Production of Mosaiculture and Topiary Art for Environmental Management and Aesthetics in Nigeria

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Abstract
The deplorable state of our urban environment and the continuous disappearance of green areas in our Nigerian cities have become worrisome, also the ravaging effects of erosion has become a challenge to the government and policy makers This phenomenon has gotten to an alarming rate recently, following the devastating effects of climate change as experienced world over. The crux of this research lies in exploring the art of sculpture produced through the techniques of mosaiculture and horticulture with a view to contributing to the solution of managing climate change. The study established that various traditional media of sculptural expressions can be combined with flowers and green plants to create works of art. The project makes use of John Dewey's aesthetic theory and the others such as Ivan Pavlov's conditioning theory as the foundations for the research postulations. The methodology employed is studio experimental approach and the results were presented and analyzed through qualitative and descriptive methods. At the end, the postulations made in the research were subjected to public scrutiny using the medium of questionnaire, after which the data collected were subjected to simple descriptive statistical analysis. The study reveals that plants and flowers could be manipulated to become sculptures; also, it established that with the right policies and awareness, the general population could come to imbibe the habit of protecting and nurturing sustainable environment. The research therefore, serves as a new vista for creative possibilities in using plants and flowers for environmental aesthetics and management.

Introduction

The art of topiary is an artistic approach to the use of plants such as flowers and trees for a special kind of ornamentation that reveals the hitherto hidden potentials of green plants as materials for versatile artistic expressions. This belief is hinged on the assertion by Paul Klee (1920), on the purpose of Art; saying that; "Art does not reproduce the visible, but rather, it makes visible, taking us into the land of greater insight". Topiary is an ancient practice of shaping plants and trees to create aesthetic pleasing forms within the garden. It usually involves among other techniques; pruning, cutting, trimming and shaping of trees, shrubs, flowers and other green plants.

In Nigeria, based on the response gathered from gardeners in the course of the research, the practice is still in its formative stage and most gardeners/sculptors are more concerned with using flowers and plants as objects of ornamentation. This research work is therefore focused on elevating the practice of topiary and mosaiculture to the level of mainstream art similar to other media of sculptural expressions such as marble, bronze, concrete and others. Also in advancing the notion that our existence on planet earth is directly dependent on plants which are the primary producers in the food

chain and the number one purifier of the atmosphere, as well as medium for environmental protection when used as an erosion control measure.

Aside from aesthetics, there are other potentials that exists in the use of topiary and mosaicultuure for environmental art, there has been different theories that seeks to advance the important role of green plants to the living ecosystem. If art is utilized in the practicalization of these theories as the researcher hopes to, then the people will have more reasons to embrace the environmental remediation efforts of the world's governments. Following these line of thought, Selz's (1981) assertion becomes even more succinct when he opined that "the quality of a work of art can perhaps best be judged by its potential yield of new experiences"

It is no doubt that this project is multidisciplinary encompassing numerous areas of intellectualism ranging from ecologists, to environmentalists. Policy makers have churned out a large volume of literature to argue that there is a pressing need to make concerted efforts towards the salvaging of man's only living planet; earth. Consequently, it is the hunger to lend a hand towards this crusade for the reclamation of our planet that has propelled the researcher to embark on this work; going forward to validate Selz's (1981) opinion that "Too often art has been treated as existing in a rarefied detached realm. (yet), the misjudgment of formalist criticism, however, has clearly revealed that, art cannot be separated from the thoughts"

And ideas of its time, from the political and intellectual concerns during the period in which the artists lived and made their art… Issues concerning environmental pollution and ozone layer depletion have continued to remain on the front burner in the international arena. Over the last few decades, the effects of these environmental maladies have come to expose the vulnerability and fragile place of man in the ecological calendar. Over time, the world government has come to realize the fact that the environment which surrounds man is a shared resource that must be collectively protected. There has also been an increase lately in the number of bodies taking the course of environmentalism which is a social and environmental movement geared towards addressing environmental issues through advocacy, education and activism

The realities of environmental pollution and degrading has dawned on us; as a matter of fact the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) has come out to declare that climate change is not just a distance future threats. It is the driver behind rising humanitarian needs and we are seeing its impact. The number of people affected and the damages inflicted by extreme weather has been unprecedented

In Nigeria today, these ugly results of environmental degradation stares everyone in the face, the high and mighty is not spared from its effects. To the government, it costs huge amount of money to clean up the oil spillages ravaging the Niger delta area. The people in this region are worst hit, their water and surrounding ecological biosphere having been compromised, the air pollution emanating from the giant gas flaring rigs have turned the region into one bleak and stuffy atmosphere that will take years to remediate. The clearest and most visually visible signal of this massive pollution even in the urban centres of the Niger Delta is in the uniform blacking of the roofs of virtually all the buildings in the cities

Moving further upland, most cities lying within the Niger Delta basin and flood plains have witnessed massive flooding that have overwhelmed them lately. In the North, the challenge of desert encroachment and drought is constantly competing for the scarce available land and in turn affecting agriculture output. It will take a very long

list to articulate the various manifestations of the effects of pollution and climate change in Nigeria. Therefore, it is better narrowed down to a particular region. For the sake of this study we shall concentrate on the South East which faces her greatest environmental challenge in the form of gully erosion. The South eastern part of Nigeria has been reported to suffer the greatest incidence of gully erosion in the country and this is not unconnected to the type of soil.

Anambra state particularly appears to be the worst hit state with Agulu, Nanka and Oko being the hot spots. Among other causes of gully erosion, Abdul Fatai, etal (2014), points at natural cause like tectonic movement and uplift, climatic factors, geotechnical properties of soil, among others and anthropogenic causes like farming and uncontrolled grazing practices, deforestation and mining activities.

The deteriorating quality of the urban environment in Nigeria and the rate of disappearance of green areas is deplorable. Even places like Port Harcourt that once had the nickname of 'the Garden City' is now a shadow of its old self. While many areas in the South Eastern part of the country is fast being eaten up by erosion. Against this background, there is need to check this ugly trend before our urban environment turns into a concrete jungle. This problem therefore calls for a return to green environment. However, there is still need to add aesthetics to the practice in line with best global practices, hence the idea of this project is hinged on propagating the art of mosaiculture and topiary for aesthetic and erosion control measures in Nigeria especially in Anambra State, one of the worst hit by erosion.

Aim and Objectives of the Study

The aim of the research work is to plant and trim flowers in order to produce sculptures out of them. Subsequently, a holistic report of the research will be presented in a written format, while the sculpture plants will be exhibited for assessment and public view.

The objectives of the study are the possible things the researcher hopes to do and establish during the course of the research. They include;

1. To demonstrate how topiary and mosaiculture arts could be employed as agents of erosion control.
2. To explore the possibility of using plants and flowers as media for sculptural expressions.
3. To advocate for the planting and nurturing of aesthetically rich and pleasing vegetation, this in turn will also act as a horticultural system of afforestation even in urban areas.
4. To establish the fact that green plants play a major role in ensuring healthy living environment.

Methodology

This research follows an exploratory design. It is problem solving in nature. It also involves a studio experimental approach. While at the end the results are presented and analyzed through a qualitative and descriptive method. At the end, the postulations made in the research were subjected to public scrutiny using the medium of questionnaire, after which the data collected were subjected to simple descriptive

statistical analysis. Sources of data for the research were gathered from both primary and secondary sources. The primary sources are studio based observations and records as well as oral and other information gathered from shared questionnaire samples. While the secondary sources are written, both published and unpublished literature.

Literature Review

Conceptual Clarifications

Etymologically, art is derived from the root word Artem which is a latin word that denotes 'skill'. Nwanna (2012) therefore defined fine Art as "the finest of every human product", meaning we could have the fine art of almost every professional endeavour that employs skill. Going further to define art, Ehichanya (2014), was of the opinion that "Art is a means to self-expression" (p. 169). A closer look at this definition however reveals an open-ended concept of art since it could be argued then that any form of self-expression is an art! However, a much broader definition was offered by Wright (1957), describing art as 'a discovery and nurturing of the basic principles of nature into beautiful forms suitable for human use' (Maria, P. 2012), this in essence is a smart approach in the production of art, which does not blindly imitate nature but rather is inspired by nature.

In fact there are as many definitions as there are different types of works of art. Yet, each definition appears to mirror the opinion, background and subjective whims of each originator. Nevertheless, giving a pure definition of what comprises the concept of Art has remained a controversial issue. Some are of the opinion that art can never truly be defined saying that the definition of art in the modern sense has become more troublesome, considering its pluralistic and amorphous nature, and the new interpretations that have come to bear on the traditional meaning of art.

Sharing this thought, Weitz (1956) declares, that "the ever changing and adventurous nature of art, with its spectacular creations, makes it logically impossible to ensure any set of defining properties" same opinion was shared by other scholars like Kennick, W.E, George Dickie, and Tatakiewicz who in 1975 came out with the assertion that "our century has come to the conclusion that a comprehensive definition of 'art' is not only difficult but impossible to Art, especially the plastic art of sculpture is inseparably bound to the environment, it can never truly exist without the environment that surrounds it and of which it is a part of. The closest constituent of the environment which is a basic element in sculptural expression is space and this space completes the duo of mass and space; which are the constituent makeup of sculpture.

Nwanna, (2017) buttressed this fact further when he opined that sculpture engages built environment that is either public or private in order to give insight to life experience and totality of the culture of such occupied space. In the art expressions the artists explored media and their creativity to develop the public spaces in order to appeal to the public aesthetic expression, (Eze, 2012).

It is interesting to note that artists, especially the scholars among them have also started venturing into the study and revelations of the legal implications of the various acts that amounts to the destruction of the environment and the ecosystem. Nwanna, (2017) citing various cases such as the Rylands V Fletcher (1986), proved that legal actions can be initiated to mitigate and arrest the continuous desecration of the ecosystem which is a shared resource and its abuse by one party can be legally translated to amount to trespassing as made visible by the "strict liability tort" which

states that "pollutants are liable irrespective of wrongful intent or negligence" Mudashir, (2016) reporting in the Daily Trust newspaper publication of October 19 2016, brought to the public light the insightful assertion of Patrice Lumumba while delivering a keynote address at the National conference of the role of the Legislature in the Fight against Corruption. According to the latter, Africa does not lack the instruments of law or legal rubicons to combat the socio-political and environmental challenges facing it but rather that it is the inability to put these laws to effect that is the problem of our society.

Therefore, many cases exist to show that indeed the responsibility to care for the environment is collectively shared by the citizenry as interpreted and promulgated by the law. Also, in his article, Nwanna, (2017) berated the "I don't care" attitude of a typical Nigerian society towards the environment. According to him;

> Most people in Africa, South of the Sahara, do not give serious thought to the environmental standards in the communities. They are more concerned with their immediate survival and their idea of environmental problems scarcely goes beyond cleanliness and environmental sanitation. Issues beyond these are considered esoteric and an unattainable luxury

Furthermore, Nwanna, (2017) in *Space, Sculpture and the Environment: a Critical Paralipomena;* painted a beautiful picture (in words) of the environmental beautification of the city of Sao-Paulo in Brazil, while visiting there. All adorned with beautiful parks, outdoor sculptures, colourful mural paintings, and graffitis. And the people's dedication towards their maintenance. All these he observed, are in stark contrast with what is obtainable in many cities in Nigeria, where "the outdoor sculptures, murals and bill boards are usually defaced with posters as soon as they are erected, where the parks are converted open public toilets and an abode for hoodlums, petty thieves, rapists and street urchins." All these menaces he observed thwarts government's efforts "towards enhancing the living conditions of its citizenry."

Mosaiculture is a horticultural practice of artistic expression which involves the creation of spectacular works of art using colourful living plants. Friday (2009) opines that in mosaiculture, flowers of different varieties of colours and textures are chosen to create, designs, motifs, and sculptures and reliefs. Friday quoting the magazine "Jardins de France" defines mosaiculture as "the art of composing drawings or sculptures with plants, using carefully maintained plants of different colours. When done as reliefs, mosaiculture portrays coats of arms, clocks, animals, characters, actions scenes, objects, messages, geometric shapes or fantasy worlds. In the round, mosaiculture has more volume giving further "life" to these forms. Mosaiculture is a complex art form with a multitude of aspects, borrowing structure and volume from sculpture; colours from an artist's pallet; and from horticulture the use of the plants living in a dynamic environment"

Theoretical Framework

There exist various theories of aesthetics, explaining the place of art as it proffers answers to questions of human existence and experiences put forward by philosophers such as Hegel, Kierkegaard, Kant, Pavlov, and many others. This

notwithstanding, the discussion of aesthetics as a core component of Art is not the immediate concern of this research, but rather the revelations of the possible aesthetic approaches to the issue of environmental remediation and sustainability informed the work.

John Dewey's Theory of Aesthetics

Therefore, in line with this thought, John Dewey's theories of Nature, Aesthetics, Art and Experience form the foundation of this research. Dewey tried so much in putting forward theories that show a close parley to the topics of Art, Aesthetics, and the Environment. According to him, the highest form of each of this concepts can best be felt through the vehicle of experience. McClelland (2005:45), concisely noted that "it is, therefore, no mere coincidence that Dewey's most mature work deals with art and aesthetics" observing that "art as experience" is the strongest title he gave to any work; Art when aesthetically charged is representative of experience in its integrity". Dewey (1925: p.70), suggested thus in his *Experience and Nature*:

> But if modern tendencies are justified in putting art and creation first, then the implication of this position should be avowed and carried through. It would then be seen that Science is an Art, that Art is Practice, and that the only distinction worth drawing is not between practice and theory, but between those modes of practice that are not intelligent, not inherently and immediately enjoyable, and those which are full of enjoyed meanings. When this perception dawns, it will be a common place that art-the mode of activity that is charged with meaning capable of immediately enjoyed possession is the complete culmination of nature, and that "Science" is properly a handmaiden that conducts natural events to this happy end …

It is based on the foregoing theory that the principles and motive behind this research work is established. The researcher believes that rather than drawing a distinctive line between the disciplines of philosophy, natural sciences, social, environmental studies and art, there could be actually a unified theory and practice which seeks to metamorphosize an aesthetic consciousness that exhibits experience in its purest form. Therefore, when all and sundry imbibe and habitualize this tendency to calculate our actions on the scale of the artfulness and ability to generate favourable aesthetic experiences, the environment is expected to be better of.

Production Processes for the practical works

These processes involved were analyzed in stages starting from the conception stage.

Stage 1: Conception of Ideas

The first of production in a research of this nature involves the initial organization of thoughts towards a specific goal of design. This is the incubation stage of the ideas and concepts that gives forms to the finished aesthetic objects.

Two Dimensional Representations of Ideas

At this stage, the researchers started making efforts in giving his ideas concrete forms and shapes putting them up in the forms of drawings and sketches.

Drawing for Sculpture

The drawings produced by the researcher were not just plain drawings; they were specifically draughted for the purpose of using them as a guide for the production of sculptural works. Therefore, the drawings made by the researcher among other attributes, are drawn to show the different angles or points of observation of the particular piece to be produced. This help to showcase the details of the working dimensions and projections. This type of drawing helped the researcher to determine the possibilities of the forms he desired to produce and the limitations.

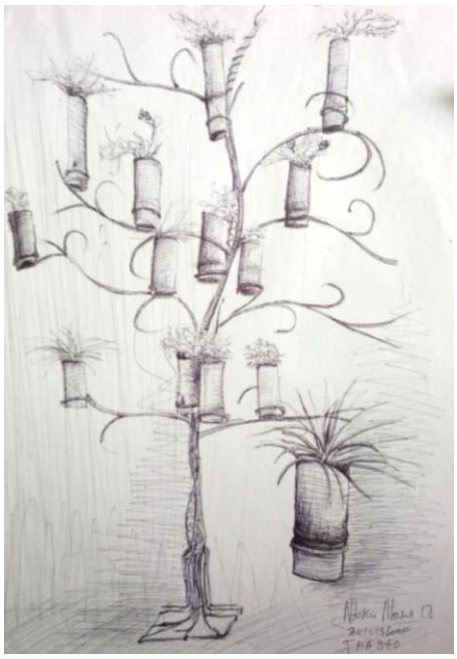

Plate 1: Drawing for the Flower Tree.
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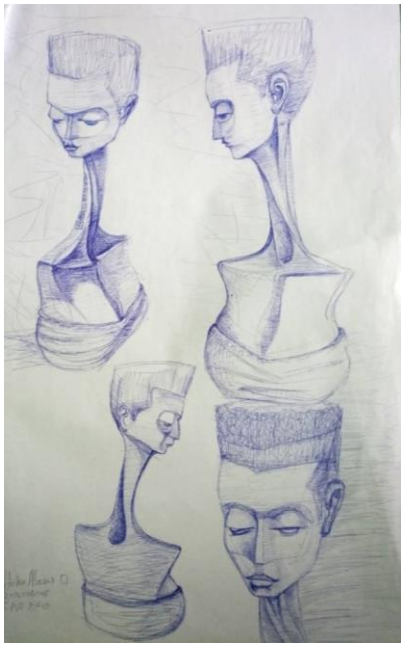

Plate 2: Drawing for the Flower Tree.
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Stage 1: Trimming and Pruning of Flowers

This is the point where the flowers that were left to fallow for some time by the researcher is now trimmed using hand shares as pruning tool. The flowers used are found along the entrance to the Fine and Applied Arts Department from the Social Sciences Faculty axis. They form some kind of hedges on both sides of the patio as one approach from that direction. To trim the flowers to the desired form, the researcher decided after studying the underlying nature of the flowers to stick to basic shapes, this is due to the Flowers's non thick foliage, which could limit the formal possibilities of sculpture. Therefore, to start, the researcher divided the flowers to the right into 10 equal 3feet spaces, trimming each into the shape of a cone. While the flowers to the left were trimmed into positive and negative cubical forms using a long wooden batten as a measuring aid.

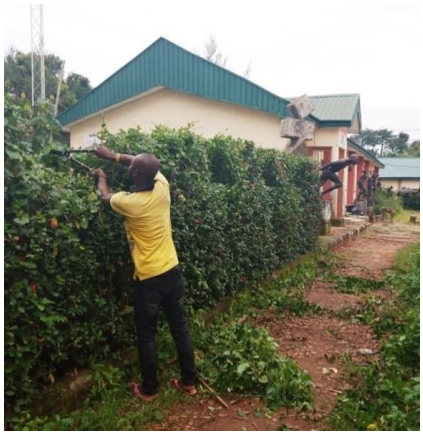


Plate 3: Trimming of the flowers (photographer: Peace Obi)

Plate 4: The conical trimmed flowers (3x4ft per cone) (photographer: Peace Obi)

Stage 2: Armature construction

This stage involves the fabrication of the metal framework that is expected to act as a carrier for the clay used in modeling. All the works which passed through the stages of modeling and casting must first pass through this initial stage.

Stage 3: Clay Modeling.

After that, the researcher then gradually following his frame tried to bring out the forms as he wishes. This is the clay modeling stage; here the researcher once again is opportune to study his concepts in clay. This is where he tried to put his ideas to test.

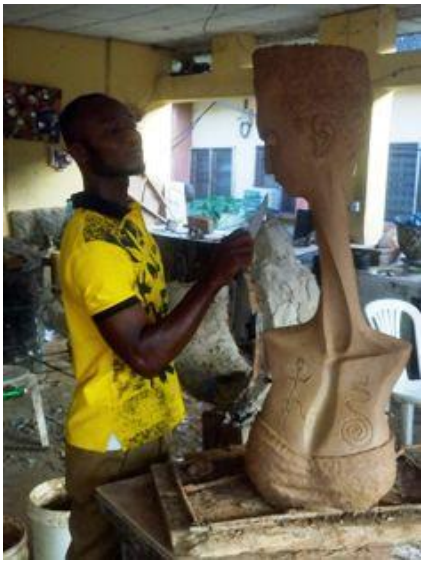


Plate 5: Clay modeling

Stage 4: Mold Casting

After the researcher realized his desired work in clay and is satisfied with his forms, he then turned to decide on the method of reproducing his clay modeling. This he realized using cement mortar with sand to form the mold.

Stage 5: Casting with Fiber glass

After 2 to 3 days, the moulds were dismantled, cleaned with water and was set for charging. This charging is a process whereby the researcher using a combination of resin, and fibre glass takes the impression from the negative part of the mould in order to get the positive work.

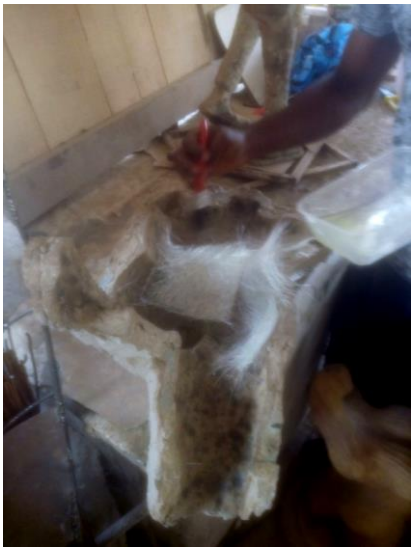
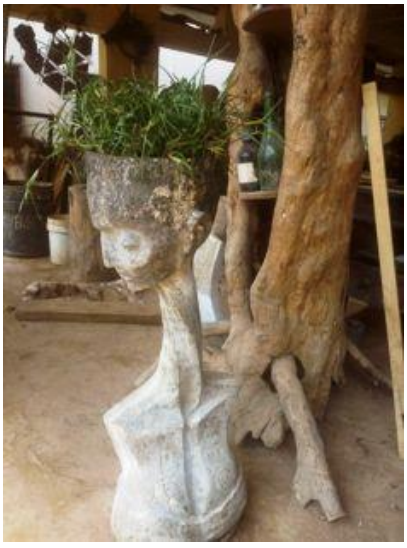


Plate 6: Casting with fiber glass

Stage 6: Finishing

The finishing stage of fiber cast usually involves the smoothening of the surface of the work depending on the tactile effect desired the researcher in most of his works did not place emphases on smoothness but rather made more use of textures.



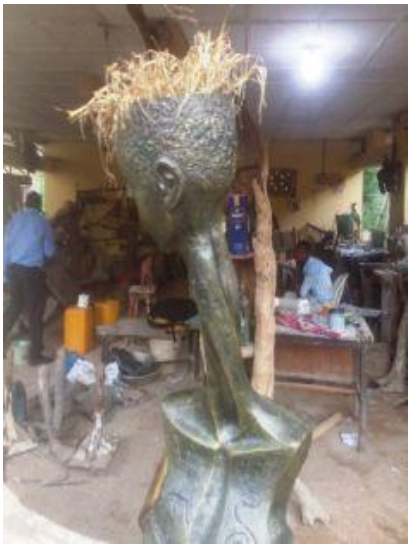


Plate 7: The fiber work before and after finishing (3ft), respectively.

Stage 8: Preparation of the Works for Planting

At this stage the researcher tried to prepare the inner part of his fiber cast works to receive the top soil used in the planting of the flowers. The first step in this direction is to block the inner lining of the work. In the case of the works in plate 1 and 2 the blocking is done at the intersection between the head and the neck. This involves blocking the space with fiber mat soaked in the prepared resin. Once set, this fiber blockage then drilled open with the aid of a drilling machine with 2inch drilling bit. This small opening is to allow for the passage of capillary water during the watering of flowers.

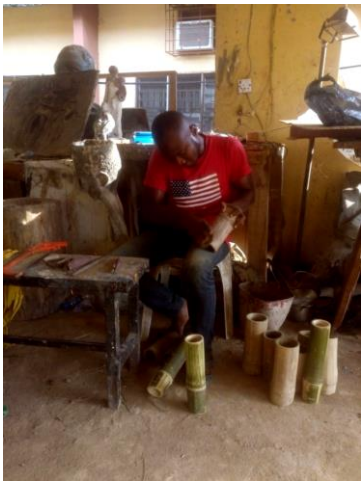


Plate 8: Preparing the bamboo planters

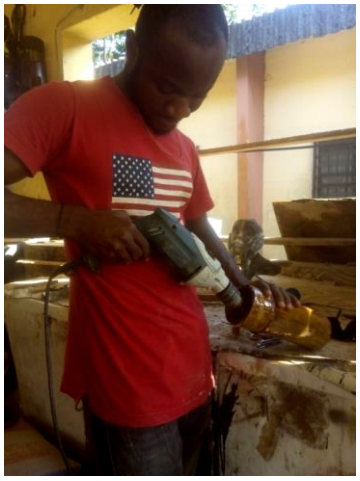


Plate 9: Drilling of the Bamboo Planters

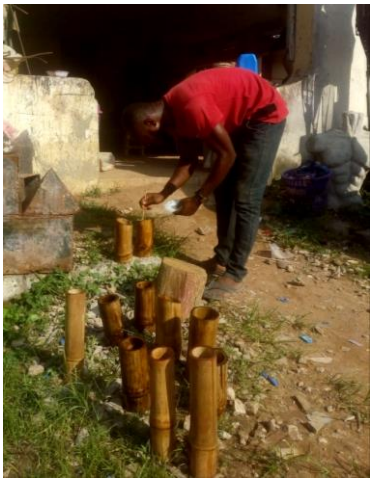


Plate 10: Sealing the bamboo planters

2nd Category of Production

The need to differentiate this category is necessitated by the fact the its production process is quite different; this is so because here the researcher did not go through the usual stages of armature construction, modeling, mould casting and charging as well as the joining of various pieces. Rather, the researcher, due to the concept of the work and the materials in use, followed a completely different route to realize the finished work.

1st Stage: The first stage in this category involves the metal fabrication of the overall form (major) of the work. This was done by welding. In the work in plate 6, the researcher after bending on 16mm rod to the desired form of a tree trunk, went on to weld smaller rods of varying mm to this main trunk, while trying to capture on stylized movement of tree branches and climbers. Designed to carry real flowers, the researcher ensured that the tip of these climbers are curved to accommodate the presence of bamboo pots used as planters. A thick metal plate of about 25 gauges is attached at the root end of the tree to give it balance while standing. This plate acting as a base is attached in such a manner that the root of the tree (formed by the gathering of all the climbers towards the bottom plate) faces the frontal direction. Also care is taken to ensure that the tree can be mounted close to a wall just like relief sculpture. To ensure the gradual tapering. To achieve this, the tree trunk is inserted into pipe (foot in length), and consequently welded, this is now followed by the welding of the pipe to the plate.

The smaller climbers on getting to the lower trunk area, rather than going into the pipe, are made to curve directly over it down to the base, avoiding the pipe's whole.

2nd stage: After the complete metal fabrication of the trees the researcher now fashions out the bamboo planters (pots). Once these bamboo planters are cut into the desired heights and sizes (between 4 to 8 inches), taking care to ensure that the inner rings that blocks each capillary compartment falls directly an inch or two above the cutting for the bottom of the planters. Usually the researcher made use of hack saw for this cutting.

3rd stage: This is the point where the researcher tries to protect the bamboo planters from the effects of weather and to prevent it from soaking water as a result of steady watering of the flowers, to achieve this sealing, the researcher used pieces of fiber glass cut into sizes according to the size of the capillary hole of each planter. Then preparing a mixture of resin, catalyst and accelerate with the aid of brittle brushes, he sealed both the floor of the planters and the walls. Once set, the researcher proceeded to drill the inner blocking of the bamboos to allow for capillary water movement in the soil

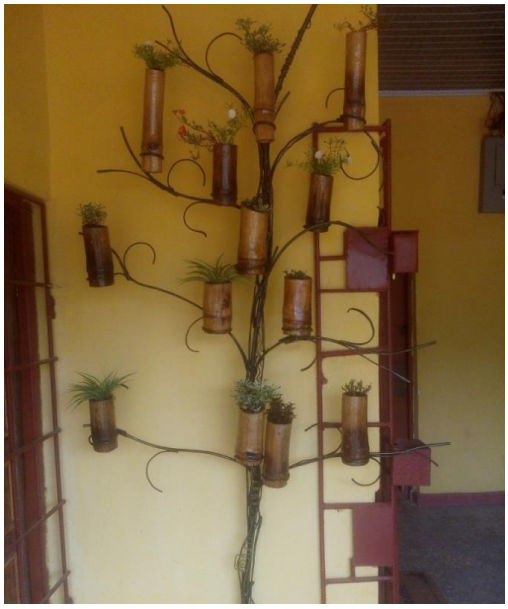


Plate 11: the flower tree after planting.

Final stage: planting of flowers

At the stage the works are ready to receive the flowers. The flowers used for this stage are procured from commercial horticulturists within the Awka metropolis. Usually they are in the form of nurseries, planted in nylon bags. In the case of the flower tree in plate (3), to introduce the flowers into the bamboo planters, the researcher made a mixture of loose topsoil and dry ground cow dung, this mixture is then collected into small black nylon bags, after being soaked in water. Then they are placed into the bamboo planters, and the flowers are now transplanted by the roots into the planters with topsoil. This exercise takes place in the late evening as this is the suitable time for planting and watering flowers, as gathered from the gardeners visited.

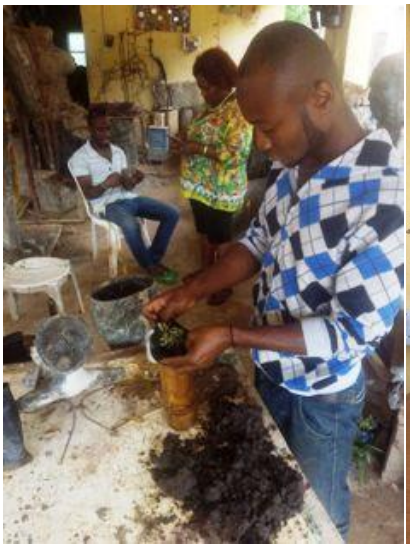


Plate 12: Planting of the flowers

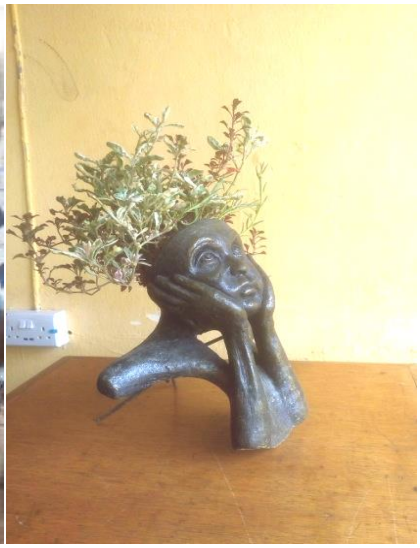


Plate 13: The little child, fiberglass and flowers (1ft)

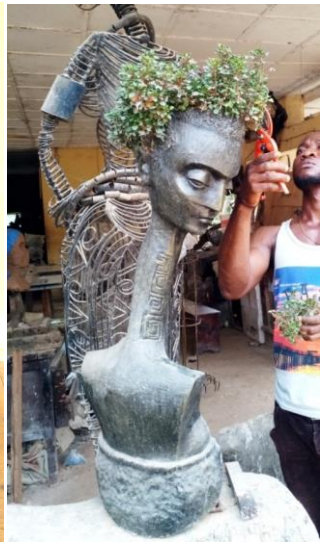


Plate 14: *The Female Bust,* Njoku Moses, fiberglass and flowers (3ft)

Research Findings and Analysis

After sampling the public on the use of flowers and plants for aesthetics and environmental protection, the researcher proceeded to test the hypothesis generated from these opinions. It is believed that the results of the studio experiments will go a long way in approving or disproving some of the information gathered through the questionnaire. Below therefore, is the presentation of the results of the studio experiments carried out by the researcher.

The adaptation of flowers and plants as a medium for the production of sculptural works throws up lots of challenges and special requirements. These special requirements and challenges were mostly encountered during the production of works that are mosaiculture in nature. Unlike topiary, mosaiculture art requires the combination of materials such as metal frames, and fibre glass to produce. Also, being an experimental research, the combination of materials (mixed media) was used by the researcher as a control mechanism to determine the projected workability of the eventual sculpture that is completely made of flowers as the chief medium.

Observation on the Effects of Water

One of the special requirements for producing and maintaining a mosaiculture work is the need for regular and constant watering. This water is needed to sustain the growth and survival of the living plants making up the work. Prior to the beginning of the research, the initial information gathered from the gardeners that supplied the flowers for the research was that the flowers must be watered twice daily; morning and evening. This is to ensure that the temperature of the soil is cool enough to accept the water, avoiding the water turning into hot water when it mixes with hot soil which can kill off the plants.

Nevertheless, the observation of the works under review, revealed that the flowers still flourished with the application of a single daily round of watering, juggled between morning and evening.

Effects of Water on the other Media

The Flower Tree: the major effect of the constant watering of flowers of this work is most visible in the rust that has started developing on the base of the tree. The two most available solutions to this challenge dwells with the constant repainting of the metal say every two years. The second noticeable effect of water on the flower tree is on the bamboo planters. Although the planters were coated and sealed with epoxy resin during the preparation stages, the researcher noticed that the bamboos that were freshly cut from their main stock with smooth surfaces; over the period of observation, started peeling off the layer of resin applied over it. This particular action may not be only as a result of the water since the inner linings of the planters still remained sealed; therefore, it could be inferred that the combined actions of the elements caused the exfoliation of the resin layer. The simple solution adopted here by the researcher is to replace the affected bamboo planters with old, rough dry bamboos. Nevertheless, it is expected that periodically, over a period of about two years, the bamboo planters will be completely replaced with new ones. (Note; this new means matured old, and rough bamboo stems and not the freshly cut ones).

Observation on the Different Flower Species

Portharcourt Grass: this specie of lawn grass was the first plant used by the researcher to sculpt the hairs of the female stylized bust (plate 4). Plate 7. shows the first three days after planting. Unfortunately the grass did not survive in the space-created for it. A further study into the failure of the grass to survive revealed that the most probable cause might be in the spacing of the grass during planting. According to Oluyemi (2012), the required spacing for maximum result in Portharcourt grass is between 25 by 25cm in both dry and wet seasons. This spacing rule was not strictly adhered to by the researcher during the planting.

Africa never dies

However, after a cursory look at the tactile appearance of the hairs created by the Potharcourt grass, the researcher decided to resort to the use of the green specie of Africa never dies flower. This is because the latter possesses closely parked, curly foliage with a deep green appearance that blends better with the rest of the torso's head. The rapid growth and survival of this flower specie, without extra care simply shows its tenacity which reflects even in its name. To buttress this attribute, was the miraculous survival of the flowers after an incident where the researcher mistakenly poured PMS into the flowers (thinking it was water). The flowers directly affected by the petrol gave way within few hours of the incident. However, the flowers with the unaffected areas were able to creep and cover the ones that died off.

Observation on the Use of Flowers to Check Erosion

In the course of the research the researcher came across a phenomenon which clearly shows the difference between a plant protected soil and the one exposed to the direct effect of rainfall and runoff water. This observation was recorded at the back of the

office block of the Department of Fine and Applied Arts, Nnamdi Azikiwe University. Along the back end of the office block's wall he observed that the sand has washed away so much that there is now a clear mark indicating the former end of the line of the wall plastering.

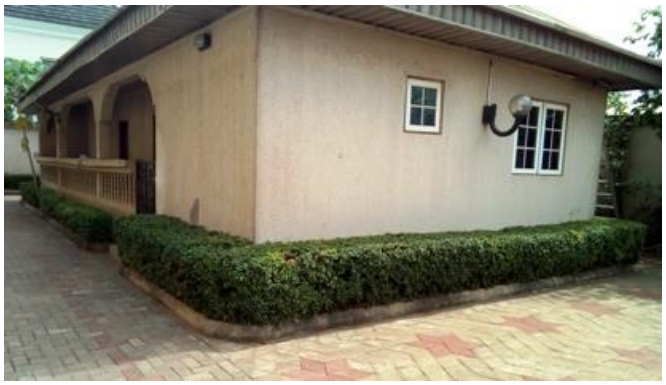


Plate 16: Example of a residential house secured with flowers (Source: the researcher)

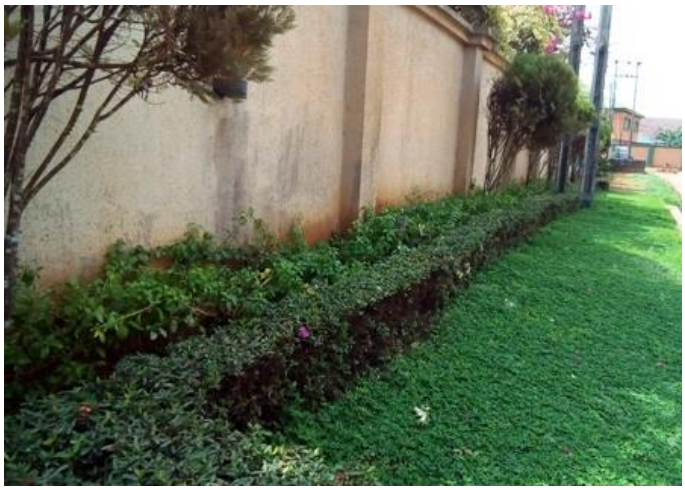


Plate 17: Example of an exterior wall of a compound with flowers securing the soil along it. (Source: the researcher)

This indicates that the amount of sand washed off has gone as far as 2 feet deep; a scenario that if not checked will go on to expose the foundation of the building. On the other hand, a study of other office and studio buildings where flowers are planted as could be seen in plates 10,11, and 12 shows how the soil around the buildings are protected from the effects of runoff water including the ones from the roofs. This simple observation shows that flowers could have significant impact in checking the effects of erosion even in the homes and public buildings.

Summary

This research work has gone a long way in highlighting the creative possibilities of working with plants and flowers. It is indeed a bold step in opening up more avenues for artistic and sculptural expressions. The experiments carried out in the course of the research have revealed the formalistic possibilities and limitations of working with

flowers and plants. It takes further the boundaries of traditional sculpting methods and media into the more flexible and infinite realm of mixed media. It is an indeed evidence which shows that contemporary Nigerian art has come of age and is taking part in the ongoing discourse on contemporary and global issues.

Interestingly, the research interest as could be seen from the work done shows a multi-disciplinary approach which revealed a great deal of interface between art (sculpture) and other areas of environmental management; going further to prove that indeed art has in its very essence, a multidisciplinary nature. The theories and hypothesis investigated in the research, as well as the empirical studies done also buttressed this fact. The methodology employed in the research ensured that the research objectives and hypothesis were reconciled with the research findings as made explicit from the analysis of questionnaire findings.

Conclusion and Recommendations

The findings of the questionnaire as collected from responses when closely studied will reveal that the expectation of the public is high as regards the perceived potentials of art in environmental management. In the same line, the research findings as recorded from the studio experiences and observations have exposed quite a handful number of findings as regards the behaviour of materials when used for the art of mosaiculture and topiary. It is therefore expected that the research will aid sculptors and horticulturists in making better choices in the enterprise.

The environmental and climatic importance of greeneries has been revealed to a great extent in the work too. It is therefore expected that anyone who comes across this research will understand the need for everyone to get involved in creating a beautiful and aesthetically pleasant environment for sustainable environment. The onus therefore lies with the artists and every sector engaged in the management of the environment to harness art as a veritable tool for the creation of a harmonious living ecosystem fit for human and natural habitation. This will in turn engender heightened aesthetic experience as proposed by John Dewey.

Contribution to Knowledge

The topics of topiary and mosaiculture are quite new in Nigerian art lexicon. This research will indeed be an inestimable resource for reference in the study of the practice of these methods of art and horticulture. Also, the record of the experiments and findings as provided in the research will serve as a reference point for future studies on the concept of using plants for sculpture. Some of the behavioural changes of plants and other materials when subjected to certain conditions as could be seen in the research could direct future studies on the best ways to get better results. Furthermore, policy makers could take a few cues from the research results to explore the various ways artists could be engaged in environmental beautification and remediation. The research has also become an eye opener to artists, making them realize that they are active and veritable agents of environmental management and should brace up towards using their art to address not just social issues but environmental, climatic and global issues for a better present and a sustainable future.

The treatment of bamboo planters with fibre glass and resin is also a research innovation, which ensured that the bamboo stems lasted for over two years under constant watering and the sun.

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