Production of Nigeria Mannequins for Fashion Display and Sculpture

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Abstract

The Nigerian fashion industry generally depends on expensive imported Western-styled mannequins that do not in any way complement our natural physique and our cultural dress forms. This is most unfortunate since there are enough trained sculptors and an abundance of materials that can be utilized in producing befitting beautiful and cheaper mannequins. This research not only shows the production procedure of sawdust-reinforced-plastic mannequins: supplementing fibre matt with wood sawdust, it asserts Nigeria's socio-cultural identity and at the same time expanding the job market for our sculptors. The study equally finds a good use for the abundant sawdust that was considered an environmental waste and health hazard. The research is a product of both literary and studio efforts utilizing information from primary and secondary sources, personal interviews and extensive studio work involving posing, sketching, modeling, mould making, casting and painting. Meeting the expectations of those in the fashion industry, performance art and film industry, of having mannequins with appropriate physique for their purposes. And the discovery that sawdust actually makes the mannequins stronger and cheaper are gladdening justifications for this experiment. This project is expected to immensely influence the hitherto skewed mentality of some Nigerians in favour of Western acculturation and inversely stimulate further experimentations in favour of our own natural endowments, styles, skills and productions not only in arts, fashion and culture, but even in the other areas such as pharmacy, medicine, cosmetics, architecture, science, agriculture, economics, education, music, religion and politics.

Keywords: Mannequins, Fashion Display, Sculpture, Experimentation, Environmental

Introduction

A mannequin also known as manikin, mannequin, human dummy or lay figure is an articulated human dummy made by artists for use by tailors, boutiques, fashion centres, medical, nursing and red cross training centres, aeronautic/pilot training centres, flying schools, driving schools, film industries, automotive industries and military schools. Daniels (2004:1) in describing the fashion mannequin (which of course is the primary focus of this project) aptly maintains that:

the mannequin which of course is pronounced manikin is a life-size full or partial representation of the human body used for fitting and displaying clothes. It can also be a jointed model of the human form used by artists to demonstrate drapery. In both cases it can also be called model, dummy or lay figure.

The etymology of the word mannequin is of French origin, meaning little man or figurine. It also has a Middle Dutch origin "mannequin" meaning little person or dwarf. But in modern Dutch it refers to an artist's jointed model. This Dutch word was first recorded in 1570 and it eventually metamorphosed into manikin while the French version eventually gave birth to the English mannequin. Fashion mannequins are lifeless models of the human male or female figure sculpted realistically or with little stylizations and used to display and advertize clothing and other fashion items. Even life fashion models are sometimes called life mannequins.

Historically, the origin of mannequins could be traced to the development of scarecrows. Early men were mostly farmers and hunters. These early vocations faced some major challenges. The hunters needed to use baits to attract some animals to their traps while the farmers needed to make some man-look-alikes to scare some animals that ravaged their crops. The early man then devised some human-like dummies on their farmlands.

These scary-looking figures whether standing, stooping, sitting or perching on tree branches are called scarecrows. The scarecrow was also the first human dummy (mannequin) made by man, though unlike the mannequin in concept, it was meant to scare and not to attract. Brown (2007: 870) describes it thus: A scarecrow is essentially a decoy, though traditionally a human figure (or mannequin) dressed in old clothes and placed in fields by farmers to discourage birds such as crows or sparrows from disturbing and feeding on recently cast seeds and growing crops. For more than 3,000 years farmers have been making scarecrows. The making of scarecrows has continued amongst the nations of the world till this day, though their outlook, make-up and contraptions vary according to the materials available in a given community at the time of production. Their materials range from sticks, fruits, old bones/skulls, straws, raffia, leaves, gourds, to old clothes, rags, metals and even automated devices. These ancient mannequins called scarecrows actually helped to give birth to the art of making mannequins that have remained with us for decades now.

Over the years, scarecrows transformed into various types of mannequins, notable among them is the fashion mannequin. The earliest recorded fashion mannequin was the life-like dress form wooden torso discovered when King Tutankhamen's tomb was opened in 1922. This must have been created to the king's measurement so that the king's dress makers and tailors would not have to come to the king for measurements. Life-like torsos of kings and Queens were made in ancient times for use as body forms for hanging, displaying and measurement purposes so as to prevent any royal embarrassment to their majesties by tailors and dress makers (McCallister 2010).

According to Daniels (2004) in *The History of Mannequins;* the making of mannequins may be traced to as early as 1350 B.C. Documented history suggests that fashion dolls were already around during the 1300s. They continued to be used in spreading "latest fashion" until the 1700s.The French fashion dolls carved in wood and passed as catalogues from one designer, royalty or ordinary relation or customer to the other even across distant lands eventually gave way to fashion journals and catalogues by the end of the 18th century and then full-figured life-size mannequins.

As the fashion catalogue was coming on the heels of fashion dolls, dressmakers still had to rely on their assistants to model their designs when their customers came to order or collect their wears. The need to relieve these assistants of the stress of intermittently abandoning their sewing work to model dresses led to the creation of the wickerwork mannequin. Ribeiro (1984:14) states that "the wickerwork dummy was made by weaving sticks in the manner of cane chairs or baskets to create life-size human figures without arms and head" .Then came the wirework mannequins which were very much like the wickerwork in size and craft but replaced canes and sticks with metal wire. It still had iron feet because it couldn't stand erect without them. The network of wires of this contraption was not as basket-like and as multiple as the wickerwork because these metal wires were stronger than the sticks. These two mannequin experiments didn't appeal much to dressmakers and the general public because they lacked 'skin', hands and heads. They were too heavy, not adjustable, not portable, lacked motion, life and any convincing resemblance to the real human figure.

The Industrial Revolution of the late 1880s ushered in life-size full figure mannequins. In 1868 the plate glass was invented in the U.S and within fifteen years of this invention, plate glass windows were installed in shops. In 1879 the filament lamp was invented, then shop and street lights were born. The sewing machine was invented just before this period and mass production of dresses had begun with dressmakers now needing more space to display and store their works. Some notable wax mannequin makers then were the Jacobson Bros (British), Pierce Imans (Paris) French Wax Figure Co of Milwaukee and O.H. Stubergh of San Francisco.

These dummies were made of wax and so they were heavy and melted under heat of the sun or the filament light. They had iron-reinforced legs, false enamel teeth, real hair and glass eyes. To give them realistic shape, their heads and some parts of the body were sculpted with papier-mâché and sawdust.

Because the wax models had papier marché head that were so realistically treated with glass eyes, enamel teeth, real hair and body colours, and they resisted heat effects; they pointed the way to an all-papier-marché mannequin with internal metal reinforcement. The Art Deco movement of the mid 1920s influenced the production of more animated facial expressions in mannequins. The models often had mannerist-like elongated necks. Siegel and Stockman of Paris introduced and popularized these abstract mannequins from 1925 to the late 1920s. These Papier marché models weighed about 100 pounds less than wax models, they were also heat resistant, and they better reflected the slim female form in vogue. The main disadvantages of papier-marché mannequins included shrinking when dry and dissolving when they got wet.

During the Depression of the 1930s an Austrian dollmaker-turned-mannequin sculptor Kathe Kruse devised a metal skeleton which he covered with a skin-like material. This gave him a mannequin that could be

adjusted to pose in a variety of positions that were not possible with the other mannequins. A combination of all the aforementioned mannequins; (1) the Scarecrow, (2) the Dressmaker Form (3) the Artist's models (both life and still jointed draped wooden pieces) (4) the French fashion dolls (5) the Wax sculpture (6) the Papier-mâché and (7) the skin-covered metal mannequins gave birth to the more realistic, life-like Plaster of Paris (P.O.P) and fiber glass mannequins known today.

The Plaster of Paris mannequins followed in the 1930s with soap sculptor Lester Gaba introducing Plaster of Paris, thus greatly reducing the weight of these life-size mannequins as well as giving them smoother finish. However, "the 1950s mannequins moved from brittle, breakable plaster to rugged fiber glass and plastic. They have become pop art" (McCallister, 2010:7). In the 1980s they became more physical, taking on running, leaping, reclining, bending over and other very dynamic poses and they still had Western physique. Mannequins now come whole, headless, armless, back-less, stand on one leg, even have legs without torso, in any colour, done in any material and in any form of abstraction.

The Nigerian performance artist Jelili Atiku in some of his various performances of 'In the Red' could have effectively used a mannequin in place of himself, in his "Political Assassination" exhibition at the Lagos State House of Assembly, where he was wrapped in mug-smeared clothes and the national flag, and he had to lie motionless on the stage for about three hours (Tijani & Olakitam, 2011). This sawdust and resin application can also be modified and extended in many other useful ways for decorative and utilitarian productions. The world renowned Serbian performance artist, Marina Abramovic, the West German Uwe Laysiepen, Lyn Hagan, Yves Klein, Chris Burden and others could have conveniently employed mannequins in some of their shows that indulged so much pain, harm, obscenity and stress that they elicited public outrage and intervention. These mannequins are readily adaptable to genres of installation art and art performance both of which are aspects of post-modernist conceptualism. In view of the general criticism and outrage from anti-cruelty and anti-obscenity organizations worldwide, mannequins and even robots are gradually being introduced in place of man and animals in some art performance exhibitions. Baby mannequins are being used in place of real babies while animal dummies are being used in place of real animals. Because mannequins are usually light in weight, sculptors are now beginning to employ them in an unlimited variety of creative manipulations.

The use of modern day fashion dummies or mannequins in Nigeria dates back to the pre-independence era in the early 1950s. The Leventis brothers from Cyprus who started their business in 1937 diversified into textiles, department stores and home appliances, introduced the use of mannequins in their window displays to attract customers to their wares and goods (Leventis Group, 2010). Emphasizing the functions of these mannequins, Helle, et al (2001:10) states that these were obviously not just any old sticks of polished wood on which to hang average schemata; these paragons of fashion were conceived, studied, designed and sculptured to sell garments, not just to show them.

Over the years creating art works just for art sake in Nigeria has not really proved very effective in enriching the economy of the average Nigerian sculptor. Even in traditional times, works of sculpture have always had their socio-cultural and utilitarian applications. In view of the need to reemphasize functionalism in sculpture, the researcher has chosen to solve the problem of our dependence on the use of imported, expensive and unbefitting sculptural mannequins in the fashion and art industries in Nigeria. In response also to the global waste recycling call, this project attempts to reduce the problem of environmental waste hazards by employing sawdust in the production of Nigerian made mannequins.

Objectives of the study

i. To promote functional aesthetics through the production of sculptural mannequins.
ii. To promote a wider horizon of patronage of sculpture.
iii. To provide the Nigerian fashion world with mannequins that have our appropriate human forms and contours to suitably display and portray our fashion.
iv. To curtail environmental waste hazards by recycling sawdust in the production of cheaper and stronger mannequins.
v. To discourage the propagation of Western ideology of 'slim beauty' and fashion among our people.
vi. To promote the application of mannequins in art performance to curtail physical and emotional hazards to artists and animals as well as curtail the attendant public outrage.

Literature Review

Not much literature exist on Nigerian mannequins, the very subject matter of this study; but actually, quite a reasonable number of books and journal publications abound on the integral and related topics of African arts and culture, mannequins in general, mannequins production materials, equipment and processes. Many works also exist in the areas of sculpture, advertising, self-employment, African black consciousness and African pride; Nigerian nationalism, Nigerian socio-cultural setting and philosophy. Other contributory writings consulted include books on global recession, entrepreneurship, figure modeling and fiberglass casting techniques.

Apart from these books, quite a number of published articles in journals, newspapers and magazines, as well as conference and seminar/workshop papers have been consulted in the aforementioned literary categories of this project. These various literatures have contributed in enriching the content and depth of this research. Interviews held with fashion designers/tailors, boutique merchants and their clients also helped a long way in convincing the researcher of the need to replace the existing mannequins with structurally Nigerianized versions. Art encyclopedias, the Wikipedia and the internet were of immense help in locating books and articles on mannequins. Since mannequins are generally imported, books and articles/write ups on them usually originate abroad, and the internet has been very useful in locating such writings and related visuals.

Ola and d'Aulaire, E (1991:2) in the work: *History of Mannequins- from King Tut's Tomb to The 21st Century*, documented the ancient history of mannequins and how they have fascinated mankind over the years. They are strongly of the opinion that mannequin has an Egyptian origin and that it inspired the use of mannequins among kings, since their tailors could not come close to them to take their actual measurements. They aver that:

> Mannequins have fascinated mankind for centuries. Indeed these glorified coat hangers have a genealogy that goes back to ancient times. When Howard Carter opened king Tut's tomb in 1923 he discovered an armless, legless, wooden torso, made exactly to the Pharaoh's measurement, standing next to the chest that held the ruler's clothing. Dating from 1350 B.C. it may have been the world's first dress form. Nero's wife had an inanimate surrogate modeled in her own image to help her review her clothing choice.

Ola and d'Aulaire's work is very relevant to this research because it has helped to reinforce the fact that Egypt is the foundation of world civilization. Also writing on the historical origin of the mannequin Davis (1999:7) in his *Mannequin Defined*, attempts at establishing the contemporary use of mannequin and he pointed to France as the most important centre of mannequin production since 18th century. Davis states that:

> In the 18th century, France was the fashion capital of the world because the tradition of handing fashion dolls from household to household to copy design and styles which had been on since the 14th century took an international dimension. These dolls which measured about 12 inches to half life-size were sent abroad to their kits in other cities and countries to copy what fashion that was in vogue in France

These French fashion dolls which were carved in wood and passed as catalogues from one designer, royalty or ordinary relation/customer to the other even across distant lands were the progenitors of the modern mannequins.

Reberio (1984) in his *Dress in 18th Century Europe* concentrates on the various materials used in mannequin production. He is of the opinion that in man's effort to develop a better mannequin than the French dolls, the wickerwork and wirework mannequins were developed. Rebeiro (1984:14) vividly describes the wickerwork thus:

> This dummy was made from little sticks woven in basket-like manner but in the shape and size of a full grown human, though without arms and head. The lower legs were made in iron so as to keep the dummy upright. These mannequins which were then filled with stuffing and leather were in use about 1790-1820 but never gained much general appeal.

Considering how long mankind had used these mannequins and how humans still respond to them now, it becomes obvious that mannequins shall ever continue to live with us. Observing the eternal obsession of the society with human figure in whatever form, Horbes (1980:129) in *Art in Context* maintains that "The human figure has always been a very popular subject in art, which should not be surprising. After all, what could be more interesting to us than ourselves?"

Nigeria is a multi-ethnic society with an appreciable fusion of different histo-cultural set ups. Fortunately, these various ethno-religious and cultural settings as expressed through language, religion, art, dance, fashion,

music, theatre and architecture seem to have many meeting points in their artistic entertainment and expressive values and contents.

Sculpture was evidently the most practical and the most popular of all the traditional Nigerian arts. The arts of wood and ivory carving, stone carving, clay modeling, metal casting (mostly bronze) were so widespread among traditional Nigerian communities and so advanced that today every discourse on Nigerian traditional art would seem to centre mostly on sculpture. The sculptor then produced objects of spiritual/religious significance as well as symbols of kingship, title, affluence and heroism. The religious, socio-economic and the cultural settings were of course different from what they are today in this era of globalization. However the artist retains his role as a social commentator of his era as Oloidi (1987:7) points out in El Anatsui's exhibition catalogue titled *Instructural Messages*:

The artist has perceived, experienced and deliberated on various inhuman and anti- social experiences of his society. And without being negative he senses possible declivity…therefore using his works to light the dark sides of life and manure the unfertilized areas of the African landscape.

Some twenty years after Oloidi's above comment, Okafor-Izunna (2007:7) echoes the sculptor's role in every society in another exhibition brochure "REFLECTION"Beyond utility and aesthetics, art has other functions it plays in the society. It is also used to chronicle events and address sociological concerns in the society.

Describing the fusion of form and content in modern African art, and maintaining the role of the artist in questioning, challenging, doubting and seeking answers to questions on our history and present conditions, Aniakor (2005:15) in *Relative Essays in Art and Art History* avers that: The creative African art practitioner is first and foremost interested in producing works of intense visual effect. But he or she is simultaneously concerned with moral issues about the social condition of man in the society.

On mould making and casting with particular reference to the materials, equipment, tools, procedures, safety measures and techniques of casting fiberglass works from concrete, plaster of Paris, rubber and even fiber glass moulds; Dawson (1968) and Brooks (2005) have been most useful. However, not much has been done or written on how to employ sawdust in fiber glass/resin sculptural production. This project is being presented to the Faculty of Environmental Science and as such there is great need for the researcher to thoroughly understand the environmental hazards that saw dust constitutes in our society with their attendant health problems.

This project seeks to help curb this menace by employing this sawdust in the production of mannequins. Warning about sawdust hazards and their subsequent health problems, Fink, (1990) and McCannet et-al (1998) both stress the need to keep sawdust off our homes and streets while equally enumerating some safety measures to observe while dealing and working with sawdust. Contributing further, the Canadian Geographic Online (2011: para11) affirms that apart from littering our environment and affecting our health, it (sawdust) is inflammable, adds harmful leachates into local water systems, and is toxic to a broad range of organisms.

Writing on the uses to which sawdust could be put; Kane (2011) mentions: "serving as fuel, mulch, cat litter, clay substitute, spill control and in the production of pykretes and particle board". All these are in addition to its various creative applications in painting and sculpture as manipulated by various artists. This project is trying to broaden the frontier of sawdust application in sculptural production because it is very cheap and readily available, this would help to curb its obvious menace to our environment and wellbeing.

The Mannequin Production Processes

The production of mannequins as demonstrated in this project involves some basic materials which require both manual and mechanical applications and processes just as in most other sculptural productions. The use of mechanized tools and equipment which are powered by electricity or generator makes for faster and easier production with better finish. After a mannequin sculptor has assembled the necessary materials and put the required tools and equipment in place, he would then have to consider the basic safety kits to guard against harm and hazards in the course of production.

Tools and Equipment

A number of tools and equipment are essential in the production of these mannequins such as: saw with blade for cutting the rods needed in making the metal armature for the clay or cement model, Hammer and anvil on a tripod for bending and beating the metal into shape, Vice for griping and shaping the iron rods, Tape for taking measurements, Calipers for measurements, Pliers for bending and binding of wires, Container for soaking clay, Pestle and mortar for pounding clay, Spatulas of various kinds for clay or cement modeling, Penknife for modeling, electric grinder with disc for cutting & filing, Welding machine for welding the armature and metal

stands, Sanding machine for sanding and smoothening of the moulds and the casts, Power generator, Digital camera for recording the body parts and their poses, Plastic bowls for mixing of chemicals, Pair of scissors for cutting fibre matt, Rasps and files for surface leveling, A pair of hand gloves and goggles, Brushes and sandpapers, Manual air compressor guns and Auto Air compressor for painting.

Materials

Modeling the figure in clay, making a Plaster of Paris mould and casting in fiberglass has always been a common choice of materials which the researcher very much advicse young sculptors to adopt. However, the researcher did not actually choose his materials in this order because of the exigencies surrounding the production of these mannequins. The time lag between a model's studio visit and her next was sometimes as much as three weeks. Considering the fact that I had about three models and that they would each pay up to six visits to the studio; each clay model would obviously have required an extended period of preservation and close monitoring.

Though P.O.P sets quickly as a mould maker, it is certainly not as strong and durable as mortar or fiberglass. The next best mould maker is fiberglass because it is equally strong, durable and very light in weight. The researcher did not in any way lose anything by making my moulds in fibreglass. The image registration was quite good; there were no missing details. The moulds are so strong that they can be used commercially for ten years if well handled. On the other hand, concrete produces heavy and massive moulds that cannot be hung at any corner of the studio. The commercial mass production advantage of using fiberglass moulds is one of the key points of this project; to provide our sculptors with a long lasting and steady source of income.

The most expensive casting material of the trio of clay, cement and fibre glass is of course fibre glass which consists of polyester resin, catalyst, calcium, accelerator and fibre matt. Of course the researcher's idea of aiding fibre matt with fine sawdust paid off very well in terms of saving cost on fibre matt and making the cast very strong. However, the inclusion of sawdust makes the mannequin a little heavier than usual. But the weight gained was not as much as the researcher had fearfully anticipated at the beginning of this project and is not of much consequence. The researcher had discovered that sawdust became heavy when soaked in resin, but it also lost about half that same weight once cured and dry. One other great benefit discovered by the researcher was that the mannequins made with sawdust do not yield to compression. Those made with only fibre matt usually compress and disfigure under heavy load or when pressure is applied on them. The sawdust now makes them stiff and unyielding. But it must be observed that with or without sawdust, mannequins whether Nigerian made or imported are still breakable. He also discovered that the sawdust made the casts take a little extra time to cure; which of course is an insignificant factor in the production process. These mannequins are easy to wash with soap and water whenever they get dirty.

Overall, all the following mannequins which are the products of this research are quite strong, portable, durable, beautiful and are making a bold socio-cultural statement which will hopefully reverberate in the other areas of our social, cultural and economic life.

Rods of 3/8, 1/4 and 1/8 Inch gauges are required for the construction of the armature of the figure and for reinforcement, Wire mesh to wrap around the rods to create mass, binding wire for binding the rods in place, Electrodes for welding the rods, Cement, sand and aggregate clay for modeling the original human figure, Surface separators like engine oil, soap jelly, petroleum jelly, mirror glaze, etc.

Metal sleeves for area separation, Unsaturated polyester resin which is the main material used in casting, Catalyst or hardener which quickens/hardens the resin compound, Accelerator which accelerates the quickening and curing process, Calcium carbonate powder which adds strength to the mixture, Sawdust which adds both strength and mass to the compound, Fibre matt to assist the sawdust in reinforcement, Auto body filler for filling holes and cracks in the cast, Primer for blinding the cast work before painting, Auto flex or acrylic paint for painting, Thinner for mixing the paint and Blinkers (eye lashes) and wigs.

Stages of Production

Stage 1. Conceptual Stage

The mannequin sculptor should first decide on the ideal height and size of his male and female mannequins based on the prevailing average height and size of adult males and females in his community. The lady's body statistics would read something like height: 5ft 9in, bust: 40in, shoulder 18in, thigh 26in, calf: 13in, hips: 44in and waist: 32in. After choosing an appropriate female model, it is always easy to choose a male

company for her who cannot be intimidated by the female's height and size. The artist chooses his human models based on these statistical guides. If the mannequin is for art performance, the sculptor should consider what the performer intends to portray in terms of sex, size, age and postures.

Stage 2: Sketching and Drawing

The chosen models often decline being photographed; the artist would rely much on drawing for details and reference when the model is not on pose. Another need for drawing is that it presents details better than photographs without disclosing the identity of the model.

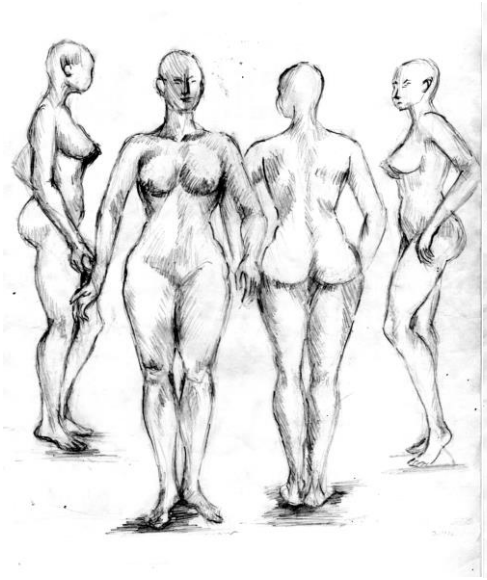

Fig. 1: *Nigerian Female Model Sketches*
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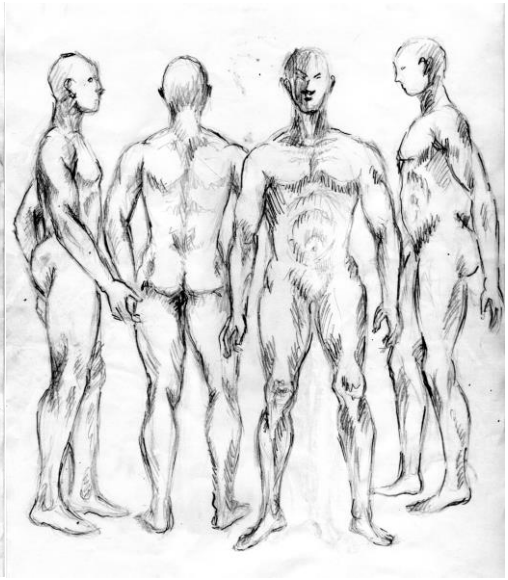

Fig. 2: Nigerian Male Model Sketches.
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Stage 3: Making the Armature

This involves using rods (3/8 and 1/4 rods) to form the skeleton of the model posed. The rods will form every major bone in the model and this contraption which is known as armature in sculpture is held together by means of binding wire and then welded to form a strong unit. Every measurement and pose of the armature will also correspond to that of the model leaving out just enough space for the flesh (clay or mortar) to fill up. This armature is then coated with wire gauze to give mass (flesh) to the skeletal metal structure. In doing this, the sculptor will always be guided by the measurements taken from the model. The wire gauze is often helped with some 'butterflies' made of pieces of word and metals in keeping the clay or mortar in place. Making the armature can take just about 5 days for one mannequin if electricity supply is steady.

Plate 5: *Making the Armature. Photo: Anyaegbunam L.U, 2012*

Stage 4: Modeling

This kind of modeling is not done in the open but within the confines of a protected studio to protect the identity of the model. In addition to clay, cement and plaster of Paris (P.O.P); Dawson(1968) recounts: some other modeling materials are plasticine, wax, (PVC) poly vinyl chloride, self-hardening clay like plastone, fire resistant pyruma and tiluma and plaster- impregnated gauze.

The modeling involves the use of the ordinary hands, spoon, knives, spatulas and a variety of other tools depending on which material the sculptor is using. This researcher of course chose to model in mortar; cement mixed with sand for ease of alteration and modification. Though clay remains the easiest modeling medium because of its very plastic and harmless nature, mortar is equally good in terms of plasticity and workability and is even preferred by some sculptors who don't want to bother about covering and preserving the work after each day's work. the researcher has personally chosen mortar in order to avoid daily preservative measures and it leaves a strong permanent master piece behind that can be put to some other future use. Modeling is done with the model posing intermittently and occasional references made to pictures and drawings as well as some anatomy books. Every body part of the model is measured with tapes and calipers to ensure that the statue corresponds to the model in statistics.

Plate 7: *Dismembered Concrete Master Figure for easy mould Making. Photos: The Researcher, 2012*

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Stage 5: Mould Making

The life modeling would have been over after some four weeks of studio work. The standing concrete model mannequin is now cut into different units; the head, top, waist, legs and arms so as to make for easy mould making and casting. Demarcation lines for easy two-piece moulds are made along points of separation of the moulds of the various body parts. The essence of this is to avoid undercuts and make for several more casts. Along these parting lines, the area separator will be applied. This separator can be ordinary wax or clay built like a thin wall of about ½ inch thick and 3 inches high. It can also be in the form of slim sheets of zinc or brass called shims inserted into the master if it was modeled in clay; all aimed at preventing the enveloping mould material from going round and entrapping the master clay or cement image. The next thing is the application of a release agent or surface separator all over the surface of the concrete model as well as on the area separator (clay or zinc). This release agent like soap jelly, petroleum jelly, engine oil or the industrial mirror glaze will be applied with the aid of a soft brush or foam.

A proportional volume of resin is mixed with some accelerator, catalyst and calcium and applied on the body part that has already been covered with a thin layer of fibre matt. This application which is made with a bold brush is repeated after another layer of thick fibre matt (full gauge this time) has been laid on the same body parts. This double application is to make these fibre mould pieces very strong and fit to be used for multiple subsequent productions. Since the researcher made the master models in cement, it is never advisable to register the mould in cement too because even the slightest undercut would certainly seize the mould. Since fibre glass is a little flexible, it is always my best choice for taking moulds from rigid concrete models because the FRP mould would naturally kick out of the bond. Even when there are some undercuts, the plastic nature of the fibre mould would enable easy pull out.

Plate 8: *Taking the Mould in Resin and Fibre Matt. (FRP). Photos: Anyaegbunam L.U, 2012*

However, if the master model was made in clay, it must be painted with a release agent and the area separation should be taken care of with zinc shims; after which a mixture of cement and fine sand made into a paste is then applied all over the clay model to a thickness of about ½ inch. This first layer of the mould will

delicately register every impression on the original work. This application is then followed with a coarse mixture with sharp sand and even some little stones. This layer may be about 1 inch thick and may contain some metal reinforcement to prevent breakage. This mould should be allowed some three days to properly harden before being pulled out with knives inserted at different points. If this same mould were to be made in plaster of Paris, there would have been no need to add sand; rather sponge would replace metal reinforcement. The P.O.P. mould can be released the same day it was made.

Plate 9: *Separating the FRP Mould from the Concrete Original. Photos: Anyaegbunam L.U, 2012*

Plate 10: *The Male Mannequin Moulds in Parts* Photo: The Researcher, 2012

Stage 6: Casting in Sawdust- Reinforced-Plastic (SRP)

The smooth inside of the moulds is then washed and cleaned off to make sure that every minute impression registered on it. These moulds are allowed to dry and their inside portions are painted with oil paint which will be allowed to dry before another round of release agent is applied so that the cast to be made would not get stuck in the mould.

A mixture of resin, catalyst, accelerator and calcium is prepared in a bowl in the ratio of; 1 litre of resin to one tablespoonful of accelerator, 1 tablespoonful of catalyst and 3 tablespoonfuls of calcium. With the aid of

a brush, this compound is stirred and evenly spread inside the mould. While the resin coating is still wet, one begins to lay a sliced thin layer of fibre matt in convenient pieces. After the mould must have been covered with matt, another bowl of resin, accelerator catalyst and calcium will be prepared and dabbed with a brush or foam on the quickening cast earlier made. Soon after, some sieved sawdust will be spread or sprinkled on the cast to make it thicker and stronger.

Plate 11: *Laying Slit Porous Fibre in the Mould. Photo: Okafor G.I, 2012*

Plate 12: *Casting Method 1; Dabbing the Porous Fibre Matt with Resin*
Photo: Okafor G.I, 2012

Plate 13: *Sprinkling the Yet to Cure Cast with Sawdust. Photo: Okafor G.I, 2012*

Stage 7: Coupling and Joining

The cast pieces are now coupled together and held in shape with the aid of binding wire. The cast pieces are permanently joined together with mixed resin and fibre matt or resin and sawdust to seal up the gaps. After joining all the parts together, metal plates are inserted at the shoulder joints, wrist joints and waist joint, and a metal with a pipe is inserted into the heel of one foot of the mannequin. These metals are held in place with resin and matt. The metals are of course patterned or fabricated to aid sockecting and adjustment of the limbs and waist.

Plate 18: *Coupling the Body Parts, Photo: Opara I.K, 2012*

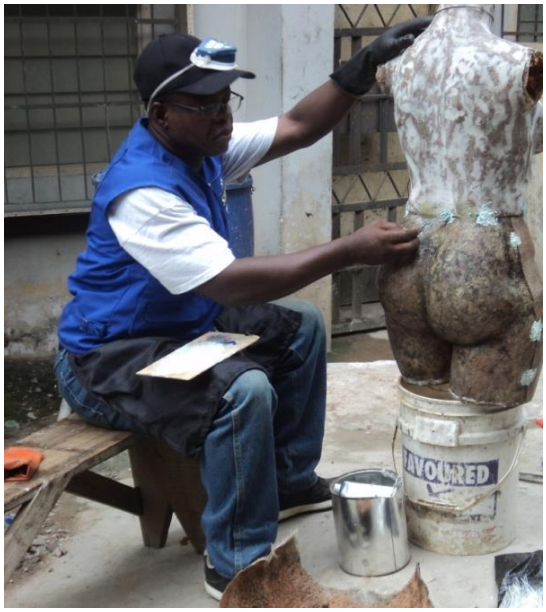
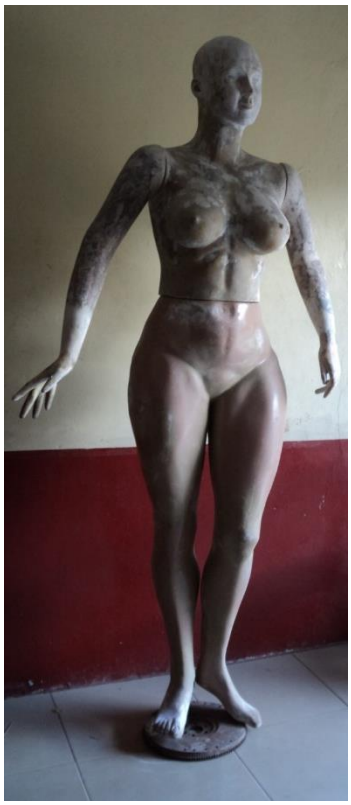


Plate 19: *Filling the Sealed Joints with Resin and Body Filler. Photo: Opara I.K, 2012*

Stage 8: Filing, Filling and Sanding



The angle grinder, rasp, file and sandpapers are then used to level and smoothen the joints. A rag is used to clean off the accumulated dust. Auto body filler mixed with hardener will then be applied with the aid of a spreader on the general surface of the SRP casts to fill some holes and cracks. The sanding machine will now be employed in smoothening the cast's surface. The dust will be cleaned off using brush or rags.

Plate 26: *Complete Nigerian Female Mannequin (before painting),*
Medium: Sawdust-Reinforced-Plastic (SRP)
Dimensions: Height 5ft 10in
Artist: The Researcher, 2012
Photos: The Researcher, 2012

After sanding and dusting the cast, primer is now sprayed on the mannequin, when it dries off; smooth sandpaper is used for the final sanding. Auto flex paint will now be mixed with thinner and sprayed all over the cast with a motorized air compressor. The colour mixture will of course depend on the desired colour (complexion) for the mannequin.

Plate 27: *Complete Nigerian Male Mannequin (before painting)*
Medium: Sawdust-Reinforced-Plastic (SRP)
Dimensions: Height 6ft 2in
Artist: The Researcher, 2012

Stage 9: Painting

Mixing the auto flex car paint with well sieved sand and a little calcium powder and stirring the resulting grainy paste in thinner. The spraying is done with the aid of the same device used in method 2. This method leaves a grainy gravitex effect on the skin of the mannequin. It makes the mannequin feel harsh and sandy but it still leaves a lovely texture and a pleasant sight to behold.

Plate 31: *Spraying With Auto flex, Calcium, Sand and Thinner. Photo: Opara I.K, 2012*

The fabricated dummy stands can be hand-painted using brush or machine-sprayed in any colour of choice. The wigs, the eye lashes and nails can be added if the artist so desires, after the mannequin's face has been treated with tiny sable brushes to define the eyes, lips and make up.

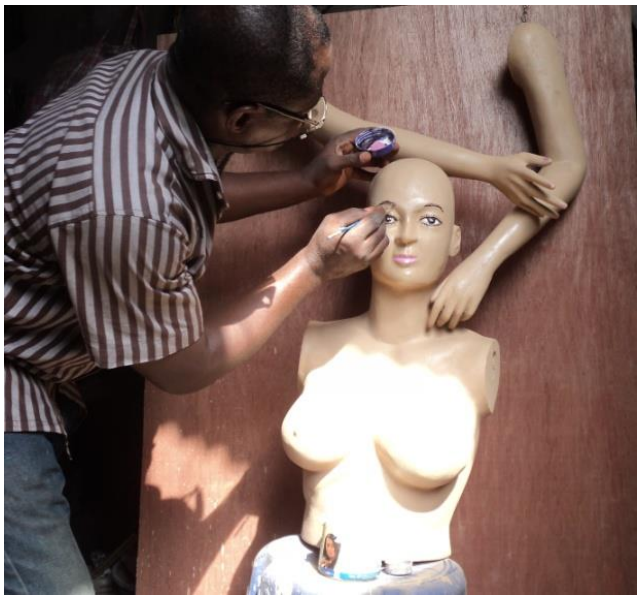


Plate 44: *Touching up the Eyes, Lips and Nails*. Artist: Anyaduba Felix C. 2012. *Photo: Okafor G. I. 2012*

Plate 46 : *The Standing Nigerian Male Mannequin.* Medium: Sawdust-Reinforced-Plastic (SRP), Height: 6ft, 2in, Technique: Method 3; (sprinkled sawdust), Artist: Anyaduba Felix c. 2012

Plate 47: *The Standing Nigerian Female Mannequin*, Medium : Sawdust-Reinforced-Plastic (SRP) Height: 5ft, 10in, Technique: Method 3; (sprinkled sawdust), Artist: Anyaduba Felix C. 2012

The Standing Nigerian Male Mannequin

This is a six foot standing figure of an able-bodied Nigerian male cast in SRP sawdust-reinforced-plastic from a fiberglass mould. The method 3 casting technique of mixed resin + sieved fine sawdust + mixed resin + coarse sawdust was employed in creating this light but very strong and durable mannequin with adjustable and dis-joinable waist and arms. The mannequin was based on a Nigerian young man with impressive masculine features like big thighs, broad chest and shoulders, big biceps, bulging calves, big buttocks, thick neck and full abdomen. The method 2 painting technique was employed whereby chocolate auto flex paint mixed with thinner and a little calcium was evenly sprayed on the mannequin after smooth sanding. There are plywood implants in the arms, shoulders and waists of the dummy with bolts and nuts. These adjustable sockets enable the dummy on display to assume different poses as it advertises any particular fashion from western suits, trousers and shirts to traditional dresses. The arms are held in place by means of the bolts and nuts which are fastened on to the plywood implanted in the shoulders. The metal nipple planted in the lower waist holding the legs serves as both the handle for holding and lifting the legs and also as a fastener and spindle between the lower half and the upper half of the mannequin.

A half–inch galvanized pipe of about 2 feet length is buried inside the right leg by means of resin to act as an anchor for mounting and steadying the dummy on the metal plate stand which connects it through an eight–inch 3/8 rod pivot. The other leg of the mannequin stands free of any fastener or wedge and can even take

a foot wear. The trunk of this same mannequin can also be mounted on a high pole to display gowns, robes, shirts, coats and other apparels. The joints and sockets make packaging, transportation, relocation, dressing and undressing of the mannequins quite easy. This mannequin can easily be employed in multiple creative productions including film production and performance art presentations.

The Standing Nigerian Female Mannequin

This is a standing mannequin of an able-bodied Nigerian lady cast in (SRP) sawdust-reinforced-plastic from a fibre glass mould. The original piece was modeled in concrete after a young Nigerian lady of approximately 5feet 10inches height. The SRP Method 3 casting technique (mixed resin + sieved fine sawdust + mixed resin + coarse sawdust) was employed in creating this light but strong and durable female mannequin. This dummy presents the typical natural endowments of the African woman:- heavy breasts, full abdomen, wide curvaceous hips, big thighs, broad shoulders and voluptuous buttocks.

The painting was done in the Method 2 painting technique:- mixing chocolate auto flex paint with calcium and thinner, thereafter evenly spraying all over the dummy. Like the female mannequin, this one equally has plywood implants in the upper arms, shoulders and waist to help articulate the joints with the aid of nuts and bolts. The metal handle atop the lower half of the dummy aside its lifting function, also serves as a spindle for turning the upper body. The metal pipe planted in the right foot acts as a socket into which the stabilizing rod in the metal stand fits to help the mannequin stand firm and still be able to rotate sideways while on display. This adjustability of the arms and waist makes for easy display of all kinds of both local and traditional dresses with their accessories. It also makes it easy to dress, undress and to package the mannequin for relocation and transportation. This same mannequin can also be employed in a limitless range of artistic applications.

Other Products from this research

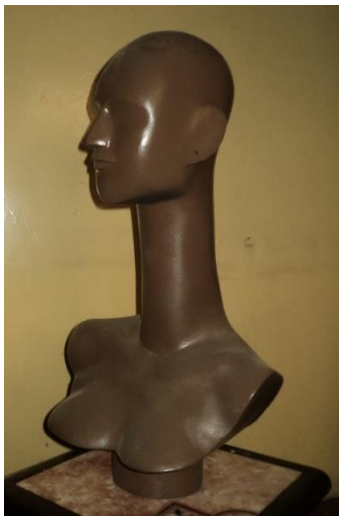


Plate 33: *Wig Display Head*
Medium: Sawdust-Reinforced-Plastic (SRP),
Size: 27in x 14in
Technique: Method 3;(sprinkled sawdust),
© Anyaduba Felix C. 2012
Photo: The researcher, 2012

Plate 34: *Jewelry Display Bust (painted)*
Medium: Sawdust-Reinforced-Plastic (SRP)
Size: 27in x 14in, Technique: Method 1;(fibre matt and sawdust), © Anyaduba Felix C. 2012,
Photos: The Researcher, 2012

Plate 35: *Pant Display Torso* Medium: Sawdust-Reinforced-Plastic (SRP), Size: 27in x 14in, Technique: Method 3; (sprinkled sawdust), Artist: Anyaduba Felix C. 2012, *Photos: Anyaduba Felix C. 2012*

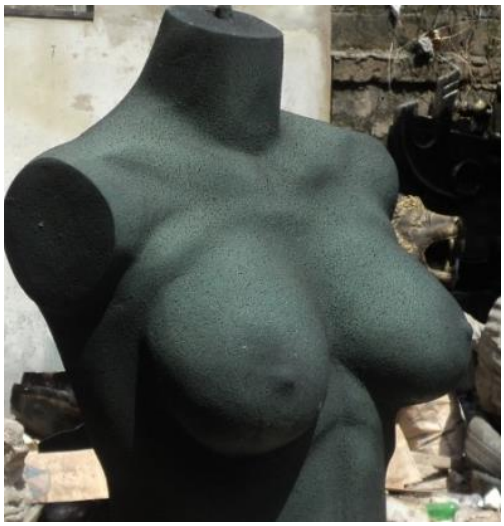
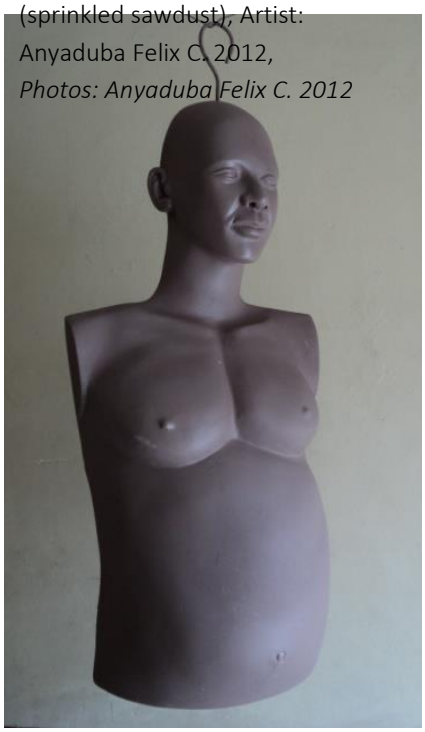


Plate 40: *Female Torso for Gowns (without hips)* Medium: Sawdust-Reinforced-Plastic (SRP) Size: 17in x 14in, Technique: Method 3; (sprinkled sawdust), Artist: Anyaduba Felix C. 2012, *Photos: Anyaduba Felix C. 2012*



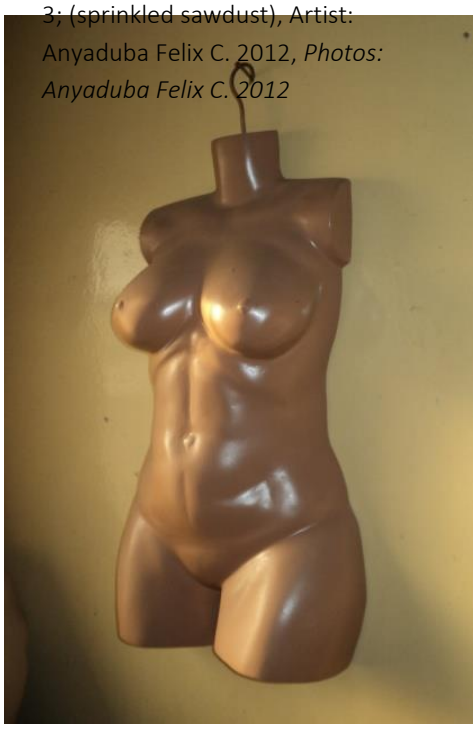


Plate 36: *Male Torso in Relief*
Medium: Sawdust-Reinforced-Plastic (SRP), Size: 32in x 15in
Technique: Method 3; (sprinkled sawdust), Artist: Anyaduba Felix C. 2012, *Photo: Okafor G.I, 2012*

Plate 32: *Female Torso in Relief*
Medium: Sawdust-Reinforced-Plastic (SRP), Size: 32in x 14in, Technique: Method 3; (sprinkled sawdust)
Artist: Anyaduba Felix C. 2012
Photos: Anyaduba Felix C. 2012

Conclusion

This is the concluding chapter of this project which x-rays the gains and the pains of this exercise as well as point some ways forward. This project exercise came up with a number of significant findings which have underscored the inappropriateness of the imported mannequins in the Nigerian fashion world as well as helped develop an acceptable Nigerian solution. These findings would just be itemized here as they have already been discoursed elsewhere in the body of this text.

The most striking is the fact that some extra flesh need to be added on the buttocks, tummies, thighs, arms and calves of the existing fashion mannequins in the market; particularly the female mannequins. There is also need to make their breasts fuller, their neck thicker and their lower abdomen richer. The researcher made these findings from close comparative studies of Nigerian models vis a vis the foreign mannequins. The imported mannequins are also generally taller than our average male and female populace.

All these differences in size and shapes of body parts between whites and Africans do make a world of difference in the appropriateness or otherwise in the use of these mannequins. This researcher has therefore considered all these findings in his choice of models for the production of these Nigerianized mannequins. These peculiar factors and elements now make the mannequins assume Nigerian peculiar physique in terms of size of the body parts, the peculiar curves and the heights. As Musoke Nteyafas (2006:3) puts it; "There is something wrong with lording straight hair and lighter skin as the more ideal of beauty and therefore negating authentic African beauty".

It is now easy for one to guess how a particular design would fit on him or her since the mannequins showcasing the clothes share the same physiognomy with the clients. A client can now predict which designs would best fit him or her in terms of height, curves and complexion.

Another interesting discovery made in the course of this project is the amazing strength of sawdust as a reinforcing agent in resin production. The general availability and costless nature of this useful environmental waste (sawdust) has invariably brought down the production cost of these mannequins. This is a boost to the global waste recycling campaign to help rid the society of unhealthy waste by converting such waste to good use. The researcher also discovered that this sawdust can be employed in place of fibre matt in such other resin related productions as chairs, tables, electronics stands, toys, product packs and other useful and decorative items.

This project equally reveals the need and appropriateness of employing mannequins in place of man and animal in art performance shows in order to avoid the accompanying dangers and risks of using real beings in such exhibitions. In the course of this production this researcher also realized that the feet of the mannequins should be made smaller than the human models since they cannot bend into shoes like the human feet. The same problem of non-flexibility of the mannequin equally informed the idea of shaping the breasts as they would appear if already in brassieres.

Implications

The products of this novel project will provide Nigerians with appropriate mannequins that will suit their natural shapes and their cultural fashion. The researcher prays for corporate and government assistance to boost and lift this production to export level. It will also provide impetus for Nigerians to further challenge and counter some other colonial impositions in their socio-cultural, economic and even political settings. Nigerians are encouraged to seek local alternatives to uncomfortable and uncomplimentary Western ideas and products.

The economic gain and the structural effectiveness of using sawdust as a reinforcing agent in mannequin production also go to suggest that this sawdust can also be gainfully applied in other areas of resin and glue related productions. This successful waste-to-wealth sawdust experiment is also an encouragement to other artists, entrepreneurs, industrialists, producers, and experimentalists to devote more creative time and energy

to our ever increasing wastes in our effort to encourage the spirit of production among the Nigerian populace. Our abundant environmental wastes are actually a reserve of abundant material resources for different kinds of production. It will only take vision, determination and creativity to make this manifest. Nwankwo (2008:69) aptly laments that …… "One of the greatest problems facing the nation is that of unemployment. Thousands of school leavers graduate every year without any hope of having gainful employment". The entrepreneurial and economic benefits of this new line of sculptural production will of course encourage more talented people to study Fine and Applied Arts and other vocational courses, knowing they can employ themselves gainfully after graduation.

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