RESTORATION AND CONSERVATION IN CONCRETE SCULPTURE IN UNIVERSITY OF BENIN DEPARTMENTOF FINE AND APPLIED ART

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CERTIFICATION

This is to certify that this research work was carried out by Akinkunmin Emmanuel MUILI with Matriculation Number EDU1702974 in the Department of Educational Foundation, Faculty of Education, University of Benin, Benin City, in partial fulfillment for the award of Bachelor of Arts (Education) degree in Fine and Applied Arts.

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DEDICATION

This Research work is dedicated to God Almighty for seeing me through this work, my sister and her husband Mr. & Mrs. Ologbon through whom God saw me through this great University financially, emotionally and spiritually.

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ABSTRACT

This thesis seeks to explore the restoration and conservation in concrete sculpture especially as concrete is one of the oldest of the sculptural medium that has been in use in our contemporary society. Overtime, concrete sculpture has been left unattended to by the non-application of preservatives thereby exposing it to the effect of strong winds, extreme humidity and abrupt temperature changes leading to structural wear; and in most cases these bring about failure of the sculpture. The consequences of failed sculpture include the erosion of our cultural heritage, which leads to the loss of sculpture that are of historic and academic interest. In addition, sculpture failure is becoming more rampant and if not addressed may in no small way deter robust research into who we are and our productive artistic past. Based on this, objectives were set to address the problem. The methodology employed is that of survey and studio experimentation whereby failed concrete sculpture within the sculpture garden of the department of Fine and Applied Arts of the University of Benin were discussed. This research found out that there is a high negligence of sculpture as an essential feature of aesthetics in our built environment. These findings will be beneficial by encouraging the society to restore and conserve its neglected sculpture for posterity sake – as failure of sculpture is failure of the society, and inadvertently failure of the sculptor(s) involved. The study recommends that abinitio, adequate provision of sculptural materials be made to include what is essential for its sustenance and preservation. In addition, restoration and conservation ethics and code be incorporated as it is obtained in other climes.

CHAPTER ONE

INTRODUCTION

Background to the Study

It was only about 40,000 years before the birth of Christ, particularly where the continent of Europe was concerned, that there was a turning point which marked a distinction from preceding ages. Man began to create forms that reproduced the reality in which he lived and expressed the dark anguish and all pervading dread that dominated his existence. Prehistoric art was born. Its manifestation were many and may be grouped into sculptural and pictorial art forms (Canady, 1945). Beginning from the Neolithic period, African sculpture has steadily been progressing from its traditional origin to modern creative expressions (Fosu 1986). These new expressions are derived from a tradition whose documented origin can be traced to the period of the green Sahara between “8000- 6000BC”.

Sculpture indeed have been in one way or the other the oldest of the art form in our society. Notably, it has been on the centre stage of human civilization (Fashing and Lewis, 2006). Onipede (2006) affirms that contemporary art scene in Nigeria started in the area of sculpture in the later years of the 20th century.

In his words:

> *In the 1980s, there was a resurgence of practicing artists with increasing experimentation with local materials and forms, thus defying the harsh economic realities of the times to produce artworks which are unique and distinct.*

Several sculptural forms either carved on wood, stone, marble or terracotta and iron cast were discovered due to the anthropologist K. C Murray and William Fagg who brought to lime light the sculptures of the Ibibio, wooden mask, and the Ekpu carvings. Also in southern Zaria were terra cotta figures of the NOK culture with elongation, suggesting stylization and intricate design precisions were excavated.

In the west were the Benin bronze and the Ife heads and in the East were the Igbo Ukwu figures, the emergence of several museums sprang up as a result of these discoveries.

However, after the introduction of Christianity into several parts of Nigeria in the 19th century which led to the decline of the culture of the people, there has been a continuous reduction in the number of sculptural figures both in our environment.

For instance, out of the six hundred (600) carved Ekpu figures in the Museum only one hundred (100) is left and of which only one (1) replica of the image is now on display at the Oron National Museum (Archibong, 2007).

Reasons are that some of these sculptural works have either disappeared due to incessant theft or fire outbreak and even outright negligence some other reasons are biological deterioration. Root or vine growth can physically fracture any out door sculpture just like tree roots or weeds can fracture sidewalks or roads. Direct dissolution of stone by lichens and ivy is also possible and the presence of such

plants leads to the retentions of water which, can lead to the acceleration of other destructive processes.

Water can also be seen to carry soluble salt and it plays a role in the aggressive attack on concrete by industrial air pollutants. Since the 19th century, the destructive properties of sulfur (released when fossil fuels are burned) have been well documented. Sulfur reacts in the atmosphere to form sulfur dioxide, which in turn combines with available moisture to form sulfur acid. When in contact with cement sculpture both of which are calcium carbonates) the sulfuric acid transforms the surface of the cement sculpture to gypsum (calcium sulfate) this transformation has several unfortunate results.

Today restoration in sculpture is not only limited to the cleaning and repair of major damage. More is still to be done by exploring the medium and the structural reinforcement needed and its mode of conservation.

This is what informs the researcher's interest in carrying out this study. Since sculpture has the power to engage our attention in a way that our "everyday" environment cannot, we owe it to the future generation to preserve our sculptural heritage. it is on this basis that the sculptor and his sculpture creates impact in the society.

Statement of the Problem

A walk around our environment shows some level of artistic awareness especially in the area of sculpture. These sculptural installations enliven our society. Cement is the main sculptural material readily employed by artist in our society such that most tombstones in the environment have sculpture works adorning them. What began as a well-intentioned art of enlivening the environment is becoming an eyesore, owing to the level of deterioration and neglect. Obviously, it can be argued that these concrete sculptural works were built without the realization of the inevitable need for preservation. Like man himself, everything he builds, including

sculpture, ultimately falls into the state of disrepair, thereby needing maintenance, preservation and conservation.

Sculpture has suffered neglect; that is why we are experiencing its failure in recent times. During installation, there is no standardized means of checking the adequacy of materials employed to determine if they can stand the test of time. Like the problem of collapsed cement building being faced in our country, we are beginning to be confronted with the problem of sculpture failure owing to neglect and the use of sub standard materials. Outdoor concrete sculpture lack preservative, conservative ethics thus leading to its failure, which is now becoming a problem in the society. That is why the researcher has a keen interest in its restoration and preservation.

The question arises: How do we keep sculpture from failing? That is why there is a need for restoration and conservation practices.

Specific Objectives of the Study

The objective of this research is to ensure the use of suitable materials for the erection of sculpture and its conservation in order to avoid its failure.

Purpose of the Study

The study sought to explore the following purpose:

To examine carefully identify the causes of failed concrete sculptures within the University of Benin

To examine the types and various medium of expression in concrete sculptural installation.

To specify and recommend suitable materials with adequate structural reinforcement for outdoor sculptures.

To examine the techniques employed in erecting concrete sculpture.

To ensure that sculpture being the oldest form of art that involves humans practice is well preserved for posterity.

Research Questions

This study sets out to answer the following Questions:

In what way can one identify its courses?

RQ 1: What are the causes of failed sculpture within the University of Benin?

RQ2: What are the various types and medium of expression in outdoor concrete sculptures within University of Benin?

RQ3: In what way can we adapt suitable materials with adequate and structural reinforcement for outdoor concrete sculptural installation?

RQ4: To what extent can we ascertain the suitability of the technique employed?

RQ5: What do we do to conserve sculptural pieces?

RQ6: Is the restoration and conservation of sculpture necessary as an academic practice?

RQ7: What specific role should it play in learning and research?

RQ8: In what can the restoration and conservation of sculpture contribute to the body of knowledge?

Significance of the Study

The research will encourage the proper execution of sculpture with the use of adequate and suitable materials. It will reposition sculpture as the oldest art practice in order for it to take its pride of place in the contemporary art scene by minimising to the barest its failed state. It is also hoped to serve as reference sources for aesthetics ethnographic and anthropological research interest for the future.

This study is significant as it will revive interest in the art of restoration and conservation failed sculptures it will open up new array of techniques in restoration and conservation.

Scope and Delimitation of the Study

The study area will be the whole of sculpture garden of Fine and Applied Arts department of the University of Benin (one of the citadel of learning that houses the largest number of outdoor concrete sculptures in (Edo State). There are various media through which outdoor sculptures are executed within the University of Benin. The study will be delimited to the use of concrete as a medium of expression.

DEFINITION OF TERMS

There are some operational terms used in this work which require special mention of how they are applied, and their usage. They are defined conceptually and contextually as follows:

Aesthetics: Branch of Philosophy concerned with the nature of beauty and its relation to the perceiver or beholder, especially as applied to the Fine Arts. Also, the study and philosophy of the quality and nature of sensory responses to, but not limited by the concept of beauty.

Addition: A sculptural term that means building up, assembling, or putting on material.

Arts: It consist of sculpture and other pictorial objects created for people to admire or think about with aesthetic sense.

Bas Relief Sculpture: An artwork, graphic in concept but sculptural in application, utilizing relatively, shallow depth to establish images. The space development may range from where very limited projection known as low relief to exaggerated space development known as high or bas relief.

Casting: A sculptural technique in which liquid materials are shaped by being poured into a mould

Concrete Sculpture: These refers to sculpture that has been constructed in pure cement combined with small amounts of sand along with very small gravel as filler and

a strengthening agent. Color may be added to this mixture or it may be painted on after the cement has become hard and lost all of its moisture.

Conservation: To keep from losing it value or wasting The act of preserving in a sound state.

Contemporary: A thing that is modern, current, up to date, fashionable, existing in the present day.

Dimensional: Possessing or creating the illusion of possessing the dimension of depth as well as the dimensions of height and width.

Empiricism: The use of experiments on experience as the basis of idea.

Finishing: This may include bituminous coatings, waxes, paints, galvanizing and plating. In addition, casting may be given a variety of treatments to reduce rusting and corrosion in the environment.

Image: A likeness or imitation of a person or thing, statue or a picture of an object formed.

Impact: The force of impression of one thing on another i.e. the influence, impression, effect etc of one thing or another.

Installation: Interior or exterior settings of media created by artists to heighten the viewers awareness of the environmental space.

Manipulation: The sculptural technique of shaping pliable materials by hands or tools.

Medium: Sculpturally medium can be molten melted, brass, bronze copper fibre glass etc. as well as sand, sawdust. It can by extension be used to describe the various techniques in sculpture.

Oxidation: Oxidation as used in this study occurs when a compound of oxygen with another elements combines with available moisture to form sulfuric acid.

Patina: A natural film, usually greenish that results from the oxidation of bronze or other metallic material. Two colour pigments and or chemicals applied to a sculptural surface.

Preservation: This involves preservative treatments which are typically barrier coatings intended to prevent the castings from oxidizing, rusting in the presence of humidity and oxygen in the air.

Research: Is the work that involves studying something and trying to discover facts about it.

Restoration: This involves many aggressive methods aimed at erasing or disguising any damage or loss due to age, weathering or accident, also limited to the cleaning and repair of major damage in order to improve, bring black the aesthetic appearance of the sculpture.

Shape: An area that stands out from the space next to or around it due to a defined or implied boundary or because of differences in value, colour or texture.

Substitution: In sculpture replacing one material or medium with another.

Subtraction: A sculptural term meaning the carving or cutting away of material.

Techniques: It is a particular method of doing an activity, usually a method that involves practical skills in sculpture giving it a depth and brilliance hitherto unknown.

Theory: Is a formal set of ideas that is intended to explain why something happens or exists. A theory is usually expressed in the form of a statement usually expressed in the form of empirical laws of all the observed cases of a particular phenomenon.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents a review of past recorded researches in books, journals and internet website. In addition, sculptural works which were actually designed and produced by renowned sculptors, which contribute academically to making the work a success were reviewed. Sculptors were visited and interviewed to compare processes and restoration methods, additives and preservatives applied. This aided the understanding of the theories and procedures for this work. The research therefore, is structured on the foundation of both theoretical and practical frameworks and concepts.

The principle of imitation in Aristotle's view is the uniting force and common base of every art form (thus differentiating fine arts from other category of arts). However, a school of thought asserts that sculpture be set free to follow its own new and legitimate direction rather than be content to act, as it were, a dependent

on painting. It must be pointed out that the theory of imitation by Aristotle does not establish the validity of sculpture as an independent medium. Sculpture is no longer a servile depiction of the appearance of things, but a representation of the passion and emotion of men: that is, sculpture imitate not the surface of things by the reality embedded within. A little thought on these theory denies the flow of successive aspects of sculpture and its reflection on new importance for the future.

Durer (1471-1528) agreed with Aristotle that sight is the noblest faculty of any sculptor in his quest to imitate nature and that every form brought before our vision falls upon it as upon a mirror. He further asserts that form and figure are imitation of nature which are regarded with more pleasure than any other, though the work of art of itself may not necessarily be all together better or worse. Thus in imitation, behind humble, perhaps ugly art objects, lie beauty which by – passes or would improve upon nature. This bears witness to the true intent of an art conserver,

being mainly to conserve and restore the beauty and the spirit of that which already exist rather than seeking to completely alter it.

In the same vein, Aristotle maintains, that "Art imitates Nature". By 'Nature' he does not mean the outer world of created things but in "the creative force, the productive principles of the universe" Sculpture reproduces mainly an inward process, a physical energy working outwards, deeds, incidents, situations, being included under it so far as these spring from an inward act of will, or draw some activity of thought or feeling. The sculptor renders man and nature, 'as they ought to be' – that is, in so far as he imitates the creature process of nature the objects remain 'men in action'. Now the 'action' may be 'external' or 'internal'. It may be the action within the soul caused by all that befalls a man. Thus, he brings human experiences, emotions and passions within the scope of sculptural imitation. According to Aristotle theory, moral qualities, characteristics, the permanent

temper of the mind, the temporary emotions and feelings, are all actions and so objects of sculptural imitation.

A sculptor may imitate man and nature as better or worse than they are in real life or imitate as they really are.

We are told in 'The Poetics' that objects which in themselves are viewed with pain, we delight to contemplate when reproduced with minute fidelity. Thus, the real and the ideal from Aristotle's point of view are not opposites; the ideal is the real, shorn of chance and accident, a purified form of 'reality'. And it is the higher 'reality' which is the object of sculptural imitation. Sculpture, in this wise, imitates the ideal and the universal. It becomes an idealized representation of character, emotion, action – under forms manifest in sense. In essence, the ideal truth behind any sculptural piece is higher than any subsequent alteration in the process of time. Thus, this theory bears witness to the sole duty of that artist that seeks to preserve

work of art: the preservation of the spirit and the form of it, no matter the extent of the structural repair.

The appreciation of the aesthetic and functional aspects of sculpture will also form the basis, giving insight to this work. Because beauty is hard to define, according to Ocvirk et al (2006), the aesthetic remains a complex theory to explore. The definition of beauty has been subject to the vagaries of the times. Whereas, what is considered beautiful in decades and even centuries past may be considered obsolete today. As times evolve, various cultures have had their own concepts of beauty, many of which would not correspond to our tastes. Since the nineteenth century, changes in the arts have left the public with the task of reconsidering their ideas of beauty. The question then arises: What does the public like and expect in art? What comes to mind readily are: (1) a familiar subject, (2) recognizable subject, and (3) a sentimental or "pleasant" subject. Naturally, for vast majority of people, these constitute beauty in art. However, these throw up more question than

they answered. What if a work meets all three guidelines but is of poor execution? What if a work lacks the expected criteria but is expertly executed? It is a well known fact that some artists have created great works on unpleasant subjects, and many artists have produced inferior works on cherished subjects. Certainly, not everyone, even having similar background, would agree on the 'beauty', of a given subject much less its interpretation. Therefore, the aesthetic value of sculpture are hard to place – sometimes in the case of modern sculpture, it is a function of newness while age is the criteria for assessing aesthetic values to ancient sculptures .The perception of beauty, whatever it may mean to any observer, is not necessarily the sole aim of the modern artist. Process and conceptual artists are much more concerned with the "how" (the technique used to create the work) then the "what" (the final product). Although sculptors may consider their art beautiful, members of the public may find it to be an alien, unrecognizable kind of beauty.

One can safely define beauty as the totality of the essence of a piece of art work that appeals to an observer's sense of emotion, satisfaction and has an innate quality within it to ignite the spirit of the man with the spirit behind the art work.

Conceptualizing Restoration and Conservation

Restoration is generally understood as any kind of intervention that permits a product of human activity to recover its function. (Brandi, C 1977)

In 1963, the Italian art historian and public official, Cesare Brandi published 'The Theory of Restoration' where he outlined a theoretical and practical framework to address some of the most complex problems faced by conservators. Brandi's text which he developed over a period of 20 years brought about deep cultural changes, primarily in Italy, where he provided the foundation for the 1972 Carta del Restauro (Charter of Restoration), the official document guiding conservation in most Italian museums till this day. (Barassi, S. 2009)

One of the main strength of Brandi's text lies in his offer of simple and unequivocal guidelines of what is ethically acceptable, and unacceptable, in conservation. The underlying aim being to minimize the arbitrariness of taste and subjectivity in the decision-making processes that govern the conservators works.

The key ethical principle defined by Brandi are:

The unacceptability of creative conservation – that is, a conservator must never attempt to substitute the artist, to imitate his/her style and to interprete the work subjectively, especially when it comes to filling in lacuna. He believes that conservation can only deal with an object in the present, and that it should not, under any circumstances enter what he calls the 'time of creation' (the time when the artist works on the object – although that is potentially an ambiguous definition, especially in contemporary practice)

The imperative of preservation of the Patina – that is, the necessity to avoid intervention that may conceal the real age of an art work by removing the signs of the passage of time on it. E.g excessive cleaning that makes a work look ‘younger’.

The complete reversibility of any conservation work.

The need, within the broader framework outlined by the theory, to proceed always case by case – in other words, to plan conservation always and exclusively on the basis of the specific needs and condition of the object in question.

It is evident that not all of this principles are followed all the time in current practices. However, it is important to acknowledge that we live in a highly relativistic age and that restoration and conservation, like many other disciplines is inevitably guided by individual preference rather than unequivocal and undisputed parameters.

Several scholars have expressed reservations on the theoretical foundations of Brandi's theory both in Italy and in elsewhere. One of the recurrent criticisms is of his heterogenous and occasionally contradictory set of philosophical references, which range from Husserl's phenomenology to Hegelian idealism to structuralism. Brandi formulated his framework for use with all artefacts from all ages. For him all art works should be treated equally regardless of their age, medium, intent, and irrespective of whether their owner is a public institution or a private individual. However, it has been observed that the literal application of the principle of the theory to the conservation and restoration of a large number of art works created in the last century often appears problematic. (Valentini, F. 2010)

A close look at contemporary works of arts, especially from the beginning of the 20th century to the present in relationship with the adoption of the theoretical framing of conservation can be difficult.

Firstly, on a more theoretical level, there is a noticeable distance between Brandi's monolithic notions of art and the many and varied approaches found in recent artistic production. The theory is based upon the presumption of the univocality of artistic intent; Brandi believes that all artists conceive of their art works as permanent and unchanging objects. This idea may be compatible with the pre-20th century art, but it is certainly very difficult to reconcile it with the fragmentation of approaches that characterizes contemporary practice. Obviously, this is a belief that originates in Brandi's philosophical background, and that fostered by his desire to consolidate the methodological unity of the theory. Thus, the text recommends the example that preliminary investigation prior to the physical interventions of the materials of the artworks should be limited to what he calls 'efficiency of the image which manifest itself through the materials' and with regard to the condition of the materials. Artistic intent is thus taken for granted, therefore not mentioned.

Ceasare Brandi's theory of restoration did not contemplate non- traditional works of art. He majorly considered pictorial works o canvass and wood, frescoes, archeological pieces; works of art whose expressive end was in some sense clear and related to its constituent materials by the artist. Its function being formal communication through images.

The contemporary work of arts, radically changed this situation: the visual manifestation, that which we perceive of a work, no longer corresponds with the manual know-how of the artist, but rather to the exposure of a concept and idea. The creative process, therefore, results in the artistic piece which expresses itself as a sensible object. Contemporary art considers as well the use of any and all material: synthetic, organic, mechanical, digital, along with different forms of exposition, ranging from emptiness, an absence of materials, to the accumulation of the same as a work in and of itself.

Brandi defined restoration as the methodological moment of recognizing a work of art, separated from object of common use. Restoration is in fact a critical set of separation, or, as Brandi indicates, an act of discernment. It is a critical act of interpretation which is generated by the perception of the object within its sensibility, that is to say, within its physical and material consistency (Valentini, F. 2010).

The distance between Brandi's idea of art and those developed by contemporary artists is most evident in the distinction he makes between material and image. He considers the material of an art work almost accidental, a means to the epiphany of the image and therefore the only area in which the conservator can intervene. The image on the other hand, is what needs to be preserved unaltered, as it constitutes the real essence of the work. This distinction is one of the principles of the theory and implies another dichotomy, that between structure and appearance.

For Brandi, the recognition of a work of art is an awareness of a physical, material consistency. He also distinguishes a material structure and a material appearance, while retaining that this two elements are indivisible. The material as structure support the material as appearance: in a tablet the structure is the wood panel, the appearance is the picture which transmits the image. In this particular scenario, conservators are allowed to intervene on the panel substantially going ad far as replacing it, if this is a suitable option-but the painted image must not be altered significantly. As the theory states "structure may be sacrificed in favour of appearance". Brandi himself does admit that this separation is not always clear-cut, and delegates the interpretation to individual analysis. However, he calls the idea of material determining the style and their appearance of an artwork a "mistake" and a "positive sophism".

Historical Trends and Progression in Sculpture

The earliest evidences of sculpture works were recorded in the account of the cave art. The early men in pre-historic era were the progenitor of art. According to Gardner (1988) – what Genesis is to the biblical account of the fall and redemption of man, early cave art is to the history of man's intelligence, imaginations, and creative power. Art in general originated from the early men who used art as a magical means of hunting animals. Not only that, various evidences abound that recorded the prehistoric art as the origin of art. Thus Willet (1975) affirms that pre-historic art has come a long way with numerous examples of preservation. Infact, history of art can not be complete without the cave art. Gardner (1988), reiterates that the first example of cave art was discovered – by amateurs and by accident - in 1979 near Santader in northern Spain.

The cave art recorded not only painting but engravings in the walls and roofs of caves as well as miniature sculpture. Art developed from the prehistoric era up to

middle stone age also called Mesolithic. At this period, the hunters of prehistoric age has left their cave. During the Mesolithic era, there was a flourishing of a culture whose art complements that of the caves from which it may partially have originated (Gardner, 1988). While the cave art represent more of animal figures, the Mesolithic introduced human figures, not only singly, but in large coherent groups with wide variety of pose and setting.

From the Mesolithic era, art graduated to New Stone age, this manifest man's giant stride towards the actual, concrete control of his environment by settling in fixed abodes and domesticating plants and animals. At this time, the wandering hunter has settled in an organized community living in villages surrounded by cultured fields. This gave rise to technological advancement that contributed to the development of monumental sculptures, due to the availability of massive stones that brought about metal inventions.

Nevertheless, as early as 650BC these earliest Greek sculptures emulated Egyptian sculpture in the use of stylized eyes and static poses and in their rigid portrayal of clothing. According to Bradbury, Cunningham, Hawksley and Pyne, (2012) the Greek sculptures differed in a way – as it was free standing, whereas Egyptian sculpture tended to remain fixed within a block of stone.

It is interesting to note that sculpture has such age long history that has transcended centuries, yet, it is still relevant today. Hence, (Gettnen, 2002) maintains that sculpture has one of the longest histories of any art, and yet it is especially exciting today. This development may be attributed to technology that has encouraged the production of diverse materials that are used till date.

The material development encouraged the development of sculpture all through the Greek, Roman, up till the Renaissance era. Gardner (1988) observes that the sculptures of the Renaissance era tended towards competition, hence, the spirit of Renaissance was nothing if not competitive and desirous of fame.

Modern sculpture was imitated by the sophisticated materials and mach invested that took the place of carving with hands. The positive changes in sculpture emerged as there was a decline in the use of hand tools as a result of dependence on modern tools and equipment. Marchi (1988) avers that there is a significant difference between carving wood with the traditional mallet, chisel, and power-carving wood with four-and-half inch grinder. This difference is illustrated in the differing skills and knowledge level required for each method. Nevertheless, (Ocvirk et al, 2006) in a related view states that modern sculpture has taken on a new quality in response to the changing conditions of an industrialized age, science and machinery have made sculpture more conscious of material and technology and more aware of the underlying abstract structure in their art.

The modern sculpture transversed the art periods of Deda, Cubism and expressionism era. (Gardner, 1988) as indicated in the chart of twenty-century art,

cubism and expression and the styles derivative from them dominated the art of the first half of the century.

Metal as a Modern Trend of Sculpture

Metal is one of the oldest materials used in construction and outdoor sculpture. It primarily composed of iron (fe), Carbon (c) and Silicon (Si). It may also contain traces of Sulphur (s), Manganese (mn) and Phosphorus (p). It has a relatively high carbon content. It is hard and brittle, non malleable (i.e. It cannot be bent, stretched or hammered into shape) and more feasible than steel. Its structure is crystalline, and relatively brittle and weak in tension. Metal fracture under excessive tensile loading with little prior distortion. Metal is, however, very good in compression. The composition of metal are critical in determining its characteristics.

The most common traditional form of metal is the grey cast iron which is easily cast. In grey cast iron the carbon content is in the form of flasks distributed throughout the metal. In white cast iron, the carbon content is combined

chemically as carbide of iron. It has superior tensile strength and malleability. It is also known as ‘malleable or spheroidal graphite’ iron.

Metal is still manufactured by much the same processes as it was produced historically. Metal is heated in a blast furnace with coke and limestone. This process “deoxidizes” the ore and drives off impurities, producing molten iron. The molten iron is poured into moulds of the desired shape and allowed to cool and crystallize (Zahner, L. (1995).

Upon casting, metal develops a projective film or scale on the surface which makes it initially more resistant to corrosion than wrought iron or mild steel. Finishing may include bituminous coatings, waxes, paints, galvanizing and plating. In addition, castings may be given a variety of treatments to reduce rusting and corrosion in the environment. Preservative treatments are typically barrier coatings intended to prevent the castings from oxidizing (rusting) in the presence of humidity and oxygen in the air.

Metal is used in a wide variety of structural and sculptural applications.

It is extremely strong and durable when used appropriately and projected from adverse exposure. However, it is highly susceptible to corrosion (rusting) when exposed to moisture and, has several typical problems which can be identified by visual inspection (Gayle, M. 1992).

Metal has an inherent tendency for restoration because of rusting or oxidation, being the most frequent and easily recognizable form of deterioration. The process of deterioration in metal can take place at significantly different rates depending on the material composition, protective treatments applied and severity of exposure. If rusting occurs of a rapid rate, it can result in severe damage or total loss of metal sculpture. Therefore, the presence of any rust on a metal artifact should alert the observer to the presence of a serious problem. Preservation and restoration plans should consider detailing-such as crevices and recessed areas, in establishing routine inspection.

Sculpture tools and materials

Over the years there has been major changes in sculptural processes and the tools associated with them. Sculptors work with a variety of materials using varying tools.

The field of sculpture has been influenced by rapidly changing technological society. Although sculptural process, for many, is often associated with traditional methods of working there has been major changes and development of new tools and methods which has brought dramatic effect on the wsy sculptors work as well as the range of aesthetic options available to them (Marchi, 1998).

Despite these changes, there are some processes and techniques which have altered very little in the past hundred years , such as the use of mallet, chisels, gouges, saw chain, saw, sandpaper bristle brushes and so on. Ocvirk et.al (2006) observed that modern sculpture has taken on new qualities in response to the changing conditions

of an industrialized age. Science and machinery have made sculptors more conscious of materials and technology.

Other techniques have remained the same since the earliest days of artistic creation which includes modeling, human and animal likenesses in clay, and carving stone, wood and bone.

Gradually sculpture making processes have experienced as shift in the use of hand tools.

There seems to be a decrease in the use of hand tools and their associated skills which perhaps maybe due to the amount of time and the knowledge to become proficient with hand tools, as well as the decline in the average quality of such tools.

Sculptors, today, have a wide range of beautiful high quality tools available for their art. Basic cutting tools such as chisels, carving and turning tools, saws, files

and rasps are dependent for best result on the quality of the steel, the skill and finishing process of the manufacturer.

Sculpture is no longer limited to carving and modeling in clay. It now includes any means of given form to all types of 3-D materials this means include welding, machine hammering, and stamping. In turns, sculptors have expanded their range of sculptural forms to include planar, solid, and linear constructions made of such materials as steel, cement, plastic, wood and fabric. This means the contemporary sculptor much more reliant on power tools for a perfect finish and also to get a large amount of carving, modeling e.t.c accomplished in a short period with little effort and moderate skills.

Concept of Outdoor Sculpture

Sculpture is the art of molding/modeling, with clay, cement or Plaster of Paris (POP), carving with or on wood, stone and marble. It is also the construction of forms and frames with different fragments of metal and iron. Sculpture is all

encompassing, even involving the arrangement of wires fabrics and extraneous materials which is called mixed media sculpture.

According to Fosu, 1986), Sculpture is among the oldest of the art of our society. Since 1900s sculpture has steadily been progressing from its traditional origin to modern creative expression. The term sculpture derives from the Latin verb sculptre, which refers to the process of carving, cutting and engraving. The ancient Greeks definition of sculpture also includes the modeling of such portable materials as clay or wax to produce figure in relief or in the round. The Greek developed an ideal standard for the sculptured human form they considered the perfect physical organisation – harmony and balance being, totally related in all part – beautiful proportions were part of their concept of sculpture (Ocvirk et al, 2006).

Socio-cultural Context of Sculpture

The sculptural works of art enters our lands and stand as testaments to our rich social, cultural past. Outdoor sculptures eventually acquire new meanings and functions because their cultural socio-context – the society where they exist and its value-changes. Ancient sculptures here acquired different meanings through ages. They so cherished what they represent to the present world, and not necessarily for their original functions. Our society currently recognizes age as a value to be preserved in older sculpture monuments while we value newness as part of the aesthetic function of the modern sculpture. Sculptures are increasingly using a variety of media, and conservators do not yet have adequate solutions to arrest the deterioration and failure of any modern material employed in modern sculpture.

Levison (1998) and Storch (2010) agree that the normal lifespan of a gilt sculpture in a temperate climate is approximately 20 years. The studies here shown that the failure of the gilt layers is progressive over the period and may proceed as different

rates depending on the location of the surface in terms of environmental exposure and moisture condensation.

In an article titled “How Khrushchev tried and failed to restore the Soviet Statue of Liberty Stalin had blown up”, Goble (2010) described Twentieth century Russia as the only country in the world, which blew up the symbol of its own freedom and compounded that fact by refusing to restore it any time afterward. Because Russian version of the statue of Liberty which was blown up by Lenin in 1941, has not been restored yet, scholars are of the opinion that it is a pointer to the failure of Russia’s attempt at democracy.

Consequences of Failed Sculpture

Men have made sculpture ever since the world was young. However, at first, the sculptures that men made were not very different from drawing. (Hillyer, 1986) In those early times, the sculptors first drew pictures on flat surfaces, then they carved the lines deeper so that if they were outside, the rain would not wash the drawing

away and the weather would not wear them down. Thus, the early men carried within him the sense that his sculpture is susceptible to the vagaries of the weather – thereby the acceptance that sculpture is more temporary then we like to think (Inglis-Arkel 1, 2012).

The struggle between sculptures and the environment in which they are situated is age long. The effects of both traditional and modern materials to exposure such as weather, pollution, and neglect are relentless. Stone crumbles, metal corrode, wood rots, and paint peels or fades. It can be hard to understand that large, apparently solid structures can become vulnerable when placed outdoors (Pullenid and Heumen J, 2014). Though it has been recorded that one of the oldest surviving pieces of sculpture in the world is made of wood – the figure of the Ka-aper - which is in the Egyptian museum in Cairo (Hillyer, V. and Huey, E., 1986).

Techniques of Restoration and Conservation in Concrete Sculpture

Contemporary techniques of cleaning may range from simple mechanical removal of the deposit with a common soft erasure to the use of surgical scalpels, often with the aid of a binocular microscope for more cautious and delicate cleaning. Small-scale power tools are commonly used when the deposit is extremely hard—for example, dental ultrasonic descalers can be used to remove hard calcite- or silica-based deposits or residues of modern cement and grout. The conservator sometimes employs micro air abrasive equipment that uses fine particulate powders such as walnut shell or talc. The technique requires that the operator have considerable experience and skill so that the stone surface itself is not abraded. Steam cleaning and water misting are also often employed in the cleaning process, though like all the techniques already mentioned, they must be cautiously applied to ensure that only the desired deposit or grime is removed, without damaging the stone surface or other decorative elements.

First used in the 1970s to clean the black pollution crusts from stone architectural sculpture, laser technology has rapidly developed as a promising method for cleaning stone surfaces. Laser energy dislodges or vaporizes the offending material that is normally of a darker colour than the stone. The laser has become one of the most promising tools for future use in conservation due to the advancement of more commonly available units, a relative drop in cost of the equipment, and a greater familiarity with laser technology in the field of conservation.

Reasons for the Popularity of Concrete Sculpture

Concrete for sculptural purposes is coming more and more into use in our society. Listed below are four main reasons that have brought about this wide use of cement for sculpture.

1. The easy access to availability of concrete makes it a very popular medium for sculpture. There is a great number of sculptors, students, and accomplished artists in Benin who finds it much more convenient to use

cement because it can be purchased in almost any quantity necessary or desired.

2. Another reason for cement's popularity is its relatively low cost as compared to the cost of natural stones. Such stones as marble, sandstone, and limestone present almost prohibitive expenses to the young sculptor with limited funds. Not only is the stone itself expensive, but the cost of transportation and storage adds up to expenses which few established sculptors can really afford.

3. A third reason for the popularity of cement sculpture is the nature of the material.- The fact that cement is worked with while it is in a semi-liquid state makes it a very versatile material. It can be poured into a mold in a liquid state and allowed to set until hard; it can be manipulated in a more plastic state and thus be packed into the mold by hand, allowing for a hollow and light-weight finished piece, a method especially good for large pieces..

4. A fourth reason for this medium's popularity in sculpture is its durability and resemblance to natural stone.

Museums as Repositories of Restored Images

Restored sculptures and other artifacts are often preserved in museums as tangible evidence of man's history and creativity. (Momin, K. and Okpoko, I. 2012). Museums are institutions publicly or presently owned which collect, preserve, restore and display objects with the aim of educating, entertaining and providing materials for research.

Sculptural images and other artifacts of cultural and historical values are often kept within the built environment of museum. They include artifacts, relics and antiquities which are executed in various media reigning from bronze, wood, stone, terracotta, metal and in recent times, cement.

Cultural and sculptural pieces such as the Nok terracotta, Ife and Benin bronzes which dates back to the 5th century B.C were considered cultural materials of ritual, religious and political importance worthy of conservation and preservation in museums. In fact, museum, prior to this modern era has solely preoccupied itself with these object of ancient symbolic values.

However, with so much open-air sculpture in the public realm embodying symbolic historic, and aesthetic value, the role of museums is further stretched to accommodate the conservation and restoration of outdated sculpture of public relevance. (Pullen, D. 2012). For sculptures sited within a museum, a built and relatively benign environment, routine treatments can be put off without causing much harm, but not so, for outdoor sculptures.

Individual and organizations in our contemporary society often bequeath major outdoor sculpture collections to the public (Pullen, D., 2012). This laudable act often comes with its inherent challenges of conservation.

According to Pullen (2012), nothing is certain in the conservation and restoration of outdoor works of art, except that all materials change faster outdoors, and only regular maintenance can delay that process.

William Benoit (1996), introduced the image restoration theory as a strategy to mitigate damage to such outdoor public works. This theory is grounded on two fundamental assumptions.

(1) Communication is a goal directed activity.

(2) Maintaining a favourable reputation is a key goal in communication.

This theory, in view of its fundamental assumption supports the view of Momin (2010) that in terms of enlightenment, museums are comparable to schools, universities, libraries and other agencies of knowledge. Therefore, if museum is to succeed in its effort to communicate these, Benoit's claim that the application of treatments and restoration of sculptural images cannot be overemphasized.

Restoration in this light, focuses on identifying options rather than prescribing solutions to the preservation of sculptures in museum setting. This will provide opportunity to shape identities through quick access to various objects, art collections and artifacts of ancient dating.

Based on several cases studied by Benoit and his colleagues in line with his theories, Combs (2006) cited a number of prescriptive recommendation for the application of image restoration strategies. The dominant recommendation, being, for the museum to admit the urgency of the need to carry out restoration works on sculpture pieces in its custody in order to bolster public confidence on the relevance of museum as a veritable tool of enlightenment. Now the question arises; should museum rest upon itself the function of restoring failed sculpture in its domain to reflect the prevailing decorative beauty of the era?

Pullen (2012) asserts that all outdoor monuments and sculpture eventually acquire new meanings and functions because their cultural context – our society and its values – changes; and they have acquired different meanings through the ages.

According to Wikipedia, image is an object that represents, stands for or suggest an idea, visual image, belief or action.

Summary of Review of Related Literature and Works

The review of literature took a look at the theoretical framework on which the work of other researchers on restoration and conservation of sculptural pieces are based. Most research work carried out, on sculptural restoration and conservation are mostly on marble, bronze, and metal but quite scanty in concrete sculpture. There is now an awakening on the need to restore and preserve our cultural and sculptural heritage as showcased in different medium ranging from concrete, metal, wood, baked clay and other sculptural installations. Like every other art form,

concrete sculptural pieces at one time or the other need some form of intervention in the area of conservation if such works are to be preserved for posterity.

Sculptors of great renown such as Ben Ekanem, (Queen Amina,1977) Anthony Okonofua, (Affection 1995), Ben Enwonwu (Sango 1982), Henry Moore, Auguste Rudin, Paul Landowski, (Christ the Redeemer 1931) etc. have had their works restored at one time or the other in the event of deterioration by weathering condition, accident or outright vandalism.

The review assessed the effectiveness of preservatives and the adequate use of structural reinforcement to avert future collapse.

The reviews presented in this chapter therefore gave a clearer view, which highlights different modes of restoration using additives, wax bitumen etc to achieve restoration and conservation of sculptural forms that were exposed to strong weathering condition, extreme humidity and abrupt temperature changes causing severe structural wear. The art of restoration and conservation will reduce

the incidence of failed sculpture in our environment, it is worthy of mention the fact that when restoration and preservation of sculpture is lacking, it brings about failed sculpture which consequently leads to the eroding of our historical past. Failed sculpture in environment inadvertently depicts the failure of the sculptor(s) involved.

CHAPTER THREE

METHODOLOGY

In this chapter, the method and procedure for the study is discussed. The research design, area of the study, pilot study, population of the study, sample size/sampling procedure, method of data collection, description of data, gathering of instrument, validity of data, gathering of instrument, data analysis, studio practice and technique are presented.

Research Design

This involves the use of the studio exploratory approach with the fieldwork documentation within the sculpture garden and in the University Benin, and obtaining the results directly by observations and recordings, which generated the required data. The study will be carried out using survey and studio experimental design with practical execution of sculpture in various media, especially cement.

Area of Study

The study area is focused on sculpture garden of the department of Fine and applied Art, University of Benin. This is based on the fact that the sculpture garden presently is housing the largest number of outdoor sculptures both in the University and in the State. The core area for selecting the sculpture garden is to address failed sculpture through a practice led research in the studies of the Fine and Applied Art Department.

Pilot Study

The researcher shall carry out pilot study in the research area to determine the availability of information on the research topic.

Population of the Study

For the purpose of this research, the population shall constitute all failed concrete and fibreglass sculpture within the department of Fine and Applied Art University of Benin sculpture garden from which inspiration was drawn.

Sample and Sampling techniques

The sampling technique involve two sampling technique, the probability sampling technique and the random sample technique. The size of all the outdoor concrete sculpture in the garden will be sampled. The sculpture garden has a great number of concrete sculptures as well as fibreglass. In this case, ten concrete sculptures will be selected for restoration.

Description of Data Gathering Instrument

Structured interview by observation and carrying out field research on failed sculpture will be used and the responses from the interviews shall provide the necessary data and will be used for the analysis.

Research Instrument

The instrument to be used for the study shall be by researchers made Questionnaire (RMQ), personal observation method (POM), it will also included personal observation method (POM),sketching and photography, mallet, chisels, spatula, gouges, saw, chain router, mortar, bristle brush, resin, fibre mat, wire mesh, accelerator and patinas

Validity of the Instrument

One of the steps taken to ensure validity of these questionnaires is that the questionnaire was submitted for vetting by the supervisor. This was done along with the submission of chapters 1-3 for the supervisor to review and perhaps give

further instructions. Similarly, the researcher administered the questionnaires to ensure accuracy and return of almost 100% after filling.

Reliability of the Instrument

Reliability is the consistency with which a test measures what is set out to measure. In order to ensure the reliability of the instrument used, the researcher would subject the questionnaires to the split reliability test using the Spearman Brown rank correlation coefficient

Method of Data Collection

Field research method and first hand information of available sculptures, year of execution, the artist name, medium, size and location, photograph and sketches where necessary will be employed as data.

Method of Analysis

The information collected from the structured interview will be analysed through visual and quantitative analysis. On the other hand, some of the royal symbols will

be subjected to visual analysis and adaptation through studio practice. This will involve developing sketches from the original of the failed sculpture and taking photographs as well.

Studio Practical

The studio practical involves the entire procedures in actualizing the study. These include method and choice of materials appropriate for the restoration work ie making of sculptural Marquette, additives for preservation and finishing.

Making of Marquette

Every failed sculpture that requires a return to its former position could be modeled out in a Marquette form so that it could be transformed into three dimensional visual which will serve as a model for the final restoration work.

Finishing

Finishing involves the application of a protective layer to the work, but before a protective coating can be applied the sculpture surface must be prepared. Felexner (2005:7) affirms that it is impossible to obtain a perfect finish if you do not prepare the surface area to help eliminate imperfections. Thomas (2014), explains that there are many restoration and preservatives such as wax, shellac, nitrocells lacquer, conversion varnish, polyurethane vanish, oil finishes. The researcher intends to restore in concrete.

CHAPTER FOUR

PRESENTSTION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter contains presentation, analysis and discussion of the data collected by the researcher during the data collection. The frequency tables show the findings as derived from the responses by respondents to the various questions contained in the questionnaire followed by discussions. The findings were organized according to the themes and sub-themes derived from the purpose and research questions presented in Chapter One.

The research purpose set up in Chapter One as follows:

To examine carefully identify the causes of failed concrete sculptures within the University of Benin

To examine the types and various medium of expression in concrete sculptural installation.

To specify and recommend suitable materials with adequate structural reinforcement for outdoor sculptures.

To examine the techniques employed in erecting concrete sculpture.

To ensure that sculpture being the oldest form of art that involves humans practice is well preserved for poste

The data were collected through primary and secondary. This study explored mixed method of collect data. The quantitative approach has applied particularly on the presentation of findings from the responses. The questionnaires were also used to collect data and were distributed to the respondents according to the categories of the study. This section describes the general characteristics of the respondents such as gender, age, educational level, years of service and their designation.

4.2 General Information of the Respondents

SECTION A: (Demographical Data)

Table 1: Gender of respondent

GENDER	FREQUENCY	PERCENTAGE%
Male	50	45.5%
Female	60	54.5
Total	**110**	**100%**

Table 1 above shows the gender distribution of the respondents.

Table 2: Age distribution of respondents.

AGE	FREQUENCY	PERCENTAGE%
16-20	50	45.5%
21-25	25	22.7%
26-30	**25**	22.7%
30 and above	**10**	9.1%
Total	**110**	**100%**

Table 2 above shows the age distribution of the respondent. Expectedly, most (45.5%) of the respondents fall within the gap which is the youngest age from 16-20 years of age. A relatively small percentage (10%) are those above the age of thirty (30) years. The age 21-25 years were found to be (22.7%) of the sample examined also (22.7%) fall within the age bracket 26-30 years.

Table 3 marital status of respondents

STATUS	FREQUENCY	PERCENTAGE%
Single	85	77.2%
Married	20	18.3%
Others	5	4.5%
Total	**110**	**100%**

Table 3 above shows the marital status of the respondents.

Findings reveal that 77.2% are single while 18.3% are married. Other category amount to 4.5% of the sample surveyed.

Table 4: Distribution by class of respondents

QUALIFICATION	FREQUENCY	PERCENTAGE
100 Level	15	13.6%
200 Level	45	40.9%
300 Level	20	18.3%
400 Level	30	27.2%
Total	**110**	**100%**

Table 4 depicts the distribution of respondents by class/level as above.

SECTION B

In this section, the responses to the survey questions/data were analyzed and discussed based on the research question used for the study. The responses were analyzed with the use of frequency count and simple percentage.

Research question 1.RQ 1: What are the causes of failed sculpture within the University of Benin?

RQ2: What are the various types and medium of expression in outdoor concrete sculptures within University of Benin?

RQ3: In what way can we adapt suitable materials with adequate and structural reinforcement for outdoor concrete sculptural installation?

RQ4: To what extent can we ascertain the suitability of the technique employed?

RQ5: What do we do to conserve sculptural pieces?

Table 1.cause/failed sculpture within the university of Benin

		Frequency					Percentage			
S/N	**ITEM**	**A**	**SA**	**D**	**SD**	**Total**	**A**	**SA**	**D**	**SD**
i.	The sculpture in the school failed because they were not well build.	**35**	**70**	**5**	**0**	**110**	**31.8 %**	**63.7 %**	**4.5%**	**0**
ii.	No provisions for good tool in other to execute a good work	**46**	**24**	**30**	**10**	**110**	**41.8 %**	**21.8 %**	**27.2 %**	**9.1 %**
iii.	Low quality of material and fund during the process of executing the project	**50**	**58**	**2**	**0**	**110**	**44.4 %**	**52.7 %**	**1.8%**	**0**

Table 1 above shows a summary of the scores on variables he following findings are in relation to the objective of examining the factors influencing the cause and failed sculpture in the university of Benin These are motivations that is devoid of external influence. On item number 1. Above, 31.8% of the respondents agreed that the sculpture in the school failed because the were not well build while 63.7%strongly agreed.

For item number 2. Only 21.8% of the respondents strongly agreed that no provisions for good tools in other to execute a good work. Whereas item number

three (3) revealed that 52% and 44% strongly and agreed to the fact that the low quality of Materials and fund during the process of executing the project. 1.8% of the respondents disagreed on the notion..

Research Question 2: What are the various types and medium of expression in outdoor concrete sculptures within University of Benin?

Table 2. Types and medium in outdoor concrete

S/N	ITEM	A	SA	D	SD	Total	A	SA	D	SD
i.	Because of lack of fund the students tend to improvised to reduce the intake of materials	50	40	20	0	110	44.4 %	36.3%	18.3 %	0
ii.	The effects of the weather on the concrete sculpture reduce the life span	45	60	5	0	110	40.9 %	54.5 %	4.6%	0

iii.	Low cost in the materials use in the concrete work is one of the reasons why every student go for it	**50**	**20**	**15**	**25**	**110**	**44.4 %**	**18.3 %**	**13.6 %**	**22.7 %**

Table 2 above shows that a good number of the students (44.4%) agreed to the assertion that the reason why student tend to improvised to reduce the in take of materials is lack of fund. While (18.3%)of the respondent disagreed to the nothion. Interestingly (36.3%) strongly agreed thay student improvised because of lack of fund.

Research Question 3: In what way can we adapt suitable materials with adequate and structural reinforcement for outdoor concrete sculptural installation?

Table 3. Suitable materials with structural reinforcement.

S/N	ITEM	A	SA	D	SD		A	SA	D	SD
i.	Can a sculptural works still last even with a suitable materials seen that the weather is not favorable to the concrete work.	60	35	10	5	110	54.5 %	31.8 %	9.1 %	4.6 %
ii.	Does The type and the quantity of Materials use in reinforcement really determine the strength of the work	40	65	5	0	110	36.3 %	59.1 %	4.6 %	0
iii.	All indoor sculpture always last longer than outdoor concrete work in respective of the materials use	30	70	10	0	110	27.2 %	63.6 %	9.1 %	0

In table 3 above, 54.5% of the respondents agreed that a sculptural work can still last when use a suitable materials even with the unfavorable weather. While 59.1% stromgly agreed that the quality and quantity of materials use in reinforcement determine the strength of the work. 63.6,% strongly agreed the indoor sculpture still last longer than outdoor in respective of the materials.

Discussion of Findings

The outcome of the survey as shown in tables 1-3 throws light on the myriad of factors that is affecting the Restoration and conservation in concrete sculpture. For ease of analysis, the scores for “strongly agreed” and “agreed” were collapsed and interpreted as positive response while “disagree” and “strongly disagree” collapse connotes disapproval.

From the figures in Table 1. The aggregates of the responses across all the questions asked points to the fact that majority of the respondents desire to see concrete sculpture been restored as it one of the easiest to execute by the students. Items I, II, III, has most of the students agreeing and strongly agreeing to variables that suggest their passion, creativity and love for the arts as a motivating factor why they major in sculpture About 98% of the respondents were positive (strongly agreed and agreed) this show's their interest and how they like to see there wor last and withstand the test of time and weather 98% did so because they are mostly fine artist and they know the implications of the results when the materials used lack expectations.These findings support the outcome of the works when there is enough materials. (70%) .

All these would amount to the motive to integrate or fit into the society at the socio, cultural and academic level. The average of the aggregates of the percentages for the positive responses under the integrative motives is thus 50% while the average of the aggregates for the negative responses is 10%. Thus, research question one has been answered.

In Table 2, “The Instrumental Motivations” show that majority of the respondents 60% believe the funding take a paramount roles when it comes to creating a well befitting outdoor concrete sculpture. (38%) wants to work as creative thinkers and sell their skills post graduation but the lack of inadequate resources can be limiting. The average of the aggregates of the responses to the instrumental motives questions as shown in table 2 shows the students have been influenced to the an extents to which they have no hope in what they create as an undergraduate 53% were positively motivated by the availability of other materials that can withstand the test of time.

The summary of table 3 shows 51% of the respondents support that a new way be adorbt for a easy execution of the outdoor project On the other hand 21 disagree to that.

However, a high percentage (92%) of the respondents agreed that all indoor sculpture always last longer than outdoor irrespective of the materials use.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

INTRODUCTION

This chapter concludes the study by dealing with summary of findings, conclusions and recommendations on the RESTORATION AND CONSERVATION IN CONCRETE SCULPTURE

SUMMARY

The study reveal that Sculpture is no longer a servile depiction of the appearance of things, but a representation of the passion and emotion of men: that is, sculpture imitate not the surface of things by the reality embedded within. A little thought on these theory denies the flow of successive aspects of sculpture and its reflection on new importance for the future. agreed with Aristotle that sight is the noblest faculty of any sculptor in his quest to imitate nature and that every form brought before our vision falls upon it as upon a mirror.

The sculptor renders man and nature, ‘as they ought to be’ – that is, in so far as he imitates the creature process of nature the objects remain ‘men in action’. Now the ‘action’ may be ‘external’ or ‘internal’. It may be the action within the soul caused by all that befalls a man. Thus, he brings human experiences, emotions and passions within the scope of sculptural imitation. In essence, the ideal truth behind any sculptural piece is higher than any subsequent alteration in the process of time. Thus, this theory bears witness to the sole duty of that artist that seeks to preserve work of art: the preservation of the spirit and the form of it, no matter the extent of the structural repair.

Restoration is generally understood as any kind of intervention that permits a product of human activity to recover its function. the text recommends the example that preliminary investigation prior to the physical interventions of the materials of the artworks should be limited to what he calls ‘efficiency of the

image which manifest itself through the materials' and with regard to the condition of the materias.

The research instrument used for data collection was -(RESTORATION AND CONSERVATION IN CONCRETE SCULPTURE). A total of one hundred and thirty (130) questionnaire were administered to student respondents in the Fine and Applied Art department UNIBEN (Ekehuan campus). One hundred and ten (110) of these questionnaires were returned filled and thus used for this work. Below are the highlights of the findings:

Majority of the respondents (85%) and the majority of the students have interest on sculpture but the limited materials has set a boundary that need to be bridge in other to execute more and time bifitting concrete sculpture.

Materials, tools techniques factors influenced 52% of the respondents in choosing their final year project. This would mean a very small amount of the students go for the quality and quantity of Materials needed to achieve their goals.

Climate factors have the major influence on the decision of students on the Restoration and conservation of the works. The effects of both traditional and

modern materials to exposure such as weather, pollution, and neglect are relentless. Stone crumbles, metal corrode, wood rots, and paint peels or fades. It can be hard to understand that large, apparently solid structures can become vulnerable when placed outdoors.

CONCLUSION

The easy access to availability of concrete makes it a very popular medium for sculpture. There is a great number of sculptors, students, and accomplished artists in Benin who finds it much more convenient to use cement because it can be purchased in almost any quantity. cement's popularity is its relatively low cost as compared to the cost of natural stones. Such stones as marble, sandstone, and limestone present almost prohibitive expenses to the young sculptor with limited funds. Not only is the stone itself expensive, but the cost of transportation and storage adds up to expenses which few established sculptors can really afford. The nature of the material.- The fact that cement is worked with while it is in a semi-liquid state makes it a very versatile material. It can be poured into a mold in a liquid state and allowed to set until hard; it can be manipulated in a more plastic

state and thus be packed into the mold by hand, allowing for a hollow and light-weight finished piece, a method especially good for large pieces..

RECOMMENDATIONS

Based on the outcome of the research in the foregoing sections, the following are thus recommended:

1. Restored sculptures and other artifacts should often preserved in museums as tangible evidence of man's history and creativity. The role of museums is further stretched to accommodate the conservation and restoration of outdated sculpture of public relevance.
2. Nothing is certain in the conservation and restoration of outdoor works of art, except that all materials change faster outdoors, and only regular maintenance can delay that process. We must introduced the image restoration theory as a strategy to mitigate damage to such outdoor public works.

3. Most research work carried out, on sculptural restoration and conservation are mostly on marble, bronze, and metal but quite scanty in concrete sculpture. There is now an awakening on the need to restore and preserve our cultural and sculptural heritage as showcased in different medium ranging from concrete, metal, wood, baked clay and other sculptural installations. Like every other art form, concrete sculptural pieces at one time or the other need some form of intervention in the area of conservation if such works are to be preserved for posterity.

4. The art of restoration and conservation will reduce the incidence of failed sculpture in our environment, it is worthy of mention the fact that when restoration and preservation of sculpture is lacking, it brings about failed sculpture which consequently leads to the eroding of our historical past.

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APPENDIX I

DEPARTMENT OF EDUCATIONAL FOUNDATION
FACULTY OF EDUCATION
UNIVERSITY OF BENIN,
P.O BOX 1154
BENIN, EDO STATE
NIGERIA

Dear Respondent,

REQUEST FOR THE COMPLETION OF QUESTIONNAIRE.

My name is MUILI Akinkunmin Emmanuel . I am an undergraduate student in the above named department/ institution am an under graduate student of the above named institution, conducting a research entitle **RESTORATION AND CONSERVATION IN CONCRETE SCULPTURE.** You are hereby humbly requested to sincerely cooprate to get the questionnaire completed. Be confident that information given will be taken care of in strict confidence and for the idea of this research work only.

Yours faithfully,

MUILI AKINKUNMIN EMMANUEL

(Researcher)

APPENDIX II

INSTRUCTION

Please tick or fill as appropriate.

Section A-Demographics

Gender of respondent Male { } Female { }

Age range of respondents 16-20 { } 21-25 { } 26-30 { } 31 and above { }

Marital status of respondents: Married { } single { } Others { }

Educational level respondents, 100L { } 200L { }300L { } 400L { }

Other post secondary school qualifications? Yes { } No { }.

Section B-Factors affecting choice of FAA as a course.

Note: **A** = Agreed, **SA** = Strongly Agreed, **D** = Disagreed and **SD** Strongly disagreed

cause/failed sculpture within the university of Benin

S/N	ITEM	A	SA	D	SD
	No provisions for good tool in other to execute a good work				
	The sculpture in the school failed because they were not well build.				
	Low quality of material and fund during the process of executing the project				

What are the various types and medium of expression in outdoor concrete sculptures within University of Benin?

S/N	ITEM	A	SA	D	SD
	Because of lack of fund the students tend to improvised to reduce the intake of materials.				
	The effects of the weather on the concrete sculpture reduce the life span.				
	Low cost in the materials use in the concrete work is one of the reasons why every student go for it.				

In what way can we adapt suitable materials with adequate and structural reinforcement for outdoor concrete sculptural installation

S/N	ITEM	A	SA	D	SD
	Can a sculptural works still last even with a suitable materials seen that the weather is not favorable to the concrete work				
	Does The type and the quantity of Materials use in reinforcement really determine the strength of the work				
	All indoor sculpture always last longer than outdoor concrete work in respective of the materials use				