

# CONCEPT OF SAFETY EDUCATION AND ITS IMPLICATION IN SCULPTURE PRODUCTION IN THE ART LABORATORIES IN NIGERIA

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## **Abstract**

This paper attempts to educate the teachers and students of Fine and Applied Arts specializing in sculpture and curriculum planners, especially in tertiary institutions in Nigeria. In realisation of the fact that the curriculum in creative arts does not emphasize 'safety' as a topic or course, there is a need to justify the essence of 'safety' in the practice of sculpture now that Fine and Applied Arts is a vocation. The sculpture practice in clay, cement, metal, wood, stone and assemblages employ the use of tools and equipment just like technical education. The need for interaction through the location of all departments at the same place for effectiveness is emphasized. Conclusion and recommendations reinforce the paper's emphasis on 'safety' precautions.

## **Introduction**

Sculpture is an aspect of creative arts or Fine and Applied Arts. By description it belongs to the two and three-dimensional art in concrete or solid forms. The media for execution of sculpture include clay, wood, stone, metal, cement, Plaster of Paris and ivory (bone). Sculpture as a course is broad and on its own can be divided into many sub-topics such as modelling, carving, casting, welding and construction in various media.

At this point, it is quite necessary to discuss the relationship between Sculpture and Workshop Technology. The tools and machines used for wood and metal are also employed in wood and metal sculpture. This situation demands that both the technician in the workshop and the artist or sculptor in the art laboratory have to observe the same rules and regulations in the use of equipment, tools and machines.

It is a common saying that 'precaution is better than cure.' The reasons are not far fetched: a cut off finger or hand by a moving machine cannot be joined or replaced again. Even materials used for executing project can be destroyed if care is not taken. Any assumption that it is the material and not the operator that is destroyed has its negative financial implications.

The key word in this study is 'safety'. According to Osuntuyi (1999) 'safety' is a concept which deals with acute hazards which are sudden reaction to a severe condition. Oyeyemi (1975) defines 'safety' as freedom from injury to the body and health whether it be at home, on the road, or at work. While all these definitions among others not mentioned refer to protection from danger - visible and invisible, Oxford Advanced Learner's Dictionary defines 'safety' as 'the ability to keep or make somebody or something protected from danger or harm.'

## **The Objective**

The objective of this paper is to expose and highlight the significance of safety in sculpture practice in the art laboratory and educate both teachers and students of sculpture on the importance of safety in the practice of sculpture and workshop environment. Moreso that most of the electrically operated machines, equipment and tools and the like are also used in the sculpture laboratory, there is need to be informed that a teacher has a moral and legal responsibility in providing a safe learning environment while the learners are under his supervision and they are in turn liable to violation of safety practice and rules.

## **Safety In The Sculpture Laboratory**

A well equipped sculpture laboratory is expected to have necessary materials, tools and machines which are both manually and electrically operated. The training of both teachers and students is a must, otherwise these users of the tools and equipment are exposed to untimely hazards which may deform or destroy them. For this reason, Shotbolt (1978) has stressed that staff should

have a knowledge of the dangers in a machine shop. Indirectly the need to be precautions in handling any tool or machine will be unveiled.

While working in the sculpture laboratory one should realise that the workshop practice entails 'three-fold safety.' They are:

S Safety of the artist.

S Safety of tools and equipment and

S Safety of the works produced.

Any hazard on any of these will normally bring disaster to the whole project or projects one intends to execute.

#### Working With Clay

Considering the commonest material used in sculpture, which is clay, an artist can be tempted to assume that safety precaution is not necessary. If clay is not well prepared before use it may crack when it becomes dry or the work produced in form of terracotta may explode when fired in a kiln. This particular discussion highlights the safety of the works produced. Time, materials and efforts are wasted if any work is destroyed.

When working on the electrically operated throwing wheel, it is mandatory to obey any safety rules and regulations as they apply to other equipment and power tools. In addition, the artist must assume the right sitting position when throwing clay on the throwing wheel. It is necessary that the operator of this equipment dress properly with no flapping items of clothing such as ties, long hair or loose sleeves. Long hair should be tied back.

Furthermore, clay must be clean and of even consistency before it is used. All various parts of the model produced should be as near the same thickness as it is practicable. Any joints made on the model must be very securely glued with slurry as these are the potentially weak places at which the sculpture is liable to crack during the drying and firing processes. Until work is completed the model must be kept covered with damp cloths or plastic sheets; for it is impossible to work on dried-out clay. If the stage of this clay model is dry, it cannot be worked upon again, and if moistened the dried clay will crack.

#### Working With Plaster of Paris

Plaster of Paris is another medium of expression in sculpture. It can be used directly like cement or used for casting. It is white in colour and often produced and packed in powdered form. When dissolved in water, it dissolves easily, but hardens gradually with rise in temperature. Plaster blocks formed after the powder has been mixed with water can be carved like any other medium. According to Arundell (1972:19) plaster can be cut in any direction without danger of splitting the material.

However, while breaking the plaster mould to secure the cast model, care must be taken to avoid specks or chips of plaster flying into the sculptor's eyes. For security of the work and the artist, large pieces must not be clipped away at a time. Such method may damage the cast. Blunt chisel must be used whenever plaster mould is to be clipped off.

#### Working With Wood

Sculpture in wood is quite fascinating and many artists would have loved to specialize in wood carving, but for the physical exertion, the interest is no more there. Wood is quite interesting because of its grain and formation. There are 'soft' woods and 'hard' woods. Hard woods are close-grained with very fine, small pores. These characteristics of hard wood give it its desirable quality for carving. Close grain inhibits splintering. Also hardwood can last centuries if it is properly maintained.

Meilach (1977: 43) has suggested the tools appropriate for carving wood:

The best tool to use for any job is the one that will produce the results you want. This may be anything from a penknife to an all-purpose power wood working tool with attachments.

Other tools range from simple saw and hammer to modern industrial power tools. Wheeler and Hayward (1981:15) have identified flat shaper, round-shaper, curved shaper, rasp and file as abrasive tools. Stanley sun-form tool falls into this class. The safety involved in using these tools is basically the ability to handle them to cut off the wood in the direction away from your flesh. Ensure

that you don't put your leg or hand underneath an abrasive tool while using them on the surface of any wood.

When using tools and especially power units, proper safety precautions must be rigidly enforced and respected. According to Meilach (1977:43) the following rules apply:

1. Become familiar with the tool by reading directions and practising on scrap lumber.
2. Don't allow yourself to become over-confident. The person who knows the safety rules and ignores them often gets hurt. Do remain a beginner where safety is concerned.
3. Don't wear clothes or articles that hang or dangle, such as long necklaces, loose sleeves, rings, wristwatches, or anything that might get caught in the machinery or saw blade. Girls should keep long hair tied back with a ribbon or scarf.
4. Do keep hands in sight and clear of moving parts.
5. Never reach across a machine while it is running. Never try to stop a blade with your hand. Never pick a cut off from the table while the blade is running; it may drop and swing the piece of wood at you.
6. Switch off the machine and pull out the plug before you replace any attachment. Switch off the power source when you finish working with the machine.
7. Keep tools sharp and clean. Sweep saw dust from the floor frequently to prevent slipping on it.
8. Wear safety glasses when engaged in any operation with hand or power tools that causes chips to fly.
9. Always think about what you are doing before you do it, and be sure every action you take is the safest.

Arundell (1972) gave safety precautions on maintenance, caution on any attempt to adjust working machines and dressing of operators, while Brett (1982: 16-17) has enumerated fifteen basic safety rules to be observed while using any power tools. All the safety rules mentioned by these two authors compare favourably with the nine-point safety rules listed by Meilach (1977) as written in this paper.

### **Stone Carving**

The word stone naturally scares most would-be sculptors because of its hardness and the thought that stone cannot be carved. Arundell (1972: 15) strongly recommended that goggles and mask be worn at all times, for bits of flying stone can seriously damage the eye, and stone dust can cause silicosis of the lungs.

Stone carving can be enjoyed if the carver follows the right procedure and chooses the appropriate hammer and chisels. A bouchard hammer is very useful for reducing stone at an even, gentle rate. Other tools include hammer head claw, cold chisels and mallet head gouges.

### **fyfetal Sculpture And Assemblages**

This aspect of sculpture deals with construction works, metal beating and welding or creative work. Such works include the gate doors to cultural centres, academic institutions and residential buildings. On the other hand, assemblages could be models for final metal works or creative sculptural pieces on their own.

, T Jmr works with light metal, oxyacetylene welding equipment is used while arc welding is employed while working with heavy metal pieces. For the safety of work and the operator safe habits must be established. Fires, flash backs, explosions, back fires according to Parker (1958:170) must be prevented. In addition, oxyacetylene welding goggles fitted with suitable shade of lens must be used when welding.

When any adhesive is used, care must be taken to avoid any spill on the ground. Epoxy adhesives is used for bonding hard materials should not come in contact with the skin. Surfaces to be joined must be clean while a spatula must be used for mixing adhesives.

### **Recommendations**

Now that Fine and Applied Arts is in the School of Vocational and Technical Education in Colleges of Education in Nigeria and in the College or Faculty of Environmental Studies in the Universities, the following points are recommended:

1. The departments in such school or Faculty should be located within the same geographical environment.
2. All laboratories and workshops should be designed in such a way that one laboratory will be accessible to the other, in order to enhance positive interaction among students and staff.
3. 'Fire' equipment should be installed in all buildings designated as laboratories. Items, such as fire extinguishers, buckets filled with sand and fire alarm bells.
4. Art laboratory which includes, sculpture laboratory or workshop should be kept clean and dry always.
5. Working tools should be kept in the tool bags or boxes after use always.
6. All electrical installations should be switched off immediately after use.
7. A copy of any industrial act should be made available for all laboratories or workshops.

### **Conclusion**

In this study, the major aspects-jjrf sculpture that require safety precautions are treated. It has been discovered that accidents occur through ignorance or carelessness or lack of necessary information. For this reason, this paper has elucidated the importance of safety knowledge in the practice of sculpture in media such as clay, stone, Plaster of Paris, wood and metal. Such practice involves cutting, breaking, welding and the use of electrically operated machines. All these could bring about accidents. In realisation of the 'three-fold-safety' - safety of the artist, work produced and tools and equipment, the teacher is liable to legal obligations on safety.

In addition, this paper has identified likely hazards through the use of abrasive tools that may be perceived as being harmless. It has educated the sculptors and would-be sculptors of the awareness of dangers in the workshop. Meilach's (1977) nine-point safety rules which cover both legal obligations on safety and health could serve as industrial act to sculpture in Nigeria.

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