

From Waste To Worth: Mixed-Media Sculpture As A Practice of Material Revalorization And Circularity In Contemporary Nigeria

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Abstract

The escalating global waste crisis has intensified the need to reconsider conventional relationships between production, consumption, disposal, and material value. While environmental policy and industrial recycling have developed increasingly sophisticated responses to waste, the capacity of artistic practice to function as an applied mechanism of material revalorization remains comparatively under-examined. This article examines mixed-media sculpture as a practice through which discarded materials may be transformed from objects of disposal into carriers of aesthetic, cultural, and environmental value. Situated within a pragmatist paradigm, the research employed iterative studio experimentation involving material familiarization, pairwise combinations, triadic assemblages, and comprehensive compositions. The findings indicate that the selected materials possess complementary structural, tactile, chromatic, and reflective qualities that generate distinctive aesthetic relationships. Techniques involving cold connections, binding wire, cement embedment, lamination, cutting, shaping, and assemblage demonstrate that heterogeneous waste streams can be integrated into coherent sculptural structures without necessarily returning the materials to industrial recycling systems. The article argues that such practices position the sculptor not merely as commentator on environmental crisis but as an active participant in circular material cultures.

Keywords: mixed-media sculpture; waste revalorization; sustainable art; material agency; circular economy; found objects; contemporary Nigerian art

Introduction

The twenty-first century has witnessed an unprecedented intensification of the global waste problem. Rapid industrialization, urbanization, consumerism, technological development, and changing patterns of material consumption have generated waste streams whose volume and complexity increasingly challenge conventional systems of collection, disposal, and recycling. The problem is particularly acute in relation to materials whose physical properties permit long-term persistence in the environment, including metals, glass, and manufactured composite materials.

The contemporary waste crisis, however, is not exclusively an environmental problem. It is simultaneously a question of material value. Once an object is designated as waste, its economic, cultural, functional, and aesthetic possibilities are frequently obscured by its classification as something that has reached the end of its useful life. The concept of waste therefore requires reconsideration not simply as a category of unwanted matter, but as a temporary status within a material's broader social and cultural trajectory. This article advances the argument that contemporary sculpture can participate actively in this process of reconsideration. Rather than treating discarded materials merely as symbols of environmental degradation or as convenient substitutes for conventional artistic media, sculptural practice can constitute a practical methodology for recovering and extending material value.

The argument emerges from a practice-based Master's research project that investigated the sculptural revalorization of four categories of discarded material: scrap metal, broken mirror, post-consumer aluminium beverage cans, and discarded automotive clutch plates. These materials were selected because they represent different waste streams while possessing markedly different physical

and aesthetic characteristics. Scrap metal contributes structural strength and industrial associations; broken mirror introduces reflection and optical fragmentation; aluminium cans provide malleability, colour, graphic information, and associations with consumer culture; while discarded clutch plates contribute weight, mechanical morphology, tactile complexity, and traces of industrial labour.

The central proposition of the research is that bringing these materials together produces more than an accumulation of discarded objects. Their interaction generates new aesthetic relationships in which material histories, physical properties, and cultural associations become mutually legible. These relationships are described in this study as material dialogues.

The research consequently asks four interrelated questions. First, how can the sculptural composition of selected industrial and post-consumer wastes function as a practical model of material revalorization? Second, what aesthetic possibilities emerge when materials with substantially different physical and cultural identities are combined? Third, how can such sculptural interventions contribute to public discourse concerning waste and sustainability? Finally, what role can the sculptor assume within broader systems of sustainable material practice? These questions are particularly significant within Nigeria, where informal material recovery, artisanal production, automobile repair, metal fabrication, and other forms of resource circulation constitute important but frequently underdocumented aspects of everyday material culture. The research therefore places a Nigerian studio practice in conversation with international debates concerning circular economy, sustainable art, material agency, and contemporary sculpture.

Waste, Value and Revalorization

The distinction between waste and resource is neither entirely natural nor permanent. Douglas's (1966) influential conception of dirt as "matter out of place" provides an important starting point for understanding the social character of waste. A material becomes waste partly because it has been displaced from a recognized system of utility, order, or value. This suggests that waste is not simply a property intrinsic to an object; rather, it is also a condition produced through social and economic relationships. Appadurai's (1986) concept of the social life of things further demonstrates that objects can move between different regimes of value. An object may possess economic value at one moment, functional value at another, and symbolic or cultural value at yet another. Its designation as waste therefore need not represent an absolute termination of value.

This perspective is particularly relevant to artistic practice. The sculptor can intervene in the moment at which an object appears to have exhausted its conventional usefulness and redirect it into another circuit of meaning. A discarded clutch plate, for instance, may cease to function as an automotive component while retaining considerable structural, tactile, historical, and visual potential. Similarly, a broken mirror may lose its conventional domestic function while retaining its reflective capacity.

Waste revalorization consequently differs from simple reuse. Reuse may preserve an object's existing function, whereas revalorization involves the recovery or creation of a new form of value. The object does not necessarily return to its original use; instead, it acquires another identity within a new system of relations. de Jesus and Mendonça (2018) argue for a conceptual shift from viewing waste as the terminal stage of material circulation toward understanding it as a potential resource for new productive cycles. Such an approach is compatible with the present study, in which discarded materials are not approached as defective versions of new materials but as resources possessing unrealized aesthetic and structural capacities.

The sculptural process therefore becomes an act of reclassification. What was formerly "waste" becomes material; what was material becomes form; and what was form becomes an object capable of generating new cultural, aesthetic, and environmental meanings.

Circular Economy and the Artistic Reconfiguration of Material Lifecycles

The circular economy provides a useful conceptual framework for understanding this transformation. Kirchherr et al. (2017) describe circular economy as an economic system that challenges the conventional "end-of-life" model by prioritizing reduction, reuse, recycling, and recovery. Geissdoerfer et al. (2017) similarly distinguish circular systems from linear models through the attempt to maintain materials and resources within productive cycles for as long as possible. The conventional linear model can be represented as:

Extraction → Production → Consumption → Disposal

A circular orientation instead seeks to produce:

Extraction → Production → Consumption → Recovery → Transformation → New Value

The artistic revalorization of discarded materials can occupy an important position within the latter sequence. Although sculpture cannot substitute for industrial-scale recycling, it can interrupt the assumption that disposal necessarily represents the end of a material's cultural or productive life.

This distinction is important. The purpose of the present research was not to claim that every waste material can or should be converted into an artwork. Rather, the study demonstrates that artistic practice can constitute one legitimate pathway through which selected materials are prevented from immediate disposal and are redirected into new circuits of value. Bocken et al. (2016) identify creative practice as a potential site for experimentation with circular models. Artists and designers can work as material innovators because their practices frequently permit experimentation outside standardized industrial production systems. They can also make material relationships visible to audiences in ways that technical recycling systems often cannot.

The sculpture therefore performs two related functions. Materially, it extends the life of discarded objects. Discursively, it makes the question of material value visible.

Material Agency and the Sculptural Encounter

The theoretical concept of material agency provides another important dimension to the study. Bennett (2010) challenges the assumption that matter is passive and inert, proposing instead that materials possess capacities to affect human action and participate in assemblages. Ingold (2018) similarly emphasizes materials as processes and flows rather than static substances. This perspective significantly changes the sculptor's relationship with material. Within a conventional model, the artist may be understood as the active creator imposing a predetermined form upon passive matter. The present research proposes a more reciprocal understanding. The artist enters into an encounter with materials whose properties constrain, enable, resist, and redirect creative decisions.

Scrap metal, for example, possesses structural qualities that make it suitable for frameworks and supports. Broken mirror resists certain forms of manipulation because of its fragility while simultaneously producing reflective and spatial effects. Aluminium cans can be cut, folded, flattened, perforated, layered, or reshaped. Clutch plates possess mechanical forms that are often visually compelling even before artistic intervention. Consequently, the final sculpture emerges through negotiation. The artist proposes; the material responds. The artist cuts; the material bends or resists. The artist assembles; the structural properties determine what remains possible.

The sculptural object is therefore understood as the outcome of an interaction between human intention and material capacity. This approach aligns with Barad's (2007) concept of intra-action, in which entities do not simply interact as fully formed and independent objects but emerge through relationships. Within the present study, material agency became particularly evident when disparate materials were brought together. Their differences did not merely create technical problems; those differences became sources of aesthetic possibility.

Contemporary African and Nigerian Contexts

Waste-based art has a significant presence within contemporary African artistic practice. Artists across the continent have demonstrated that discarded materials can become carriers of cultural memory, environmental commentary, political critique, and aesthetic innovation.

El Anatsui's transformation of discarded metal bottle caps and related materials into monumental sculptural surfaces provides perhaps the most internationally recognized example. His practice demonstrates that apparently insignificant consumer remnants can be reorganized into complex visual structures that simultaneously reference consumption, commerce, labour, history, and transformation.

Gerald Chukwuma's use of aluminium beverage cans similarly demonstrates the aesthetic and narrative potential of post-consumer materials within Nigerian contemporary art. The printed surfaces of beverage containers retain traces of commercial culture, allowing the material itself to participate in the narrative structure of the artwork.

Dotun Popoola's synergetic metal sculpture provides another important Nigerian precedent. Through the transformation of automobile and industrial scraps into sculptural forms, Popoola demonstrates the structural and expressive potential of discarded metal while frequently connecting his practice with environmental advocacy.

These practices provide important foundations for the present research but do not exhaust the possibilities of waste-based sculpture. The present study extends this field by bringing together materials belonging to substantially different categories: ferrous and non-ferrous scrap, fractured reflective glass, post-consumer aluminium, and automotive composite components.

The distinction is therefore not simply one of material selection. It concerns methodology.

Where waste materials may previously have been approached primarily for their symbolic or representational potential, this research emphasizes the systematic investigation of material combinations, joining methods, structural relationships, and revalorization processes.

Methodology

The study employed a practice-based research methodology within a pragmatist paradigm. Practice-based research is particularly appropriate to artistic investigation because knowledge can emerge through the processes of making, experimentation, reflection, documentation, and critical evaluation. Rather than treating the studio as merely a place where conclusions derived from theoretical research were illustrated, the research positioned the studio as a site of inquiry and knowledge production. The methodology consisted of iterative cycles:

Material engagement → experimentation → reflection → documentation → analysis → subsequent experimentation

This cyclical structure allowed findings emerging from one experiment to influence the next.

Material Selection

Four principal waste materials were selected:

Scrap metal

Broken mirror

Aluminium beverage cans

Discarded clutch plates

Selection was based on availability within the Nigerian environment, waste status, revalorization potential, technical feasibility, environmental significance, and aesthetic capacity. The materials were

sourced primarily from automobile repair workshops, fabrication and welding workshops, glass and mirror workshops, construction environments, informal waste collectors, households, restaurants, automobile scrap dealers, and related material-recovery networks. This sourcing strategy was itself significant because it connected the studio directly to existing material economies rather than treating waste as an abstract conceptual category.

Studio Experimentation

Experimentation was conducted in progressive phases.

Phase One: Material Familiarization

The first phase involved examination of individual materials. Attention was given to their strength, malleability, surface texture, reflectivity, weight, structural behaviour, and potential methods of connection.

Phase Two: Pair Combinations

The second phase investigated relationships between pairs of materials, including scrap metal and broken mirror, scrap metal and aluminium, scrap metal and clutch plates, and broken mirror and aluminium.

This stage enabled the identification of compatible and incompatible joining strategies.

Phase Three: Triadic Combinations

Three-material combinations were subsequently investigated. The objective was to determine whether relationships established during pairwise experimentation could be sustained within more complex assemblages.

Phase Four: Comprehensive Assemblages

The final experimental phase incorporated all four primary materials. Supplementary materials—including cement, wooden boards, binding wire, and synthetic materials—were introduced where necessary to support structural or aesthetic integration.

Joining and Fabrication Techniques

An important contribution of the research was the exploration of techniques for connecting materials that differ significantly in physical properties.

Cold-connection methods were particularly valuable because not all selected materials could be subjected to welding or high-temperature fabrication. Binding wire, rivets, screws, interlocking systems, stitching, lamination, and related mechanical approaches provided alternatives.

Cement embedment was explored where mass and structural stability were required, while lamination enabled the integration of thinner materials into larger compositional surfaces.

These techniques illustrate an important principle of mixed-media sculpture: successful material integration does not require the elimination of difference. Instead, difference can be preserved while the materials are structurally and aesthetically brought into relation.

Documentation and Analysis

The practice was documented through photographs, process records, technique notes, and records of completed works.

Documentation served two purposes. First, it preserved the development of the artistic process. Second, it provided an evidentiary basis for analysing how material properties affected artistic decisions.

The research therefore treated documentation not as supplementary administration but as an integral component of artistic knowledge production.

Safety and Ethical Considerations

The use of waste materials required specific safety measures. Sharp metal and broken glass presented physical hazards, while grinding and cutting operations generated dust and airborne particles. Degreasing of clutch plates and the application of adhesives and surface treatments also required appropriate ventilation and protective equipment.

Materials were cleaned, assessed, and processed before incorporation into artworks. Completed works were structurally assessed, and potentially hazardous mirror edges were treated to reduce risks to viewers.

Findings

7.1 Waste Materials as Sources of Aesthetic Value

The first major finding was that the selected waste materials possessed substantial aesthetic capacities independent of their former functions.

Their value was not produced exclusively through concealment or transformation. In many instances, retaining traces of previous use enhanced the visual and conceptual significance of the work.

Scratches, corrosion, dents, printed beverage graphics, mechanical wear, fractures, and industrial surfaces became visual records of previous material histories.

The resulting sculptures therefore operated between two states: the identity of the discarded object and its newly constructed sculptural identity.

Material Dialogues

The most significant conceptual finding of the research was the emergence of what may be termed material dialogues.

The term describes the aesthetic and conceptual relationships produced when materials with different physical and cultural histories are deliberately placed in relation to one another.

The contrast between the opacity and industrial weight of scrap metal and clutch plates and the reflective qualities of broken mirror creates a visual tension between heaviness and luminosity.

The aluminium beverage can introduces another dimension. Its lightweight and malleable character contrasts with the durability and mechanical density of automotive components. Its printed commercial surfaces also retain direct evidence of consumer culture.

Consequently, the sculpture becomes a meeting point between industrial production, consumer consumption, mechanical labour, material deterioration, and artistic renewal.

The material dialogue is therefore both formal and conceptual.

Reflection and Fragmentation

Broken mirror proved significant because its reflective capacity remained active despite physical damage.

Rather than treating fracture as an exclusively negative condition, the research demonstrated that broken reflective surfaces can generate fragmented visual fields. Reflection becomes discontinuous, causing the viewer's image and surrounding environment to appear in partial and unstable forms.

This produces a compelling conceptual relationship with waste itself. The material that has been broken and displaced is capable of reflecting the viewer while simultaneously confronting the viewer with evidence of fracture.

The mirror therefore performs more than a decorative function. It becomes an active participant in the visual and conceptual structure of the sculpture.

Consumer Culture and Aluminium

Aluminium beverage cans introduced direct references to contemporary patterns of consumption. Unlike anonymous industrial scrap, beverage cans often retain printed logos, typography, colours, and commercial imagery. Their incorporation into sculpture consequently preserves traces of the consumer economy from which they emerged. The material thus carries a double identity: it is simultaneously evidence of consumption and evidence of waste. Through sculptural reconfiguration, however, the same material enters a third condition—as an element of cultural and aesthetic production.

Automotive Waste and Mechanical Memory

Discarded clutch plates contributed a particularly distinctive material vocabulary. Their original function within automotive systems is encoded in their mechanical morphology. Even after becoming obsolete as functional components, they retain associations with transportation, engineering, labour, repair, mobility, and technological infrastructure. Their incorporation into sculpture therefore expands the discourse of waste beyond domestic and consumer waste to include industrial and automotive material streams. The clutch plate becomes an example of how an object can lose functional value while retaining considerable material and cultural value.

Sculpture as Applied Revalorization

A central finding was that sculpture can function as an applied methodology of waste revalorization rather than simply as an artistic representation of environmental problems. This distinction is crucial. An artwork depicting pollution may communicate an environmental message without materially intervening in the waste stream. In contrast, a sculpture produced from discarded materials physically redirects those materials from disposal into another system of value. The artwork therefore possesses both representational and interventionist dimensions. It represents questions of waste while simultaneously acting upon waste.

Discussion

The findings support an expanded understanding of the relationship between sculpture and sustainability. First, the research demonstrates that waste-based sculpture can be understood as a form of material conservation through cultural transformation. The materials are not necessarily recycled in the industrial sense. Rather, they are retained and transformed within a new cultural economy. This distinction expands conventional understandings of sustainability. Recycling is not the only means through which material value can be retained. Artistic revalorization provides another pathway, particularly for materials whose physical characteristics make them difficult to process through conventional systems.

Second, the research reinforces the relevance of material agency to contemporary sculptural practice. The final forms did not emerge exclusively from preconceived artistic intentions. They developed through negotiation with the physical capacities of the selected materials. The mirror's fragility, aluminium's malleability, scrap metal's strength, and clutch plates' mechanical forms each influenced compositional decisions. Material difference therefore became productive rather than problematic.

Third, the study demonstrates that Nigerian artistic practice can contribute meaningfully to international sustainability discourse without simply reproducing Western models of environmental art. The materials investigated are embedded in Nigerian everyday life: the automobile repair workshop, the fabrication yard, the beverage economy, the household, the construction site, and informal waste-recovery networks. These contexts provide a distinct material geography from which sustainable artistic knowledge can emerge. The Nigerian context is therefore not merely a location in which a universal theory was tested. It constitutes a source of knowledge in its own right.

Fourth, the study positions the sculptor as an agent within material circularity. This proposition expands the conventional identity of the artist. The sculptor is not only a maker of aesthetic objects or a commentator on society. Through material selection, recovery, transformation, and dissemination, the artist can participate directly in alternative systems of resource circulation.

Such agency, however, should not be romanticized. Artistic revalorization cannot independently resolve structural problems of waste management, industrial production, or environmental policy. Its significance lies instead in its ability to complement technical and institutional responses by altering perceptions of material value and demonstrating practical alternatives.

Outcome of the exploration:



Figure 1. Bolade Ojo Emupenne, 2026, *Treacherous Ambassador*, Mixed-media: metal, aluminium cans, and wire, 33 cm x 60 cm x 20 cm, Bruce Onobrakpeya Gallery, Delta State University, Abraka



Figure 2. Bolade Ojo Emupenne, 2026, *Shadow of a Sea Pirate*, Mixed-media: aluminium cans, broken mirrors, clutch plates, cement, and synthetic fruits, 50 cm x 62 cm x 20 cm, Bruce Onobrakpeya Gallery, Delta State University, Abraka



Figure 3. Bolade Ojo Emupenne, 2026, *Transparency*, Mixed-media: clutch plates, aluminium cans, 30 cm x 60 cm x 18 cm, Bruce Onobrakpeya Gallery, Delta State University, Abraka



Figure 4. Bolade Ojo Emupenne, 2026, *Delicate Balance*, Mixed-media: Whole & broken mirrors, clutch plates, aluminium cans, wire, and synthetic crucifix, 40 cm x 70 cm x 26 cm, Bruce Onobrakpeya Gallery, Delta State University, Abraka

Implications for Contemporary Art Practice

The study has implications for contemporary sculpture, art education, creative industries, and environmental discourse. For contemporary sculpture, the research demonstrates that mixed-media practice can expand beyond the juxtaposition of conventional artistic media toward systematic investigation of material life cycles. For art education, the study suggests that waste materials can be incorporated into studio curricula not merely as inexpensive substitutes for conventional materials but as subjects of material research. Students can be encouraged to investigate where materials come from, why they become waste, what properties they possess, and what new values can be generated through artistic transformation.

For creative industries, waste-based sculpture presents possibilities for small-scale enterprises that connect material recovery with artistic production. Artists can collaborate with mechanics, fabricators, waste collectors, recyclers, and other material specialists, thereby creating localized networks of circular creative production. For environmental communication, sculptural objects offer an experiential dimension that written campaigns and statistical information cannot always achieve. A viewer encountering a monumental object constructed from materials previously understood as worthless is confronted with a physical demonstration of alternative value.

Conclusion

This article has examined mixed-media sculpture as a practical and conceptual approach to waste material revalorization within the Nigerian context. Through the combination of scrap metal, broken mirror, aluminium beverage cans, and discarded clutch plates, the research demonstrated that

materials designated as waste can acquire renewed aesthetic, cultural, and conceptual significance. The study's central contribution lies in its movement from waste as subject matter to waste as methodology. Rather than merely representing environmental degradation, the sculptural process intervenes materially by recovering selected discarded objects and incorporating them into new systems of value. The studio consequently becomes both an artistic workspace and a site of material research. The concept of material dialogues developed through the research provides a useful framework for understanding how disparate waste materials can communicate through their contrasting properties, histories, textures, weights, surfaces, and cultural associations. Scrap metal speaks through industrial strength and wear; broken mirror through reflection and fragmentation; aluminium cans through consumption and graphic memory; and clutch plates through mechanical history and labour. Their convergence produces an aesthetic language in which difference becomes a source of coherence.

The research further demonstrates the relevance of material agency and circular economy thinking to contemporary sculpture. Materials are not passive substances awaiting artistic command; they participate in determining the possibilities of form. Likewise, the artwork can be understood as one possible site within a broader circular system through which materials are prevented from immediate disposal and redirected into new forms of cultural value. Within the Nigerian context, this approach contributes to a growing field of African waste-based artistic practice while proposing a more systematic and transferable methodology. Its significance extends beyond the individual artworks to the processes of sourcing, experimentation, joining, documentation, reflection, and dissemination.

Ultimately, the research suggests that the sculptor can occupy a distinctive position within contemporary sustainability discourse: neither replacing environmental scientists, policymakers, nor industrial recyclers, but complementing them through material imagination and cultural intervention. The transformation from waste to artwork is therefore more than a change of appearance. It is a change of status. What was once discarded becomes visible. What was considered exhausted becomes productive again. What appeared to have no further value enters another life. In this sense, sustainable sculpture is not simply about making art from waste. It is about challenging the cultural assumption that materials cease to matter when their first function ends.

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