

## Recycling of Coloured Plastic Materials as An Art Medium in Innovative Painting

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### **Abstract**

*Contemporary artist in Nigeria face a difficult time in practicing and exploring new techniques that enhance their artistic innovations. The rate of art materials is well outside their means, their inspiration is often misunderstood, and sources of social support are limited. In Nigeria, plastic litter is a major environmental and public health problem. The World health organization in (2018) banned all plastic used as secondary packages regardless of their thickness or color. While this is being implemented, there continues to be plastic usage in our environment. This being the case recycling plastic is a good alternative for reducing harm to the environment. As the use of plastics increased over the years, the build-up of used ones is evident throughout the capital city and in spite of the ban, it has continued. There is a need for plastics re-use and recycling. The study aimed at identifying colour plastic materials which could be recycle as an art medium. After recycling new forms were created. This new outcome was used in the production of innovative painting through the plastics. The types of coloured plastics found appeared to show that PETE, HDPE and LDPE were mostly found in the area of the study. The painting incorporated element and principle of art, shapes textures rhythm lines proportion and the resultant paintings confirmed that recycling of plastics PETE, HDPE, LDPE PP could be successfully used as an art medium in the production of innovative paintings. The resultants of this study should also enable contemporary artist to develop their innovative paintings using plastics materials inspired by different plastics materials This research therefore recommends the recycling of plastic materials as an artistic medium and should be encouraged as it creates a new form of art and will help artists in accessing alternative materials for their compositions as well as help in cleaning the environment.*

**Keynote:** *Recycling, Art Medium, Innovative Painting, Colour Plastics*

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## Introduction

Plastic is a material that has both positive and negative impacts to the society and environment. The issue of plastic waste disposal has remained a serious environmental problem particularly in major urban areas in Nigeria. Kahora (2016) asserts that currently in Nigeria plastics are thrown out indiscriminately frequently with tragic effects on the environment. Currently a part of garbage litter on streets and in garbage dumps, plastics have become a sore sight as they attach themselves to trees and shrubs, despite potential for gainfully use through collection and recycling.

Plastic continues to be a menace to the environment and this is acknowledged worldwide Maina (2016) States that in West African countries various strategies have been established in attempt to address the problem but prove abortive. Similar law banning the use of plastic in the world came into effect on, 2018 through WHO. However, unless such laws become African phenomenon, countries like Nigeria will continue to struggle to sustain environmentally acceptable disposal systems of plastic waste.

In the wake of this reality more practical measures were sought among them burying and burning of plastic waste by the citizens in this country. With concerns on its effect on the environment, attention shifted to exploring more sustainable and safer strategies of plastic waste disposal such as recycling. According to West (2008) the need for plastic recycling is growing as the use of plastics has increased over the years resulting in a significant amount of plastic being available

Creative Art scholars and researchers have realized the need to seek solutions to the plastic threat by proceeding techniques to user friendly materials in their creative art while creating a better environment and livelihood opportunities for young people. However, sector experts have highlighted several limitations. For instance, Renee Mboya (2015) cited in *The Voice of Africa* noted that artists lack exposure in the use of mixed media techniques, while Miriri (2006) points out at high cost of acquiring high quality materials for most artists as a challenge to explore their full potential. This is further aggravated by decline in art education and heavy subscription of tourist and expatriates in the art market which encouraged lack of experimentation (Gogineni, 2012). This study seek to address this gap by exploring the extent of plastic use in production of painting. .

## Statement of the Problem

Art materials continue to be expensive for upcoming artists in Nigeria. Using plastic as an art medium in innovative painting is noted to be an important option to address some of the challenges upcoming artist face regarding access to art medium, techniques and tools for painting compositions. This research addressed the re-use of plastic in the production of painting compositions.

Another challenge in Nigeria and other part of Africa is environmental pollution resulting from inappropriate waste disposal methods. WHO (2018) has realized the negative impact of used plastic on the environmental which banned all plastic carrier bags used as secondary packages regardless of their thickness or color. While this ban was being implemented, there continued to be plastic waste in Nigeria. This study explores the recycling plastics as art material as an additional strategy to reduce the negative impact on the environment.

## **Objective of Study**

The specific objectives are to:

- 1) Identify and collect colored plastic materials as an artistic medium for painting.
- 2) Recycle colour plastics as an art medium in developing forms that will be utilize in the production of innovative painting
- 3) Apply the forms in the production of innovative painting

## **Literature Review**

This chapter presents relevant literature review designed to support the case of this research - that plastic waste and its disadvantages could be turned into a viable source of artistic materials. A range of readings were reviewed in order to gain a deeper understanding of the state of plastic usage in Nigerai generally and specifically in the cities. In so doing, the evidence supported the opportunity for artists to use discarded plastic waste materials to produce artwork as well as the improvement of an economic opportunity for the youth and by extension the need for society at all levels to gain a better appreciation of the harm of discarded plastic to the environment

## **Painting materials**

Painting materials are the basis for artists to express their artistic language expression. Painting materials also support the artistic features of paintings. Artworks are the fusion of aesthetics and emotions (Saarinen 2019). The expression of artistic emotions needs to be revealed by the painting material that exists in real life. The way humans change material existence should be accomplished with the help of their emotions, experiences, and life experiences (Maiese 2016). Painting materials are the research information that can be directly obtained and observed by people in paintings. Researchers can judge the characteristics of paintings based on the texture and color of the painting materials. The research of painting materials at this stage is not only related to aesthetic research. Other research fields also research painting materials. The researchers intelligently classify the paintings according to the characteristics of the painting materials in the paintings (Bianco et al. 2019). Painting materials can also help people study the age of paintings. According to the spectral characteristics of the painting materials, the age of the paintings can be analyzed (Ortiz-Herrero et al. 2019). Meanwhile, the damaged paintings can be repaired according to the composition, texture features, and color characteristics of the painting materials in the paintings (Magon and Lama 2019). Therefore, the basis for studying the characteristics of painting works is to study the painting materials in painting works.

## **Plastic**

According to the Collins English Dictionary plastic refers to a material produced from oil by a chemical process, light in weight, does not break easily and is used to make many objects. Maina (2016) observes that plastic has become indispensable in the modern world, which unfortunately is problematic because it is not environmentally friendly. Wachira et al., (2014) documented the invention of plastic shopping bags as being designed and manufactured through the innovation of Swedish Engineer Gustaf Thulin in the 1960s. This clearly indicates that we have been having coloured plastics wastes for more than four decades.

Kurt (2001) observed that color in plastics would fade based on the amount of exposure to the sun. This was due to the chemical make-up of the plastic. The chemical bonds found in plastic were broken down by ultraviolet rays and in so doing faded the colors. This included the deterioration of color brightness. Depending on the type of plastic, the reaction to fire was different. Some would melt, while others would not. A significant amount of plastic carried some toxicity.

According to Hopewell J., Dvorak R. & Kosior E. (2009). most plastics have a recycle sign numbered from 1 – 7 in which each number represents a specific plastic type and notes number 7 as an exception which is anything that cannot be classified in the first 6 number categories. Anthony (2003) categorizes the specific types of plastic in the following manner:

i. PETE is a plastic that is mostly used and commonly found. It melts fast when in contact with fire and is used to make most water bottles.

ii HDPE is one of the safest plastics. It is easy to recycle and is a safe alternative to many other plastics. Most of Milk jugs and Detergent bottles are made from this.

iii. PVC is one of the most dangerous plastic produced today. It is made with chlorine and toxic additives, including heavy metals like lead, endocrine-disrupting phthalates and toxic flame retardants, for it to be a stable and usable consumer product.

iv. LDPE is a safe plastic and is commonly used in the craft world to make things like buttons, toys, plastic Wrap, Grocery bag, and certain food containers.

v. PP is safe plastic and is used in making things like bottle caps, Storage Bins, and plastic dishwasher.

vi. PS is Styrofoam and should not be heated.

vii. MISC – plastics that cannot be summed up in the prior types are classified here.

### **Plastic Pollution in Nigeria**

Over 3 million residents in Nigeria who generate a significant amount of waste. It is estimated that 20% of this waste is plastics. Japan International Co-operation Agency JICA (2016) reported that plastic garbage increases on a daily basis caused by rural-urban migration. (UNEP, 2005) reports this migration contributes to about 1, 450 tons of Municipal Solid Waste (MSW) being generated daily in Nigeria. Shiferaw (2006) in the Kibera slums of Nairobi, plastic bags are used to collect human waste and are referred to as „flying toilets“ because after relieving oneself in the plastic bag, it was thrown away in any and every direction. This practice was the result of limited toilet.

### **Challenges Facing Artists**

Tryon (2011) states that one of the biggest challenges facing artists is cash flow. Creating new works need access to resources which are not easily available as one has to pay every day bills while seeking markets and focus on being creative, all at the same time.

Gaugy (2015) stated that the greatest challenge was the problem of being both artist and businessperson. Binder (2012) points out several challenges that artist’s experience. These comprise; 1) lack of time and money; 2) creating something wonderful in spite of something

horrible; 3) creating with too many constraints; 4) creating with too few constraints; and 5) seeing what you've created and accepting it.

All five of these are relevant to the artistic environment in Nigeria. Indeed, being disciplined and committed to being an artist could be a challenge when funds and artistic materials are limited. His second point resonated with the state of the environment in Nigeria because of plastic waste and the horrible devastation it wreaks on the environment. Binder said "Remind yourself and those around you that humanity can create beautiful things too. Be the flower that survives the battlefield.

## **Methodology**

### **Research Design**

This study applied exploratory research design which is valuable in seeking new, clear and deep perception of a situation, to ask questions and to assess remarkable development in a new light (Saunders et.al, 2003). The exploratory design explored the type of coloured plastics in the selected areas of study. Qualitative method of research was applied to explain the relationships between variables and to describe their variations and their forms (Mugenda, 1999).

### **Site of study**

The physical area of study will be, specifically Rumde and Luggere slums areas in Yola South. The selection of these areas will be purposively selected considering that slums had a higher rate of plastic waste pollution in the city. Consequently, the coloured plastics was used in developing new forms that were utilized in innovative painting execution. This was conducted at Federal College of Education, Yola Adamawa State.

### **Sample Size**

After collecting the specific items from Luggere and Jimeta bypass in Yola North Local Government Area, Adamawa State, Nigeria, 72 samples of coloured plastics from jimeta bypass and 72 samples of colored plastics were randomly selected per each identified area. Which give a total number of 144 collected. Each colour plastics PETE, HDPE, LDPE, PP

### **Data Collection Techniques**

The following tools and procedures was employed in collecting data.

#### **Identify and collect colored plastic materials as an artistic medium for painting.**

The researcher collected primary data comprising samples of coloured plastics from yola north local government. In identifying samples of coloured plastics, observation and library research were used. These collections were documented for presentation.

#### **Recycle colour plastics as an art medium in developing forms that will be utilize in the production of innovative painting**

In developing new forms through recycling of coloured plastics, a study was done to exploit developed designs from the selected coloured plastics from different areas. Thumbnail sketches and coloured combination were done to produce a wide range of varieties of innovative paintings.

### **Apply the forms in the production of innovative painting**

Successful recycled forms from the selected colour plastics were applied as an art medium to produce innovative paintings using different techniques and are presented in form of a table that enumerates the number of paintings done in the project

### **How Plastic can be recycling as an Artistic Medium in innovative painting**

In order to recycle how colour plastic can be used as an artistic medium, the researcher used self-administered, observational studies using sketches, watching videos and photography taking to collect data from samples to guide the researcher in studying and experimenting different techniques.

Data collected guided the researcher in determining the current state of materials and techniques employed by artists in the gallery. A number of mixed media techniques were recycled on different background surfaces. The researcher employed a heat gun instrument, pallet knives, staple gun, conta glue and other conventional surfaces like hard board to generate a number of experiments using different mixed media techniques.

Each technique were selected based on the type of plastic found, colour and the theme to be used. For example Assemblage technique used PVC, HDPE, PETE, PS plastic because it involved stapling; tie and wrapping then glue them onto a surface using conta-gum rather than heating the plastics together and these types of plastics could be used to form market scene compositions.

### **Applying the Findings of the Experiments into Artistic Compositions**

The researcher employed a number of selected mixed media techniques to generate experimental mixed media findings with emphasis on the type of coloured plastic material used and textures created in creating and depicting compositions based on themed. The secondary experimental data collected were employed in the mixed media compositions experiments. These findings were applied on the final creative project. The table below shows the record sheet of the creative projects.

## **PRESENTATION AND ANALYSIS OF DATA**

### **Presentation and analysis of Objective 1**

The first objective was to identify and collect colored plastics as an artistic medium for innovative painting.

Sample forms collected were recorded and analyzed according to their sources as shown in table below. PETE plastic red, yellow, blue, black, colorless, white HDPE red, yellow, blue, black, colorless, white LDPE red, yellow, blue, black, colorless, white. PP red, yellow, blue, black, colorless, white.

### **Study areas and number of samples**


Location in Yola North	Plastic types found	Red	Blue	White	Yellow	Black	Colourless
Jimeta Bypass	PETE	3	3	3	3	3	3
	HDPE	3	3	3	3	3	3
	LDPE	3	3	3	3	3	3
	PP	3	3	3	3	3	3
<b>TOTAL</b>							<b>72</b>
Luggere	PETE	3	3	3	3	3	3
	HDPE	3	3	3	3	3	3
	LDPE	3	3	3	3	3	3
	PP	3	3	3	3	3	3
<b>TOTAL</b>							<b>72</b>

Below is a samples plastics collected from the area of study



Samples of PETE plastics



Sample of LDPE



Sample of PS





## Sample of HDPE

### **Presentation and Analysis on recycled forms Using Coloured Plastic as an art medium**

The second objective of the study was to do experiments in painting techniques using coloured plastics as an artistic medium, the researcher did a creation of artistic forms.

#### **Recycling in Artistic Compositions Using Coloured Plastic as an art medium**

Recycling included the production of a wide range of forms using the collected colored plastic as the main artistic medium. A variety of forms were generated using a number of mixed media techniques, these techniques were selected based on the type of plastic used and each given a theme based on the researchers creativity. For example Assemblage technique used PVC, HDPE, PETE, PS plastic and will be used in mixed media. technique used HDPE and LDPE. For the recycling that had portrait based themes the researcher used Mixed media technique allowed the researcher to mix the safe and unsafe plastics this time attaching them onto a flat surface using conta shoe gum.

#### **Recycling forms:**



**Technique:** layering

**Plastic Type:** HDPE, LDPE, PP

**Theme:** Abstract

**Topic:**

The innovative painting technique used in this work was mixed media technique. It was felt that because HDPE, LDPE, PP plastics are light in weight, they can easily be lay and glued onto other and offer a variety of colours that go along with theme.

#### **Recycling forms:**



**Technique:** layering

**Plastic Type:** HDPE LDPE

**Theme:** The power of art

**Topic:**



**Technique:** mixed media  
**Plastic Type:** HDPE, LDPE, PETE  
**Theme:** In my dream



**Technique:** mixed media  
**Plastic Type:** HDPE LDPE, PP  
**Theme:** Blue painting

The innovative painting technique used in this work was assemblage. It was felt that HDPE and LDPE plastics could be added of times then cut to create depth. These types of plastics offer a variety of colours that go along with the theme composition

### **Presentation and analysis of Objective 3**

The third objective was to apply the selected forms designs to produce paintings that were based on themes. The innovative painting produced are presented and analyzed hereafter.



### **Summary for painting 1**

**Title:** portrait

**Technique:** mixed media

**Art Medium:** HDPE, PP

**Size:** Multiple canvas

**Size:** 2 x 4 feet

**Description:** The composition depicts a beautiful kanuri woman. The costumes and adornment used shows that its part of adulthood ceremonial outfit. Long soft bold lines, shapes used to create the background. Warm and cool colours were used in the portrait layering technique was used to create a glossy and tactile texture.



### Summary for painting 2

**Title:** landscape

**Technique:** Mixed media

**Art Medium:** HDPE, LDPE PETE

**Style:** Multiple canvas

**Size:** 2 x 4 feet

**Description:** The composition reveals a natural landscape set up idealized and reflected in colored plastics. The use of primary colours to create highlighting and shadows give the artwork a rich tonal values in general.

### Summary

This study sought to identify coloured plastics from dumpsite in the slums areas that can be recycle as an art medium in the production of innovative paintings. This study identified 4 types of plastics

in the area of study. PETE, HDPE, LDPE, and PP. 144 samples varieties of coloured plastics were collected, and the samples identified were based on different colour varieties, red, blue, yellow, black, white and colorless.

To answer the second objective, the selected samples collected from the dump site in the slum area were recycled as an artistic medium in developing forms that can be use in the production of innovative technique in paintings based on themes. Finally, the third objective, recycled forms were applied in the paintings to showcase how this colour plastics can be creatively applied as an artistic medium in the production of innovative paintings.

### **Discussion on recycling of coloured plastics as an art medium**

This section describe how innovative paintings techniques experiments like assemblage, mixed media were applied in the creation of the main project. This showcased how this medium can be creatively applied in the field of fine art. Drawing is a crucial part in the creation of any work of visual art. The researcher embarked on a series of various forms of compositions. The preliminary drawings were developed into studies. The studies produced are presented, categorized and analyzed according to the themes of the study. In doing so visual from human activities, environment, related themes from Nigeria were harmoniously combined to generate the drawing

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