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Theory of Sculpture for High Institutions in Nigeria; Content Development.

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Abstract
Despite the fact that sculpture is fast evolving, current literature, covering all the detailed areas of it are hard to come by. For this reason, teaching its theory effectively, especially at high-school levels, has been a difficult task to many academics. The parochial nature of most current write-ups in sculpture, like internet source, leaves youngsters completely with no modern, comprehensive reference-point for adequate teaching and learning of this course. Consequently, players simply take to 'talking sculpture' instead of 'writing sculpture' in modern theory of sculpture classes and great apathy ensues in it.
This write-up is an attempt to give flesh to most of the content areas of sculpture theory, especially as it is used in high schools in Nigeria, with the view to providing a guide with which it could be taught and learnt in affected places. In this chapter, opinions and creations of established contemporary sculptors are reviewed and utilized in definitions, interpretations, and illustrations of concepts, terminologies, and work-processes and products applicable to traditional, modern and postmodernist practices. It also provides model questions for both the development of learning objective and the evaluation of progress in each topic or learning unit. It is hoped that the outcome would make both teaching and learning of the theory of sculpture an easy exercise and reawaken interest in it in schools in Nigeria. For proper and balanced academism, sculpture at all levels of education should be taught and assessed formatively and summative, to nurture both practical and theoretical developments of learners.

Keywords: Sculpture, Development, Nigeria, Theory

Introduction

Despite the fact that sculpture is fast evolving, current literature, covering all the detailed areas of it are hard to come by. For this reason, teaching its theory effectively, especially at undergraduate levels, has been a difficult task to many academics. The parochial nature of most current write-ups in sculpture, like internet source, leaves youngsters completely with no modern, comprehensive reference-point for adequate teaching and learning of this course. Consequently, players simply take to 'talking sculpture' instead of 'writing sculpture' in modern theory of sculpture classes and great apathy ensues in it.

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Basic Concepts of Sculpture

Meaning of Sculpture: How would you define sculpture? Definitions most people give to sculpture are rather parochial or one-sided in scope. They define sculpture as 'moulding', or carving of images of animate beings, statues; *gunki* (idol). Sculpture however, is not only about 'moulding' (modelling)

and carving; nor is it only about producing animate images. For an explicit and all-inclusive definition, sculpture can be said to be the shaping or formation of any physical structure (object) in a manner that appeals to or evokes man's sensation of beauty. Sculpture making is best described as shaping because it involves diverse techniques and materials. It deals with the development of form and arrangement of such forms to produce a beautiful structure. Sculpture is both a product and a process of art because both the performance and its outcome are known as sculptures. Making of sculpture starts from line (defining line appropriately) through shape (space enclosed when line touches itself) to form or structure (arranged forms that give definite representation); elements of art: line, shape, form, texture, and colour are involved. When line touches itself, it encloses a space known as shape; shape outlines form and forms are arranged to build a structure; and naturally, every form has texture and colour which can be maintained, modified, or changed in a design (Graham, 2005; Busser, 2006; Sullivan, 2010).

Nature of Sculpture: Sculpture can be organic (biomorphic) or inorganic (abstract/geometric) in its nature. In its work-process, organic/flexible line produces organic shape and organic shapes constitute organic form or structure; and so, does inorganic/geometric line in production of geometric/abstract shape and form.

Genealogically, Sculpture is a kind of art and among the arts, it is a type of visual art because it is visible and tactile (touchable). Within the classifications of visual arts, sculpture is part of Fine Arts because it is basically meant for aesthetic value or appreciation (beauty sake). Still within the classifications of visual arts, sculpture is one of the three dimensional arts because it has three measurable sides: length (height), width, and thickness (depth).

Class Reinforcement Questions: *What is the name of the other three-dimensional arts within visual arts? Name any type of two-dimensional arts you know and state the reason why it is so called?*

Historically, sculpture is one of the oldest forms of art in human development. By its scope, what the early man did in the cave: stone hewing, bone, shell and stick carving for hunting and self-protection were sculptures. Although in its modern ideology, sculpture tends to be dedicated to beauty and aesthetic appeal, originally, it was not separated from architecture, craft and pottery in pursuance of activity-aiding functionalities; pleasurable support for human sitting, sleeping, cooking, eating (Heathcote, 1976; Anatsui, 1991; McEvilley, 1999).

Generally, sculpture paves way for structural development of the human environment. It develops prototype forms and sensations adapted by structural engineers and craftsmen. In sculpture, credit is given to creative discovery or formation and not in reproduction or fabrication (forgery) of structures already in existence. Its making is more of exploration than experimentation in technique. It starts from conceiving idea, goes through sketching (planning) the idea, developing marquette (miniature sample), and cumulates in production or execution of the full work.

Types, Methods and Materials of Sculpture

In most cases, sculpture forms are categorized along the materials and methods of work employed in realizing them. For instance, clay-model, bronze-cast, cement-cast, terra-cotta, wood-monument, welded-metal, paper-construction, ivory/stone/bone/calabash-carving, cane-weaving, found/adapted form, live-installation/performance are all types of sculptures. All of these types of sculpture are connected to the materials and/or methods used in making them.

Methods/Techniques of Sculpture: Traditionally, there are three conventional methods or techniques of work employed in the production of sculptures; modelling, carving, and construction. Contemporarily, however, postmodernism has unconventionally projected casting, adaptation, and installation as separate ways of creating works; increasing sculpture methods or techniques to six (modelling, carving, construction, casting, adaptation, and installation).

Modelling: Shaping or building of form through additive methods (piling up lumps to the required volume and structure), using malleable materials like clay, cement, wax, plaster, and Paper Mache. Modelling can be achieved through pinch-lump, slab/block, and coil techniques.

Carving: Shaping or building of form through subtractive method (chipping or cutting off unwanted parts) using brittle-hard materials like wood, stone, marble, ivory, ice, and bone.
Construction: Shaping or building of form through cut and join process, using hard materials like wood, metal, glass, plastic, and paper; joining of which can be by nailing, gluing, welding, tying, screwing, hooking/locking.
Casting: Copying of an existing form into same or different material, using a mould; sometimes with the intentions to mass-produce or modify it. Casting is related to modelling, using malleable and state-transformable (liquid to solid) materials like clay, cement (concrete), wax, bronze, and plaster. This process is referred to as modelling and casting technique. Conceptual sculptors can however, cast figures and other live objects directly without first modeming them. There are two types of casting; direct casting (not involving mould) and indirect casting (involving mould).
Adaptation/Found Form: Getting crafts and natural forms become sculptures or possess artistic forms. This is achieved when a craftwork or natural object like a tree-stem, branch, root, or fruit is accidentally deformed and by so doing, loses its functionality and gains aesthetic qualities. Practically, craft and natural forms can be adapted as sculptures (found forms) through creative deformation, seasoning, and association. Creative association is done by infliction, attachment, and placement manipulations on a form. Craft objects like calabash, basket, mat, chair, pot, plate, cup, and farm, war and musical implements; as well as plastic, fabric and leather works (bag, shoe, cloth, bucket, and electronics) can be adapted as sculpture through these creative-accidental processes.
Ceramic-sculpture is a form which wears characteristics or features of both sculpture and ceramics. It is usually achieved through accidental or deliberate creative deformation and association. Thus, ceramic-sculpture is a kind of adaptation, installation or found-form.
Installation: Relating or presenting a readymade object with its surroundings the way it can be mentally or physically complemented by the observer to elicit public discourse. Installation can be executed in diverse materials like human, animal, and plant (whole or part). Other unconventional materials like water, fire, smoke, portion of land, architecture, furniture, vehicle, tool and machinery can also be used in installation. In installation, the artist does not create all the forms from the scratch; rather, he adapts natural objects and readymade in unusual positions (Stokstad, 2008; Sullivan, 2010). Like other conceptual arts, formal quality of material (richness and saleability of work) is not an issue in installation. Installation is closely related to performance as it is usually executed site-specifically, making it unmovable except in pictures.
Materials in Sculpture: From the foregoing, it can be seen that every object is a possible material in sculpture. Refined or conventional materials like clay, cement, Plaster Of Paris (POP), wax, papier Mache, metal, bronze, silver, gold, timber (wood), marble, glass, paper, and plastic are used in sculpture. Similarly, unrefined or unconventional natural objects like stone, sand, water, ice, fire, smoke, stick, bone, ivory, and man-made objects and discards like house, vehicle, furniture, and utensils can also be materials in sculpture. The human body is also used as a material in postmodernist sculptures.
Tools and Equipment in Sculpture
Just like in materiality, every object is a possible tool in contemporary sculpture. There are conventional modelling tools like spatula, beater, knife, trowel, shovel, and head-pan; carving tools like chisel, gouge, mallet, adze, axe, vice, digger and driller; there are also construction tools like saw, clamp, arch-saw, hammer, cutter, pliers, pincers, scissors, burner, perforator, and scrapper in sculpture. It should also be noted that unconventional technological equipment like power machine, shutter, launcher, router, dresser, welding machine, drier, blower, needle, and pin are now used in sculpture. Material available determines the type of tool and technique of work employed in sculpture.

Classes of Sculpture

Basically, there are two types of sculpture; Round Sculpture and Relief Sculpture. Round sculpture (figure 1A) refers to a piece of sculpture (work) standing freely within its space, which allows an observer to move round it and see it from all sides (front, back, and side-ways). Relief sculpture (figure 1B) on the other hand, refers to a work of sculpture which is flat in its orientation, projecting from another frame or background, enabling an observer to see only two sides (length and width) and not the backside. There are low reliefs and bar or high reliefs among the relief sculptures. Round or relief sculpture can be realized in all the materials, methods/techniques and styles of work presented above.

Figure 1 (A): Round-Organic, Bronze, Unreferenced JPEG Picture (B): Ilimi, Relief-Wood, 91cm X 58cm, 2002, Ifeanyichiukwu Asogwa, Collection of the Artist.

There are two main classifications of style of work in sculpture: formalism and idealism. In formalism, form and material are defined, beautified or transformed in usage; whereas in idealism, form and material are suggested, symbolized or adapted in usage. Realism (championed by Michelangelo and Rodin), modernism-impressionism-cubism (promoted by Pablo Picasso, Henry Moore, and Ben Enwonwu), which emanated from Western or European civilization, are types of formalism; whereas expressionism, conceptualism or postmodernism (championed by Marcel Duchamp, Demas Nwoko, El Anatsui, Olu Oguibe, Jelili Atiku), which evolved from traditional African civilization, are aspects of idealism in sculpture. A person who specializes in or produces sculpture is known as a sculptor.

Homework (I): *Methods are many and materials and tools are uncountable in sculpture; discuss. Distinguish between the sculptures of Michelangelo and Rodin on one hand and Demas Nwoko and El Anatsui on the other hand; in terms of style, technique, tool and material of work.*

Class Work (A): *Produce four sculptures; two of which are designed with conventional materials and techniques, and the other two designed with unconventional materials and techniques or hybrid of them.*

Test (first): *Most art students are sceptical or reluctant over sculpture, believing that its materials and tools are expensive and its techniques are cumbersome; respond to this postulation.*

Basic Terminologies in Sculpture

The following are some of the special terms used in sculpture; being familiar with them enhances one's interaction ability in art (sculpture) academicism and practice. Please, memorize and use them in your interactions in arts.

Form: a tangible structure with three dimensional sensations in its artistic renderings
Found-form: a beautiful natural object or mechanical structure that is adoptable as a sculpture.
Marquette: a miniature, small model or sample of a planned sculpture or architectural work.
Full-figure: sculpture covering the whole human body, from head to toes.
Bust: sculpture covering human head and shoulders only
Torso: sculpture of the upper part of human body, not including the head and arms
Direct modelling: additive building in sculpture, using permanent or hard material like concrete

Armature: a framework (metal skeleton) that supports a sculpture while it is being modelled.
Butterfly: string or cord with crossed pebbles, pulling clay (feeder) to armature in modelling.
Direct casting: copying an existing form by completing it with permanent material without the use of mould; or, framing a void to a required form and filling it with molten of desired material.
Indirect casting: copying an existing form by first of all, building (and using) mould around it.
Mould: a container that gives a shape to molten or liquid substance poured into it to harden.
Piece mould: a mould with many segments for easy separation and used for mass-production.
Waste mould: a mould built with the intention of destroying it after a single cast.
Separator: a special device fixed on a form to partition it into removable parts during casting.
Key: a device or lock created to fasten or align two parts or pieces of mould during casting
Under-cut: sharp or angular depression on a body of sculpture, which challenges casting.
Reinforcement: metal aggregate added to concrete or molten substance during casting to increase its strength.
Mother mould: large piece of mould which contains other smaller ones, keeping them fixed in required positions during charging (casting).
Charging mould: feeding or filling a mould with dissolved or molten substance like concrete to copy out its impressions or images positively.
Chasing mould: knocking a charged mould to bring out its hardened content as positive cast.
Cure: a state of concrete absorbing enough water and air to reach the highest level of hardening.
Seasoning: a state of organic art material like wood to adapt or acclimatize to all weathers or climatic conditions around it.
Green-ware: a fresh and unfired clay-work.
Slurry: a watery or liquid mixture (water and clay), used in joining fresh/green clay-works.
Terra-cotta: a fired or baked clay-work.
Grog: mixture of particles of fired/baked clay and water, used in joining parts of terra-cotta.
Kiln: special oven used for firing clay works.
Furnace: an enclosure producing great heat, used in smelting metallic substances during casting.
Cire-perdue: a name for lost-wax technique of bronze casting.
Fiberglass: a special particle (fibre) of glass material used in casting out modelled forms.
Fountain: a sculpture constructed with a device which springs out water marvellously in an area.
POP (Plaster of Paris): special whitish granite like kaolin, used as feeder (flesh or body of work) in modelling and casting.
Callipers: an instrument used in measuring large portions to ensure good proportion in realistic or life sculptures.
Homework (II): *Explain any other 10 special sculpture-terms of your choice.*

Basic Forms in Sculpture

Basically, form can be defined as space enclosed when a line touches itself. There are two main types of form in sculpture: Organic Form (biomorphic or naturalistic form) and Inorganic Form (abstract or man-made form). Examples of organic forms are egg, leaf, fruit, bone, shell, leg, hand, and amoebic shapes. Examples of inorganic forms are square, rectangle, triangle, circle, semi-circle, and other geometric shapes. Forms are arranged to create a full structure but they can exist on themselves as complete sculptures.

Characteristics/Features of forms: Organic forms are flexible whereas inorganic forms are rigid in nature. So, in sculpting full natural structures like animal and plant lives, simple natural or organic forms are arranged but in making full abstract or man-made structures like box, computer, and car, simple geometric or inorganic forms are organized. As fine art is about exploration however, organic form can sometimes be mixed with inorganic ones in a single work like mask and semi-realistic figurations. Line, shape and form should be well defined in sculpture and their usage should follow the principles of design in order to be effective.

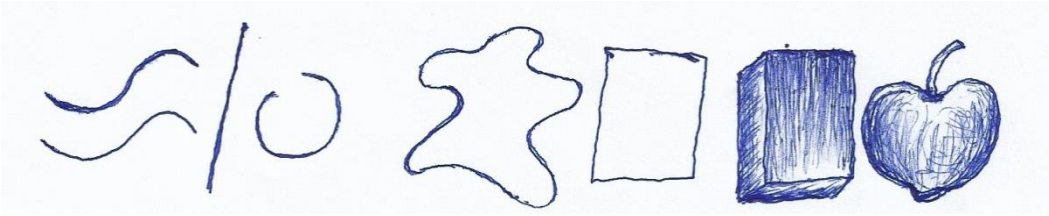

Figure 2: Line (Organic and Inorganic) Giving Rise to Shape and Form, Ink on Paper

Class work (B): *using clay modelling technique, produce five simple organic forms and five simple inorganic forms of your choice.*

Homework (III): *(a) In sculpture, full structure is produced by arrangement of basic forms; with the aid of a diagram or sculptural drawing, discuss this assertion. (b) Using not less than three simple forms, produce two relief sculptures and two round sculptures of your choice.*

Clay Modelling

In modelling object with clay as a medium, you need to ensure that the clay you use is aged, well kneaded and free from foreign bodies (non-clay pebbles like stone). If the intended work is a relief, you need a flat board or surface but if it is a round, an armature is needed onto which it will be laid. As the work progresses, you need to wet it and cover it with damp fabric and polyethylene to avoid cracking. A modelled clay-work can either be cast into other harder materials like plaster, concrete, and bronze or left to dry and be fired into terra-cotta. Unfired clay-work does not survive the length of time because it can easily break or soaked in water.

Class-work (C): *recall your effort in the last assignment and judging from your current experience, produce a round sculpture composed of not less than three organic forms and a relief sculpture composed of not less than five inorganic forms; using clay as a medium.*

Casting Exercise (Indirect Casting, Relief)

Materials required in simple relief casting include green-ware, cement, sand, water, lubricant, separator, head-pan, hand-trowel, and brush. The reason for casting in sculpture is to mass-produce or reproduce a form in another material with or without modification.

Stages of work in casting: Development/Selection of Form, Taking Mould, charging of mould, Chasing of Mould, and Coupling/Mounting of Casts.

Stage I; Development/Selection of Form: Develop or select a form (piece of sculpture) you would like to cast or copy out in other material. Get it well positioned on a flat surface (board) and block under-cuts in it; if any.

Stage II; Taking Mould: If the work is large and has depressions, partition it into separable portions, border lines being pegged out with light blades of clay, plastic or zinc materials, creating keys along the line. After that, the whole set up is carefully rubbed with lubricant like condemned engine-oil. Then, cement and sand aggregates are mixed with water to a desired ratio and consistency and laid in layers over all the portions of the work. The first concrete layer is more of cement than sand, and mixed light or watery whereas the last layer is mixed thicker and possibly reinforced. After about three days, when the composition has hardened, the segments are separated or the work is turned up-side-down and the original clay or material inside is carefully removed from the concrete coat known as the mould. The concrete mould, bearing the imprints of the clay work, is then washed carefully and set in open space to dry.

Stage III; Charging Mould: The clean dry-mould is rubbed with lubricant, condemned engine-oil, and molten concrete mixed hard with cement, sharp-sand and water, is poured into it. The pouring of the molten concrete could also be in layers and reinforced, depending on the size of the work. Most times, this pouring of the molten concrete into the mould (charging mould) is made to create a hollow all-through the work; making it more economical and shock-resistant than full-stuffed type. In one-way and simple pieced-mould, pieces are aligned and charged to realize the whole form together and this is aided by the keys provided in it but in complex work, pieces of mould are charged separately.

Charged mould (figure 3) is left unshaken and intermittently watered to set or harden for about three days before being chased.

Figure 3: Charged Mould of the Modelled Snake-As-Seat, Concrete, Abdu et al, 2017

Stage IV; Chasing or Separating Mould: After the charged mould hardens or sets properly, it is carefully chased or beaten off the positive charge. Although the oil lubricant applied on the mould before charging helps in making it not to stick onto the mould when harden, mould chasing is not an easy exercise, especially when the body of the work is rough and contains under-cuts. Waste-mould is usually broken during chasing, to bring out the positive charge safely. If the pieces of the mould were charged separately, each is chased carefully and the positive charge handled carefully as well for proper coupling.

Stage V; Coupling/Mounting of Work: After the positive charge has been chased, the pieces are coupled, aligned carefully and joined with slurry (watery concrete) or welded along their edges and left for a few days to harden and fix together. After the coupled work has joined properly (figure 4), it is dressed and mounted or fixed onto a fine stand or platform.

Figure 4: Snake as Seat, Modelled and Cast Concrete, 56cm x 78cm x 73cm, Abdu Muhammad et al, 2017, Sculpture Garden Umar Suleiman College of Education, Gashua, Yobe State, Nigeria

Test (second): *each student should cast the relief he/she produced in the last class-work, using cement/concrete and in not less than two pages, discuss in formal terms his/her experience/challenges.* It should be noted that there is also a kind of direct casting technique in which frame is constructed around a space and metal armature inserted into it before molten concrete, aluminium, or bronze is poured to fill it up. And when it solidifies, the frame is removed and the cast-shape, usually in slab form, stands out. Door/window lintel, pavement, and pillar of a concrete-house, culvert, flyover and

bridge are common areas in which direct-cast slabs are used. Plane sculpture forms are also created through direct-casting process.

Carving

In what way can a lump of material or a log be shaped or carved into a desired form? There are two main conditions of carving a material into sculpture; and these include **wet-carving** and **dry-carving**. Materials that can be carved into sculpture include: wood, bone, gourd (calabash), shell, stone, fruit/nut, ivory, piled or packed sand and wax which are mainly composed of plant and animal tissues that can be in either wet or dry state. Carving can be carried out on a piece of wood, for instance, when it is wet (when it retains water in its tissue) and when it is dry (when it has lost all the water in its tissue) but the results are not the same. Wet carving or carving wood that is wet, is softer than carving it dry, but the result of wet carving tends to shrink and distort as it dries. Although dry carving (figure 5) is harder to undertake, its effect or result remains undistorted by weather effects and insect attacks.

Figure 5: Ancestors' Conference, Wood and Tempera, 1995, El Anatsui. Retrieved Online, May 27, 2015, @ https://www.pinterest.com/pin/543668986243802921/

If you want your carved form in wood not to shrink or not to be attacked by insects, you should insist on using heart or core and not the sap of hard wood. In other words, you should scrap the sap (white area) before carving on the heart (brown area) of the wood; whether wet or dry. In this regard, it is important to note that there are two basic approaches to carving, especially in wood; direct approach and indirect approach. Under direct approach, artistic design is executed straight-away onto a piece of wood whereas under indirect approach, artistic design is first planned on a marquette of more flexible material like clay, POP, or wax and thereafter, transferring same onto a piece of wood, log, seen to be capable of accommodating it.

Environmental forces affect plant forms in diverse ways, causing some logs to be hollowed, curved, and even twisted in manners that could be highly creative that only a small touch could make it a great art (sculpture). When such a log is discovered, an artist (sculptor) conceives a touch that would complement it into an interesting art and execute it straight-way or directly onto it. There are also times when an artist would conceive an interesting design in his mind and plans it out in sketch and marquette before looking out for wood or other material he feels could best accommodate it; approaching the wood not directly with his conceived design but indirectly with a form (marquette). Whichever approach is followed, traditional design motifs in lines, and forms are incised or embossed on a carved object to enhance or enrich its artistic quality but meticulousness and over-decoration renders design ineffective (Heathcote, 1976; Anatsui, 1991).

It is also important to note that chain-saw, knife, and all bold-cutting tools are best used in wet carving whereas chisels and all intricate-cutting tools are best used in dry carving. So, tools designed for use in wet carving should not be used in dry carving and vice versa; for fear of improper effect.

Improper usage destroys tool in carving. It also leaves unwanted marks in a design; though, lost part can be reclaimed in carving. Broken part can be fixed and crack, and unwanted line sealed with glue and aggregates in carving.

Practical Work (1): *(a). Carve one walking stick and one monument in wood, for the use of a titled-man in your society. (b). Produce two relief sculptures (masks), each not less than five faces; one, using gourds (calabash) and the other, using wood as the chief medium.*

Construction

How can pieces of hard material be put together to create a desired form? Construction involves more diverse materials and work-techniques than all other methods of producing work in sculpture. It is a technique of cutting and joining of a given material to form a desired shape (see figure 6); and there are many materials that can be cut and joined. There are also many different ways of cutting and many different ways of joining these different materials available in construction. Materials with diverse makes and colours can also be used or mixed in one work.

Materials: Materials that can be used in construction include: paper, fabric, cane/wire, wood, metal, plastic, glass, grass/nut, and rock.

Figure 6: Horse, Wood Construction, Unreferenced Lecture Illustration Picture, 2011, Abulrazaq Yusuf, Federal College of Education (FCE), Zaria

Work-process: In the actual construction process, some of the materials like paper can be joined by gluing; others like wood can be joined by nailing; while others like metal is by welding. There are also laying/stringing for materials like rock/nut, sewing for fabric, weaving/tying for grass and cane, wire and plastic can be joined by soldering, and screwing for glass. It should be noted that some joining mechanisms are not suitable or workable in some materials and should not be practiced in such places. Wood, for instance, cannot be welded and glass cannot be nailed together. Only a joining mechanism that is compatible with a given material should be applied onto it.

Homework (IV): *In not less than one page, distinguish between carving and construction in sculpture.*

Practical Work (2)*: (a). Construct any three geometric shapes in the round; using paper. (b). Construct a mirror frame, using wood. (c). Construct a simple Gate and a Mobile Sculpture, using metal.*

Relief Sculpture

Relief sculpture can be realized through all the sculpture shaping methods discussed above: modelling, carving, casting, construction, adaptation/installation; and in any medium: wood, clay, bronze, concrete, wax, plaster, plastic, metal, stone, provided that it is relatively flat; emanating or projecting out of a flat background. There are two main types of relief sculpture: Low Relief and High Relief. Low relief is a type of relief which is down and close to its background whereas high relief is a relief that projects out of its background. High relief is also known as Bas-Relief.

In making relief sculpture, organic and/or inorganic forms could be arranged into organic, inorganic, or a combination of these, to create a shape or composition. Forms for relief sculpture could be arranged side-by-side (jamming), overlapping, or interlocking. There could be a combination of all these placement styles in a single design. It is important to stress that a form should not be completely isolated in a relief-sculpture design. In selecting or developing forms (motifs) for shaping sculpture,

be it relief or round, principles of design: proportion, balance, variety, repetition, rhythm/harmony, contrast, dominance, should be considered (Graham, 2005); although postmodern artists question and break such rules (Stokstad, 2008; Sullivan, 2010).

Homework (V): *Relief Sculpture is a bit different from, but related in many ways to Sculpture the Round. In not less than two pages, discuss this assertion.*

Class Work (D): *(1) Compose not less than three organic forms into a relief sculpture. (2) Compose not less than three inorganic forms into a relief sculpture. (3) Compose a mixture of not less than five organic and inorganic forms into a relief sculpture.*

Life Sculpture

How can human or animal form be sculpted so that the natural dispositions and locations of all the organs are realized and the mood and gestures, semblance or the physical resemblance of it captured? In sculpture, life sculpture refers to the sculpture of human and animal beings. It is a kind of sculpture in which body formations or parts of human or animal beings are represented as naturally as the real one. It is important to note that human being is specifically known or referred to as figure in sculpture and painting. For accurate and proportionate body parts to be achieved in figure sculpture, sculptors and sculpture students embark on a study of the anatomy of the human body.

Anatomy of the human body refers to a careful study of human body parts or structures and their relationships. In it, head, neck, chest, hands, belly, waist, legs, fingers and toes are considered in close relationship; marking the position and structure of each, both in skeleton and muscle forms. In the anatomy of human body, the head is usually used as the standard of measurement. In an average adult, according to Graham (2005), the body height is believed to be seven and half (71/2) times the head and the chest's width is two (2) times the head. Good relationship also exists among the organs of the head. A close observation shows that an imaginary line passes horizontally, through the eye-lid, dividing the head asymmetrically into two parts and another one passes vertically on the tip of the nose, dividing the head symmetrically into two parts. Thus, the positions of the eyes, ears, nose, and mouth are systematically allocated on every head (see figures 7).

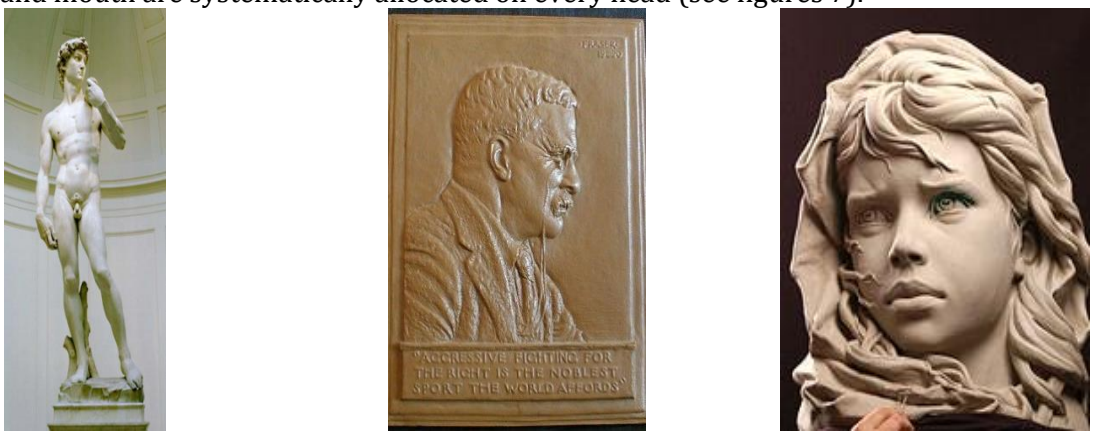

Figure 7(A): David (Full Figure), Concrete (B): Male Bust, Bronze (C): Female Bust, Clay; Unreferenced Lecture Illustration Pictures, 2011, Abulrazaq Yusuf, FCE, Zaria

It should be noted that this standard measurement or relationship between the head and body-height, as related above, is not applicable to children and abnormal adults. The frequency is less in children as their heads are proportionally bigger than their body-heights. In fact, the younger a baby is, the bigger his head, when compared with the rest of the body-parts. Anatomically, differences also exist between the structures and sizes of the body-parts of the male and female figures. Males' body-structures are usually more angular and broader than those of the female, which are usually sloppy and tender. This way, a good life-sculpture, male or female, can be realized in bust or full, through modelling and casting, direct-cement modelling, carving or construction, capturing resemblance. What is your fear in undertaking life-sculpture assignment? Practice makes perfect.

Practical Work (3)*: Produce a bust of a male figure, not less than two feet height, using clay.*

Direct Cement Modelling

The basic question for this topic is, how can good details be achieved and resemblance captured when natural forms are modelled direct in permanent materials like cement and plaster instead of casting them from clay? There are times when a sculptor chooses to model a given form directly or straight-way with cement (see figure 8). In this case, he becomes careful and prudent or economical with his materials and tools, applying mortar-cement direct onto the armature until the desired details, in terms of shape and texture, are achieved and the work is completed.

Figure 8: The Visiting Bird; Concrete; 6.8 ft height, 1989; Cephas Alkali; Sculpture Garden, Umar Suleiman College of Education, Gashua.

In direct cement modelling, the armature is stocked with paper and tied with iron-mesh properly, before cement is mixed and applied in stages. In the first stage, cement is mixed hard and watery so as to penetrate and cling onto all the metals (mesh and armature) properly; touching all the sides and providing the basic structure for the work. After this first layer, the work is left untouched for some times for the applied cement to harden before another layer is laid. Other layers are mixed and applied in bits, to develop contours and other details, forms or parts that make up the body of the work. Usually, the last layer is mixed smooth, free from pebbles, and rubbed all over, to create sensation of consistency, if necessary. Another advantage of direct cement modelling over casting is that work can be executed directly on the site, permanent location, without the trouble of lifting, coupling, mounting, and reclaiming of a finished work.

Homework (VI): *Distinguish between direct-cement modelling and modelling/casting techniques.*

Practical Work (4)*: Produce a full-figure of a female, using direct-cement modelling technique.*

Welding (Welded Sculpture)

How can pieces of metal be welded into a desired form without falling apart? In sculpture, welding can be described as a means of construction which fuses metallic materials by heating. It is a process of joining together pieces or parts of metals in construction, by heating and melting the touching ends to flow into each other and fuse together. There are two mechanisms of welding used in sculpture: **arch-welding** and **oxyacetylene**. In arch-welding, arch-welding machine, with electrode, is used whereas in oxyacetylene, a mixture of oxygen and acetylene is used to produce fire that cuts and welds metal. Whichever is the case, face-mask, hand glove, and welding rod are the most common equipment used in welding whereas cutter, hammer, grinder, pliers, paint, and brush are the common tools used in it. It is important to note that welded works are painted, not only for it to be fanciful but also for the rusting and corroding qualities of the metal to be checked or prevented. All metal

sculptures, including wrought-iron, usually pass through welding, using the equipment, tools and treatments as provided.

Figure 9(A): Welded Figures, 2008, Johan P. Jonsson. (B): Crowing Cock, Food Cutleries, Artist Unknown; Retrieved Online @ http://www.artmetal.com/tags/junk_sculpture, 26/08/2014

Homework (VII): *write a short note on wrought-iron. Practical Work (5): Weld not more than five metal scraps or junks into a good sculpture piece.*

Advanced Adaptation

Adaptation of natural objects or found forms as sculpture has been with mankind for a long time and it is continuous. It has taken many different approaches and names like ceramic-sculpture, assemblage, installation and performance with only a slight difference in their dispositions; but it all started as adaptation or appropriation of unconventional materials into artistic design.

Adaptation and Ceramic-Sculpture: In what way can a ceramic-work become a sculpture? There is a good relationship between ceramics and sculpture, especially in their dealings with three-dimensional forms. While sculpture mainly places aesthetics over function in its creation of forms, ceramics places function over aesthetics in its own creations. As artworks, ceramic-forms are usually beautiful to the extent that any small alteration on its functional quality, converts it to sculpture piece. So, ceramic-forms that somehow lose their functional qualities are simply considered in their aesthetic values and adapted as sculptures. These products of interdisciplinary romance between ceramic and sculpture became known as ceramic-sculptures. In such pieces, ceramic identities are clearly visible in their structures, even though they function aesthetically as sculptures. Ceramic-sculpture is widely seen as bearing good characteristics of postmodernist art, which borrows from past tribal experiences (World Bank Education Programme, 2015). This is so because in ancient cultures, especially in the traditional African society, evident in Igbo-Ukwu, Ife, and Nok cultures, ceramics were not separated from sculptures; irrespective of the material and process of production. No doubt, ceramic-sculpture gives rise to intriguingly expressive forms that are appreciated by most art lovers all over the world.

It is important to note that in describing any artwork as ceramic-sculpture, it must wear the specific characteristic feature of ceramics; which is function-specific structure. In the first place, it has to be a pot, cup, bowl, tile or insulator material; process of work not-with-standing. Normally, ceramic-sculpture is produced through two main ways:

1. Accidentally or deliberately, tampering with the functional structure of a ceramic ware, to enhance its aesthetic value.

2. Imposition of a specific functional ceramic structure on part of a sculpture piece, through the same accidental or deliberate process.

So, ceramic-sculpture is either a sculpturally enhanced ceramic or a ceramic-ally enhanced sculpture. It is not, therefore, the use of clay as a medium or a piece being thrown on wheel; neither is it by firing nor glazing a work that makes it a ceramic. Clay medium and most of the working techniques used in the production of ceramic wares, are also employed in other disciplines, including sculpture and engineering. So, in evaluating the ceramic-ness of a ceramic-sculpture, it is the structure rather than clay medium, firing and glazing of a piece that matters.

Depressed Bowl (Figure 10), for instance, was initially structured as a bowl but this original structure was later distorted by accidental or deliberate forces, which pressed-in some of its parts. This distortion, made the bowl lose the ability to serve its normal ceramic function adequately, but the inter-play of concave and convex forms, makes it highly interesting aesthetically; and it was when the designer realized the strength of aesthetic appeal in it that he adapted it as a sculpture.

Figure 10: Modern Ceramic-Sculpture, Depressed Bowl, Artist unknown, zeospot.com

Some ceramic-sculptures can also be complex; involving more rigorous manipulations than the simple depression of parts; in any case, ceramic features are still clearly visible on them. For instance, Chris Echeta's Politician I (Figure 11) is a composition of figures carved out of earthen-pots.

Figure 11: Politician I, Terra-cotta Pieces, Chris Echeta

Ceramics and Sculpture have a lot in common and should continue to relate but when the two meet to share ideology, be it accomplished from a monolithic frame, the signature of each should stand clear and no one be completely overshadowed by the other.

Practical Work (6)*: Produce a work, not less than 45cm height, which would be regarded as a ceramic-sculpture*

Adaptation and Assemblage: How can waste or discarded materials be arranged or assembled into sculpture? Assemblage first started as forms of improvisation and recycling of solid waste. At a stage, managing solid waste attracted good attention in sculpture. So, in 1965, Hans Haacke developed kinetic and installation sculptures in which waste objects were mainly used to question distortion of cultural issues by modern institutions. Many other artists have since followed up in dedicating artworks to alert people of waste inclinations in our environment (Norris, 2011). El Anatsui, Jerry Buhari, Ayo Adeneke, Lasisi Lamidi, Eze Ngene, Blaise Gundu, Abdul-Rasaq Yusuf, Erasmus Onyishi, Evarestus Obodo, Kelechi Ngwu, and Ozioma Onuzulike are among the popular installation/assemblage artists in Nigeria.

Unfortunately, the way artists in Nigeria have responded to the calls for involving art in waste management, is the recycling approach. They simply peep through a waste dump and select only the items that are suitable to their concepts. As such, less than one percent of waste generated in Nigeria, would be utilized in art. So if art should make any significant impact in waste management in Nigeria, a more encompassing approach, which is recovery and collaborative in ramifications, should be adopted in it. In figure 12, pieces of electronic gadgets were assembled into a life-size elephant. Presently, there is even an international organization of artists, encouraging waste-to-wealth (use of waste materials in artistic production), among artists and art students.

Figure 12: Elephant, Discarded Electronics, Unreferenced Lecture Illustration Picture, 2011, Abdulrazaq Yusuf, FCE, Zaria

Practical Work (7)*: Assemble not more than 10 discarded materials into an animal form.*

Adaptation and Installation: In what way can pieces of material-culture of a society be placed or put together to emotionally capture a popular social condition of its people? At this stage of postmodernism, adaptation has gone back to installation of the traditional African art style. In postmodernist installation, elements of burning social issues, especially eroding cultural practices, are utilized in artistic design, to elicit public discourse for possible reconciliation. Specifically, installation is a kind of conceptual art style, in which, familiar objects are idealistically put in strange ways or designated as arts, to extract reaction from the observers. Postmodernist installation is synonymous with appropriation of readymade material as sculpture. Marcel Duchamp laid its foundation when, in 1913, he presented a urinal pipe (figure 13) to a jury, as his sculpture. Basically, it deals with perception and conception (Whitehand, 2009), adapting elements of a worrisome development in a society, in creating artworks, which can draw public attention and stimulate discourse. In its design, artists tend to collaborate with people that bear the characteristics of a worrisome development; incorporating them physically or employing their images to complement a work; putting premium on idea over medium and technique.

Figure 13: Fountain, urinal pipe, 1917, Marcel Duchamp, Photograph by Alfred Steiglitz

Rooted in traditional African artistic ideology, installation is usually sight-specific in nature and it has great potentials in contemporary artistic expression, as it is increasingly being recycled in postmodernist art practice. Figure 14, for instance, is an installation in which Myeongbeom Kim, emotionally considered the changes taking place in his Korean village and simply hung a chair on a tree, symbolizing total transversal of peoples' norms. In 1996, El Anatsui (figure 15) highlighted dehumanization and in 2006, Anthony Gormley (figure 16) interrogated wastefulness of man in their societies. It should be noted that camera is an inevitable instrument in installation as ephemeral, intangible, and unmovable objects or materials serve as artistic media and pictures are the only recorded products and exhibits in it. Is installation different from assemblage?

Figure 14: Live installations, Wooden Chair on Tree, 2006, Myeongbeom Kim, Retrieved Online, 04/03/2014, from http://creoflick.net/creo/Installation-art-1114

Figure 15: Akua's Surviving Children, Wood and metal Installation, 65 inches, 1996, El Anatsui, Collection of the artist and October Gallery, London. Photo: Andy Keate, Courtesy the artist and Jack Shainman Gallery, New York.

Figure 16: Waste Man, Furniture Junks, 2006, Anthony Gormley, Online, 2010

In assemblage, related materials are arranged into a form that is quite comprehendible whereas in installation, unrelated materials are placed together, requiring deeper thoughts for observers to comprehend or generate meaning from it. In recent times, a kind of performance in which human body is presented direct as an art (sculpture) started developing out of installation. Figure 17 is a performance-installation art in which the artist puts himself as a ram (Rago) for sale in a market.

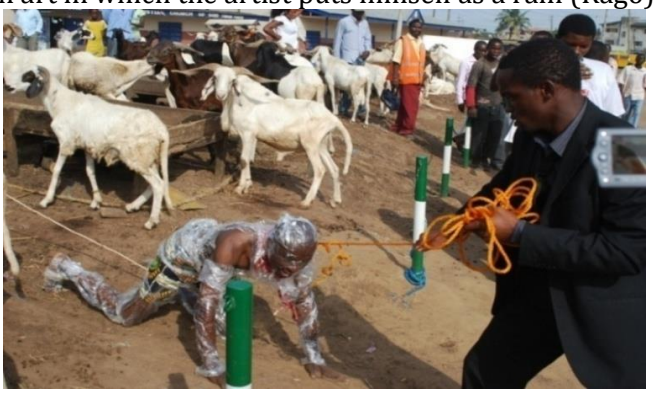

Figure 17: Agbo Rago, Human Body as Ram, Cattle Market, Lagos, 2009, Jelili Atiku

Practical Work (8)*: Using not more than five pieces of her material-culture, create an installation to capture the present economic or political realities of Nigeria and her people.*

Assessment of Sculpture: *Where practical and theory are taught together as a single course, mark should be distributed at the ratio of 60: 40 respectively. For theoretical knowledge in sculpture, assessment should follow both essay and objective questions individually set and marked by the course lecturer. For practical works however, assessment should follow a critique in which both experienced staff and students analyse the exhibits.*

Conclusion

Flesh has been fairly given to concepts which constitute the contents of Theory of Sculpture in high institutions in Nigeria. Work-methods, techniques, and processes, as well as work-materials, equipment, tools and terminologies as used in contemporary sculpture practices have been enlisted and explained by a practitioner. Rules and regulations guiding production of sculpture and the tendencies of the postmodernists to undermine them and return to the basis, are also outlined. Live-pictures are used in illustrations made and questions well spread to cover all the three domains (cognitive, affective, and psychomotor) of learning, are set alongside to frame and evaluate understanding. Though confidential, in three colleges of education and one university in diverse

locations of Nigeria where this manual has been used in teaching, the interest, attitude and performance of staff and students in Theory of Sculpture were significantly revitalized. Theory of Sculpture has, in this manual, been simplified and interest in its teaching and learning restored.

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