SURFACE FINISHING OF OUTDOOR POLYSTYRENE SCULPTURES; EXPLORATION OF INTEGRAL COLOURING AND WAX PROTOCOL.

BY

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HND (AUCHI); MFA (BENIN)
PG/ART 1119010

A THESIS WRITTEN IN THE DEPARTMENT OF FINE AND APPLIED ARTS, FACULTY OF ENVIRONMENTAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY

APRIL, 2026

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A THESIS WRITTEN IN THE DEPARTMENT OF FINE AND APPLIED ARTS, FACULTY OF ENVIRONMENTAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY (PhD VISUAL ARTS) IN SCULPTURE

SUPERVISOR:
PROFESSOR EFEMENA ISAIAH ONONEME

APRIL, 2026

CERTIFICATION

We, the undersigned do certify that this work carried out by John, Oshoke Anabui with Matriculation Number PG/ART1119010 in the Department of Fine and Applied Arts, Faculty of Environmental Sciences, University of Benin, Benin City. This works is adequately in scope and qualities for partial fulfillment for the award of Doctor of Philosophy (PhD) in University of Benin, Studio Arts (Sculpture).

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DEDICATION

This thesis is dedicated to God, for His love, care and grace throughout the duration of this study.

ACKNOWLEDGEMENTS

The following luminaries are hereby acknowledge and for their indispensible contributions to the triumphant consummation of this scholarly endeavour. Profound and enduring gratitude is proffered to my esteemed supervisor, Professor Efemena I. Ononeme, for his altruistic devotion and scrupulous mentorship throughout the investigative continuum. Equally, heartfelt commendation is tendered to Dr. Daniel N. Osariyekemwen, Head of the Department of Fine and Applied Arts at the University of Benin, for his sagacious and exemplary stewardship. Sincere appreciation is extended to the coordinator of the postgraduate programme, Professor Samson O. Ukweku, for his unwavering commitment to the seamless coordination of all postgraduate affairs.

Special gratitude is extended to Professor John Ogene, Professor Manasseh E. Imonikebe, Professor Sweet U. Ebeigbe, Professor Freeborn Odiboh, Professor Kingsley Emeriewen, Professor Theresa Osaigbovo, Professor F. Obasuyi, Dr. Kennedy Eweka, Dr Paul Aikhionbare, Assoc.Prof. Lovina Onwuakpa, Assoc.Prof. Kennette D. Nwabuoku, Dr Felix Osaigbovo, Dr (Ven) Shola Ogbebor, and Dr. Ken Njoku. For profound gratitude is also tendered to Professor Egwali Franklyn for his sagacious counsel and benevolent guidance. Equally cherished is the fraternal camaraderie and steadfast encouragement of Dr. Daniel Ekhareafo, a true brother and confidant whose singular devotion was to ensure my unequivocal success throughout the entirety of this programme.

This acknowledgement would be incomplete without expressing profound gratitude for the unwavering love and substantial financial support provided by my father, Raphael Anabui, my mother, Justina Anabui, Mr. Wale Adigun, Michael Anabui, Julie Bello, and Philip Anabui throughout this programme, their steadfast generosity ensured that I was never in want of any necessity. Additionally, I extend heartfelt thanks to Cyril O. Aghware, Bennett Onosigho, Emmanuel Agbokonko, Seun Osiboye , Akpan Ekpeyong, Angus Peters, and my fellow PhD colleagues for their invaluable companionship and unwavering support during the course of this academic journey.

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ABSTRACT

Over time, outdoor sculptures have often succumbed to the harsh weather conditions. Hence, the dire need to safeguard these sculptures from continued degradation. This research is premised on the observed deterioration of the outdoor polystyrene sculptures on Ekenhuan Campus, executed by John Oshoke Anabui in 2014. After nine years of exposure to harsh weather conditions, the sculpture has shown significant signs of wear. The paint coating originally applied to enhance its appearance and protect it from damage has begun to peel, and the surface texture has progressively degraded, despite a restoration effort carried out in 2015 and 2023.

This research explored the use of integral colour and wax finishing techniques as an alternative to conventional surface finishing methods. The process involves mixing water-based paints with sawdust, which is then sun-dried. Additionally, natural materials such as charcoal, eggshells, and wood ash were experimented with and utilized as integral pigments in combination with sawdust. The coloured sawdust was mixed thoroughly with polystyrene that was dissolved in PMS (Premium Motor Spirit) resulting in a sticky, paste-like consistency. This mixture was then transformed into a solid form using the modelling and casting technique. The initial layer of cast carried the colour, design, and patterns that defined the final appearance. The entire cast had a thickness of approximately half a centimeter. To enhance durability and preserve both the colour and surface texture, a protective polish using beeswax and paraffin wax was applied, serving as a barrier against humidity and surface abrasion.

However, after eight months of simulated outdoor exposure, it was observed that the treated samples exhibited significantly greater colour retention than painted controls and there were no abrasion on the surface texture. In addition, the liquid soap used as a release agent between the cast and the mould was found to react with PMS and visible stains on the surface of the cast in the special project, making the surface look dull and faded but after applying the wax polish, the final outlook was enhanced with no tract of the liquid soap stain.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The study of the visual arts reveals that an artist's inspiration often stems from a deep interest in both theoretical concepts and material techniques- especially in sculpture, where these elements closely intertwine. The rise of industrialization in the early 20th century brought about the introduction of new materials such as cements, metals, iron rods and steel (through advancements in metallurgy), as well as plastics(through polymer science). This development significantly boosted artistic production, as the availability of these innovative materials greatly expanded creative possibilities in the visual arts.

The selection of materials and techniques in sculptures significantly influences the physical and chemical properties of the artwork. Elements such as texture, tensile strength, colour, form, and durability are all determined by the materials chosen to achieve the intended effect. Artists continually explore unconventional materials like polystyrene, palm kernel shells, coconut fibres, and others in their creative process.

During studio work and experimentation- particularly in the area of polymers, the need for a durable and lasting finish becomes essential, especially after encountering failures in previous projects. A solid understanding of the nature, composition, and characteristics of these materials greatly enhances their effective application, as well as their interaction with other materials and environmental factors during studio practice. This practical knowledge not only improves outcomes but also helps artist save time and reduce production costs.

Paints can be used to protect surfaces of objects from the damages caused by environmental factors such as moisture, sunlight, and air pollution. It can also be used

to add colour, texture and design to surfaces, making them more visually appealing. However, alteration of the original appearance in an outdoor sculptural artwork due to defect in the paint coating may be distorting to the space and environment it is situated. According to Mahajan (2024), paint is a liquid or semi-solid material that is applied to a surface to create a protective or decorative coating. Paint is typically composed of a pigment, a binder, a solvent or carrier, and additives that provide specific properties such as colour, durability, and resistance to weathering, chemicals and abrasion.

Over the years, many sculptors in Nigeria have favoured painted surface finishes for outdoor sculptures due to the ease of application and the level of control it offers, as well as the visual appeal it brings to the artwork. Globally, painted surfaces on outdoor sculptures have long been a common feature in both public spaces and private collections.

The growing investment in public art in recent decades has contributed to a noticeable increase in the number of painted outdoor sculptures found in the public settings. These works are often large-scale, site-specific, and constructed from materials such as metal, concrete, fiberglass, modern composite materials. Typically coated with one or more layers of polymer films, such sculptures are usually the result of collaboration among sculptors, fabricators, engineer, installers, and industrial painters. A sculptural artwork displayed outdoor can transform a space. Unfortunately, constant exposure to the elements and potential damage from living creatures (especially humans) and lack of cataloguing makes outdoor artworks far more challenging to preserve than a work displayed indoor. It is important to recognize that a sculpture displayed outdoor needs regular inspections, maintenance and be catalogued to ensure its long-term preservation for the present generation yet unborn (Boakye-Yiadomet al, 2022). Also

lending their voices to this argument about the possible outcome of an exposed sculpture outside, Learner and Rivenc (2012) asserted that by definition, all outdoor sculptures are exposed to the uncontrolled environment, including intense light, ultraviolet (UV) radiation, and adverse weather conditions, as well as damage by vandalism or accident.

There are many different types of paint available, each designed for specific applications and surfaces. Examples include water-based paints, oil-based paints, acrylic paints, and enamel paints. Paints are basically in two categories, water-based paints and oil paints. Paints can further be categorized by their finish, such as matte, Satin, or glossy. Paint is used in a variety of industries, including construction, automotive, and manufacturing. It can be applied to a wide range of surfaces, such as walls, ceilings, furniture, vehicles, and machinery. Paint also can be described as the diffused item in particular binder, dissolved in a particular solvent. Paints can be sprayed, brushed and rubbed on.

Surface paint finish has its merits and demerits. It could wash off, fade off or peel off when it is wrongly applied to a surface. It could also wash off, fade off or peel off over a long period of time; when affected by harsh climate and environmental conditions, humans and animals inclusive. Hence this study proposes a different approach to surface painting, though not new, but unique in the sense that it provides patterns/designs that cannot be replicated. Surface paint finish will always require a face lift overtime to keep the sculpture fresh. In a tropical climate typical of Nigeria, it is pertinent to understand the type of finish suitable for every type of materials used for outdoor sculpture, special attention to polystyrene and coloured sawdust has its composition.

The location of sculpture is of certain importance for its condition. Strandberg (1997) opined that bronze sculptures exposed to strong winds from the sea are characterized by being more of light green. This is as a result of the wind blowing and depositing salt from the sea water on the surface of the bronze sculpture located in such vicinity. Sculptures in parks sheltered from the wind and traffic are reported to be better preserved than sculptures exposed to heavy traffic. In the light of these arguments, Beerkens and Learner (2013) also highlighted their views of outdoor painted sculptures. They claimed that outdoor painted surfaces cannot be protected to the same degree as a painting or sculpture that is housed indoors, where these factors can be more effectively controlled. On his contribution to this topic, Oladugbagbe (2015) said the choice of location for a sculpture; has a synergy between the sculptor and material. He said there should be a degree of cooperation with materials, a partnership in which a sculptor conceived his idea with nature of the material in mind and allows the material to contribute its own qualities to the work thereby influencing the form as it develops and imparting a special flavor to it without dominating it.

The presentation of sculptures in public spaces may claim to reach all people living in towns. The sculptures are not just for a minority but inevitably touch everybody whether desired or not, and nobody can completely avoid being confronted (Strandberg, 1997). Outdoor sculptures are, unlike indoor sculptures, not locked in a collection where the beholder may choose when to face and take part in an aesthetic experience. Instead, the beholder is rather defenseless against the outdoor art and its messages. Conservation measures, as well as new sculptures placed outdoors, therefore often attract much attention among the public. Fast changes of a specific sculpture may thus be disturbing and provoking to some people while others welcome conservation or restoration. Also emphasizing the need for conservation of outdoor

sculpture, Boakye-Yiadom et al, 2022 stated that due consideration should be given to materials and works. They further clarified that the practice is acceptable without distorting the artistic message and when and how the action should be performed and documented. Akintonde and Oludugbagbe (2015) also argued that a good renovation and restoration exercise on public outdoor sculpture can only be executed to satisfaction by professionals who have excellent pedigree. Strandberg (1997) further stated that apart from the wind and rain, other environmental factors like bird-droppings could also cause obvious corrosion damage on parts of bronze sculptures, due to the corrosive compounds dissolving the patina compounds. Corroborating Strandberg's claim, on Crowley (2024) said that a bronze statue withstand quite a lot of variations in weather exposure, as will reinforced concrete. But acidity in rain, bird droppings and other pollutants will degrade the concrete faster than the bronze. But, he said the best choice is probably going to be one of the stainless steel alloys with a high nickel and chromium content. It ensures absolutely least reactivity with corrosion from the environment, though more expensive but most durable. Basically, the weather affects any outdoor sculpture over a period of time. For instance, copper and bronze are stronger and more durable compared to polystyrene turn to a darker brownish shade and a greenish hue may become discernible. A suggestion from Strandberg (1997) said that preventive measures ought to be considered before sculptures are erected, and maintenance should be performed from the day sculptures are mounted outdoors. It is important for artists to be aware of the long-term effects on their sculptures in the outdoor environment, such as the predicted change of appearance and future deterioration.

This foreseeable challenge was tackled using the integral colouring and wax finish techniques, which is a kind of deep surface coating that is durable, even when

abrasion occurs; to some degree surface appearance is sustained. A variety of surface finishes evolve during the manufacturing of materials, but sculpture obtains its surface colour and texture in two ways, either from the material of the sculpture itself or from an application of some other material or colour over the sculpture's form. An applied layer on the surface can dramatically alter the appreciation of the substance beneath its weight, density, identity, and etcetera. In either case, the surface and its colour is what the eyes see first, followed by the discovery of sculptural composition in space as an individual moves around (360 degrees) the sculpture. This first impression is therefore highly influential on our interactions with sculpture. It sets the tone for our encounter with sculpture form in the round. At some point, an applied finish can be necessary especially where longevity is desirable.

Apart from environmental factors, several other factors could be responsible for poor paint finish;

1. **Surface Porosity:** The porosity of the surface being painted can affect how much paint is absorbs. A more porous surface may require more coats and more paint to achieve the desired effect.
2. **Surface Texture:** Rough or textured surfaces tend to absorb more paint compared to smooth surfaces. Uneven surfaces may also require more paint to cover completely.
3. **Paint Quality and Thickness:** The quality of the paint and its thickness can impact coverage. Cheaper paints or those with lower pigment concentrations require more coats to achieve the desired result.
4. **Colour and Sheen:** Lighter colours and high-gloss finishes typically require more coats to achieve full coverage, compared to darker colours and flat finishes.

5. **Dilution:** If you dilute the paint with water or another solvent without taking precaution to the ratio or proportion to each material that is required, it could affect the coverage. Diluting the paint too often would require more coats to achieve the desired finish. Using the spray machine always require diluting the paint with thinner or other diluting agent. If this is not done with specific measurement in ratio, it could eventually require more layers of paint on the surface of a sculpture and may not end well on the long run.
6. **Wet surface:** A wet surface will not allow paint to bond effectively. A dry surface on the other hand is what is needed for paint to bond.
7. **Skill:** Inexperience handling of paint lead to more paint being used than necessary.

1.2 Statement of the Problem

There are many issues regarding performance and materiality of paint used on outdoor sculptures. Paints fail due to a number of reasons related to their composition and application methods. Outdoor painted sculptures are exposed to harsh weather and uncontrolled environment and human interactions. Thus, they are highly prone to rapid deterioration and a wide range of paint coat failures. Conserving these objects frequently involves the full repainting of the sculpture, which might be preceded by the removal of all earlier coats of paints, or overlaying another round of paint over the existing deteriorating paint, thereby causing too much layer of thick paint on the sculpture. This could further distort the forms and texture of the sculpture and this process is highly expensive to undertake, which is the more reason to reduce the frequency of intervention.

This study has introduced a durable finish on outdoor polystyrene sculpture using the integral colouring and wax finishing protocol. Integral colouring and wax

finishing protocol (ICWFP) is a finishing process that does not require a surface painting after casting. The essence of wax polishing is to ensure that the combined cast of polystyrene and coloured sawdust does not absorb moisture which could cause deterioration in the environment it is situated. Integral colouring and wax protocol are both a surface paint options and finishing process because they require no additional paint after casting, thus saving the cost of procuring industrially prepared paint.

1.3 Research Questions

The following Research Questions were used as a guide to the study:

1 What are the relevance of integral colour and waxing protocol to outdoor polystyrene sculptures?

2 How effective does the usage of integral colour and waxing protocol provide adequate protection for outdoor polystyrene sculptures?

3 How effective is the integral colour and waxing protocol applicable to other media aside polystyrene sculpture?

4 How effective and durable is waxing protocol to preserving the texture of coloured polystyrene cast?

5 What are the possibilities of using the integral colouring technique to achieve unique patterns or designs?

1.4 Aim and Objectives of the Study

The aim of this study is to examine the possibilities of preserving the surface colour and texture of polystyrene sculpture, using the integral colouring and waxing protocol.

The following objectives were therefore used to achieve the aim of the research which includes to:

1 Explore how integral colour and waxing protocols contribute to the resilience of polystyrene sculptures in outdoor conditions.

2 Investigate the protective benefits, such as resistance to moisture, fading, or physical wear.

3 Evaluate the applicability and effectiveness of integral colour waxing protocol on alternative sculptural media beyond polystyrene.

4 Assess the durability and preservation capacity of the waxing protocol in maintaining the texture and visual quality of coloured polystyrene casts over time.

5 Explore the creative potential of integral colouring techniques in achieving unique surface patterns and designs effects on sculptural forms.

1.5 Significance of the Study

The conservation of outdoor polystyrene sculptures is often characterized by high cost, intensive labour requirements, and complex logistical demands. These treatments frequently involve the use of chemical agents and processes that pose significant environmental concerns, particularly with regard to the carbon footprint associated with human activities. Also, conserving painted outdoor polystyrene sculptures is a unique area of practice that straddles art and architectural conservation and requires understanding of industrial processes as well as the meticulous aesthetics

of modern and contemporary art. Yet there is little available training for conservators on the conservation and preservation of outdoor polystyrene sculptures. Conservation requires preserving the original appearance of the outdoor sculpture, anything short of that is lost and a distortion of the original work.

Against this backdrop, the introduction of integral colouring and wax protocol (ICWFP) reduced the burden of conservation work to its barest minimal cost. Finishing could be very expensive, depending on the type of materials employed; hence the need to determine the most economical finish that does not require constant maintenance from its conception. However, it saves the cost of finishing in polystyrene sculpture as little quantity of coloured layer. This study shall encourage other sculptors to employ the use of integral colouring and waxing protocol instead of the conventional method of surface paint finish, as a way of conserving outdoor Styrofoam sculptures. This method can be improved upon by other sculptors. This technique reduced the concern and burden of restoring deteriorating Styrofoam sculptures as a result of the protective layer.

1.6 Scope of the Study

The study laid emphasis on dissolving polystyrene with PMS that was mixed with water-based paints, charcoal, ash, cement, and sawdust. The mixture became a very sticky paste material that was transformed inversely into solid form using the mould and cast technique. The research sought to experiment with these materials with the possibility and sustainability of water-based paint on polystyrene sculpture. The mixture of the colour and texture of the polystyrene sculpture withstood the external environmental conditions.

The research also focused on other usage of integral colour and wax protocol in other fields of art, design, polymer and architecture, with a view to finding out the similarities and the point of departure.

1.7 Operational Definition of Terms

Trihydric Alcohol: is defined as a compound that contains three hydroxyl groups. They are valued for their versatility, hygroscopic nature, and chemical reactivity, making them useful across pharmaceuticals, food, cosmetics, and manufacturing sectors.

Monohydric Alcohol: is an organic compound with one alcohol functional group. The function is mainly as solvents, fuels, disinfectants, and chemical feedstocks, making them essential in both industrial and domestic applications.

Formaldehyde: a colourless pungent gas in solution made by oxidizing methanol. It is used mainly as a disinfectant, preservative, and chemical intermediate in the production of plastics, resins, textiles, and paper products.

Phthalocyanine: is a large, aromatic, macrocyclic, organic compound with the formula (C8h4N2)4H2 and is of theoretical or specialized interest in chemical dyes and photoelectricity. It is composed of four isoindole units linked by a ring of nitrogen atoms.

Benzenamine: is used in rubber accelerators and anti-oxidants, dyes and intermediates, photographic chemicals, as isocyanates for urethane foams, in pharmaceuticals, explosives, petroleum refining; and in production of diphenylamine, phenolics, herbicides and fungicides.

Chromix oxide: is an inorganic compound with the chemical name chromic oxide. It naturally occurs in a mineral eskolaite, which is mostly found in chromium-rich

skarns, tremolite, chlorite veins, and metaquartzites. It is appears as a fine light to dark green, hexagonal crystals. It is amophoteric and insoluble in water.

CHAPTER TWO

LITERATURE REVIEW

This chapter presents a comprehensive review of existing literature relevant to the subject of surface finishing techniques applied to outdoor polystyrene sculptures. The objective is to establish a theoretical and practical foundation upon which this study is based, by examining the previous works, concepts, and methodologies within this field. The review has been structured around key thematic areas that directly inform the research focus. These sub-topics include:

- Conceptual Framework
- Scholarly views of surface finishing of outdoor polystyrene sculptures.
- Waxing Protocol
- Mechanical Finishing
- Chemical Finishing
- Thermal Finishing
- Other Surface Finishing
- Integral colour

2.1 Conceptual Framework

The conceptual framework for this research is premised on the concept used in the plastic manufacturing or building and construction sectors where pigments are used to enhance the final colour and outlook of a plastic product, and concrete outlook right from the production stage, this kind of colouring is called integral finishing. Integral colouring in the plastic manufacturing industry refers to the process of incorporating colour into the polymer material itself, as opposed to applying colour via coating or as an external layer. Integral colouring is a fundamental aspect of plastic manufacturing that integrates colour at the molecular level, offering both

aesthetic and functional benefits to the final product (xi grok, 2025). Integral colour in building and construction also plays an important role. It refers to the process of adding pigments directly into concrete, stucco, or mortar mix before it sets. This technique ensures that the colour is uniformly distributed throughout the material, rather than just on the surface. Integral coloured concrete is a highly versatile and durable material that is able to meet the challenges of heavy traffic and it provides both strength and beauty in a surface that is non-fading and ultraviolent-resistant (Ozinga, 2013).

In the context of this research, water-based paints, wood charcoal, wood ash, cement, grinded egg shells and fabric dye were used as colourants and combined with sawdust as pigments, mixed with polystyrene dissolved in premium motor spirit (PMS) to achieve an even blend of colour used inversely during casting for colouring polystyrene sculpture instead of the traditional surface paint finish. Pigments are fine powder or slurry or aqueous suspension added to the concrete ingredients to produce colours, other than the normal grey colour of cement. The purpose of the integral pigments, unlike surface painting or superficial painting is that it creates a full depth colour surface. This means that if it chips or wears off, it will retain the same colour. Integral colour finishing is mostly used in plastic manufacturing industry and in the building and construction sector where it is mixed with concrete cement.

However, to further reinforce the polystyrene sculpture against humidity, the researcher added wax as a coating and polish. This helped protect the surface texture from abrasion as well as prevent the polystyrene sculpture from absorbing moisture from its environment.

2.2 Scholarly views of surface finishing in outdoor polystyrene sculpture.

A surface finishing refers to the quality and appearance of a material's outermost layer. It can significantly impact a product's durability, aesthetics, and functionality. The surface of sculpture is, in fact, all that is seen. It is from its inflexions that we make inferences about the internal structure of the sculpture. Surface finishing in sculpture refers to the process of treating and refining the surface of a sculpted artwork to achieve a specific texture, appearance, and durability. It involves various techniques to enhance, protect, preserve the surface of the sculpture, ensuring it withstands environmental factors and maintain its intended aesthetic. A surface has, so to speak, two aspects: it contains and defines the internal structure of the masses of the sculpture, and it is the part of the sculpture that enters into relations with external space (Rogers, 2025). The expressive character of different kinds of surfaces is of utmost importance in sculpture; surface texture is influenced by several factors, including the material properties, the production method used and the finishing process applied.

Surface finishing is also a term used in the construction and building industry to describe the final treatment or coating applied to a surface or material to improve its appearance, durability, and functionality. It refers to the texture, smoothness, colour, and glossiness of a surface after it has been treated or coated with varnish, stain, plaster, or titles. Surface finishing is an important aspect of building design and construction as it can significantly impact the aesthetics and performance of the building. A well-executed surface finishing can enhance the visual appeal of a structure while also providing protection against environmental factors such as moisture, UV radiation, and abrasion (Construo, 2025). From the above definition and function of surface finishing of construction and building, it is clear that it is closely

related to surface finishing in sculpture. Surface finishing in sculpture is also a very crucial aspect of the artistic process, transforming raw materials into captivating work of art from patinas and textures to finishes and gliding; these techniques enhance appearance, protect from elements, and convey artistic intent. Sculptors employ various methods to achieve desired effects, including painting, staining, patination, and texturing. Tools like brushes, sandpaper, spray paint machines, and chemicals are essentials for preparing and applying finishing. Proper safety measures and finishing touches ensure the durability and visual impact of the final piece. How a part looks, feels and functions is highly dependent on surface finish and the key to designing a successful product (Williams, 2017). When determining whether or not a product is good quality, attention to details in its surface finishing is crucial. The surface finish is often the last step in the production process. Arguably the fact from the above remains that; surface finishing processes in sculpture alters the surface of materials for aesthetic, protective and functional purposes, and the choice of surfacing finishing technique depends on the sculpture's material, intended use, and the desired appearance.

The word finishing is generic, it can be used in every aspect of life to mean complete. Finishing is the point where nothing is left to work with; a work that is complete (Yundle, 2020). The term he said also refers to the final coating of a surface. To most artists, the word finishing denotes not just the end of an art piece, but also the final detail and material used to beautify an art work's overall outlook, which could be painting, sculpture, ceramics, textile, or printing. Surface finishing goes a long way to determine how the audience would consume or respond to a sculpture. A toy meant for children will likely benefit from strong primary colours, high-gloss, bright and shiny surfaces that will attract children to play with them, that will also make the toys

to be cleaned easily and hide scratches well, and needs to be non-toxic as well as durable (Williams, 2017). Surface finishing for sculpture has either natural finish that brings the material of the sculpture itself to a finish or applied. Almost all applied surface finishes preserve as well as decorate the sculptures (Rogers, 2025). Many sculptural materials have a natural beauty of colour and texture that can be brought out by smoothing and polishing. Stone carvings are smoothened by rubbing down with a graded series of coarse and fine abrasive such as Carborundum, sandstone, emery, pumice, and whiting, all used while the stone is wet. Some stones, such as marble and granite, will take a high gloss, while others are too coarse grained to be polished and can only be smoothened to a granular finish. Wax is sometimes used to give a final polish. The natural beauty of wood is brought out by sand papering and then waxing or oiling – Beeswax and linseed oil are the traditional materials, but a wide range of waxes and oil is currently available. Ivory is polished with gentle abrasive such as pumice and whiting applied with a damp cloth. Concrete can be rubbed down like stone with water and abrasives, which both smooth the surface and expose the aggregate and polished. Metals are rubbed down manually with steel wool and emery paper and polished with various metal polishes. A high gloss polish can be given to metals by means of power – driven buffing wheels used in conjunction with abrasives and polishes. Clear lacquers are applied to preserve the polish.

From the foregoing it is obvious that finishing is an essential part of a sculptural work, aside from preservation, it also enhances the beauty of sculptures. Some finishing options in sculpture such as polishing gives the metal sculpture some level of shine or luster called sheen. In the context of wax polish, sheen describes the level of gloss or reflectivity that the polish produces on a wood surface. There are different levels of sheen, ranging from, matte (very little shine), satin (a soft, subtle

shine), semi-gloss (a moderate shine), and high-gloss (a very shiny, reflective finish). Wax polish can produce a range of sheens, depending on the type of wax and other ingredients used as well as the amount of polish applied and buffed. Some people prefer a high-gloss finish, while others prefer a more subtle, matte or satin sheen. In the 1980s and 1990s, gold-coloured finishes was predominant because most artists sought the shiny effect that resembled real gold, perhaps for personal prestige or the alluring appeal.

Surface finishing contextually refers to coating maybe with matte, glossy or lustrous. The word finishing also refers to a coating or polishing used to make furniture or an art work to look good or beautiful (Yundle,2020). Patina is also another word associated with finishing but in this case mostly used for bronze sculptures. Quoting Ralph Mayer's a Dictionary of Art, terms and techniques, Yundle (2020) described finishing as something that concludes, completes, or perfects, especially the last coating or treatment of a surface, or the surface texture remitting from such a coating or treatment. A finish in this sense might be described as matte, semi-gloss, or glossy, lustrous, luminous materials used for surface treatment to enhance and to preserve. The point at which an artist decides to stop working on an art work is regarded as finish. He further stressed that a finished work could also be regarded as that stage when an artwork is ready to be displayed.

Sculptural surfaces face a barrage of threats, from physical weathering to chemical reactions and biological invaders. Understanding these environmental factors is crucial for preserving sculptures. Protective coatings and maintenance are key weapons in the fight against decay. From varnishes to specialized treatment, these methods create barriers against harmful elements. According to Tuofa (2024) there

are numerous surface finish techniques, each with its unique properties and applications. He listed different surface finishing:

2. 2. 1 Mechanical Finishing

The following are the production processes involved in the mechanical finishing.

- **Grinding**: A process that uses abrasive wheels or belts to remove materials and produce a smooth or finely textured surface.
- **Polishing**: A refinement of grinding, creating a high-gloss finishes by using finer abrasives.
- **Honing:** A process that uses abrasive stone or oilstones to produce a very fine, smooth finish.
- Sandblasting: A technique that uses compressed air to propel abrasive particles at a surface, creating a matte or textured finish.

2.2.2 Chemical Finishing

Chemical processes are used to alter the surface composition or properties of a material.

- **Anodizing**: An electrochemical process that grows a protective oxide layer on the surface of metals, especially aluminum.
- **Electroplating**: A process where a metal coating is deposited onto a conductive surface through electrolysis.
- **Passivation**: A chemical treatment that creates a protective layer on a metal's surface, increasing its corrosion resistance.
- **Chemical etching**: A process that uses chemicals to remove material from a surface, creating patterns or textures.

2.2.3 Thermal Finishing:

Thermal finishing involves the use of heat is used to alter the surface properties of a material as follows:

- **Heating treating**: A process that involves heating and cooling a material to change its physical properties, such as hardness or ductility.
- **Melting**: A process where a material is heated to its melting point and then cooled to form a new surface.

2.2.4 Other Surface Finishing includes:

- **Painting:** A common method that applies a coloured or protective coating to a surface.
- **Coating:** A broader term that includes painting, plating, and other processes that apply a layer of material to a surface.
- **Powder Coating:** A process where dry powder is applied to a surface and then cured under heat for a durable coating.
- **Vacuum Plating:** A process that deposits thin film onto a surface in a vacuum chamber.

There are factors that affect the choice of surface finishing. They include:

- **Material:** the type of material will determine the suitable finishing techniques.
- **Function:** The intended use of the product will influence the choice of finish, such as corrosion resistance, or aesthetics.
- **Cost:** The cost of the finishing process will be a significant factor.
- **Environmental impact:** Some finishing processes have environmental concerns that must be considered.

However, the scope of this research is limited to the topic under investigation which is the surface finishing of outdoor polystyrene sculpture with particular emphasis on integral colouring and wax protocol. Before examining various authors' opinions on the subject, it is necessary to shed more light on the material itself. Despite its lightweight and buoyant nature, polystyrene often lacks the durability required for outdoor applications, which is why appropriate surface treatments are essential.

The 21st century art practice is not restricted to style, form and medium. Today, sculpture is considered an art that grows, changes, and is continually extending the range of its activities and evolving new kinds of objects. There are no limitations to the materials that can be used in sculpture today, ranging from gold and silver to soap and sand in the 21st century art era. It extends its branches to different range of activities involving new kinds of techniques and materials. In the realm of artistic expression, few offer the versatility, creativity, and transformative potential like polystyrene. This captivating material has revolutionized the way three-dimensional art forms are created, pushing boundaries of imagination and craftsmanship. The technical name is polystyrene. Polystyrene is a strong petroleum based plastic created from erethylene and benzene that can be injected, extruded, or blow moulded making it a very useful versatile manufacturing material (Anabui, 2017). Polystyrene was originally developed as a light weight and versatile medium for the construction industry, Polystyrene quickly found its way into the world of art and design. Artists and sculptors saw in this material, a medium that allowed them to explore their creative visions with unprecedented freedom.

The evolution of Polystyrene as an artistic medium mirrors the evolution of art itself. The story of sculpting Polystyrene began with the quest to transcend the

limitation of traditional materials and breathe life into artistic visions. What started as a practice solution for creating lightweight architectural elements has blossomed into a vibrant and transformative art form that challenges conventional notions of form, texture, and scale. According to www.customengineeredarts.com, Polystyrene is easier to work with compared to other materials because it can be moulded into any shape and size and it allows for greater detail in the final products. Polystyrene has many advantages over other materials, particularly for experimental and large-scale works. Polystyrene sculpture enables artists the capability to build big, and experiment with shape and texture easily and affordability. The material is lightweight, can be worked using hand or machine tools, and accommodates a variety of finishes (Cup, 2022).

However, polystyrene is also known as Styrofoam but there is a discrepancy in the usage of the name Styrofoam; the chemical name for Styrofoam is polystyrene. Styrofoam is a trademarked name applied for extruded polystyrene foam products manufactured by the Dow Chemical Company (Tanneubauth, 2008). She opined that Styrofoam is identified easily by its distinctive shade of blue. Several companies produce same product, but different colours – DOW in blue, Owens corning in pink, and BASF in green. The Dow company introduced polystyrene to US markets in 1937; natural plant based polystyrene was discovered in Germany in 1838, but it was not developed for commercial use there until 1930s, by I.G. Farben, (Tannenbaum, 2008). Dow company according to Tannenbaum (2008) made it clear from it perspective that common objects such as coffee cups and various packaging materials, made from expanded polystyrene beads or thin extruded sheets should be referred to as foam. However, as far as common American usage is concerned, the word Styrofoam has come to mean any brand or form of polystyrene foam. Just the way

Americans refers to all products of polystyrene as Styrofoam, Nigerians generally call all product made from polystyrene as Styrofoam.

Giving the fragile nature of Polystyrene as a viable material for sculpture, more consideration should be giving to preserving it outdoor. Coating products are formulated to protect against impact and abrasion. It will protect it from wind, rain, snow, moisture, humidity and sunlight that otherwise degrade the surface, and is meant to provide a protective shell to allow Polystyrene withstand the weather, at least for a considerable number of years. This paper considers various preservative methods under extreme weather conditions. According to Ward (2018) the best ways to hard coat Polystyrene is adding polyurethane, a formidable material closely related to Polystyrene. She explained that Polystyrene has been scientifically proven to be an adept hard-coating agent. Polyurethane molecules intermingle with the Polystyrene matrix, creating robust alliance that transforms the once squishy foam into a solid, formidable entity. However, polyurethane as suggested by Ward has its drawback. Polyurethane is notably difficult to apply by brush because it cannot be brushed over repetitively, and without proper application it can tear apart or form bubbles. Another suggestion from Ferreri (2024), he said the best ways to coat Polystyrene is with a primer, then paint on it. Another artist opined that when a solvent based spray paint, it will dissolve the Polystyrene and water based paint will not usually adhere to the surface of the Polystyrene. She recommends a thin coat of white glue (Elmer type), allow it to dry and it will create a protective barrier that will accept spray paint (Cozart, 2025).

Aden Hynes and John Herasymiuk are renowned sculptors who work with Polystyrene. Aden Hynes is known for his work with Polystyrene sculptures, particularly those on a grand scale, employs several specific techniques in his creative

process. He applies a layer of plaster coating on the surface of the Polystyrene; this not only smoothens the surface but also adds strength to the structure. The plaster is applied in layers to build up texture or even out imperfections. To ensure weatherproofing and durability, he applies additional protective coatings or sealants over the paint, (see figure 1). On the other hand John Herasymiuk's style of surface finishing entails using styro spray. To protect the polystyrene sculptures and achieve the desired finish, Herasymiuk uses a product like styro spray, which helps in sealing the foam and giving it a durable surface. His approach to material selection is influenced by practical considerations like weight and durability, especially for outdoor or large-scale installations. John Herasymiuk's work with polystyrene exemplifies how traditional polystyrene art can be adopted using modern materials to create impressive, large-scale works that are both functional and artistic. His techniques, especially in finishing and protecting the foam, ensure that his sculptures can endure different environment while maintaining aesthetic integrity (xi grok, 2025), (see figure 2).

Figure 1.

Aden Hynes' Styrofoam Sculpture
Source: https://www.pinterest, 2025

Figure 2.

John Herasymiuk Styrofoam Sculpture
Source: https://www.pinterest, 2025

Most suggestions given by various artists were one that seeks to cover the surface texture of polystyrene sculpture with another material to provide strength and durability while losing the original soft surface texture characterized with polystyrene. These techniques of preserving the surface texture against the elements of the weather

outdoor as mentioned by these artists are far from the scope of this research, but what is common is the use of polystyrene as a medium for indoor and outdoor sculpture. However, the researcher's approaches his creative forms and styles in a unique way, that requires the researcher to dissolve polystyrene with PMS, completely losing its white, soft, and foamy texture and become a sticky paste mix with coloured sawdust, charcoal, ash, and cement to give it a rigid texture for strength and durability.

The world of surface finishes is vast and varied, offering countless options to enhance the appearance and performance of products. The choice of finishing depends on the variety of factors, including the desired properties of the finished product and the constraints of the manufacturing process. If the parameters such as colour, gloss, and application technique are known for the sculpture, it is often possible to recoat according to the artist's intent. Other artists who have also used polystyrene include Tara Donovan, David French, Kwangho Lee, Fabio Vale, Tony Feher, Steve Keisher, Bruce Pearson, and Heide Fasnacht just to mention a few. Some Nigerian artist are also not left out, some have also found pleasure using this ubiquitous white foam, and they include Oladimeji Tiri, Filani Olakunle (print maker), Bankole Ojo, Seinde Ademoloye (Sculptor) and Nwaji Godstime (Anabui, 2017).

Figure 3.

Tara Donovan Styrofoam Sculpture titled Bulbous
Source: https://www.pinterest, 2025

2.3 Integral Colour

The colouring of sculptures may be natural, superficial or integral**.** In recent past, sculptors became more aware than ever before of the inherent beauty of sculptural materials. Under the slogan of "truth to materials" many sculptors worked their materials in ways that exploited their natural properties; including colour and texture (Rogers, 2025).Over the centuries, sculptures from the Middle Ages have gradually lost their essence: colour. Most medieval sculptures, especially those carved

in wood or stone, were polychrome (Lopez, 2014). However, damage to the pigments over the years and changes in the conceptions of the art have undressed these works; nowadays, when we look at a medieval nude sculpture, we are really looking at a shell. Rogers (2025) also corroborated with Lopez (2014), he said that in the ancient times and during the Middle Ages almost all sculpture was artificially coloured, usually in a bold and decorative rather than a naturalistic manner. The use of colour in sculpture has a rich and varied history that spans across cultures, time periods, and artistic philosophies. Although not widely known, antiquities were coloured to dazzling and powerful effect. Polychromic painting of objects in a variety of hues was a regular feature of the sculpture and architecture of most ancient cultures, especially in Egypt, Mesopotamia, the Aegean, Greece, and Rome (Brinkmann etal, 2017). However, when discussing colour in sculpture, it's crucial to consider the cultural, historical, and personal significance that colour brings to sculpture. Each era and culture has its own approach to how colour should be used or perceived in the context of sculpture.

There are different kinds of painting; superficial and integral. Superficial painting has to do with surface painting; when the paint is applied on the surface. Integral painting on the other hand, simply implies that the paint or pigment is part of the composition of the material and does not require additional face lift. Integral colour is achieved using pigments. These pigments are made from oxide, and are used to give colour and functionality, and often supplied in powder, concentrate or dispersed solution. Most pigments are treated or processed to increase durability, colour strength, or to make them easier to incorporate (Thorsen, 2024). Pigments can be natural or synthetic, organic or inorganic. Synthetic pigments are more stable and colour fast. Examples of pigments are iron oxide (black, ground, red, yellow of

varying particles size and shape), chromix oxide (green), titanium dioxide (white), phthalocyamine (blue, green), (https://test.theconstructor.org>pigment, 2021).

Integral colour is a blended oxide pigment available in dry and liquid form that combines with concrete in a ready-mix truck and placed on-site for a rich, fade-resistant finished product. Integral colour is often used in art, design, architecture to create a cohesive and permanent colour scheme that is resistant to fading or wear. Integral colour is also a term used in art, design and materials science to describe a colour that is inherent and uniform throughout a material or substance, rather than being applied as surface coating or finish. In other words, integral colour is a colour that is;

1. **Built-in:** The colour is an intrinsic part of the materials composition.
2. **Uniform:** The colour is consistent throughout the material with no visible surface layer or coating.
3. **Permanent:** The colour does not fade or change over time, as it is an integral part of the material itself. (https://test.theconstructor.org>pigment, 2021).

Examples include pigmented plastics or resins, coloured glass or ceramics, natural materials like wood, stone, or minerals, dyes or pigments incorporated into textile or fibres. Humans have been using pigments since Paleolithic times, when Pulverized minerals and charcoal were employed in cave paintings that have retained their vivid colouration for as many as 30,000 years (Chusid, 2004). While today's pigments contain some of the same mineral oxides and carbon black compounds our forebears used, synthesized pigments have substantially replaced pigments refined from naturally occurring mineral products. The new process has resulted in pigments that have greater timing strength and are more consistent and economical to use.

In design, integral colour has been used for years to enhance the look and design of the surface of products and has been formulated in both liquid and powder dispersal. The idea behind integral colour is to tint or pigment an entire surface area directly at its source, which is perfect for large themed areas such as outdoor tennis and basketball courts (surecretedesign.com, 2024). Sabreen (2014) postulated that colouring plastics is integral to most products both aesthetically and functionally. He opined that plastics can be colored in many different ways using either pigments or dyes and both methods are substantially different and produce specific results. Pigments are organic, or inorganic solid particles that are insoluble in polymers. Pigments are always incorporated by simple physical mixing with the medium. Organic pigments provide strong translucent or transparent colour and have smaller average particles size and lower thermal stability than inorganic pigments (Sebreen, 2014).Another author shared same view; he said during the plastic compounding process, additives, which are chemicals that help to modify the plastic, are combined with basic, raw plastic material to achieve colour, property and performance requirements. Plastic additives help to protect polymers in functional use from many of the elements we see every day, guarding against extreme weather conditions and exposure from UV light or water (www.starplastics.com). Without a doubt, colour has been and is still an integral part of plastic material, no wonder Master batch (2015), said

> *Life without colour would be pretty dim. Not only that, but colour is a powerful form of communication and plays an important role to convey emotions, recognize brands and affect our behaviour: plastic colorants are hereby not only*

used to spark colour into our lives, but also as a role of identification and creating a products image.

Unlike materials such as ceramics or wood, plastic has the desired advantage of incorporating colour into a polymer and producing plastic products in various colours. There are two methods of colouring: external (superficial) and internal (integral). External covers the surface, such as printing, coating and plating, while internal colouring, kneads colorant evenly inside within the plastic Master batch (2015).

Colouring plastic methods as described by Philips (2023) entails using the master batch approach. The method entails pallets of natural colour mixed with material with very high pigment content. The two components are then mixed and moulded and then the final product is created from the mould. In the compound method, pallets are mixed with pigments in an extruder to create coloured pallets, which are then moulded into final product. Similarly, in the pigment solvent method, the pigment is dissolved in a solvent that is sprayed on the surfaces of natural pallets to also create coloured pallets, which are then moulded. The final method not often used is called dry blending in which the natural plastic pallets and pigment are mixed and moulded as they are and then used to create a product. He concludes that the method used will depend on expenses and the extent of pigment desired in the final products. In his argument, Philips (2023) emphasized that colour is essential to the design process and selecting the methods and colorants for this process are essential for consistency. Buttressing his point Zhao et al. (2022) said the longevity/lifespan of plastics using pigments as light-shielding agents to absorb part of ultraviolet (UV) light to prevent or delay photo degradation, thereby extending the desired life of plastic products. Pigments are essential in plastic manufacturing for adding colour,

opacity, and sometimes for enhancing properties like UV resistance or flame retardancy (xi grok, 2025). When selecting pigments for plastics manufacturing, considerations include stability, processing temperature tolerance, and compatibility with the polymer, environmental impact, and regulatory compliance. Each pigment has specific properties that make it suitable for different applications within the plastic industry. During the plastic, compounding process, additives, which are chemicals that help to modify the plastic, are combined with basic, raw plastic material to achieve colour, property and performance requirements. Plastic additives help to protect polymers in functional use from many of the elements we see every day, guarding against extreme weather conditions and exposure from UV light or water (www.starplastics.com), integral plastic as seen in figure 4.

Figure 4.

An Integral Coloured Plastic
***P*hotographed by John Anabui**
Year: 2025

Dyes are synthetic organic substances that are soluble in most solvents and other dyes. Dye has good clarity, strong tinting ability and small density. Unlike dyes, pigments are not soluble in water, oil, or plastic and usually only dispersed in the resin and impart colour to the object. Tinting is the process of changing the colour of an object or giving colour to an object that has no colour (europlas.com, 2007).Colour concentrate is very important aspect of the plastic production chain. It is mixed into the raw polymer via injection moulding. Once this is done, the concentrates unique colour tone is effectively embedded into the product (Tosaf, 2024). Bennet (2024) opined that there are many reasons to colour plastic products and the reasons are;

- High-visibility colours for safety
- Opaque, dark, or other colour choices to protect light sensitive contents.
- Countless colours for visual appeal
- Specific colours for brand identity
- Colour identification for sizes, styles, shapes or other distinguishing factors.

The fading of colour is both photo thermal and free radical in nature and in some cases due to the fortification added to the plastic that can antagonize the colourant. Fading is typically surface related within the first few microns of the layer of plaster while deeper into the surface the fading has decreased (Webster, www.quora.com).Bohngartz (2024) has argued that there are a variety of reasons for plastic to fade; most fading is the result of oxidation, which causes plastic to wear down and develop a rougher texture.

Integral colouring also plays a significant role in modern construction, offering both functional and aesthetic benefits while allowing for customization and sustainability in design. In construction especially for concrete finish, concrete can be coloured in a variety of way which includes acid staining, dyes, coloured aggregates,

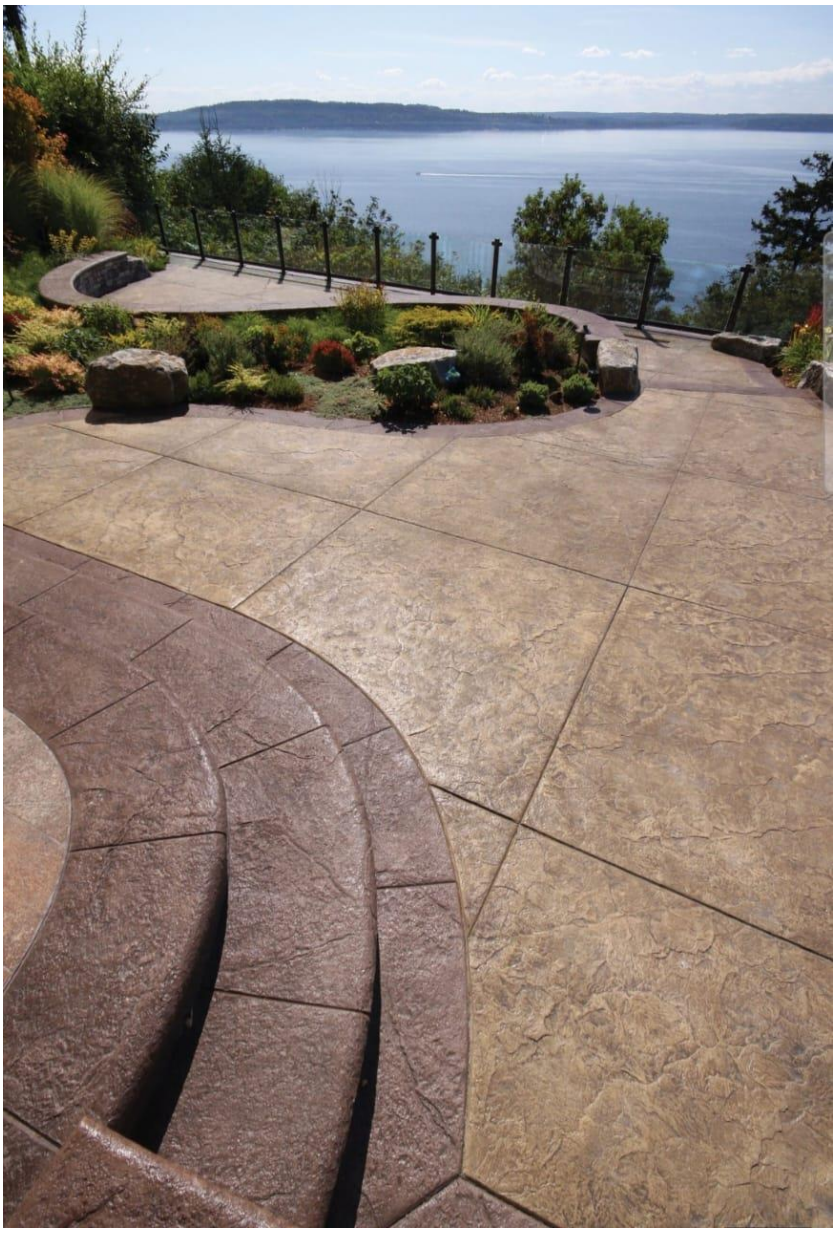
and cement and integral pigments. Integral pigments are very finely ground inert particles that are mixed into concrete to change its colour. Integral pigment is an iron oxide pigment used in integral concrete colouring. Integral colours/pigments are available in powdered, granular and liquid forms, (www.concretenetwork.com< pigment.). The chief advantage of integral pigments is that the colour extends throughout the entire concrete even if surface abrasion occurs, the colour will not wear away. The pigments in integral colour are chemically stable and won't fade over time from exposure to the weather or ultraviolet light. Another advantage lies in its convenience and labour efficiency. Because the integral colour is incorporated directly into the concrete mix, the material can be placed and finished without the need to apply colour to the surface or float it during finishing.

Integrally mixed into the concrete, the pigment becomes a permanent part of the concrete matrix. Combined with the material inherent durability, integral colour provides long-lasting aesthetic value that complements any design. The permanence of integral concrete colouring results in significant life-cycle cost saving compared to the expenses associated with applying and maintaining toppings, coatings, stains, or painted finishes. The durability of concrete colours can be seen in coloured concrete projects around the world that have maintained their appeal for as much as 25years or more Paris et al. (1999), figure 5 and 6 show pictures of integral coloured concrete floors.

Figure 5.

An integral concrete floor located in United States of America
Source: Brickform,www.brickform.com,2025

Figure 6.



An Integral Staircase located in United States of America
Source: Brickform,www.brickform.com, 2025

Concrete is produced from cement, sand, crushed rock or aggregate and water. Pigmented colour additives augment this basic recipe to create coloured concrete. Because the colour additives are mixed into the concrete, colour goes all the way through each placement or concrete product. This means that unlike surface-applied treatments, colour will remain visible even at chipped corners, split faces, and saw

cuts, or when sandblasted. The main drawback about integral colour is that the hues are subtle and less intense than what can be achieved with colour hardeners. The cost is also a setback because instead of colouring the surface, integral colouring requires deep coating that will need more pigment www.concretenetwork.com. However, when using integral colour, it is essential to consider the type and amount of pigment, as well as the concrete or mortar mix proportions, to achieve the desired colour intensity and consistency. Additionally, testing small batches before large-scale application is recommended to ensure colour accuracy.

The researcher embarked on a similar approach using the integral colouring for his project in 1999 at Auchi Polytechnic, Auchi. Unlike what this research covers, his approach was using red oxide found in clay, which was pulverized and mixed with cement. Finding red oxides in clay was cumbersome and time consuming, so the researcher substituted with a red water-based paint. The outcome was justified as it alters the grayish colour associated with most sculptural works in the sculpture garden that were made with cement. Unlike most sculptures in the garden, it was not painted but the only difference in the approach was that he did not introduce wax polishing to the surface which has led to several environmental factors defacing some of the surface, but the colour remains after 26 years of production. Had the cement sculpture been waxed, perhaps all that would have been required today is to clean the surface with wet rag to get rid of the constant accumulation of bird-droppings, dust, leaves, smokes and ashes from burning bushes, and other environmental factors, see figure 7 and 8.

Figure 7.

Integral Cement Cast Sculpture by John Anabui, 1999, Auchi Polytechnic, Auchi
Photographed by John Anabui
Year: 2025

Figure 8.

Integral Cement Cast Sculpture by John Anabui, 1999, Auchi Polytechnic, Auchi
Photograph: John Anabui
Year, 2025

2.4 Waxing Protocol

Wax is effective in polishing, water repellency, antifouling, mould release, and dispersion. It is used in a variety of applications, from cosmetics and daily necessities such as crayons, candles and car waxes, to industrial products such as paints ink,

adhesives, and tires (www.artiencegroup.com). Wax polishing is one of the oldest and simplest ways to finish wood, leather, bronze, stone, and other items. It is a very adaptable material which is often derived from natural source in nature and oil industry (Smale, 2017). Protective coatings are applied to outdoor sculptures, structural and architectural metalwork to prevent corrosion and deterioration of the surface finish. Typically, collections care personnel rely upon visual cues such as rust staining, paint chalking or flaking to determine when reapplying a coating to a work is required as seen in Figure 7 and Figure 8 below. However, irreversible damage to the substrate has usually occurred by the time such deterioration is visible. The term iteration is used frequently with variable media to delineate alterations in installation configuration or to demarcate when tangible modifications have been made to an artwork. As seen in Figure 9 and Figure 10, working with outdoor painted sculpture, parallel can be made in approach as each repainting treatment may be considered similar to an iteration of any other variable media artwork (Ryan, 2013). Figure 6, 7, and 8 clearly reveals the difference in appearance and perception of the before and after repainting of the polystyrene sculpture. On the basis this research shall undertake to attempt to provide a solution outdoor Styrofoam sculptures using integral colouring and waxing protocol.

Figure 9.

Paint Flaking/Deteriorating polystyrene Sculpture (3/4view) by John Anabui 2014, located in Ekenwan Campus Benin City.
Photographed by John Anabui
Year: 2025

Figure 10:

Paint Flaking/Deteriorating polystyrene Sculpture (Rear view) by John Anabui 2014, located in Ekenwan Campus
Photographed by John Anabui
Year: 2025

Figure 11.

Repainted Polystyrene Sculpture (Front view) by John Anabui 2014, located in Ekenwan Campus
Photographed by John Anabui
Year: 2025

Figure 12.

Repainted Polystyrene Sculpture (Rear view) by John Anabui 2014, located in Ekenwan Campus
Photographed by John Anabui
Year: 2025

Wax is perhaps the only surface coating that has passed the test of time. Wax is solid, insoluble substance of low melting point that is malleable and water-repellant. Wax finishing or wax polish in sculpture is not a recent discovery, it has been in use for a whole lot of variety of purposes, for wood work, leather, stone,

bronze sculptures, to mention just a few. According to Bogdanov (2009), the old Egyptians used beeswax when embalming, for mummification of their Pharaohs and for retaining the permanency of Whig curls, for preserving the Papyrus scrolls and to protect paintings. The ancient Persians used wax to embalm the dead, while the ancient Romans modeled death masks and life-size effigies from beeswax. Also corroborating the claims of Bogdanov (2009),

The history of wax as a surface finishing material for sculpture is rich and spans several centuries, with its use documented in various cultures around the world, the earliest traces use on wood (xi grok, 2025). Wood has been used for ages for making furniture such as tables, bed frames, and sofas. As a natural material, wood is vulnerable to the effects of aging and weather which means it can become dried out, cracked, or stained. Since biblical times, and probably before, people recognized the importance of coating wooden surfaces with oils, balms, and unguents. Early historical accounts have been found with instructions for using linseed or cedar wood oil to treat wood surfaces. Other natural oils used for polishing wood include Tung, and Perilla oils. In twelfth – century, Italy, there oils were commonly used to polish wooden floors. By the fourteenth century, beeswax was being used to treat inlaid wood and parquetry floors in France (Rogers, 2024).

Wax polish was used to intensify the colour of soapstone, serpentine, alabaster and limestone to give a silky sheen. The patina is the colouring on sculpture. This colouration is applied on the surface of bronze, stainless steel, or aluminum. Beeswax became a very popular wood polish but had to be applied with hot irons and then hand buffed. Despite this drawback, beeswax, sometimes mixed with hard animal fats, remained the predominant form of polish until the late eighteenth century. In 1797, a natural plant wax, called Carnauba wax, was discovered on the leaves of the Brazilian

Cerara Palm, Carnauba wax is though, high melting and, when properly compounded, imparts a fine shine without all the buffing required by beeswax. By the late nineteenth century, other waxes were discovered and polishes were developed that utilized blends of Carnauba with Ouricui, Candelilla, esparto, sugar cane, cotton fiber, flax, palm, hemp and raffia waxes (Rogers, 2024).

By the early 1900s, petroleum chemistry yielded a number of raw materials, which were useful in polish formulation. These included paraffin waxes (varies in melting point and hardness) and inexpensive solvents (like kerosene and naphtha). Similarly, mineral waxes, like montan wax, became commercially available and were incorporated into polish products. By 1929 chemists had prepared a suspension of carnauba wax in a soap and water base and marketed it as the first self-polishing wax emulsion. This formulation was an improvement over its predecessors because it required less buffing but it had significant drawbacks because it caused streaking and the soap tended to make it more easily removed upon contact with water. In the last few decades, synthetic polymer emulsions have been introduced which offer significant improvements over wax systems. The most widely used polymers are based on silicone oils, which provide lubricity and good gloss (Rogers, 2024). The term “wax” as explained by Loy (2022) captures any one of a number of different substances with similar physical properties. Some of these substances occur naturally, such as beeswax and some are man-made, such as paraffin wax. The physical properties of wax are consistent: wax is pliable solid at room temperature that melts when heated. In its melted form, wax has low viscosity, meaning that liquid wax is runny and flows easily. In fact, it’s the vapour that comes from melted wax that burns so well when you light a candle. Wax is smooth, easily buffed to a sheen, and water repellant, which is why wax is used to coat everything from wood work to leather.

Wax is also harder and less greasy. They are organic compounds of long alkyl chains, hydrophobic and malleable solid at ambient temperatures (Kethen, 2021). Wax is water resistant and they are soluble in organic non polar solvents. It is important to know that when thin layer of wax is put on most surfaces, it is meant to either make it water proof or to improve its appearance.

Duguay (2022) also explained that a finish or topcoat wax reduces friction to give a wonderful silky, smooth feel, enhances the sheen on wood surfaces (especially when buffed to a rich, glossy shine), helps hide fine scratch marks, and other minor imperfections, makes dusting furniture easier and adds some protection against moisture. The line wood can be mildly altered using coloured wax.

Wax coating for sculpture acts as a barrier layer and slows the rate at which the surface will degrade (Antique Bronze, 2023). Outdoor sculptures will need wax coating replaced more than often than those located indoor. Wax is a traditional finishing appreciated by artists because it brings out the hues in the bronze to their maximum advantage. A micro-crystalline and beeswax blends to maintain sculpture depending on the specific environment and situation. Wax is a material well known in art both as a modelling and surfacing material, and has a variety of sources.

Wax polish typically consists of a mixture of natural waxes, such as beeswax, carnauba wax, or paraffin wax, along with other ingredients like oils, solvents, and colourants. Wax polish is often preferred over other types of polish because it is relatively easy to apply, non-toxic, and environmentally friendly. Additionally, it can be used on a variety of wood and other types of materials. The benefits of wax polishing/ finishing in sculpture cannot be over emphasized; xi grok (2025) highlighted six benefits of wax polish or finishing on outdoor sculptures as follows:

1. **Enhanced Aesthetics:**

   Wax can give sculpture a lustrous finish, enhancing the visual appeal by providing a matte to high-gloss sheen. This can make details stand out more clearly, improving the overall appearance of the artwork.

2. **Protection:**

   Wax acts as a protective barrier against environmental factors like moisture, dust, and pollutants. This protective layer helps in preventing oxidation, corrosion, or degradation of the material, especially in outdoor sculptures.

3. **Reversibility:**

   One of the significant advantages of using wax for finishing is its reversibility. Unlike some varnishes or lacquers, wax can be removed and reapplied without damaging the underlying material, allowing for ongoing maintenance or aesthetic changes.

4. **Ease of Application and Maintenance**:

   Wax is relatively easy to apply with simple tools like cloths or brushes. Maintenance typically involves reapplying wax periodically, which can be done without specialized equipment, making it cost-effective for long-term care.

5. **Compatibility:**

   Wax finishes are compatible with wild range of materials used in sculpture, from bronze and copper alloys to wood and stone, without causing chemical reactions or damage over time.

6. **Colour Enhancement:**

   Wax can be pigmented to subtly alter or enhance the colour of the sculpture. This can be particularly useful in restoring or maintaining the intended appearance of the older works.

These benefits make wax an excellent choice for the final finishing of sculptures, whether they are intended for indoor display or outdoor environments.

TYPES OF WAX

There are basically three types of wax, they are:

Beeswax: Beeswax is produced from the gland in the abdomens of honeybees and secreted to create the bee hive. When is time to build the honey comb, the wax that is secreted hardens as soon as it hits the air and forms a wax scale. After extraction of the honey, the wax is immersed in hot water and floated off to be used in the making of polish, fillers and creams (Rensvold, 2021).

Paraffin Wax is classified as a petroleum wax because it comes from petroleum, coal and oil shale. Paraffin wax is separated from the oil through crystallization. Though paraffin wax comes from a natural source, it is usually not considered a natural wax (blendedwaxes.com). It is most commonly used in candle production and as a food coating.

Carnauba Wax: is a vegetable wax that is produced by the Carnauba palm in Brazil, it is also called Brazil wax and yellow in colour. Carnauba wax is a natural wax used in a wild range of cosmetic products. Its job is to help reduce excessive evaporation from the leaf pores. The wax is gathered on the leaves and refined into hard brittle

wax. For best results, it is combined with other waxes such as beeswax, combining their properties to give the best possible finish (www.thesoapery.co.uk.)

CHAPTER THREE

METHODOLOGY

This chapter details the research methodology employed in the study, encompassing the study design, instrumentation, research procedures, materials and tools, data analysis methods, and the approach to visual analysis and discussion. Each section is specifically structured to align with the studio-based and practice-led character of the research, providing a cohesive framework that supports both creative exploration and academic investigation.

3.1 Design of the Study

The study utilized an exploratory research design, described by Winsten (2017) as ‘an investigation into a topic aimed at obtaining deeper understanding. Exploratory research design is a methodological approach when little is known about a research problem, aiming to gain initial insights, generate hypothesis, and lay the ground work for more definitive studies. Flick (2006) noted that exploratory research design is initial open-ended process to explore phenomena without preconceived hypothesis, emphasizing its role in building foundation for deeper inquiry. It is ideal for ‘new problems’ on which little or no previous research has been done, using flexible data collection to foster understanding. Similarly, Stebbins (2001) defined it as a “broad-ranging, purposive, systematic” effort to discover generalizations without confirmatory tool like hypothesis promoting inductive discovery for description and understanding. It maximizes flexible but should avoid blending with deductive elements. However, this study explores the compatibility of colour as an integral finishing for outdoor Polystyrene sculpture and using coloured sawdust as pigments, it suitability will be demonstrated using the studio-based exploratory design. Studio-

based exploratory design, as a research method, facilitates the generation of knowledge through creative practice.

3.2 Instrument of Data Collection

To collect relevant data, the researcher extensively utilized the internet, consulting academic journals, peer-reviewed articles, and related scholarly publications to ensure the credibility and reliability of the gathered information. The data collection process incorporated both primary and secondary sources. Secondary data were derived from a variety of materials including journals, magazines, scholar articles, books, photographs, and internet-based resources relevant to the study. Furthermore, unstructured interviews were employed to obtain additional qualitative information on the topic.

3.3 Research Procedures

The first step undertaken in the research process was to identify and list potential materials from which colour could be derived. The emphasis was on materials that were not only readily available but also environmentally sustainable and suitable for artistic or design application. The materials considered included:

- Cement
- Plaster of Paris (POP)
- Dye
- Eggshells
- Sawdust (in various colours)
- Oil-based paints
- Water-based paints
- Leaves
- Sand

- Wood Charcoal
- Wood ash

These materials were carefully selected based on their natural colouring properties, textural qualities, ease of processing, and potential contribution to sustainable design practices.

3.3.1 Pilot Studies

To assess the practicality of using these materials, a pilot study was conducted focusing initially on the use of dye. The dye, along with its necessary chemical components, was sourced from a local shop. In the experiment, sawdust was soaked in the dye mixture, allowed to absorb the colour for a few minutes, and then sun-dried to eliminate moisture and set the colour. The process was effective in producing coloured sawdust pigments suitable for use in the design work. However a major limitation emerged: the dye could not be obtained in the quantity required for the main study. This scarcity led the researcher to explore more accessible and sustainable alternatives. Figure 13 showed a failed relief cast of the face of an owl, the black and red colour of dye was used and exposed to harsh weather conditions for seven years to examine the effect of the weather on it. Another pilot study was carried out to see the reaction of polystyrene and sawdust polished with beeswax and paraffin wax under harsh weather conditions for eight months, see figures 16, 17, 18, and 19. Firstly, wax was melted with the heat gun and applied with a paint brush on the surface and heated to penetrate through the layer, see figures 14, and 15. Sample one is without wax polish, sample two is paraffin wax, and sample three is beeswax. It was observed that sample two and sample three resisted water, while sample one did not. During hot weather, it was also observed that both waxed mask had a run off of wax on the surface of the polystyrene and sawdust sculpture, but not enough to

completely melt off the wax leaving behind a protective layer against humid conditions. And on the other hand, a lot had changed in the appearance of sample one after eight months duration of sample testing as shown in figure 19.

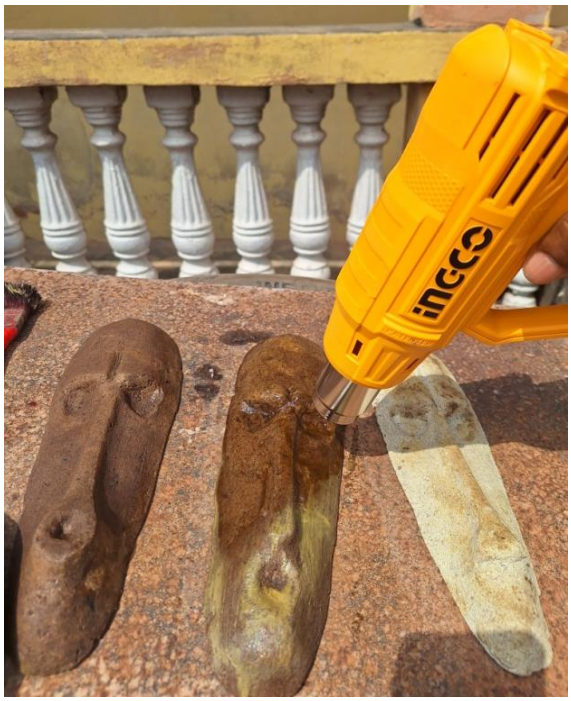
Figure 13

Pilot Study of Dyed Sample tested under the weather for seven (7) Years without wax
Photographed by John Anabui
Year: 2025.

Figure 14

Pilot Study of Heat Gun melting wax
Photographed by John Anabui
Year: 2025

Figure 15



Pilot Study showing heat applied on the Surface layer to penetrate the substrate
Photographed by John Anabui
Year: 2025

Figure 16

Pilot Study Samples of Wax Polystyrene for Weather Testing.
Photographed by John Anabui
Year: 2025

Figure 17

Pilot Study Observing Waxed Polystyrene Samples in the Rain.
Photographed by John Anabui
Year: 2025

Figure 18

Pilot Study Observing Waxed Polystyrene Samples after the Rain.
Photographed by John Anabui
Year: 2025

Figure 19

Pilot Study Observing Waxed Polystyrene Samples after Eight (8) Months.
Photographed by John Anabui
Year: 2025

3.3.2 Evaluate and Selection of Paints

Oil-based points were initially considered as an alternative colouring medium due to their strong pigmentation and wide availability. However, they were ultimately rejected because of their tendency to dry quickly and become tacky, which made them difficult to handle in the context of the project. Water-based paints were then selected as a more viable option. They offered better care of application, longer working time, and were more environmentally friendly. Their ability to mix easily with polystyrene, sawdust and other materials also made them preferable for the study, as seen in figures 18, 20, 21, and 22.

Figure 20

Colour pigments in various bottles
Photographed by John Anabui
Year: 2025

3.3.3 Integration of Additional Materials for Colour Enhancement

To enhance the aesthetic quality and colour variation in the final design, other natural materials such as wood charcoal, wood ash, and eggshells were incorporated. These materials, as seen in figures 19, 20, and 27, were selected not only for their colouring potential but also for their textural contribution and availability. Their integration supported the overall goal of creating sustainable and innovative design solutions using both natural and manufactured materials.

3.3.4 Procedure Adopted for Studio Production Process

This section outlines the studio production process, detailing the materials used at each stage and the steps involved throughout the workflow. The studio production process in this study was approached in seven stages.

Stage 1: Conceptualization for special project

Stage 2: Production of Armature and Clay Model

Step 1: Producing of Armature and Padding

Step 2: Building up of Clay on the Armature Frame

Step 3: Detailing of Clay Work

Stage 3: Moulding process

Step 1: Segmentation of the Clay Work using zinc roofing sheets

Step 2: Application of releasing agent (oil) on the surface of the clay model

Step 3: Mixing mortar

Step 4: Separation of each segment of mould from the clay model

Stage 4: Cleaning up the mould

Step 1: Application of release agent inside the moulds

Step 2: Application of oil inside the mould after the liquid soap dries out

Step 3: Dissolving of polystyrene with PMS

Step 4: Planning/Selection of colour pigments.

Stage 5: Casting process

Step 1: Pigments are laid inside the mould one after the other from the lightest tone to the darkest tone.

Step 2: The next day, sawdust not pigmented is laid on top the first layer of cast.

Step 3: The third day, another reinforcement of sawdust is laid evenly on the previous layers.

Step 4: Iron rods is attached to each cast in the mould

Step 5: The edges of each mould is trimmed with angle grinder.

Step 6: Cast is released from the mould

Stage 6: Coupling

Step 1: The various segments/of cast are coupled by welding and binding them together with polystyrene and coloured sawdust

Step 2: Melted Polystyrene mixed with sawdust is used as binder.

Stage 7: Selection of scrapes for the machine gun

Step 1: Washing/cleaning of scrapes

Step 8: The machine gun is welded

Step 1: The buttstock of the machine gun is moulded using clay.

Step 2: Coupling of the buttstock

Step 3: The ammunition belt

Step 9: The Herder's staff

Step 1: Polystyrene and coloured sawdust is applied directly on a 20mm iron rod, 9 feet in height.

Step 10: Finishing

Step 1: Waxing

Step 2: Wax is melted on the fire and applied on the surface of the cast.

Step 3: Heat gun is used to run the wax deep into the cast

A total of 12 sculptures, ranging from 3 feet and above in height, along with one monumental sculptural composition, were created. The research questions posed were addressed through the studio-based process of visual analysis, aligning with the study's objectives and the relevant literature reviewed.

3.5 Equipment, Tools and Materials Utilized in the Study

Equipment

1. Arc welding machine
2. Heat gun
3. Angle grinder

4. Mini grinder set
5. Spray machine
6. Hot plate (burner)
7. Drilling machine

Tools:

1. Hammer
2. Chisel (set)
3. Disc cutter
4. Disc sandpaper
5. Binding wire
6. Nails
7. Plier
8. Brush
9. Buckets
10. Pinches
11. Spatulas
12. Trowel
13. Disc grinder
14. Shovel
15. Spoon
16. Drilling bits

Materials

1. Sawdust
2. Water-based paints
3. Wood ash

4. Wood charcoal
5. Petrol (fuel or PMS)
6. Egg shells
7. Bees wax
8. Paraffin wax
9. Clay
10. Cement
11. Sand
12. Detergent
13. Liquid soap
14. Engine oil
15. Quarter rods
16. 12mm rods
17. 20mm rods
18. 1 mm Galvanized poles
19. 2 mm Galvanized poles
20. Electrodes
21. Polystyrene
22. Zinc sheets
23. Spatula

Figure 21

Polystyrene
Photographed by John Anabui
Year: 2025

Figure 22

Water-based paints
Photographed by John Anabui
Year: 2025

Figure 23

Sawdust soaked in water-based paints
Photographed by John Anabui
Year: 2025

Figure 24

Sun dried coloured sawdust
Photographed by John Anabui
Year: 2025

Figure 25

Wood ash
Photographed by John Anabui
Year: 2025

Figure 26

Wood charcoal
Photographed by John Anabui
Year: 2025

Figure 27

Bees wax
Photographed by John Anabui
Year: 2025

Figure 28

Paraffin wax
Photographed by John Anabui
Year: 2025

Figure 29

Wood Sawdust
Photographed by John Anabui
Year: 2025

Figure 30

Ball Clay
Photographed by John Anabui
Year: 2025

Figure 31

Premium Motor Spirit in the Jerry can
Photographed by John Anabui
Year: 2025

Figure 32

Liquid soap **inside bucket**
Photographed by John Anabui
Year: 2025

Figure 33

Broken Egg shells
Photographed by John Anabui
Year: 2025

3.6 Period of Production

The production of the monumental sculptural composition tools approximately five months and 12 days as outlined below:

a.	Armature and clay work - - -	3 months
b.	Moulding - - - - -	3 days
c.	Casting - - - - -	4 days
d.	Left in the mould to dry - - -	1 month
e.	Coupling - - - - -	3 weeks
f.	Finishing - - - - -	3 days
g.	Pedestal - - - - -	1 week
h.	Mounting - - - - -	2 days
	Total - - -	**5 months and 12 days**

3.7 Cost Estimate for Production

a. Armature - - - - ₦100, 000

b. Modelling clay - - - ₦120, 000

c. Moulding - - - - ₦ 50,000

d. Fuel - - - - - ₦350, 000

e. Paints - - - - - ₦ 60,000

f. Polystyrene - - - - ₦ 60,000

g. Pedestal - - - - ₦150, 000

h. Scrap metal - - - - ₦ 30,000

i. Wax - - - - - ₦100, 000

Miscellaneous - - - - ₦300, 000

Total - - - - - ₦1, 320,000

One Million, Three Hundred and Twenty Thousand Naira

3.8 Method of Data Analysis

The formalist approach to data analysis which is often referred to as formalism was used for this study. It emphasizes on the intrinsic visual and structural elements of an artwork, evaluating it based on its form, style, and composition rather than external factors such as historical context, artists' biography, symbolic meaning, or social implications; in essence, it treats the artwork as a self-contained entity, focusing on how its components work together to create aesthetic impact. This approach originated in the early 20th century, influenced by critics like Clive Bell and Roger Fry, who argued that the value of art lies in its "significant form", the arrangement of hues, shapes, colours, and other elements that evoke an emotional response. In this study, this approach seem to direct the Polystyrene and coloured sawdust's physical and spatial qualities to understand its construction and visual effect.

3.9 Method of Visual Analysis and Discussion

A formalist approach was employed for the visual analysis of the produced sculptures. The methodology emphasized the formal elements and their aesthetic impacts within the artworks. The sculptures were examined concurrently with the procedural steps outlined for each stage, while maintaining alignment with the study's conceptual and objectives. The visual analysis incorporated the following analytical tools: concept, medium, texture, colour, size, pattern, movement, style, and techniques.

CHAPTER FOUR

STUDIO PRODUCTION PROCESS

This chapter presents the core empirical investigation of the study, building directly on the theoretical framework and methodological design outlined in chapters 2 and 3.

4.1 Conceptualization of the Design

1. Production of Approved Sketch
2. Production of the Marquette

II. Clay work

III. Casting in polystyrene and coloured sawdust

IV. Finishing

4.2 Studio Production Stages of the Monumental Sculpture Composition (Cows, Machine Gun and herder's staff) in Polystyrene and Coloured Sawdust

- Production of working drawing and scaling/magnification
- Production of Armature/clay model
- Mould takes/Demoulding
- Designing and casting in polystyrene and coloured sawdust
- Moulding/Construction of Machine gun, Ammunition Belt and herder's staff
- Waxing
- Mounting on Pedestal
- Finishing

4.2.1 Stage 1: Production of Working Drawings and Scaling/Magnification

The process of converting a conceptual idea into sketches represents the initial step in creating any artwork, and this research is no exception to this principle. The conceptual idea for this research is a composition that consists of two head of cows,

herder's staff, machine gun, and a belt of ammunition. However, studies of a live cow were examined; pictures from different angles were also taken for further studies. The conceptual idea was transformed into a series of exploratory sketches derived from these studies and photographs. Following the approval of the working drawing for the monumental sculpture, the measurement and proportional scaling of the Marquette is 91.44cm (3ft), the monumental sculptural composition to be situated on the field was blown to 304.8 cm (10 ft) were executed using a 3:10 ratio. The sculptural composition shown in figure 34 served as the centerpiece for the monumental sculpture composition, facilitating the visual interpretation of this research.

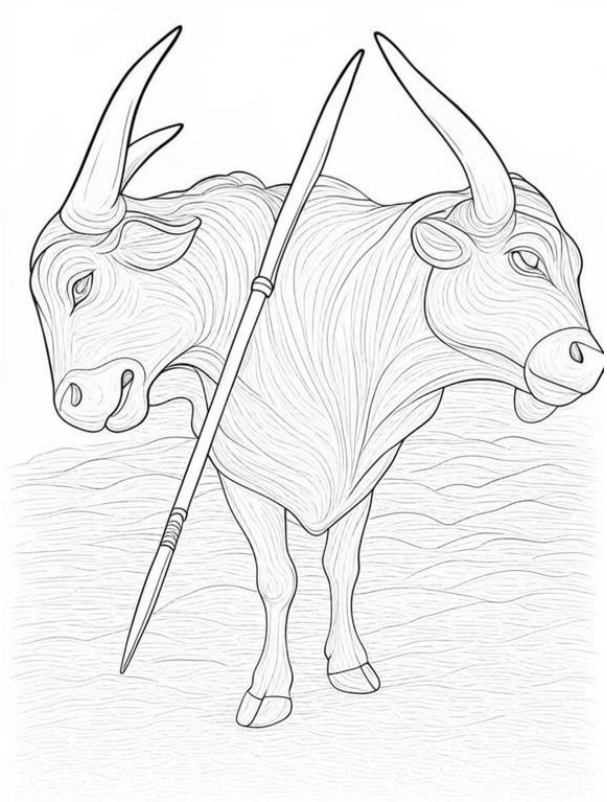
To construct the armature, a frame of iron that supported the clay, an armature stand was first constructed using 2mm gauge of galvanized pole, attached at an angle of 90 degrees to a 1mm galvanized pole. At the base is concrete with dimension of 85.344cm by 91.44cm with a base of 10.16cm thickness. At the attachment between the 2mm pole and the 1mm pole is 45 degree reinforcement holding the 1mm pole and 2mm pole to prop the heavy load of clay on the pole. At the top of the 1mm pole is a 1mm pole vertical with dimension of 10.16 cm welded to allow the armature fit into it, as seen in figure 35.

However, because of the strength of the armature stand, a gauge 12mm iron rods was used for the construction of the armature instead of a thicker gauge. The different component parts of the armature were tied using binding wire. Dry sticks were also tied to the armature and then chicken mesh was wrapped around the entire frame of armature. All these components helped to hold the clay firmly to the frame of the armature and prevented the wet clay from slipping off when modeling, see figure 36. At the base of the armature is a wooden plinth which holds the armature firmly to base with 10.16 cm nails.

The wooden plinth is measured 60.96cm by 85.344cm, with a 5.08 cm thickness. The essence of the chicken mesh is to reduce the weight of the clay on the armature. Additionally, “Butterflies” were inserted at the region where the dewlap would come up. This was done to help hold the excess clay from falling off while modeling. The butterfly is a sculpture terminology that denotes two crossed-sticks tied in the middle and suspended with a binding wire that is attached to the frame of the armature, as seen in figure 36.

Sculptors have extensively studied and moulded animal forms as a central subject in art for tens of thousands of years, spanning from prehistoric carving to contemporary installations. This focus reflects animals’ roles in symbolism, mythology, religion, power, and aesthetics across diverse cultures, with artist meticulously observing anatomy, behaviour, and symbolic meanings to create realistic, fanatical, or abstract representation in materials like stone, bronze, ivory, and modern media. The practice has been wide-spread, influencing everything from ritual objects and royal iconography to decorative garden pieces and surrealist experiments, demonstrating a deep human fascination with the natural world. Overall, the extent of this study and mouldling is profound and global, with animals serving as a timeless bridge between human culture and the wild, continually reinvented through artistic innovation.

Figure 34



Conceptual sketch of cows
Photographed by John Anabui
Year: 2025

Figure 35

Armature stand
Photographed by John Anabui
Year: 2025

Figure 36

Butterfly
Photographed by John Anabui
Year: 2025

4.2.2 Stage 2: Production of Armature and Clay Model of the Monumental Sculptural Composition

This stage involves the production of the armature attached to the armature stand for support. Iron rods of 12mm were used for the construction of the armature all through the entire structure as shown in figure 37. The design of the frame of the armature was done such that there are size variations in the cows to break monotony, instead one is bigger than the other because in a herd, there are different sizes of cows in a composition and it creates balance and harmony. Also, the positions are different. This was deliberate to make the composition interesting. One cow is facing down trying to eat grass while the other is standing erect and chewing curd.

After the armature was fully constructed, the frames were padded with dry sticks to help hold the wet clay, as shown in figure 38. The clay was then prepared and wrapped with nylon to prevent it from dry up. The first layer of clay on the

armature was allowed to dry up a bit, and allow more layers on it so the weight of the clay will not sink into the chicken mesh, see figure 39. The researcher worked simultaneously on both cows to achieve uniformity and ensure an even distribution of clay throughout the modeling. As the modeling progressed, external reinforcement with binding wires were tied to the roof and two 1m pole were used to prop the heads from underneath. Pictures and Marquette were used as assistance to get a clear understanding of the anatomy of head of cows. Modeling tools were used to enhance the details and intermittently in between breaks, the composition were sprinkled with water, covered with wet rags and wrapped with nylon to keep it wet in a workable condition. On completion of the detailing, the clay was left to dry up a little so that when applying lubricant for the next stage of moulding, the details will not deform, as shown in figure 40.

Figure: 37

Armature
Photographed by John Anabui
Year: 2025

Figure: 38

Padding with Chicken Mesh
Photographed by John Anabui
Year: 2025

Figure 39

Building with clay
Photographed by Sylvester Mokidi
Year: 2025

Figure 40

Completion of modeling
Photographed by John Anabui
Year: 2025

4.2.3 Mould-Taking and Demoulding Process

A mould is a block that contains a hollow cavity in a derived shape, or a frame or template for producing several copies of an object. A mould can be achieved using a variety of materials depending on the choice of the artist or could be determined by the process of the cast. For this research, cement was considered because of its availability and easy to control. The moulding process began with marking out the lines of cutting, it refers to the division, or boundaries where a mould is split into

separate sections to allow for the removal of the original model and the casting of the final piece.

These lines are critical in the mould-taking process, as they determine how the mould will be opened and how cast material will be released. Several factors determine how the cut lines in mould-taking should be determined and they include: undercuts, two-past or multi-past moulds. The sculptor would determine when taking a mould, where to place the parting lines based on the model's shape, undercuts and complexity.

One of the biggest challenges encountered in mould-taking is undercut and the ability to spot an undercut when taking a mould in sculpture will always be an advantage to have a successful cast. Essentially, an undercut is a shape which has surfaced not visible from a single angle. In itself, it is necessarily a problem unless a rigid mould is being made of that undercut (Bray, 2016). An undercut is a cut behind a form, releasing it from the background. It provides the sculptor with an opportunity to make the surface and lines as though they continue round the back of the form, https://www.arcyart.com/ad-undercutting.htm. According to Yundle (2013), an undercut traps shadows in between a form and the background, it certes a chiaroscuro effect in some sculptures.

For the purpose of this research, the researcher considered a multi-part moulds because of the size of the monumental sculpture composition and these moulds would be destroyed to liberate the cast. Metal slims from zinc roofing sheets were cut to smaller rectangle or square shapes and inserted into the lines of cutting all over the clay models, as seen in figure 41. After this was done, used engine oil for vehicles was used as a lubricant; this prevents the mortar from sticking to the clay and causes a swift release when pulling off the mould from the clay when it is dry. However, for

this research, the researcher chose a 1:1 ratio, that implies that the ratio of cement to sand was measured in equal proportion. A four litre of paint bucket was used for measurement which was for every four litre of cement was another four litre of sand, as seen in figure 42. The ratio of cement and sand is mixed thoroughly with water to form a pasty substance called mortar, see figure 43. The reason is that the first layer which carried the details of the clay model needs to register properly, see figure 44. The ratio was used for the first, second and third layers, so as to reduce the weight of the mortar on the structure of the armature, see figure 45. There was a day interval between the layers and periodically watered to make the mortar cure. Also the reason for the ratio of cement to sand was to reduce additional reinforcement with iron rods on the moulds, to reduce weight and for the mould to dry up faster for demoulding. The mould process lasted for three days and after three days of curing, it was demoulded.

Demoulded started from the top to the bottom, this process lasted for the whole day. The researcher at some point had to solicit for assistant to pull the heavy mould off the clay. In the course of this action, some moulds broke which is a usual occurrence in some cases with cement moulds and it posed no serious problem for the cast. The clay model was destroyed and returned to the clay pit. The 12mm iron rods used as armature were dismantled for later use in the reinforcement of the cast during coupling. Mould pieces were laid on the ground, cleaned up using detergent and water, as seen in figure 46. Adjustments were made on defects on the mould before liquid soap was applied with brush all over the mould. This process was repeated at intervals three times before used-engine oil was applied. The reason for this double-action lubrication on the mould is for release from the cast to be swift. The liquid soap when dried will form a layer on the surface of the mould and the used-engine oil

reduces the stain on the cast caused by the reaction of PMS with liquid on the cast piece, as seen in figures 47 and 48.

Figure 41

Mould segmentation with zinc shims
Photographed by John Anabui
Year: 2025

Figure 42

Sand-cement ratio
Photographed by John Anabui
Year: 2025

Figure 43

Mortar
Photographed by John Anabui
Year: 2025

Figure 44

Taking the first layer of mould
Photographed by John Anabui
Year: 2025

Figure 45

Completion of moulding
Photographed by John Anabui
Year: 2025

Figure 46

Cleaning the mould
Photographed by Bridget Sanda
Year: 2025

Figure 47

Application of liquid soap
Photographed by Bridget Sanda
Year: 2025

Figure 48

Application of engine oil
Photographed by John Anabui
Year: 2025

4.2.4 Stage 4: Casting with Styrofoam and Coloured Sawdust

The first step to take when casting with polystyrene and coloured sawdust is to dissolve the polystyrene in Premium Motor Spirit (PMS) also known as fuel, as seen in figure 49. The fuel is poured inside a plastic bucket and the polystyrene cut into

smaller pieces and soaked inside the bucket containing the PMS to dissolve. This is repeated until an even thickness of sticky paste is achieved, and left sealed for between 6 or 12 hours or more to allow the air inside the polystyrene escape. If used immediately, air bubbles may appear in the cast and could cause serious distortion to the cast. Also, PMS evapourates when exposed; it is advised to always have the bucket of dissolved polystyrene sealed air tight, because when the PMS evapourates, a thick mass of congealed polystyrene is left behind, and would require pouring PMS to reactive it for use. The first layer is usually the most critical aspect because it requires care, skill and understanding of colours to achieve the design intended, see figure 50.

The kind of design intended would also determine the thickness of the layers. When a monochromatic design is intended, the thickness of the first layer could be made much thicker, but a complex design will be very difficult to achieve an even thickness. The second step is to sort out the colours and how it is intended to be used in combination with other colours and materials, see figure 50. The desired colours for use are prepared by sieving through a net to achieve fine particles of coloured sawdust, but if texture is desired, then no sieving is required. Figure 51 shows the researcher sieving the coloured sawdust ti achieved and even particles. The sticky paste is scooped in the palm of the hand and blended with the coloured sawdust by moulding it, see figure 49. Because the dissolved polystyrene is sticky, it is pertinent to use a detergent solution on the hand to avoid it sticking and for workability. Deeping hands in PMS would also help prevent the polystyrene not to stick to the hand, but because of the volatile and extremely inflammable nature of PMS, water and detergent solution is advised for safety. The patterns/designs are random; there is no principle to follow, other than applying the lightest tone first before the dark tone of colours. The Red and Blue colour scheme was adopted for harmony and variety.

The cow on the right the researcher chose the red colour and its complimentary colours, while the cow on the left the researcher chose the blue and other complimentary colours. These colours were applied simultaneously from the lightest value to the darkest value, until the entire mould was covered as shown in figure 52. The following day, the second layer was applied this time; coloured polystyrene was not used, but the regular brownish coloured sawdust as enforcement. The third layer followed the same process, no colour was added. After this was done, the following day, iron rods were attached to the cast using the same polystyrene and sawdust, as seen in figures 53 and 54. The thickness of the cast is $1^{1}/_{2}$cm, and the cast is left in the mould for one month to completely dry up. The casts are left at room temperature to dry up, unlike resin that reacts and is activated by sunlight, polystyrene cast does not need sunlight to be activated, but instead it retards the drying up process. Whenever the sunlight approaches where the moulds are, the researcher would cover the surface of the casts with dry rags to reduce the effect of the sun. The thickness of the cast usually determines the duration of drying up and the sizes of the sculptures also determine the thickness of the cast.

After one month, the mould was broken off to free the cast, see figure 55. The cast was washed thoroughly to remove the residue of the liquid soap and engine oil.

Figure 49

Dissolved Polystyrene
Photographed by John Anabui
Year, 2025

Figure 50

Colour Selection and Planning for Casting
Photographed by John Anabui
Year, 2025

Figure 51

Sieving coloured sawdust
Photographed by John Anabui
Year, 2025

Figure 52

Application of coloured first layer
Photographed by John Anabui
Year: 2025

Figure 53

The second and third layer
Photographed by John Anabui
Year 2025

Figure 54

Iron rod reinforcement
Photographed by John Anabui
Year: 2025

Figure 55

Releasing the cast
Photographed by Anosimhe Anabui
Year: 2025

4.2.5 Coupling

Coupling started from the bottom to the top. The cast at the bottom were carefully assembled together, welded and bonded together with polystyrene and sawdust, as shown in figure 56. The researcher was advised on the need to build a strong internal reinforcement so that the monumental sculpture could withstand external pressure by his supervisor, Professor Ononeme, see figure 57. While coupling, the researcher observed that the cast pieces were not aligning together because they were not fully dried before demoulding. This posed a serious challenge, so the researcher had to improvise by cutting off some parts and remould directly, and applying heat with the heat gun to remould some cast back to their original shape. With this approach the researcher was able to minimize the defects of the cast because they were released from the mould too early before they dried up, see figure 58.

Figure 56

Coupling
Photographed by Osiboye Seun
Year, 2025

Figure 57

Reinforcement
Photographed by Osiboye Seun
Year: 2025

Figure 58

Remoulding with heat gun
Photographed by Osiboye Seun
Year: 2025

4.2.6 Stage 5: Construction of the Machine Gun and Ammunition Belt

A careful and thorough study of machine guns was carried out through Google search. Junk metals were assembled together and the useful junks were selected. A 12mm iron rod was used for the frame of the machine gun. A 1mm pole was used to form the barrels and handle, see figure 59. The selected junks were welded together with the arc welding machine, see figure 60. The handle was moulded with clay and cast with polystyrene and wood charcoal to give the black colour effect, as shown in figure 61. The total height of the gun is 304.8 cm. The ammunition belt is represented with bicycle chains; the chains were purchased, washed with detergent to remove grease, assembled horizontally and welded together, see figures 62 and 63. A total of 21 chains were welded together with a length of 487.68 cm. After the design of the

machine gun was achieved the researcher sprayed the metallic part to prevent it from rust and also for beautification. Figure 64 clearly shows the researcher using the spray machine on the machine gun.

Figure 59

Construction of the machine gun
Photographed by John Anabui
Year: 2025

Figure 60

Selection of metal for the machine gun
Photographed by John Anabui
Year: 2025

Figure 61

Cast of the buttstock
Photographed by John Anabui
Year: 2025

Figure 62

Washing off grease from the chain
Photographed by Bridget Sanda
Year: 2025

Figure 63

Chain ready for welding
Photographed by John Anabui
Year: 2025

Figure 64

Machine gun spraying
Photographed by Osiboye Seun
Year: 2025

4.2.7 Stage 6: The herder's staff

A 20mm iron rod was used to form the core of the herder's staff measuring 243.84 cm in length. In the case of the herder's staff, direct modelling method was carried out. The coloured polystyrene paste was applied in successive layers, left to dry and apply again until the intended shape and size is attained. There were intervals of one day to allow it set and accommodate another layer. If applied all at once, the sticky paste will sag, and fall off, so time and patience is required. The duration of completion, and left to fully dry was two months. Figures 65, 66, and 67 showed the process, designing and completion of the herder's staff.

Figure 65

Direct modeling of the herder's staff
Photographed by Akpan Ekpenyong
Year: 2025

Figure 66

Designing the herder's staff
Photographed by Akpan Ekpenyong
Year: 2025

Figure 67

Completion of the herder's staff
Photographed by John Anabui
Year: 2025

4.2.8 Construction of Iron Base

A rectangle base measuring 76.2 cm in width, and 91.44 cm in length was constructed for the monumental sculpture composition to stand on, as shown in figure 68. Another rectangular base measuring 60.96 cm in width and length of 83.82 cm was also constructed, as shown in figure 69. The iron base which the sculpture rest on overlaps the iron base to be inserted in the plinth, see figure 70. Eight pieces of 20mm iron rods measuring 53.34 cm were welded to the rectangular reinforcement base to be inserted in the plinth, see figure 69. Once the monumental sculpture composition was mounted on the concrete base, these eight 20mm iron rods was bended and welded on the rectangular base supporting the sculpture. This kind of mounting is flexible/moveable, not rigid. It is flexible/moveable because the monumental sculptural composition can be moved to another location by cutting off these 20mm iron rods holding it firm to the plinth in case the institution deem it fit to make use of the space it is mounted on in the future.

Figure 68

Iron base
Photographed by John Anabui
Year: 2025

Figure 69

Iron base
Photographed by John Anabui
Year: 2025

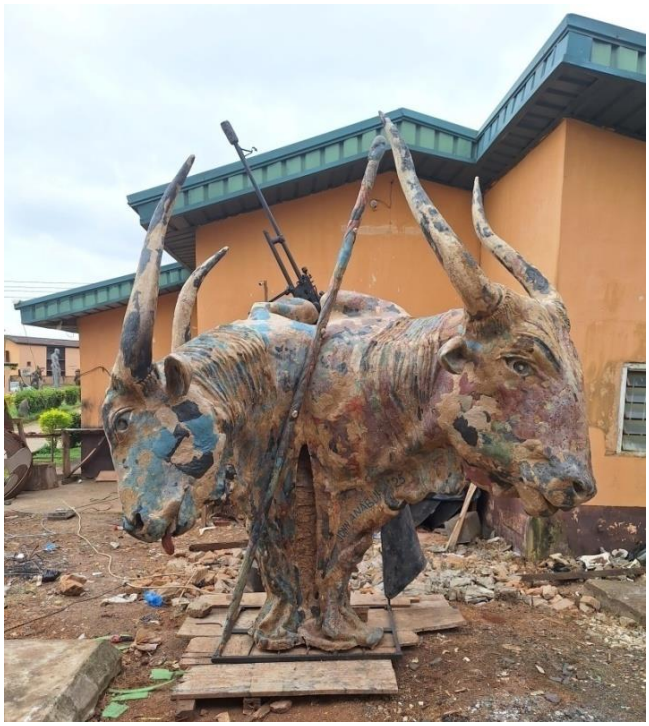
Figure 70

Iron base
Photographed by John Anabui
Year: 2025

4.2.9 Finishing

After coupling, it was observed that the liquid soap used as release agent to easy the removal of the cast from the mould reacted with PMS on the surface of the cast, making the colour a bit dull, see figure 72. However, the surface colour of the polystyrene sculpture was enhanced with wax coating as shown in figure 76. Due to the harsh condition of the weather, and the effect it may have on the surface texture of the monumental sculpture composition, bees wax and paraffin wax were melted together on an electric cooker, as shown in figures 73 and 74,and applied using paint brushes on the surface of the polystyrene sculpture, after which, an electrical heat gun was used to further melt the thick layer of wax on the surface to penetrate deep into the polystyrene and coloured sawdust surface to prevent it from absorbing moisture from the environment it is mounted. See figure 75.

Figure 71



Liquid soap reaction with PMS on the Surface
Photographed by John Anabui
Year: 2025

Figure 72

Photographed by John Anabui
Year: 2025

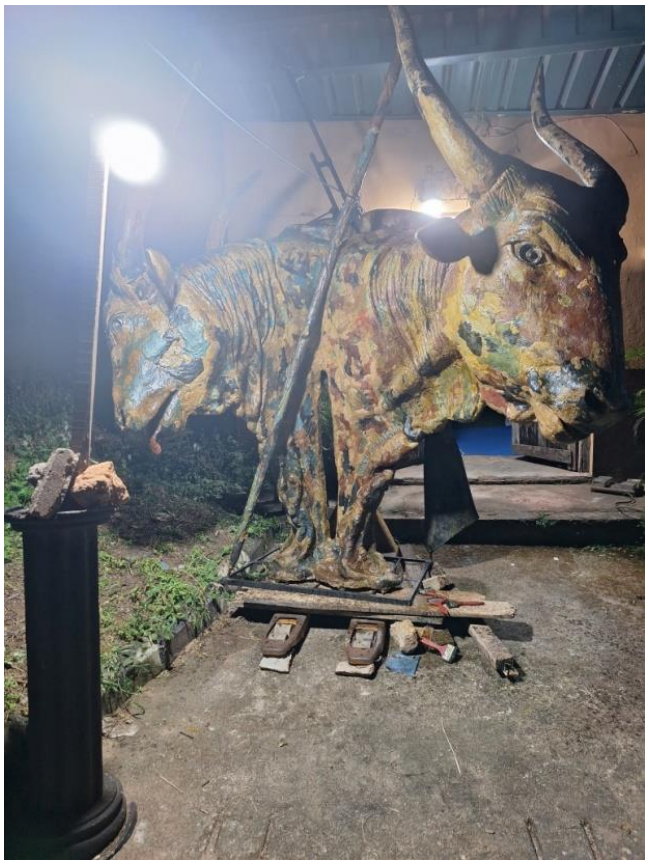
Figure 73

Application of Hot Wax on the Surface
Source: Seun Osiboye
Year, 2025

Figure 74

Using the Heat gun to heat up the surface
Photographed by Mayes Otunaga
Year: 2025

Figure 75



c

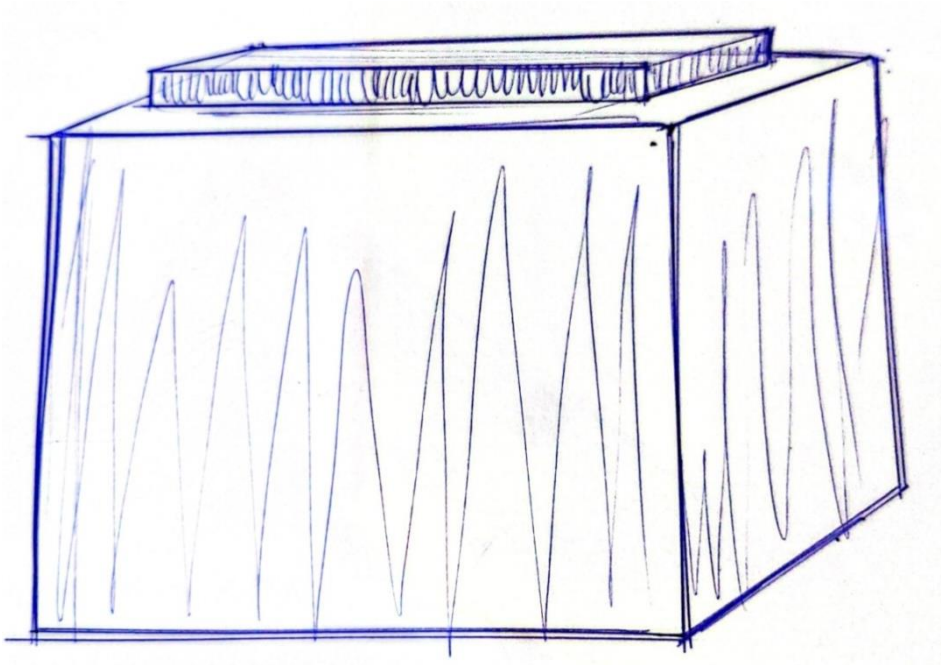
Completed wax process
Source: John Anabui
Year, 2025

4.2.10 Construction of the Plinth

A two-step plinth was conceived at the ideation stage, see figure 77. A simple design was chosen to enhance the monumental sculptural composition. The researcher decided to have a plinth befitting the plinth for the project because he did not want something that may be to complex and complete with the monumental sculpture composition. The plinth was erected with five inches blocks, and a total of thirty-eight blocks was used. The height of the plinth is 101.6 cm; the length and breadth are 109.22cm by 109.22cm respectively, see figure 78. The hollow plinth was filled with broken blocks to the brim to serve as reinforcement to the plinth from within and to also prevent it from caving in when casting is done on top, see figure78. After the iron

base reinforcement was installed in the space provided on top of the plinth for casting, see figure 79. Having done with the setting of blocks to the desired height, the four sides of the plinth was boarded with planks for casting, see figure 80. Concrete aggregate was mixed and poured inside the boarded area on top of the plinth; the thickness of the aggregate is 17.78 cm, as shown in figure 80. Water was poured periodically on the cast to make it cure; a critical process that ensures the concrete develops its full strength and durability. The following day, the cast was unveiled and another plinth was erected on the existing one, as shown in figure 81. The second plinth is measuring 106.68 cm in width, while the length is 101.14 cm, and both cast have a thickness of 10.16 cm. The entire plinth was plastered with mortar the following day having removed the planks used for casting, see figure 82.

Figure 76



Drawing of Plinth
Photographed by John Anabui
Year: 2025

Figure 77

Construction of the Plinth
Photographed by John Anabui
Year: 2025

Figure 78

Installation of the iron base
Photographed by John Anabui
Year: 2025

Figure 79

Casting
Photographed by John Anabui
Year: 2025

Figure 80

Step Casting
Photographed by John Anabui
Year: 2025

Figure 81

Completion of the plinth
Photographed by John Anabui
Year: 2025

4.2.11 Installation of the Monumental Sculpture Composition

After completion of the finishing stage, the monument sculpture composition was conveyed and installed on the already constructed plinth. The hooks were welded to the iron base of the sculpture to hold it firmly to the plinth, as shown in figure 83 and 84.The ammunition belt was attached to the machine gun and welded to the plinth for strength and to complete the intended design of the project, see figure 85. Figures 86 and 87 showed the finished work, the front and back view are seen here.

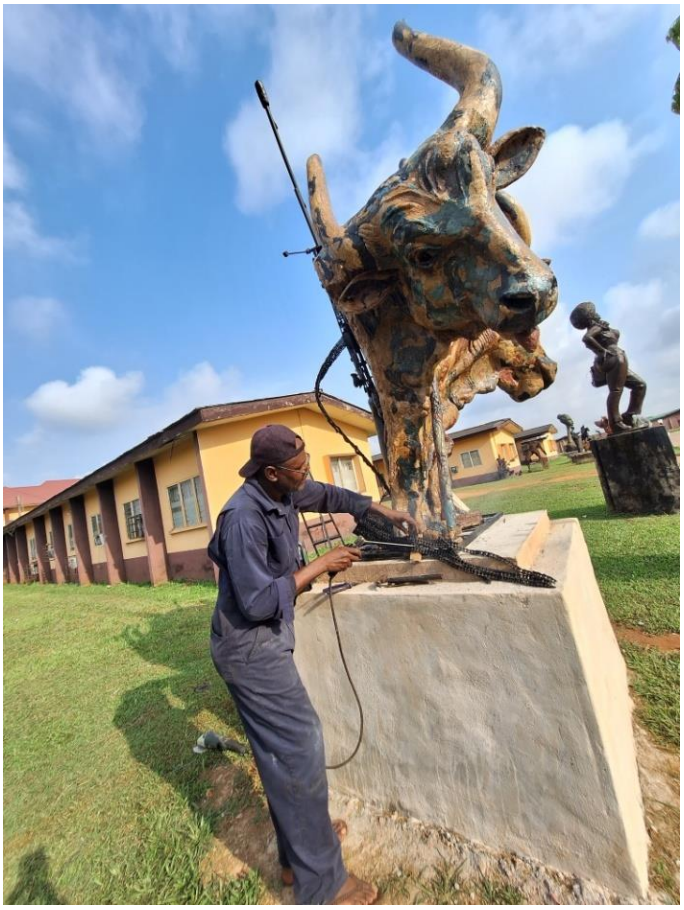
Figure 82

Welding of the sculpture's base to the top of the plinth
Photographed by John Anabui
Year: 2025

Figure 83

Welding of the Sculpture's base to the top of the plinth
Photographed by John Anabui
Year: 2025

Figure 84



Welding the Ammunition Belt to the Plinth
Photographed by Seun Osiboye
Year: 2025

Figure85

Front view of finished work
Photographed by John Anabui
Year: 2025

Figure 86

Back view of finished work
Photographed by John Anabui
Year: 2025

CHAPTER FIVE

VISUAL ANALYSIS, PRESENTATION, AND DISSCUSSION OF RESULTS

This chapter presents the empirical findings of the study through a systematic visual analysis, complemented by detailed presentation and interpretive discussions. Visual analysis techniques in art particularly sculpture, serve as foundational methods for dissecting, interpreting, and appreciating three-dimensional works. Unlike two-dimensional art forms, sculpture engages with space, volume, and materiality, demanding analytical approaches that consider tactility, viewpoint multiplicity, and environmental interaction. These techniques enable artists, critics, historians, and educators to uncover meaning, technique, and cultural significance embedded in sculptural forms.

The Nessilt-Johnson Writing Centre at Hamilton College (Clinton, NY) provides guidance on formal analysis primarily in the context of art industry and visual art writing. Their document titled Writing a Formal Analysis (2018) emphasizes formal analysis as a structured method to examine the visual elements and principles of an artwork (for example line, shape, colour, balance, and composition) to interpret its meaning and effect, rather than relying solely on external historical or biography context. This approach treats the artwork as a self-contained object, focusing on how formal choices create impact. Although description is an important part of a formal analysis, description is not enough on its own.

5.1 Visual Analysis of Related Studio Works

This section provides a visual analysis of the preliminary experiments undertaken during the course of this investigation. These exploratory studio activities were specifically designed to evaluate the compatibility, durability, aesthetically appeal of polystyrene when admitted with coloured sawdust. The resulting sculptures

were executed in realistic and highly representational styles, encompassing both freestanding (in-the-round) and relief formats. The visual analysis of these works is presented in relation to the conceptual framework and objectives of the study.

Figure 87

Body Language
Medium: Polystyrene and coloured sawdust
Dimensions: 91.44 cm
Year: 2022
Artist: John Anabui

Description

The sculpture titled Body language is an anthropomorphic figure standing approximately 91.44 cm tall, mounted on a slender iron rod anchored into a smooth wood pedestal. The core structure is hollow and it is made from polystyrene, which

has been mixed with coloured sawdust, predominantly greens, yellows, blues, reds, and earthly browns, creating a thick, encrusted surface that resembles weathered paint or geological strata.

The figure is truncated at the thighs, with no legs or feet, giving the impression of a torso rising directly from the base. The arms are asymmetrically posed. The right and left arm extends outward in a posture of reach or balance. The head is disproportionately large and hollowed out at the top, forming a cavernous opening that dominates the facial region. The surface texture is highly tactile cracked, layered, and uneven, evoking both organic decay and deliberate accretion.

The colour palate is vibrant yet chaotic, with no clear delineation between lines; instead, colours bleed into one another, creating a sense of movement and emotional turbulence. The iron rod, painted and slightly bent, contracts, sharply with the soft, friable materiality of the polystyrene and sawdust, introducing an element of industrial rigidity into an otherwise fragile, expressive form.

Analysis

From a formalist perspective, body language operates through a dynamic interplay of form, texture, colours, balance, and material contrast, prioritizing aesthetic and structural relationships over narrative or symbolic interpretation.

Form and Volume

The sculpture eschews classical proportionality in favour of expressive distortion. The hollowed head functions as a negative space that draws the viewer's eye upward, creating a vertical axis of tension. This void is a structural absence and a formal anchor, counterbalancing, the dense, compact torso below. The truncated

lower body enhances the dense of upward thrust as if the figure is emerging from or dissolving into the pedestal. The symmetry of the arms, both extended, introduces a diagonal line that evokes vertical stasis, generating rhythmic movement within the composition.

Texture and Surface

Texture is a dominant formal element. The encrusted sawdust creates a base-relief effect; with raised, irregular ridges that catch light and shadow, activating the surface. The tactile quality contrasts sharply with the smooth, indistinct iron rod, establishing a formal dialogue between softness and hardness, ephemerality and permanence. The cracked, layered application of sawdust suggests a geological or archaeological process, as if the figure has been excavated or eroded over time.

Colour

Colour functions expressively rather than decoratively. The main representational palette, dominated by saturated primaries and earth tones, creates visual vibration through juxtaposition and overlap. Green and yellow dominate the upper torso and head, suggesting growth or vitality, while reds and browns concentrate lower down, implying weight or grounding. The lack of colour hierarchy is blending reinforces the sculpture in raw, unpremeditated quality, aligning with formalist interests in pure visual sensation.

Balance and Proportion

The sculpture, achieves a precarious formal balance, the heavy, textured upper body is cantilevered on a thin iron rod, creating a sense of instability that is both structural and perceptional. This tension is heightened by the bent rod and the pedestal. The

formalist viewer is invited to consider how balance in achieved not through symmetry but through counterweighted means and directional forces.

Materiality and Medium

The choice of polystyrene, lightweight, synthetic foam, subverts expectations of sculptural permanence, while sawdust coating paradoxically suggests organic decay. The iron rod, by contrast, introduces durability and linearity. This material triad (soft/fragile, organic/ephemeral, and hard/industrial) creates a formal tension that underscore, the sculptures' thematic concern with transience and expression.

Synthesis

Formally, body language is a study in contrasts: void versus mass, softness versus rigidity, colour versus monochrome, balance versus instability, descriptively, it evokes a fragmented, expressive human form congest in a moment of emotional or existential intensity. The sculpture's power lies in its refusal to resolve these tensions, inviting prolonged formal engagement while resisting narrative closure.

Interpretation

Body language is a stylized sculptural work that silently decodes the inner psychology of human beings, thought patterns, emotional attitudes, and kinetic impulses, without a single word from the figure. It translates the visible states into visible form through two interwoven visual languages: the gestures frozen in the draped cloth, and the contours and tensions of the body itself. The sculpture functions like a visual psychogram: every fold, twist, and pull of fabric becomes a lexicon of mood, while

the body's posture and musculature serve as its syntax. Viewers do not need captions or confessions; the work stages behavior as evidence.

1. Cloth as Emotional Cartography

- Heavy and sagging folds could denote resignation, fatigue, or melancholy.
- Shape, wind-whipped pleats denotes agitation, urgency, or defiance.
- Symmetrical, calm drapery denotes composure, restraint, or meditative stillness

The textile is not mere decoration; it is animated skin, catching and broadcasting micro-movements the body itself may suppress. A clenched fist hidden beneath cloth still crumples the fabric; a suppressed sigh still lifts a hem.

2. Body as Structural Confession

- Tilted torso may denote doubt, evasion, or invitation.
- Arched spine denotes pride, ecstasy, or invitation.
- Weight shifted to one leg may denote impatience, flirtation, and instability.

The triadic arm extension (head and two hands) is a perfect example: it outlines thought in space. The diagonal line reads as mental reach, curiosity, offering, or defense, while the open palms expose vulnerability.

3. Synthesis: Gesture and Form Equal to Silent Narrative

Where cloth and body intersect, meaning crystallizes. A sleeve pulled taut by an outstretched arm reveals determination; a collarbone straining against fabric betrays anxiety. The sculpture does not depict emotion; it enacts it, turning the viewer into a body-reader.

In essence, Body Language transforms sculpture from mute object into eloquent witness, proving that posture and fabric can speak louder than words.

Figure 88

Scramble
Medium: Cow Horn
Dimensions: 91.44 cm
Year: 2022
Artist: John Anabui

Description

Scramble is a three-dimensional sculpture composed primarily of cow horns mounted on a wooden base. The horns, varying in length and curvature, are arranged in a diagonal, ascending figuration, with the largest horn positioned at the base and progressively smaller ones extending upward and outward in a staggered, fan-like formation. The base appear to be a roughly hewn slab of wood, possibly sourced from a natural log, with irregular edges that echo the organic contours of the horns. The overall length of the piece is approximately 91.44 cm long, lending it a commanding

yet intimate scale suitable for table top or pedestal display. The materials retain their natural Patina; the hours exhibit a range of brown tones from deep number to lighter task, into subtle variations in surface wear, while the wooden base displays warm, earthly lines with visible grain patterns.

Analysis

The formalist laws reveals scramble as a study in organic form and dynamic composition, where the interplay of elements creates a sense of movement and equilibrium without relying on narrative or representational content.

- **Line and Shape:** The sculpture is dominated by carving, sinuous lines inherent to the cow horns natural anatomy. Each horn traces an elegant, tapering art, with pointed tips that introduce sharp directional lines contrasting the smoother, rounded bases. These lines converge and diverge in a non-linear fashion, forming irregular horn-shaped silhouettes that are biomorphic rather than geometrics. The overall shape of the assemblage resembles a stylized cascade or explosion, where the lines guide the viewer's eye upward in a rhythmic progression, evoking fluidity despite the rigidity of the materials.
- **Form and Volume:** As a sculptural work, scramble engages with three-dimensional form through its assemblage of profusion, creating a layered depth that invites circumambulation for full appreciation. The largest horn at the bottom anchors the piece with substantial mass, while the smaller above diminish in scale, producing a graduated sense of volume that lightens toward the top. This volumetric progression imparts a sculptural lightness, counter-balancing the heaviness of the dense horn material and wooden base.
- **Colour:** The palette is monochromatic and earthly restricted to the natural lines of the cow horns and wood, predominantly shades of brown, from glossy

dark chocolate to muted ochre, with occasional yellowish highlights on the horn tips. Subtle gradations in tone arise from the materials, inherent variation, such as polishing or aging, which create highlight and shadows that enhance depth without artificial intervention. This restrained colour scheme unifies the piece, allowing form and texture to take precedence over chromatic vibrancy.

- **Texture:** Texture plays a pivotal role in scramble, emphasizing the tactile qualities of the raw materials. The cow horn possesses a rough, striated surface with visible ridges and imperfections, contrasting the smoother, polished areas near the bases. The wooden pedestal adds a complementary wooden pedestal adds a complementary woody grain, irregular and fibrous, which growled the sculpture visually and physically. There textural contrasts, between the horns keratinous sheen and the bases matte porosity, invite haptic imagination, reinforcing the works organic authenticity through sensory appeal.
- **Space:** The sculpture manipulates positive and negative space to achieve dynamism. The horns occupy positive space in a clustered yet open arrangement, with gaps between them forming negative voids that allow light to penetrate and cast shadows. The interplay creates an illusion of expansion, as the negative spaces amplify the horns outward thrust, preventing the composition from feeling congested. Viewed from different angles, the spatial relationships shift, under serving the work‘s three-dimensionality and encouraging active viewer engagement.
- **Application of Principles of Design:** Beyond individual elements, scramble demonstrates mastery of design principles, which orchestrate the forms into a cohesive whole.

- **Balance and Asymmetry:** The piece employs, asymmetrical balance, with the weightier lower horns, counterpoised by the lighter, ascending upper ones. This creates a visual equilibrium that tilts dynamically as if the sculpture is on the verge of motion, without collapsing into instability.
- **Rhythm and Movement:** Strong rhythmic quality emerges from the receptive curving motifs of the horns, arranged in a stepped sequence that implies progression or escalation. This generates implied movement, directing the eye along a diagonal axis from base to tip, axis to a visual crescendo.
- **Unity and Variety:** Unity is achieved through the consistent use of a natural materials and earthy tones, building the disparate horns into a singular entity. Variety is introduced via differences in horn size, curvature, and orientation, preventing monotony and adding complexity to the completion
- **Emphasis:** The focal point resides in the central cluster of horns, where the most dense intersecting lines and forms occur, drawing attention before the eye disperses outward.

Conclusion

Through a formalist analysis, scramble emerges as a compelling exploration of organic abstraction, where the intrinsic properties of cow horns are harnessed to produce a harmonies yet energetic composition. The sculpture's strength lies in its manipulation of line, form, texture, and space to evoke tension and resolution; independent of any extrinsic meaning. A 91.44 cm in length, it commands presence while remaining accessible, exemplifying how natural material can be transformed into a unified aesthetic statement. This approach underscores the autonomy of the artwork, affirming that its value derives solemnly from the visual dialogue among its

formal components. Further study could compare scramble to other assemblage works, but within formalism, its self-contained elegance stands paramount.

Interpretation

Scramble is a visceral sculptural indictment of unchecked elite ambition, expositing how the political class and privileged few claw, hoard, and monopolize national resources at any cost. In their frenzied ascent toward wealth and dominion, they crush the vulnerable beneath them, embodying the raw, primal power struggle that pulses through every tier of the society. The work lays bare the sordid mechanics of political intrigue; deception, betrayal, and brute force, and reveal their devastating ripple effects on the disenfranchised. In essence, Scramble is not merely a critique of corruption; it is a sculptural autopsy of hierarchy itself, proving that the pursuit of "more" is less about abundance than annihilation of other. It stands as a monument to what happens when society's guardians become its predators.

Figure 89

Bumpy Ride
Medium: Junk Metal
Dimensions: 30.48 cm in height
Year: 2022
Artist: John Anabui

Description

The sculpture Bumpy Ride (metal, 30.48 cm in height) presents a compact, three-dimensional assemblage of metal components, mounted on a rectangular wooden base. Painted in black, the composition includes elongated parallel rods, a slanted perforated rectangular plate, a central gear mechanism, and fragmented circular wheel, the work embodies a mechanistic aesthetic through its angular arrangement and visible structural puns. This formalist analysis examines the artworks intrinsic visual on the elements of art (line, shape, form, space, colour, texture, and value) and the principles of design (movement, pattern, rhythm, and unity). By prioritizing their formal qualities over external context or interpretive narratives, the analysis reveals how the sculpture's composition generates tension, dynamism, and cohesion solely through its material and structural organization.

Analysis

The sculpture's formal strength lies in his deliberate manipulation of basic visual elements, which interact to produce a unified yet unstable whole.

Line: Serves as a foundational element, defining the sculpture's directional energy, straight, rigid lines dominate the parallel rods extending outward, creating horizontal/thrust, while the slanted edges of the rectangular, plate introduce diagonal lines that imply instability and incline. There are juxtaposed with subtle curves in the gear teeth and the art of the fragmented wheel, which soften the otherwise harsh linearity and suggest potential rotation. The lines precision, achieved through metal fabrication, evokes mechanical exactitude, guiding the viewer's eye along vectors of force from the base upward and outward

Shape: Shape and form further enhance this mechanical character. Geometric shapes predominate: the rectangular plate forms a planar core, punctuated by circular

perforations that echo the rounded gear and incomplete wheel. These shapes transition into three-dimensional forms through the assemblage process, where flat plates gain volume via layering and attachment to cylinder rods and spherical gear hubs. The overall form resembles tilted apparatus, with protruding elements creating depth and protrusion into surrounding space. This volumetric construction emphasizes solidity, yet the fragmented wheel, broken at one arc, introduces irregularity, disrupting perfect geometric harmony and adding a sense of incompletion.

Space is manipulated through both positive and negative components; the dense clustering of metal parts occupies positive space, forming a compartment that anchors the sculpture. Negative space emerges via the perforation on the plate, the gaps in the gear teeth, and the open frame work of the wheel allowing light and air to penetrate and creating illusions of porosity within an otherwise opaque material. This interplay activates the surrounding environment, as shadows cast by the angled form extend the sculptures spatial presence binding its physical boundaries.

Colour: Colour is restrained and monochromatic, with the blackened metal surface providing a uniform dark line that absorbs light and unifies the disparate components. Subtle variations arise from the materials patina, introducing faint tonal shifts towards gray or rust-like undertones. The wooden base introduces a contrasting warm brown, grounding the cool metallic tones and delineating the sculpture from its support, through this contrast remains subordinate to the dominant achromatic scheme.

Texture: Texture contributes tactile interest, with the metal's rough surface, marked by welds, scratches, and possible oxidation, inviting visual exploration of its materiality. The perforated plate adds a pitted quality, while the smooth rods contrast with the toothed gears' jagged edges. This texture variety enhances the sculpture

haptic appeal, even in a non-tactile viewing context, emphasizing the raw nature of the medium.

Value: Value reinforces depth and contrast, with high-key highlights a protruding edges giving way to low-key shadows in recessed areas, such as the perforations and gear crevices. This gradation creates a chiaroscuro effect, accentuating the forum's three-dimensionality and heightening the perception of volume under varying light conditions.

Principles of Design

The principles of design orchestrate there elements into a cohesive composition, generating visual intrigue through imbalance and implied motion.

Balance: Balance is asymmetrical, with the sculpture weight visually shifted toward the slanted plate and protruding rods, counter-balanced by the lower gear and base. This precarious equilibrium evokes tension, as the forms appear on the verge of tipping, yet remain stable through its fixed mounting.

Contrast: Contrast is evident in the opposition of straight versus curved times, solid versus perforated surfaces, and smooth versus rough textures, which heighten visual drama. The fragmented wheel, in particular, contrasts wholeness with breakage, drawing attention to structural vulnerabilities.

Emphasis: Centres on the central gear mechanism, where converging lines and textural density create a focal point. This hub acts as a visual anchor, from which other elements radiate, guiding viewer attention amid the composition complexity.

Movement: Is implied through the diagonal slant and wheel-like forms, suggesting rotational or propulsive action: the rods extension and gear's teeth evoke kinetic potential, directing the eye in a rhythmic path that mimics mechanical operation.

Patten: Pattern and rhythm emerge from repetitive motifs, such as the evenly spaced perforations and gear teeth, which establish a metronomic cadence. This repetition unifies the work while introducing subtle variation, for example, wheel's irregularity that disrupt monotony and sustain interest.

Unity: Binds the composition, as all elements share a consistent industrial materiality and geometric vocabulary. Despite apparent fragmentation, the welded integration and monochromatic palette ensure holistic coherence, transforming disparate parts into a singular entity.

Conclusion

Through the formal elements and principles, Bumpy ride achieves a composition of controlled chaos, where mechanical precision coexists with structural instability. The interplay of line, shape, and texture generates a dynamic visual experience, evoking energy and tension without recourse to narrative or symbolism. This formal rigour underscores the sculpture's autonomy as an object, inviting sustained contemplation of its material essence and spatial presence. In an academic context, such an analysis highlights how formalism illuminates the intrinsic power of form, positioning Bumpy ride as a testament to the evocative potential of abstract assemblage.

Interpretation

Bumpy Ride is a jagged metal assemblage that transforms the grinding, bone-rattling ordeal of daily life in Nigeria into a three-dimensional indictment. Forged from the detritus of faltering nation, rusted grilles, warped rebar, shattered windshields; this sculpture does not merely depict hardship; it embodies the relentless friction between human aspiration and systemic sabotage. It is a tactile manifesto of infrastructural collapse and thwarted ambition, where every pothole, power outage, and bureaucratic

barricade becomes a spike in the work's unforgiving topography. In essence, Bumpy Ride is not a lament; it is a survivor's blueprint. It refuses pity, instead forging hardship into armour. The sculpture stands both wound and witness, daring the nation to confront the cost of its dysfunction, and the resilience it forges in those who endure.

Figure 90

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Flamboyant Display
Medium: Polystyrene, Sawdust, and Petrol (PSP)
Dimensions: 91 × 74 × 76 cm (H × W × D)
Year: 2022
Artist: John Anabui

Description and Analysis

Flamboyant Display (Figure 91 above) is a sculpture in the round produced in 2022. The work measures approximately **91 × 74 × 76 cm (H × W × D)** and is created from a composite material formed by mixing polystyrene, sawdust, and petrol into a paste

(PSP). A moulding and casting technique was employed to achieve proper form, structure, and detail. Through close observation, it becomes evident that the artist deliberately explored the visual excess and expressive quality of the female torso. A fabric-like form wraps around the waist, suggesting the presence of buttocks, thighs, and legs, even though these parts are not physically included. The twisting posture and elegant movement of the torso encourage the viewer to imagine the absent head and arms, completing the suggestion of a youthful body presented in a dance-like position.

Structurally, the sculpture is supported by two metal rods positioned apart at the upper section of the frame, functioning like improvised legs that suspend the torso. The wrapper around the hips flares outward like an umbrella, giving the figure a sense of protection and theatrical display. This raised posture conveys the impression of a dancer tiptoeing in a graceful, flamboyant movement reminiscent of a cultural performance.

The use of the composite material marks a significant exploration of alternative sculptural media. The mixture referred to as PSP paste cures within four weeks inside the mould, resulting in a lightweight but firm form with fine, compact grains of sawdust. The material choice demonstrates an experimental approach to sculptural practice and reflects a deliberate attempt to document new possibilities within contemporary sculpture.

The artist also departs from the convention of monochrome finishes commonly seen in sculpture. Instead, bright hues of red, yellow, and green were integrated directly into the composite medium. These colours carry strong cultural and symbolic meanings across several African nations such as Nigeria, Ghana, Senegal, Mali, Mozambique, Namibia, Morocco, Egypt, and South Africa. Their presence positions

the work as a subtle symbol of African unity and the energetic nature of the youthful African society. Applied in dispersed patches across the torso and wrapper, the colours visually echo the effects of military camouflage. Symbolically, this camouflage-like pattern evokes strength, discipline, resilience, and cultural endurance within African communities.

The absence of the head and arms suggests a society whose agency and voice have been constrained, leaving only the body to express resistance through posture and movement. Evaluated from this perspective, the sculpture becomes more than a celebration of form, structure, and colour. It comments on the condition of a society that is vibrant yet deprived of political freedom. In conclusion, *Flamboyant Display* stands as a visual metaphor for political identity, cultural resilience, and the ongoing struggle for societal survival.

Figure 91

Severance
Medium: Metal Scrap, Polystyrene, Sawdust, and Petrol (PSP)
Dimensions: 91 × 74 × 76 cm (H × W × D)
Year: 2023
Artist: John Anabui

Description and Analysis

Severance (Figure 92) is a sculpture in the round measuring **155 × 90 × 70 cm (H × W × D)** and produced in 2023. The artwork explores different conceptual directions in contemporary sculptural practice, combining mixed media and composite materials. It stands as an engagement with both organic and inorganic forms. The organic elements include two cow heads and a wooden staff. These were created through an indirect method of moulding and casting, using a composite paste made from recycled polystyrene, sawdust, and petrol (PSP). This technique allowed the artist to achieve accurate form, structure, and surface detail. The inorganic component of the composition is the firearm, produced through direct modelling by up-cycling metal scraps while joining of the metal scrap were carried out through arc welding techniques. The deliberate pairing of wood in form of sawdust (as an organic material) with polystyrene, petrol, and metal scraps (as inorganic materials) demonstrates the possibility of merging contrasting substances in the production of a single sculptural statement.

The three-dimensional composition consists of four major forms, even though the cow figure appears twice in different positions. One cow head looks straight ahead, while the second tilts upward with slightly exposed teeth as if reacting to an imaginary sensation. A behavioural gesture often seen when a male cattle perceive the scent of their female counterpart. This posture subtly suggests an attitude that challenges authority or disregards the rule of law. Positioned directly behind the two cow heads is a wooden staff and a gun crossed in the form of a multiplication sign (×), visually suggesting a symbolic declaration of “no more herdsmen activities.” This crossing of forms raises a critical question. Which activities are being rejected by the artist, and

by extension, the society he represents? Such activities may include those that threaten social harmony and have eroded public confidence in their leadership.

In terms of colour, the sculpture and sculptor remains faithful to the natural tones of the materials used. The light-brown, carton like colour of the (PSP) composite dominates the two cow heads and the wooden staff. The firearm retains both the carton tint of the composite medium (PSP) and the dark metallic grey of the welded scraps. This contrast implies that the gun itself holds a dual potential, capable of functioning differently depending on whom wields it, either as an instrument of protection or a tool of destruction.

Interpreting the artwork within the political and social context of herdsmen and community conflicts, *Severance* reflects the strained relationship between leadership and society. The cow heads recall pastoral life, but their positioning and expression also point to tension, fear, and unresolved conflict. The crossed staff and gun signal a symbolic resistance to violence and insecurity, and by extension, a call for accountability and control from leadership. They highlight the consequences of inadequate governance, where communities face threats that the leadership has failed to address.

Figure 92

Caught in the Web
Medium: Iron rods, Polystyrene, Charcoal mixed with Sawdust
Dimensions: 213 × 30 × 20 cm (H × W × D)
Year: 2022
Artist: John Anabui

Description and Analysis

The study examines the sculptural piece titled *Caught in the Web* (Figure 85), a three-dimensional artwork measuring approximately **213 × 30 × 20 cm (H × W × D)** and produced in 2022. The sculpture continues the artist's exploration of composite material (PSP), but with a distinct colour, approach achieved through the integration of charcoal powder pigment. This treatment results in a fully black surface that conveys strength, determination, and a heightened sense of tension.

Although the theme will or may naturally suggest a composition involving a spider, its web, and an entrapped prey, the artist seems to deliberately deviate from this expectation. Instead, the composition presents an elongated muscular arm forcefully extending through a rigid web structure. The web is constructed from metal rods arranged in a resistant manner, limiting but not defeating the upward thrust of the hand. The arm modelled from the shoulder shows pronounced veins and musculature, reflecting strain, energy, and persistence.

This physical tension becomes central to the interpretation of the work. The metal web symbolizes the structural barriers that restrict the growth and progress of individuals or communities, while the forceful projection of the arm represents the determination to break through such constraints. The struggle embedded in the composition can be understood as a metaphor for the society pushing against imposed limitations, be they political, institutional, or socio-economic.

Viewed within this context, *Caught in the Web* becomes more than a study in form and material. It comments on the human desire for freedom and the resilience required confronting systems that restrict opportunity. The blackened surface amplifies the seriousness of the struggle, while the right arm's vertical motion suggests hope, agency, and the refusal to succumb to confinement.

In conclusion, the sculpture stands as a visual metaphor for strength, consistency, and upward movement. It affirms that despite the resistance posed by structural webs of limitation; determined effort can break through, allowing individuals and societies to rise beyond imposed boundaries.

Figure 93

Hanging Cloth (Our Culture)
Medium: Polystyrene, Coloured Sawdust,
Dimensions: 85cm × 44cm × 36cm (H × W × D)
Year: 2023
Artist: John Anabui

Description and Analysis of *Hanging Cloth (Our Culture)*

Hanging Cloth (Our Culture) (Figure 86) is a three-dimensional sculptural piece measuring approximately **85 × 44 × 36 cm (H × W × D)** and produced in 2023. In line with other works created during the study, the artist employs a composite material made from polystyrene, sawdust, and petrol (PSP), with integrated pigments of yellow, red, green, and the natural brown tone of the medium. The material choice and colour integration reflect an ongoing interest in developing a contemporary sculptural language grounded in local, accessible resources.

Visually and technically, the artwork presents a metaphorical fabric suspended in space, mounted on a wooden pedestal raised about 1 inch above the ground. The placement gives the cloth a strong sense of personification. The lower part of the fabric visually suggests legs, the mid-section evokes the trunk, and the upper form appears to rest or hang across a pole. This arrangement gives the impression of a figure embodied in cloth, echoing the long-standing cultural belief that fabric carries identity and presence.

Within traditional and contemporary African societies, fabrics hold deep symbolic meaning. They mark royalty, wealth, status, gender, age, and membership within specific groups or communities. The significance of a cloth does not lie only in its colour or pattern but also in its function, location, and the activity associated with it. A hung cloth often signals transition—sometimes a temporary pause in activity, other times a permanent change brought about by death, retirement, replacement, or personal decision.

Interpreted within this cultural context, the suspended cloth in *Hanging Cloth (Our Culture)* becomes a metaphor for transformation within a community. It reflects the moment when an individual or group withdraws from an established role, leaving

behind a symbol of what once was. The hanging gesture suggests both absence and presence: absence of the person who no longer occupies the role, and presence of the cultural memory embedded in the cloth itself. The colours yellow, red, green, and brown further reinforce cultural identity, referencing the vibrancy, pride, and continuity often associated with African textile traditions.

Evaluated from this standpoint, the artwork extends beyond material exploration and enters the realm of cultural commentary. It draws attention to how societies mark change and how fabric becomes a witness to transitions that shape communal life. In conclusion, *Hanging Cloth (Our Culture)* stands as a visual metaphor for cultural identity, collective memory, and the rituals that accompany social transformation. It affirms the enduring role of fabric as a carrier of meaning within African traditional and contemporary experience.

Figure 94

Waste 1
Medium: Polystyrene, ColouredSawdust,
Height: 213.36 cm
Year: 2024
Artist: John Anabui

Description

The sculpture titled Waste 1 is a tall, vertical piece standing at 213.36 cm, made from polystyrene and colored sawdust, which imparts a rough, textured surface throughout. At the top is a rounded pot tilted downward, its mouth open as if mid-pour. Emerging from it is a continuous, elongated stream of beige material that descends straight down the center, forming the primary vertical axis of the composition. This stream appears fluid and viscous in form, mimicking the flow of a liquid, though solidified in the medium. At the base, the stream splays outward into five irregular, tentacle-like appendages, each curving and bulbous, painted in vibrant primary and secondary colors: blue, red, yellow, green, and pink. These extensions rest on a simple, rectangular wooden plinth, which grounds the piece. The overall form emphasizes verticality with a dynamic flare at the bottom, creating a sense of downward motion frozen in time. Texturally, the sawdust gives the surface a granular, uneven quality, contrasting with the smoother, more polished appearance of the wooden base. Color is subdued in the upper sections, dominated by earthy beiges and browns, while exploding into saturated hues at the lower end. Lines are predominantly organic and curving, with the central pour providing a strong, straight vertical line interrupted by the chaotic spread below. Space is utilized minimally, with the sculpture occupying a narrow footprint but commanding height, and negative space around the form enhancing its isolated, suspended quality.

Analysis

From a formalist perspective, the sculpture's composition hinges on the interplay of line, form, color, and texture to achieve balance and tension. The dominant vertical line of the pouring stream creates a sense of unity and direction, guiding the viewer's eye from the pot at the top to the dispersal at the bottom, embodying principles of

movement and rhythm. This line is contrasted by the horizontal stability of the base, preventing the piece from feeling top-heavy despite its height. The forms transition from simple and contained (the spherical pot) to complex and expansive (the tentacle-like branches), introducing variety and emphasis through asymmetry, the appendages twist and bulge irregularly, avoiding repetition and adding visual interest. Color plays a crucial role in creating contrast: the neutral, monochromatic tones of the upper stream evoke simplicity and restraint, while the bold, multicolored lower sections introduce high saturation and hue diversity, generating focal points and a sense of explosion or fragmentation. This chromatic shift heightens the drama, with warm reds and yellows clashing against cool blues and greens, enhancing the piece's energy. Texture, derived from the sawdust, unifies the surface with a consistent roughness that suggests tactility, inviting closer inspection, while the polystyrene base material allows for lightweight construction that defies the implied weight of a pouring liquid. Proportionally, the 213.36 cm height amplifies scale, making the sculpture imposing yet intimate, as the human-scale elements (like the pot's size) relate to the body. Principles of design such as emphasis (on the colorful base) and contrast (between fluidity and solidity) work together to create a cohesive whole, where the illusion of motion achieved through curved lines and implied gravity contradicts the static nature of the medium.

Discussion

Formally, “Waste 1” excels in its manipulation of visual elements to evoke a paradoxical sense of permanence and transience, demonstrating how formalism can reveal deeper structural harmonies without external narratives. The sculpture's strength lies in its economy: minimal elements (a single pour and base flare) produce maximal impact through deliberate contrasts in color and form, resulting in a balanced

yet unsettling composition that challenges perceptions of stability. The vertical emphasis, combined with the organic, almost biomorphic shapes at the bottom, suggests a transformation or dissolution, where unity gives way to multiplicity, a formal device that could be seen as a metaphor for entropy, though strictly speaking, this arises from the visual dynamics rather than intended symbolism. Critically, the choice of materials, polystyrene (lightweight, synthetic) and sawdust (organic waste byproduct), reinforces textural intrigue but also introduces subtle irony in durability, as the piece mimics ephemerality while being robust. Compared to formalist works like those of Constantin Brâncuși, where streamlined forms prioritize essence, this sculpture leans toward expressive distortion, using color and texture to disrupt purity. Ultimately, its formal qualities make it a compelling study in controlled chaos, rewarding repeated viewing for how the elements cohere into a singular, gravity-defying gesture.

Interpretation

Waste 1 is a haunting sculptural requiem for Nigeria's squandered resources, a nation drowning in its own riches yet starved by ignorance, mismanagement, and corruption forge from the refuse of abundance, this series transmutes oil-slicked earth, discarded talents, and exiled dreams into stark monuments of loss. It is both archive and accusation: a ledger of underutilized human genius and ravaged natural wealth, culminating in the mass exodus known as Japa, where the country's brightest youths flee in droves, not for adventure, but for survival. Waste 1 is not a single object but a chorus of absences, each sculpture a negative space where potential should have been. Waste 1 is Nigeria's mirror made of garbage, reflecting a country that exports its future while importing its chains. It stands as both elegy and summons: a call to reclaim the wasted before land, and its people, are irretrievable.

Figure 95

The Benin Oba's Paraphernalia
Medium: Metal (kinetic)
Height: 60.96cm
Year: 2023
Artist: John Anabui

Description

The sculpture, titled Benin Oba's Paraphernalia (a Wind Kinetic Sculpture), is a metal construction standing approximately 60.96 cm in height, mounted on a cylindrical base that appears to be made from a repurposed component, possibly a gear or pulley, with a textured, weathered surface. The primary structure consists of a large, open circular frame formed from thin, wrought metal rods that encircle the composition, creating a hoop-like boundary. Within this circle, two asymmetrical, curved shapes dominate the visual field, positioned in opposition to one another in a manner reminiscent of interlocking forms. These shapes are fabricated from sheet metal, with one featuring a perforated, mesh-like pattern that suggests a lattice or honeycomb texture, while the other is smoother but incorporates cut-out designs and linear

incisions. At the center, two elongated, blade-like elements cross diagonally, intersecting at a pivot point secured by bolts or rods, adding a sense of tension and focal emphasis. The overall color palette is monochromatic, dominated by dark, oxidized blacks and grays, with subtle variations in sheen due to the metal's patina and possible rust or wear. The sculpture's kinetic aspect is implied through the curved, sail-like forms of the opposing shapes, designed to catch wind and facilitate rotation around the central axis.

Analysis

Employing a formalist lens, the sculpture's composition relies heavily on the interplay of line, shape, form, texture, and movement to achieve its aesthetic coherence. Lines are predominantly curvilinear and fluid, as seen in the sweeping arcs of the circular frame and the organic contours of the stylized shapes, which evoke natural forms without explicit representation. These lines contrast with the sharp, straight edges of the central crossed elements, introducing a dynamic tension between softness and rigidity. The shapes themselves are abstract and biomorphic, with the opposing curves creating a balanced asymmetry that divides the circular space into two interdependent halves, fostering a sense of unity through opposition.

Form is three-dimensional and sculptural, with the metal's malleability allowing for volumetric depth in the curved panels, which project outward slightly from the plane of the circle. This creates negative space within the frame, enhancing the openness and inviting viewer interaction with the surrounding environment. Texture varies strategically: the smooth, matte surfaces of the base and some panels provide a grounded stability, while the perforated sections introduce visual complexity and lightness, allowing light to pass through and cast intricate shadows that evolve with viewing angles. The monochromatic color scheme unifies the piece, emphasizing

materiality over hue, though subtle tonal gradients from oxidation add depth and imply age or process.

In terms of design principles, balance is achieved through radial symmetry around the central pivot, with the opposing shapes mirroring each other in scale but differing in detail to avoid monotony. Contrast is evident in the juxtaposition of solid and void, smooth and textured, and static and implied motion. Emphasis is placed on the central intersection, where the crossed lines draw the eye as a focal point, reinforced by mechanical fasteners that add industrial punctuation. Movement is a core principle here, as the kinetic design, facilitated by the wind-catching curves, introduces rhythm and change, transforming the static metal into a performative object. Pattern emerges in the repetitive perforations and linear motifs, creating visual rhythm that echoes the rotational potential. Overall, the composition adheres to unity, with all elements cohesively integrated into a self-contained, circular whole that prioritizes formal harmony.

Discussion

From a formalist perspective, this kinetic sculpture exemplifies how abstract form can generate aesthetic experience through pure visual and mechanical engagement, independent of external narratives. The emphasis on movement as an integral element elevates the work beyond static sculpture, inviting temporal interaction where wind-induced rotation alters the viewer's perception, creating ephemeral patterns of light, shadow, and alignment. This dynamism underscores the sculpture's formal innovation, as the interplay of elements, particularly the tension at the center and the fluid periphery, evokes a sense of equilibrium in flux, akin to modernist explorations in artists like Alexander Calder, though rendered in a more rugged, industrial idiom. The metal medium reinforces this, its inherent durability contrasting with the delicacy

of motion, resulting in a piece that rewards prolonged observation by revealing subtle shifts in composition. Critically, the work's success lies in its economy: no superfluous details dilute the formal purity, allowing the viewer to appreciate the orchestration of line, texture, and space as a self-sufficient aesthetic system. In academic terms, this sculpture could contribute to discussions on kinetic art's formal evolution, highlighting how environmental forces (wind) integrate into the artwork's structure, blurring boundaries between object and context while maintaining visual autonomy.

Figures 96

Unruly Soldier
Medium: Polystyrene and Coloured Sawdust
Height: 91.44cm
Year: 2023
Artist: John Anabui

Description

Unruly soldier is a 91.44cm tall sculpture depicting a single, upright combat boot. The form is immediately recognizable as a military-style lace-up boot, complete with a high shaft, rounded toe, and a sole that lifts slightly at the heel. The boot rests atop a polished rectangular wooden plinth. The laces, rendered in high relief, appear loosely tied, with one dangling freely. The entire surface of the boot is encrusted with a thick, Impasto-like layer of multi-coloured sawdust, applied in irregular, almost violent

daubs of red, green, yellow, blue, brown, and black. The plinth remains largely adorned, reddish tone serving as a pedestal.

Analysis

1. Line and contour

   The sculpture's primary colour is the boot's silhouette: a bold, vertical axis that tapers slightly towards the toe and flares at the cuff. The lace introduces diagonal and curving lines that disrupt the boot's rigidity, creating a sense of tension between order (the boot's structural lines) and disorder (the erratic laces).

2. Shape and Volume

   The boot is a closed, volumetric form with clear interior void implied by the open cuff. The polystyrene core provides a lightweight, hollow structure, while the sawdust coating adds mass and texture, creating a paradoxical sense of weightlessness and heft. The plinth is simply geometric solid, rectangular prism, whose regularity with the boot's organic distortions.

3. Colour

   The palette is deliberately chaotic: high chroma primaries (red, yellow, blue) clash with muddy earth tones and streaks of black. The colours are not blended but applied in distinct, overlapping patches; chromatic disorder subverts the military association of the boot, transforming a symbol of uniformity into one of fragmentation.

4. Texture

   Texture is the sculpture's dominant formal element. The sawdust coating creates a rough, encrusted surface that catches light unevenly, producing a tactile, almost repulsive quality. The laces also coated, appear matted and

fused, losing their functional clarity. The plinth's smoother texture provides subtle counterpoint, but its understated finish ensures the boot remains the focal point.

5. Composition and Balance

The composition is asymmetrical yet stable. The boot leans slightly forward, its toe point downward, creating a dynamic imbalance that suggests movement or collapse. The plinth's centred placement and the boot's vertical orientation prevent actual tapping, but the visual orientation prevents actual tipping, but the visual tension is palpable. The laces, asymmetrically knotted, further disrupt symmetry.

Discussion

From a strictly formalist perspective, Unruly Soldier is a study in contradiction and subversion. The boot, a form traditionally associated with rigidity, discipline, and function, is rendered in a medium (polystyrene) that is inherently fragile and artificial. The sawdust coating, itself a byproduct of destruction, further undermines the boot's utilitarian purpose, transforming it into relic of entropy. The chaotic application of colour and texture obliterates any sense of camouflage or uniformity, replacing military order with visual cacophony.

The vertical axis, typically a symbol of strength, is compromised by the boot's forward tilt and the dangling lace, suggesting a soldier on the verge of collapse. The interplay of line, colour, and texture creates a push-pull dynamic: the boot's recognizable form draws the viewer in, while its degraded surface repels. The choice of material is significant. Polystyrene, a synthetic, disposable substance, contrasts

with the organic sawdust, which evokes decay and fragmentation. Together, they create hybrid object that is neither functional nor decorative.

Figure 97

Waste 2
Medium: Polystyrene, Coloured Sawdust,
Height: 213.36 cm
Year: 2024
Artist: John Anabui

Description

The sculpture Waste 2 stands 213.36cm tall, and it is composed of polystyrene and coloured sawdust. A rigid, rusted metal flange anchors the top, from which a thick, viscous black substance descends in a smooth, continuous curve. The substance terminates in a dynamic, multi-coloured splash at the base, predominantly blue and red, resting on a wooden plinth. The black form is matte and monolithic, contrasting sharply with the glossy, fragmented burst below.

Analysis

- Line and Form: the vertical axis dominates, with the black column's sinuous, rope-like line creating tension against the static flange and explosive splash base.
- Colour: Monochromatic black above versus saturated splashing hues below heightens drama and suggests transformation or rupture.
- Texture: Industrial rust and smoothness (flange, column) versus organic, gritty sawdust (splash) create tactile opposition.
- Balance and Scale: asymmetrical yet stabilized by the plinth; the 7 foot height amplifies verticality and gravitational pull.

Discussion

The work's power lies in pure visual syntax: the flange as industrial origin, the black extrusion as controlled flow, and the colourful splatter as chaotic release. Without narrative cues, formalism reads this as a study in material tension, rigidity yielding to entropy, containment to dispersion, rendered through stark contrast in line, colour,

and texture. The piece asserts clarity and sensory immediacy, embodying waste not as subject but as formal event.

Interpretation

Waste 2 powerfully illustrates the devastating consequences of pipeline vandalism and illegal oil bunkering in Nigeria, a recurring act perpetrated by oil thieves. At the top of the composition, a ruptured pipeline violently spews thick, black crude oil in a forceful gush, symbolizing both the immediate environmental catastrophe and the reckless theft of a national resource.

As the crude cascades downward, it explodes into a dramatic, multicoloured splash. This vivid burst of colour is deliberate and symbolic: the different hue represents the rich array of valuable minerals and hydrocarbon components embedded within the crude oil, resources that are rarely, if ever, properly refined or maximized by the thieves. In their haste and rudimentary methods, these criminals extract only the most basic fraction of the oil's potential value, allowing the rest to spill uselessly into rivers, farmlands, and fragile ecosystems.

Thus, the artwork poignantly highlights a double tragedy: not merely the theft and environmental destruction caused by vandalism, but also the colossal waste of precious natural resources that legitimate means to generate revenue, create jobs, develop infrastructure, and improve the lives of millions of Nigerians. Waste 2 stands as both a lament and a protest, an urgent visual indictment of greed, sabotage, and systemic failure that continues to squander the nation's wealth while poisoning its land and people, leaving behind only pollution, poverty, and lost opportunity

Figure 98

Severance (front view)
Source: John Anabui
Year: 2025

Figure 99

Severance (back view)
Medium: Polystyrene, Coloured Sawdust,
Height: 304.8 cm
Year: 2025
Artist: John Anabui

5.2 Visual Analysis and Discussion of the Monumental Sculptural Composition

Severance (2025) is a monumental mixed-media sculptural composition created by John Oshoke Anabui. Executed in polystyrene, coloured sawdust, and scrape metals, the sculpture stands at 304 cm high by 121.92 cm wide installed on an outdoor concrete plinth measuring 91.44 cm in height, as shown in figures 99 and 100.Rather than subordinating the medium to representation; the researcher treated the material as an active participant, its texture, weight, and resistance shaping the

animal's monumental presence and expressive power. This synergy ensures that form, meaning, and substance reinforce one another. The sculptural composition embraces a purely representational style, entirely free of abstract elements. The researcher masterfully leverages the proportions of its constituent composition. Depicted cows balance on their dewlap, a detail that signifies their healthy, well-nourished state.

"Severance" is a polychromatic, richly textured sculpture that actively cultivates psychological space, inviting viewers into a realm of open-ended introspection and imaginative projection. The sculpture depicts two powerfully built cows symbolizing the cattle central to Fulani pastoralist identity), with a camouflage-like palette of earth tones: browns, greens, blacks, muted reds, and ochres. These colours blend irregularly across the surface, creating mottled patches rather than uniform colour fields. Thrust vertically between the cows is a herder's staff, a symbolic pr-colonial emblem of peaceful pastoral authority. Adjacent is another black metallic object pointed to the sky, looking at it closely is a machine gun, with its barrel pointing skyward and its ammunition belt hanging loosely from the machine gun to the top of the plinth, coiling around the buttstock and looping in folds behind the cattles to the front directly beneath the cow on the left with its tongue out. The ammunition belt is position to lead viewers from the front to view what is happening at the back.

Through its title *Severance*, the work powerfully articulates the violent disruption of Nigeria's food supply chain caused by the protracted farmer-herders conflict, particularly in the Middle-Belt regions of Benue, Plateau, Nassarawa, and Southern Kaduna, and subsequent spread to other parts of the country. What was often framed as a mere "clash between farmers and herders" over grazing routes is exposed by this work as a far more sinister campaign: the systematic use of armed violence by certain

rearers to seize ancestral farmlands and displace indigenous farming communities from their ancestral territories.

The outward "innocent" image of cattle being led peacefully by a herder's staff is subverted by the concealed machine gun and ammunition belt, revealing the hidden militarization beneath the pastoral façade. The blood- like drips and rough textured surface depicts the state of the nation, it speaks of chaos and death that has ravaged every nook and corner of the country it symbolizes the bloodshed, ecological devastation, and forced displacement that have severed the once-reliable flow of grains, tubers, and vegetables from Nigeria's agrarian heartland to the rest of the nation.

In *Severance,* the researcher transforms discarded materials into a searing monument that forces viewers to confront the human, economic, and cultural cost of this ongoing crisis, a crisis that has not only claimed thousands of lives but has also fractured the nation's food security and deepened ethnic and religious divides.

CHAPTER SIX

SUMMARY, CONCLUSION, AND RECOMMENDATION

This chapter brings together the main ideas in a clear and unified way. It delves into the critical domain of surface finishing techniques tailored specially for outdoor polystyrene sculptures, with a focused exploration on two innovative approaches: integral colouring and wax protocol. It begins with a brief summary of the research process and key findings. This followed by a solid conclusion that highlights the main results and shows how the study's goals were met. Next, practical recommendations are offered to guide artist, educators, and future researchers in applying these findings. Finally, the chapter explains the study's contribution to knowledge, showing how the use of polystyrene, coloured sawdust and waxing methods adds value to art practice and support sustainable cost-effective approaches to sculptural and colour. This chapter concludes the present study while paving the way for future research.

6.1 Summary

This study, titled 'Surface Finishing of Outdoor Polystyrene Sculptures: Exploration of Integral Colouring and Wax Protocol' examined practical and sustainable methods to enhance the durability, aesthetic quality, and environmental performance of polystyrene base outdoor sculptures. The research focused on two core strategies: integral colouring using coloured sawdust mixed directly into the polystyrene matrix, and a wax-based finishing protocol applied to protect and preserve surface colour and texture under outdoor conditions. The wax protocol is explored as a synergistic finishing method, drawing from historical application in bronze and wood sculpture conservation, the protocol adapts wax-based coatings, specially beeswax and paraffin wax for polystyrene and coloured sawdust surfaces.

Emphasis is placed on the protocol's role in providing hydrophobic properties, UV resistance, and a subtle sheen that enhances the sculpture's tactile and visual qualities.

It addressed the short comings of traditional paint coating, which degrade under ultraviolent light, moisture, and wear, by proposing an embedded colour system sealed with natural waxes.

6.2 Conclusion

The researcher confirmed that integral colouring combined with a wax protocol provides a reliable, long-lasting, and eco-friendly finishing system for outdoor polystyrene sculptures. It preserves visual appeal, extends material lifespan, and support sustainable art practices, particularly in resource-constrained environments. This technique addresses the inherent vulnerabilities of polystyrene in exterior settings, transforming it from a transient medium into a resilient one suitable for enduring public installations. By embedding colour at the molecular level and fortifying the surface with adaptive wax layers, artists gain tools that preserve both functionality and artistic intent against the rigor of nature.

6.3 Recommendations

1. Artists should use coloured sawdust mixed into the polystyrene for big outdoor sculptures. Instead of painting the surface later, mix coloured sawdust directly into the material when making large public artworks. This makes the colour last longer and save time on repairs.
2. Art schools should teach this wax method to students learning sculpture care. Teachers should show students how to apply the beeswax or paraffin wax coating. This helps future artists protect and maintain polystyrene sculptures properly.

3. Future students should test-paint-based glues and natural colours. Researchers should try eco-friendly reasons (like plant-based ones) and natural pigments to make the method even greener and safer for the environment.

6.4 Findings

Experimental tests evaluated sawdust-to-polystyrene ratios, wax types, and application method key results include:

- Efficacy of Integral Colouring: The study revealed that the integral colouring proved superior in achieving long-term colour stability; a percentage of sawdust ratio achieved vibrant, stable colour without weakening the structure.
- Performance of Wax Protocol: The study revealed that the wax protocol, demonstrated exceptional protective qualities, reducing water absorption, and enhancing abrasion resistance. A thin layer of wax protocol using beeswax and paraffin wax enhanced resistance forming a sheen on the of the polystyrene and coloured sawdust surface that protects from UV radiation, water, and abrasion.
- Colour retention: The study revealed that the treated samples exhibited significantly greater colour retention than painted controls.
- Cost and environmental impact: The study revealed that the approach reduced costs and environmental impact by using wood working bye products and natural sealants.

6.5 Contribution to Knowledge

The study has contributed to knowledge in the following ways:

1. This study establishes a practical, low-cost framework that links material innovation with studio practice and sustainability.

2. It offers a technical guide and a conceptual model for producing durable, colourful, and environmentally responsible outdoor sculptures, advancing both artistic and scientific understanding in the field.
3. The study underscores the importance of interdisciplinary approach, merging materials science, conservation practices, and artistic experimentation, to overcome traditional limitations.
4. This study gives artists a practical and tested way to create lasting outdoor polystyrene and coloured sawdust art, with minimal concerns for maintenance.

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