ENUGU METROPOLIS, ENUGU STATE, NIGERIA

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Abstract

Growing textile wastes in landfills and streets of major cities in Nigeria has become a general concern. There is also a lack of self-consciousness of a clean environment and poor public attitudes exhibited by the public. In view of this problem, it has become necessary to rescue some of these textile waste materials from landfills and street corners and turn them into art by up-cycling those textile waste materials. The study will examine the waste management system in Nigeria, using Enugu Metropolis as a case study. It will also attempted at recovering some textile wastes from landfill and refuse dumps and up-cycle them into valuable art that will be aesthetically pleasing. The study employed a qualitative research method. The research also employed studio explorations in the production of the works included in the research. Data for the research were gathered through both primary and secondary sources. Primary sources are mainly oral source such as interviews, photographs and others, while secondary sources are mainly written sources such as books (published and unpublished), internet sources, magazines, newspapers among others. In all, the study revealed that upcycling textile waste could serve as a contributory measure towards art productions and waste management in Nigeria. The work also made some useful recommendations on waste management and the roles art could play in the process.

Keywords: Exploring, adaptation, Textile, Environment, upcycling.

Introduction

Waste is the unwanted or unusable material or any substance which is discarded after primary use. They are further regarded as worthless, defective and of no use. According to Basel Convention on the control of Trans-Boundary Movements of Hazardous wastes and their disposal (1989). "Wastes are substances or objects which are disposed of or are intended to be disposed of or are equipped to be disposed by the provision of national law."

Textile material is said to have an end after which it will be discarded. If the textile fiber, yarn or fabric is 100% natural, it might decompose in few years but decomposing of such materials releases toxic greenhouse gases and also polluting the water bodies directly or indirectly. (Khalli *et al*, (2017). However, multiplied population in the last decade made the researcher to find new sources of other textile materials in order to be sufficient and cheaper for humans. The population growth demands more clothing which cannot be met completely by natural fibers or fabrics. (Khalli *et al* (2017). Ellen, (2017) found out that blends and mixtures of textiles are unavoidable. The blends are mostly petrochemical derived synthetics, which are harmful once disposed in the ecosystem. According to Khalli *et al*, (2017), fibers or fabrics are of two types, namely, naturally derived and synthetic origin. Textile materials made from natural fibres are biodegradable whereas synthetics pose a threat of not being compostable.

In developed and developing countries such as United Kingdom (UK), America, India and China, every segment of the textile industry from fibre to fabric is focused on their sustainability. The sustainability using an economic model to expand the lifespan of a product was carried out through repairing, re-using, re-manufacturing and recycling so that resources are used more efficiently and the need for new products and virgin raw materials

are reduced or ideally eliminated (Ellen, 2017). In order to ensure sustainability and reduce environmental impacts in the textile and apparel sector, a model of textile waste reduction will give a lasting solution to waste disposal. The Environmental Protection Agency, (2014), estimated that in United States, 84% of all textile wastes are sent to landfills. The disposal of textile waste contributes to greenhouse gas emission and is viewed by recycling stakeholders as a missed opportunity for recovering valuable materials and economic resources that can be put back to use through resale, and recycling. Recycling of textile wastes are requirements for the implementation to ensure sustainability and minimizing environmental impacts of textile wastes disposal by the consumer after use (Koch and Domina (1997). The researchers Koch and Domina (1997), therefore noted that only recycling of used clothes and textile scraps cannot help reduce the toll that fashion addiction has on the environment.

In Africa and Nigeria to be precise, Gulich, (2006) agrees that these textile wastes constitute a menace to the society if not properly disposed or adapted to other useful items. This is because textile waste material management has defied formal and scientific approaches: it has continued to expand, despite the huge resources devoted annually to control the menace in the country. Busary and Olaleye, (2007), opined that due to the persistence of textile waste disposal in landfills, there is need to explore some alternative ways to curb the increase in the volume of textile wastes generated in most cities in Nigeria.

These textile wastes are generated from various sources which included textile raw materials after processing, fabric production and fabric construction into wears (clothing and apparel) and after product consumption. The researcher applauded the writer Hawley, (2006), that recycling, re-use and up-cycling textile waste materials are useful opportunities or reconverting the valuable materials and economic resources that can be put back in use through re-sale, re-use and recycling explorations. The quest for the management of textile waste materials motivated the researcher to explore some of the techniques such as applique, quilting (duvet), tufting, tapestry, macramé, mixed media and stitching to produce two and three dimensional artworks that are aesthetically pleasing.

Statement of the Problem

Poor public attitudes of improper waste disposal and management as well as lack of consciousness of a clean environment constitutes one of the greatest challenges of textile wastes and other solid waste management in Nigeria. This situation appears to be worse in urban centers like Lagos, Enugu, Awka, Onitsha among others. In Enugu Metropolis for example, tons of textiles wastes are generated annually by secondary manufacturers and consumers. Waste dumps could be spotted near every market and in the nearest undeveloped plots of land.

Another dimension to this problem is the inability of government to mainstream waste recycling in their environmental policies. In view of this problem, the researcher attempts at addressing the problem of waste management by up-cycling of Textiles waste materials to produce textile art that will have functional and aesthetical values. Hence these wastes are modified and given a second life as they are turned into new products instead of ending up in landfills.

Aim and objectives of the Study

The researcher is aimed at showcasing the possibilities of transforming textile waste materials into art and this serves as a problem solving initiative to environmental waste management. The objectives of the study include the following: -

- To create textile art products by up-cycling textile wastes.
- To contribute to waste reduction and improve the environment through the production of up-cycled art.

- To highlight some cultural practices through works produced from up-cycled textiles.
- To further evaluate some cultural practices through the use of textile wastes and other waste materials for the purpose of reusing, recycling and up-cycling processes.
- To exhibit the studio outcome of the research in the art institutions and art galleries within Enugu metropolis, in order to intimate the audience about the ideas expressed by the researcher and get positive feedback from them.

Scope of the Study

There are many materials that could be up-cycled and reused for the production of two and three-dimensional textile art but this research is limited only to three categories which are textile wastes. Again the study is concentrated on Enugu Metropolis. Most of the wastes used for the research were gathered from waste dumps around Enugu.

Significance of the Study

The study is hoped to be significant in many ways. It has provided a scholarly work on textile waste as a material for the production of textile art. To textile artists, it has opened a new vista in the area of textile production. It is also hoped that the research will create the much needed awareness in the area of environmental management through reuse and up-cycling wastes for art production.

Limitations of the Study

The acquisition of adequate or suitable waste materials did not come easy because most of these wastes are not sited in the same locality. Assembling these waste materials does not provide readily or quick solution in the creation and production of any artwork because some of the wastes are in dirty and rusty conditions. They required thorough repeated washing with chemicals and hard tools to remove the rusts and sand crusts. Limited textile artists have delved into this study; hence the researcher was not well informed with sufficient literature on textile art.

Justification for the Study

Generations of textile wastes and other waste materials became problematic with the rapid increase especially in urban growth. This emanated partially from the increase in population and more importantly with the increase in its immigration status (Egunjobi, 1996). Nigeria in general cannot boast of having found a lasting solution to the problem of filthy and huge piles of textile wastes and other waste materials. However, the problem continues to assume monstrous dimensions. The situation has so deteriorated that today; the problem of textile wastes has become the area's most serious human's ill-health and environmental problems (Busari, and Olaleye, 2007).

The textile waste art can fit into the contemporary art in Nigeria. This study further evaluated the perception of some peoples' art expression through the use of textile wastes materials for the purpose of reusing, recycling and up-cycling processes. These processes contributed to reducing drastically the volumes of textile wastes and solid waste materials generated and disposed at dump sites because the practice of these processes is scarce in the country.

Literature Review

Textile is a flexible material made by creating an inter locking network of yarns or threads which are produced by spinning raw fibers (from either natural or synthetic) into long and twisted length (Meriam 2012). Originally, Textile is otherwise called a woven fabric. This is

a term applied to any manufacture from fiber filaments or yarns, natural or man-made. Products of textile including, carpeting, geo-textiles, clothing and upholstery, which are produced through knitting, spreading (drape), felting, stitching, crocheting or bonding (Barnett 1997). In the midst of the numerous benefits of Textile materials, the generation and indiscriminate disposal of its wastes cannot be over emphasized as they are littered and lingered in the landfills. Kein (2008) agrees that the textile wastes can be used in many traditional crafts such as sewing, applique, collage, mixed media, quilting and embroidery.

Sources of textile wastes and handling

Norman et al (2013) after identifying the many types of waste products produced from textile industry, found that most of the wastes are reused and recycled in a variety of ways contributing to a near zero-waste system that creates important economic activity and keeps materials out of landfills. Koch and Domina (1997) in their study created a model of the textile waste lifestyle covering three types of textile wastes they identified as having the potential to enter landfills: Post-producer waste made up of scraps, yarns and cutting; Pre-consumer waste consisting of clothing no longer wanted by the consumer. Koch and Domina, 1997 developed the model with the intention of encouraging dialogue among textile and clothing professionals in an attempt to stimulate the kinds of pro-action necessary to further reduce textile disposal in landfills and to generate new or expanded recycling options. However, the researcher is of the opinion that sustainability of proper disposal of textile wastes has not been given adequate attention hence post-product, pre-consumer and post-consumer textile wastes still pose lots of burden to the society and the environment. There is need to adapt some of these textile wastes for art through reuse, recycling and re-making processes.

McDonough and Braungart (2002) introduced new idea of shifting away from the standard cradle to grave design and production of consumer goods that generate constant waste into a new, more sustainable production model. This they call cradle to cradle where waste, unwanted and /or unused is treated as a resource that is recovered and put back into use. This is by urging for creativity in design and reuse that can have a positive impact and provide continuous improvement for ecological, social and financial conditions.

Concepts of *waste-to-art* and *waste-to-wealth*

The concept of *waste-to-art* and *waste-to-wealth* literally mean moving waste from the platform of exhausted ability to valuable and desirable level and perhaps enhance the sales appeal and serviceability of the produced textile artwork. Egun (2012) notes that the production with the use of textile wastes for textile art requires some form of energy and generates factors of creative exploration processes. The art is created and the process of creating wealth of its trade has some cost implications that the market forces construe as the price. This means that not all wastes are potentially of secondary benefit. In all, the slogan *waste-to-art* and *waste-to-wealth* connotes that waste management operations must transcend delivery of service to provisions of goods or values like energy, skill and creativity (Egun (2012).

Concept of Waste Management: Management of textile wastes using the 5 R's

The 5 R's' method of managing textile wastes are Refuse, Reduce, Reuse, Repurpose and Recycle

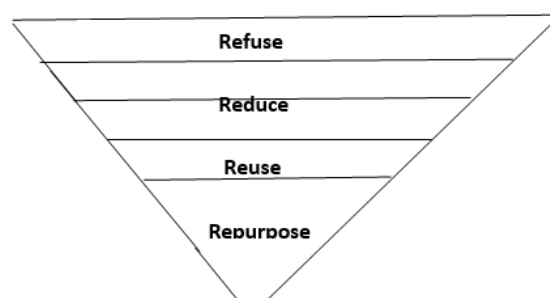


Fig. 1 Hierarchy of 5 R's Waste Management. Source: - Environment and Earth Sciences, (2014)

Applying the 5 R's to waste management and recycling strategies can positively impact the outcome of program by significantly reducing the amount of textile wastes being generated. In the 5 R's hierarchy, recycling is treated as a last resort after attempting to refuse, reduce or repurpose. It is advised to walk through each of these steps in the stated order before disposing waste.

Step One: - Refuse

Refuse to buy wasteful or non - recyclable products.

Step Two: - Reduce

Reduce the use of harmful, wasteful and non – recyclable products such as fabrics blended with petrochemical substances (synthetics). Reduce dependency on these kinds of products, results in less waste materials ending up in landfills and the associated negative environmental impact.

Step Three: - Reuse

Single-use synthetic textiles have created a “throw away” culture by normalizing consumer behavior of using materials once and then throwing them away. Nylon and polyester crises have become one of the world's greatest environmental challenges.

Step Four: - Repurpose / Up-cycling

For every item that cannot be refused, reduced or reused, try repurposing it. Many people in the green community refer to this method as up-cycling. Sometimes it requires using some creativity.

Step Five: - Recycle

Recycle comes in, once gone through all the R's, recycling is the most environmental friendly waste disposal method. Most companies are surprised by the amount of waste they reduce by establishing effective recycling program.

The concepts achieved from experiences include Adaptation, Exploration, Utility and Aesthetics which are also the key generic terms on which this study is structured. These were means of reusing and up-cycling textile waste materials for textile art production to create artworks of beauty and profitable end uses. Textile art could be used as a tool in diverse means which communicates identity, values, beliefs, social status and aspirations (Hutcheon, 2004). It is also an avenue for the researcher and people alike to checkmate the abnormalities in the immediate environment especially in waste management in the country. Moreover, the concepts involving adaptation, exploration, aesthetics and utility are also paramount in order to actualize the aim of this research.

Theoretical Framework

Labaree, (2009), noted that theories are formulated to explain, predict and understand phenomena in relation to the subject matter. Swanson, (2013) observes that theories in many cases challenge and extend existing knowledge within the limits of critical bounding assumptions. In the theoretical framework, therefore, it involves a set of ideas that includes a hypothesis confirmed by experiments (explorations and adaptations), and observation (Labaree, (2009). Also, McMackin, & Flood, (2019), analyzed theory as a coherent statement or set of ideas, which explain observed facts or phenomena. It also sets out the laws and principles of something known or observed by hypothesis, which are characterized by observations and experiments.

Theoretical Framework therefore basically provides support for this study because, according to Cohen, (1968), it will make available known relations among various ideas to ease application and discussions. The selection of the adaptations and explorations using textile waste materials in this study are purely for the purpose of this research as a contributory measure to waste management in Nigeria. In the theoretical framework, the theories employed for this research include Working Hypothesis and Pillar Questions. These theories that were used are appropriate for this study. They facilitated better understanding for the purpose of creating awareness, showcasing creative abilities through various explorations and adaptations of some waste materials which have not been properly harnessed in the area of study. This will be a motivating approach in textile art production and trade.

Theory of Working Hypothesis

In working hypothesis using empirical hypothesis, it will serve as a useful avenue to carry out findings on how, where and why waste management is a problematic issue. It will also be used to create avenues to solve the problem of waste disposal in the area of study. Labaree, (2009) noted that in working hypothesis, it is often used as ways to investigate a problem in a particular city or public agency. McMackin, & Flood, (2019) in their findings presented that in working hypothesis using empirical hypothesis, it is based on evidences in scientific method which can be tested by using instruments which extend the senses. Schmitz, (2016) explains that the empirical hypothesis is based on physical experiences which are derived from immediate environmental appearances.

In fact, the relevance of McMackin, & Flood, (2019) theory to this present study lies in the perception of empirical hypothesis which were tested based on the random sampling of some urban areas in Enugu State. Enugu Metropolis was seen as having the largest population. Observation and experiment therefore proved that the area has the highest generation of textile wastes and other waste materials with an overwhelming waste disposal. Schmitz, (2016) postulates a similar theory, that was based on physical experience. It was derived from immediate environment appearance as witnessed from the sampling of three strategic dump sites in different locations. These observed the percentages of the highest and lowest types of waste generated as reported by Enugu State Environmental Protection Agency (ENSEPA). The findings of the (ENSEPA), (2009) showed that the highest kilogram of waste is generated from Textiles, vegetable materials / organic compost - 37kg while that of batteries, foams and many others ranked the least with 18kg.

Labaree, (2009) therefore sees the working hypothesis theory as being exploratory. This can be geared towards solving the problem of disposal of wastes such as textile and other solid waste materials and the poor management of wastes. The explorations and adaptations of some of the textile waste materials for textile art production and trade can be used to support Labaree's arguments. This is an avenue to investigate a problem and offer a solution to the challenges.

Theory of Pillar Questions

Another relevant theory is the Pillar Question theory which was expounded by Richmond, (2010). It explained that Pillar question or Pillar assessment is essentially a hypothesis asked in the form of a question. It is a tentative prediction about two or more variables. Prasad, (2001), he used Pillar assessment to assess data in his study. He further stated that pillar question is an uncertain prediction about the nature of relationship between two or more variables. In relation to this study using the theory of pillar questions or pillar assessments, the researcher used research questions to assess data on variables on peoples' opinions on waste disposal and management. The researcher therefore, ascertained from the findings that majority of the respondents were concerned about the volume of wastes presently generated in Enugu metropolis and are ready to offer solutions to avail the situation.

However, the theories of working hypothesis and pillar question aided the researcher in the adaptation and exploration processes as positive contributory measures towards efficient and effective waste management. However, the theories also aided the researcher to find out that about 80% textile manufacturers and garment industrialists generate wastes. According to the report by the Enugu State Environment Protection Agency (ENSEPA), (2009), it was found out that the kilogram of waste compositions in Enugu metropolis showed that 21kg, 18kg, 10kg, 6kg and 5kg being waste compositions of plastics / polythene, paper products, metal / aluminum, ceramics and textiles materials respectively are not effectively recycled, up-cycle or re-used. Many of the industrialists do not make provisions towards recycling and re-using their waste products. This study will go a long way to create awareness to enable the manufacturers and industrialists offer alternative lasting solutions through recycling, re-using and up-cycling wastes to new end-user products.

Empirical Studies

Chime, (2014) postulates that textile fabrics discarded as textile wastes can be a source of good innovation to design process and an avenue to reuse some of these textile waste materials for self-actualization of a set goal. Nwosu, (2014), examined the impact of textile waste to economic growth and the alarming rate of poverty and unemployment in Nigeria and observed the use of textile waste materials has come to the rescue of not only the supply of essential materials to quilt and applique designers, but also reducing the horror of environmental degradation.

Odeh, (2008), explored recycled fabrics by using their off-cuts for designing of quilts and other fashion accessories and recycling them into foot mats, bed covers and for collage composition. Other uses of the fabric wastes by the Artist are surface (canvas) for painting and creating mixed media artworks, handbags, purses, slippers. Several soft toys, lampshades and table mats. Dendel, (1974) also acknowledged some famous artists like Tanya Baker for her creativity using scraps of fabric to make a blouse and ceremonial outfits with appliqued shapes of figures and geometric forms. The Artist also used scraps to compose a banner of African animals, fish, birds and abstract figures, these scraps of fabric were organized into a unit picture by stitching and sticking methods, producing an applique material for both aesthetic and decoration purposes. Alpha Salveson used assorted blue tints and shades, gray and emerald green coloured scraps of fabric. These were adapted by combining the pieces of coloured scraps in unique ways and applied some stitches to hold the composition together. She produced a hanging "Transformation" which won many awards. Another is Ellen Tanny's applique of Folkloric compositions turned out into a mythological hunter figure. The figure illustrated a Liberian tale about a great hunter who accomplished supernatural feats as he went to hunt in the bush. The researcher was influenced by the Artists' findings through the production of creative garments and apparel.

The researcher adapted some of textile scraps to explore on applied figures of composed lines, shapes and forms. These enhanced the uniqueness, beauty, credibility and creativity of the artworks.

Research Methodology

Research Design

The researcher employed an exploratory research design and descriptive survey. The study also employed unstructured formatting and informal procedures to interpret the data collected. Basically, a qualitative research method was adopted for the study.

Sources of Data

Data for the study was gathered through primary and secondary sources. Primary sources are mainly oral, such as observation and interview, while secondary sources were written documents (both published and unpublished such as books, magazines, internet sources among others)

Method of Data Analysis: A qualitative method of data analysis was employed. Pictures of textile art produced by the researcher were also taken and analyzed.

Studio exploration processes

These materials were locally sourced in the streets, waste bins, tailoring workshops garbage dumps and landfills while the tools were also employed for the easier and faster handling of the textile waste materials. However, the studio methods of the textile art production commenced in the following stages –

- Stage one: - Sketches / Conceptualization
- Stage two: -Gatherings/ selections
- Stage three: -Finishing.

Stage One: -Sketches



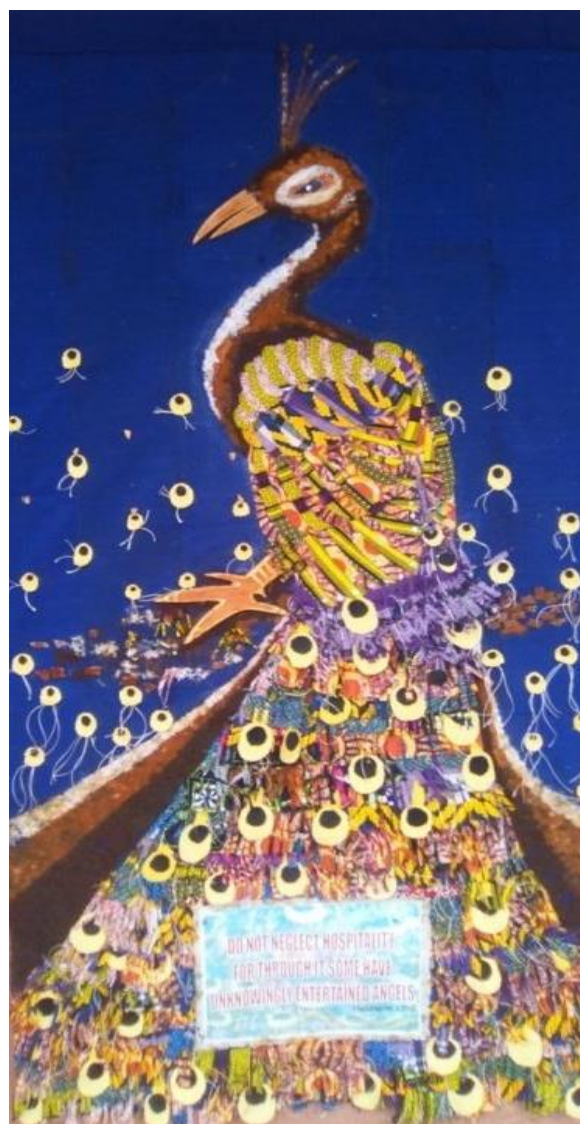
Fig. 1: Sketch *O di uko na Mba (A Rare Gem)*
© Researcher



Fig. 2: Sketch of Obu-uzo egwu –
The Lead-dancer
Stage 2: Production procedures



**Plate 1a. Early stage of development –
O di uko na Mba (A Rare Gem)
Photograph: - Chime, Fracklyn. (2019)**



**Plate 2: Artist: - Chime, Nwamaka Francisca
Title of the artwork: *O di uko na Mba (A Rare Gem)*, 2019,
Size of the Artwork: - 6ft. x 3ft, Tecchniques Explored: Appliqué, hand stitching, gumming,
wood carving, mixed media, painting and Computer design.
Nature: - 2 Dimensional
Media: - acrylic yarn, printed paper work (Computerized), pieces of calabash,
gloss paint and scraps of nylon packs.
Photograph by Chime, Franklyn (2019)**

At this stage, the work “odi uko na mba (Rare Gem)” is finally finished and mounted on a wooden base.

Sketch 2: -- *Obu-uzo egwu, Nkwa Umuagbogho* – The Lead – dancer (A three dimensional art)



Fig. 3: Sketch - *Obu-uzo egwu* –The Lead-dancer. © Researcher

Production Processes for- *Obu-uzoEgwu* (The Lead - dancer)

The process for the production of *Obu-uzo egwu* starts with initial sketches and conceptualization, after which a metal armature is produced. Next is the addition of textile waste materials on the armature until the desired addition is achieved. Colourful fabrics, and other materials are added to define the work and increase its aesthetic appeal.

Plate 3: Stage 1- Armature *Obu-uzo egwu* – The Lead – dancer



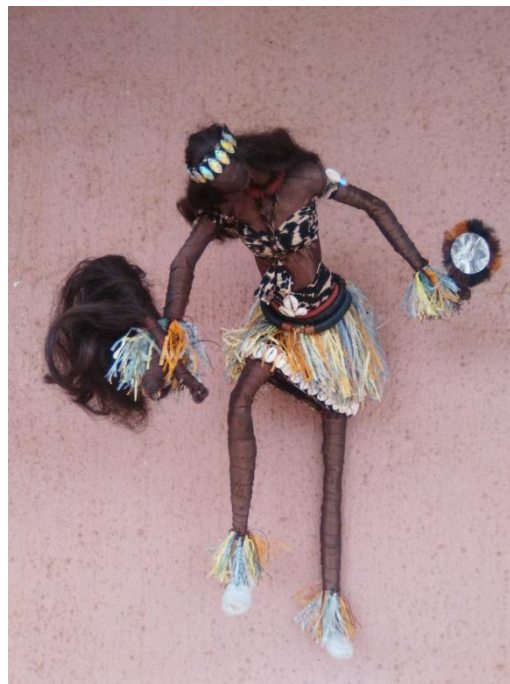
Plate 4: Initial covering the armature with discarded fabrics.



Plate 5: Stage 3- Padding process of the artwork



Plate 6: Full application of textile waste materials to the work. Photographs: - Chime, Franklyn. (2020)



**Plate 8: Full size - finished work - *Obu-uzo egwu, nkwa umuagbogho* – (The Lead-dancer)
Artist: - Chime, Nwamaka Francisca
Title of Artwork: - *Obu-uzo egwu, nkwa umuagbogho* – (The Lead-dancer)
Year: - 2020.
Size of Artwork: - 3ft:
Techniques Employed: - Appliqué, macramé, hand stitching and mixed media.
Media: scraps of fabric, extracts from used polypropylene bags, scraps of foam, cowries, metal armature (1/4-inch rod), electrodes, scraps of polyester hair fibre (attachment), evo stick, nylon twine and *jigida* (local flat beads)
Photograph by Chime, Franklyn (2020).**

Project Analysis Results and discussions on the adaptation and exploration processes for art production Descriptive analysis of studio production

The researcher was moved by the deplorable condition of our environment especially in her immediate environment in Enugu on waste disposal and its poor management. These waste materials have not been effectively and efficiently managed hence they contributed to the presence of wastes littered in piles, heaps and in heavy dumps in the environments and beyond. Most of these textile wastes create health hazards and environmental pollution in the area of study.

The researcher used works produced in the studio in the course of the study as data to describe, analyze and present the practicability of the explorative processes of the study. This also proved that the use of textile waste materials for textile art production and other aspects of art contributes to waste management through waste-to-wealth explorations. This research showcased two artworks among other artworks successfully created through the use of textile waste materials. These artworks were produced both in two and three dimensional arts

The first work is “Odi uko na mba”, the work is a wall hanging suitable for interior purposes. A peacock was prominently depicted as a symbol of value and prestige.

“Odi uko na mba” is an Igbo maxim which translates or refers to someone or thing of very high value or a rare gem.

The second work is “Obuzoegwu” which is also an Igbo work that translates to a “Lead Dancer”. It is a relief textile-sculpture made of discarded textile materials and other solid wastes. The work has purely aesthetic value and could serve as a wall hanging. The work depicts a typical traditional Igbo maiden dancer in her full regalia.

These waste materials were locally sourced from the streets, waste bins, tailoring workshops garbage dumps and landfills. The researcher made lots of improvements on the “finishing” of the artworks to enhance the aesthetic and durability to harness their appeal and marketability. This has also created possibilities for mass production. Basically, the researcher showcased briefly the explorations of some of the following techniques used in textile art productions which included appliqué/fibre art, quilting, tie and dye, batik process, hand stitching, machine sewing, knotting, inter-looping and inter-twining. Also included were mixed media, weaving production and macramé. Each work commenced with sketch making, assemblages of waste materials, cutting, washing and sorting of textile waste materials.

Conclusion

It was earlier said that textile waste and other waste materials are unwanted, unusable materials which are discarded after primary use. They are often regarded as worthless, defective and of no use. According to Basel Convention (1989 Art 2 (1), “these wastes were generated during the extraction of raw materials. They include the processing of raw materials into intermediate and final products, the consumption of final products and other human activities”. These activities resulted in overwhelming situation of waste disposal and its poor management to arrest the deplorable condition.

In view of the above findings, the researcher noted that residuals recycled, up-cycled or reused at the place of generation are not properly harnessed. Today textile waste materials have provided wealth which can be construed as “waste-to-wealth” and “waste-to-art” by many art expressionists. With this extension through various explorations in art, effective waste management has become not only a source of providing employment but as an instrument for boosting effective art market. Explorations such as appliqué, quilting, mixed media, macramé, tapestry, hand stitching, machine sewing and patterning among other techniques were used to showcase the researcher’s creative ability. These played vital roles in this study as means to achieve various ends.

The outcome of these productions cannot be overemphasized especially considering aesthetic appeal of the works and the low cost of production. The researcher’s findings yielded positive results through the production of artworks such as *O di uko na Mba* (A Rare Gem) and *Obu-uzo egwu, nkwa umuagbogho* (The Lead Dancer) among others. These works showed positive impact to waste management in the cause of the study.

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