

**WEAVING TECHNIQUES IN COLLEGES OF EDUCATION
USING A VARIETY OF MEDIA**

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USING A VARIETY OF MEDIA**

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DECLARATION

I hereby declare that this submission is my own work towards the M.A. and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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F. S. V.

ABSTRACT

The world at large and especially Ghanaian Society has for many years shown keen interest in woven artifacts. Although the traditional weavers have done a lot to sustain this great heritage of our motherland and the school curriculum places much emphasis on woven artifact, it is often neglected by teachers and students of Textiles and Basketry especially in the colleges of education with the excuse that tools, materials, equipment and reference books are either not available or are expensive to procure. The above stated problem necessitated this study so as to put an intervention in place to solve the problem. In doing so, the research employed qualitative methodology to solve the problem. The choice of this research method was due to the fact that it tries to simplify what it observes and focuses on phenomenon that occurs in natural settings. At the end of the study it was found that the students acquired the necessary knowledge and skills that are needed to be able to teach the subject effectively in the basic schools where they will be posted to after training. Based on the findings, it has been recommended that teachers should not rely solely on exotic materials, tools and equipment in teaching weaving. Rather they should explore local materials and use homemade tools and equipment to teach the subject.

F. S. V.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The weaving industry is one of the earliest industries developed by humanity since the prehistoric period, because of man's desire to find suitable materials to protect him from the harsh weather conditions he was confronted with. The choice of woven fabric as a convenient material for protecting the body influenced its development over several generations, with one generation improving upon the ideas and techniques learnt from the other.

In Ghana, the weaving industry is one of the oldest and popular indigenous industries, and it is largely practiced in the different parts of the country. Some weavers in some parts of the country have established small-scale weaving industries in southern Ghana, particularly in Anlo-Afiadenyigba, Kpetoe, and Akatsi. The industry has provided employment for a large number of people in its various specialized areas such as spinning, weaving, dyeing, and printing.

To promote the development of the indigenous textiles industry, the Ghana government has since 1990 caused to be introduced into the schools and colleges curriculum certain courses, which are indigenous industry based and among these is a course in textiles and basketry. This curriculum requires the development of technologies that will make teaching and learning more effective. To further make the teaching of weaving processes more effective in schools therefore requires the provision of tools, equipment and materials which can be easily accessible to students. The

materials for weaving can be found in the local communities of schools and colleges. Included in this group are natural fibres which are the basic materials used in the production of woven artifacts. Fibres are generally used in the production of clothing and home furnishing. All over the world, natural and artificial fibers are used for making clothing, sheeting, drapery, upholstery, electrical insulation, carpeting wigs etc.

In addition to these, the relationship between warp and weft also affects the woven pieces although this can be done with the relevant accessories that would make the artifacts aesthetically pleasing. Lastly, the functional quality of the woven item is also an essential issue to consider in production.

1.2 Statement of the Problem

The branches of Textiles are Spinning, Weaving, Knitting, Printing/Batik/Tie-Dyeing, Embroidery, Tapestry, Appliqué work etc. Weaving is one of the basic skills taught in schools as stated in the Syllabus for Colleges and Schools in Ghana. Personal experience and observation have revealed that most schools and colleges have ignored the teaching of weaving though it is in their syllabuses.

Weaving really portrays one of the nation's rich cultural heritage which need to be preserved, improved and passed on to the younger generation. It is therefore appropriate to find a solution to the problem by using a variety of media and tools to teach weaving in Ghanaian schools and colleges. Using the variety of medium found abundantly in the local environment to produce decorative artifacts through the techniques of plain, twill, satin/sateen and jiffy weaving techniques.

This study seeks to examine the problems of teaching weaving in selected schools and colleges in Ghana and to demonstrate how to design and produce woven artifacts with off-cuts, paper, fan palm and palm rachis.

1.3 Objectives

- To examine critically the reasons why weaving is not given the needed attention in schools and colleges in Ghana.
- To identify and describe suitable materials and tools within the local environment that can be used to teach basic weaving on a sustainable basis.
- To design and carry out weaving projects to demonstrate how teachers can teach basic weaving techniques using identified local materials.

1.4 Research Questions

1. What kind of weaving is taught in Ghanaian schools and colleges?
2. How can weaving with variety of media be incorporated into the schools and colleges curriculum?

1.5 Delimitation

This project will cover the use of paper, off-cuts, fabric and yarn in weaving decorative artifacts like wall hanging, car lining, mats etc.

1.6 Limitations

The research did not encounter any serious problem.

1.7 Definition of Terms

- Bast fibre – A natural cellulosic fibre, taken from the stem of a plant. Examples include flax and jute.
- Blending – Mixing of component fibres to form a uniform blend of raw materials.
- Cellulosic fibre – A fibre formed from plant sources. It can be natural (e.g. cotton and flax) or man-made e.g. viscose, which is the regenerated cellulose.
- Weave: the order of interlacing of warp ends and weft picks. There are three basic weaves. plain, twill, satin/sateen
- Weave Repeat: The smallest number of yarn required to show all the interlacing in the pattern.
- Weaving: interlacing of warp and weft threads to form a fabric.
- Shedding: control the warp ends to form the shed.
- Weft insertion : the weft pick passes through the shed
- Beating-up is the real action of pushing the weft pick into the fell of the cloth.
- **Medium**_The term medium has various meanings for starters; refers for the substances that bind the pigment in paint. In acrylic paints, the medium is natural oil such as poppy, in tempera, it is egg yolks. A medium can also be something used to change the consistency of the paint. For example, a gel medium is used to produce thicker paint for impasto. The term medium is also used to describe a category of painting acrylics or water colours. Examples include oil, pastels, marble for sculpting, and regular old paint. In this study media refers to materials used in the production of the artifacts

1.8 Importance of the Study

The study is meant to reawaken and upgrade the knowledge of art tutors, teachers and students in Visual Arts and Creative Arts for further research. The research will create awareness among students and teachers in the schools, colleges and tertiary institutions to accept the challenge of using plant fibres and other materials found in their local environment to produce artifacts similar to what has been described in this report.

The study will help teachers handling textiles in the various Senior High Schools and Junior High Schools to broaden their scope of knowledge through the use of the identified local natural and synthetic fibers to produce a wide range of woven artifacts that are cost effective yet aesthetically pleasing. The project will serve as a basis for further enquiry into the use of natural plant fibres for weaving and producing other artifacts for the local and international markets to earn foreign exchange for national development.

Curriculum developers will find this research useful and employ it to expose textile teachers and students at all levels of the Ghanaian educational structure to look to the environment for resources that are suitable for teaching and learning of the relevant aspects of the textiles syllabus.

Craft centers could disseminate the information contained in this report. Other existing ones located throughout the country will be encouraged to tap available resources in their local environment to teach the unemployed to acquire skills in creating woven artifacts from natural plant fibres and synthetic materials. New craft centers can also be set up in rural communities to train the local people to use plant fibres and off-

cut materials in their localities to produce innovative woven artifacts as alternative employment to reduce the influx of rural folks to the urban areas.

The aged in the Ghanaian society could also be trained to acquire skills in weaving simple artifacts to while away time and also keep the inactive ones busy at such profitable ventures. The art can also serve as therapy for the sick and those recuperating from illness.

1.9 Organization of the Rest of the Text

This report has been divided in five chapters. Chapter one is the introduction to the thesis report. This chapter provides a discussion on the statement of the problem that gave rise to the research, its objectives, research methods, scope and limitations of the study. It ends with the importance of the study and organization of the text of the whole thesis.

Chapter two reviews available relevant literature, which provided material for support and validity for the study. Research methods and data collection instruments form chapter three. Chapter four analyses data collected for the study. Chapter five concludes the report. It contains a summary of the whole study, draws conclusion and offers recommendations which serve as possible solution to the problem identified.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

For the purpose of better understanding and effective teaching of weaving techniques in schools and colleges by readers of this project report, it is important that a review of related literature on the subject is done. This **review of related literature** follows these sub-topics.

- i. History of Weaving
- ii. Weaving Techniques
- iii. Tools, Equipment and Materials
- iv. Traditional and Contemporary Weaving in Ghana
- v. Teacher Education in Ghana
- vi. Teaching of Visual Arts
- vii. Teaching and Learning Strategies
- viii. Policy On Quality Teacher Education

2.1 History of Weaving

The Encyclopedia of Needle Crafts (1998) explains that weaving has existed in a very primitive form from the earliest days with different types of textiles being produced for practical reasons in different parts of the world. The Encyclopedia states that the actual origin of weaving is unknown but ancient Greek and Egyptian records show evidence that primitive looms were being used for weaving in those societies. It explains that early weaving was done on a warp suspended from an upper bar and weighted at the bottom (p. 223).

Kindersley (1995, p. 209) explains that hooked rug, which most people think of as being a specifically American art, has its origin in Scandinavia. The method has been traced back to the Vikings. According to Kindersley (1995) many rugs have been discovered which dated back to 200 B.C. They were made by tying short lengths of sisal fibres onto the warp threads on a loom to create a pile effect. The invention of this technique for making woven rugs had been attributed to the Chinese, the Egyptian and Mayas.

The everyday needs of our prehistoric ancestors probably led them to create objects using fibre as a medium. It is thought that ancient humans instructionally used weaving as an aid in their quests for basic needs of food, shelter and clothing. These probably led to the interlacing of twigs or vines, which resulted in netting that probably assisted humans in catching fish and trapping game. Eventually people used weaving skills to make exterior coverings for shelters so they would be somewhat protected from harsh weather.

According to Wynne (2001), “archeologists believe that basket making and weaving were probably the first ‘craft’ developed by humans. According to www.collectorsguide.com, human beings naturally have a strong compulsion to be creative, and records show that this trait was prevalent in our ancestors’ lives thousands of years ago.

Wynne (2001) states that cultures on every continent devised crude looms and methods of making webs, and research indicates that there was great similarity in the looms constructed and in the weaving produced. She further explains that with modern

sophisticated methods of radiocarbon testing and DNA testing, today's scientists are much better to assign accurate dates to archeological findings than they were even a decade ago. The exact date of the first hand-woven works, however, continues to remain a mystery. Nevertheless, there is evidence of cloth being made in Mesopotamia in Turkey as far back as 7000 to 8000 BC. Some historians use other sources as guides in piecing together our textile heritage. One valued artifact is the funerary model of a weaver's workshop, which was found in an Egyptian tomb. This model contains a horizontal loom, warping devices and other tools, and weavers in action (The World Book Encyclopedia 2000).

Another artifact, which is highly valued, is pottery with the print of a textile structure etched on its exterior. It is believed that an early craft person formed this pot by lining the interior of a woven basket with clay. Heat was applied to shrink and harden the clay and the basket fell away leaving its mark on the outside of the pot. Neolithic potteries with weave imprint found in the Thames near Mortlake in England are available in the British Museum. Weaving has also served as a powerful metaphor for life in the art, literature, and theology of many cultures.

<http://www.amazon.com/rug-weaving> describes weaving as the process of making cloth, rugs, blankets, and other products by crossing two sets of threads over and under each other. Weavers use threads spun from natural fibres like cotton, silk and wool and synthetic fibres such as nylon and rayon but thin narrow strips of almost any flexible material can be woven. People learned to weave thousands of years ago using natural grasses, leafstalk, palm leaves, and thin strips of wood. The source indicates that today, weaving ranks as a major industry in many countries. Weaving is often completed

on high speed looms. Weaving is not limited to cloth and textile products but plays an important part in the manufacture of screens, metal fences, and rubber tire cord.

Kindersley (1995) asserts that the rug making techniques conform to those which are made by working yarns or strips of fabric onto a ready woven backing such as canvas. The six different types of rugs are straight hook rug, latch hook rug, needle tuft rug, punch hook rug, locker and hook rug (p.233). The six types of rug are differentiated according to the way in which they are worked and the tools which are used to form the pile. The rug making fall into two broad categories namely hooked and needle made. The first four of the six types of rugs are hooked and last-two are needle made.

Decosse (1991) explains that transition technique integrates elements from several styles, providing the weaving of traditional with the simplicity of contemporary. Exciting and more personal techniques are often achieved by bland styles, rather than slavishly following them.

Wynne (1996) explains that weaving is the systematic interfacing of two or more sets of elements usually, but not necessarily, at right angles, to form a coherent-structure. No one knows when or where the weaving process actually began but as far back as there are relics of civilized life, it is thought that weaving was a part of developing civilizations; this confirms the definition of weaving.

Amenuke (1995) explains artifacts are specific products such as kente cloth, pot, bead, picture, stool, appliqué work and bag. Artifacts used for decoration could be done with different types of materials. From this definition, it is realized that in the African setting, artifacts are any end products that have utilitarian purpose in the society. These

are expressed in the beliefs, values and life styles of the various ethnic groups. In relation to this research the end products of the experimental project are considered as artifacts. Numerous designs of all hanging, curtains, lampshades, fluffy ball, picture and frames can be made as decorative artifact for church premises, meeting grounds, living rooms, recreational centers, homes, durbar grounds and many other places.

Ross and Adu-Agyem (2004) state that Kente weaving is but one of several indigenous Ghanaian arts governed by strict gender guidelines (<http://www.stringpage.com>) states that card weaving techniques (also known as table weaving) is a method of producing narrow textiles such as strap, belt and trim. Most card woven bands are very strong and sturdy. The oldest known reliable evidence for card weaving comes from about 400 B.C. Several cards and some card woven materials were found at an archeological site in Spain. It further state that, card weaving was most highly developed in northern Europe, especially in Scandinavia, and was also used by the Anglo-Saxons.

West (1999,p.1) asserts that “the most important legacy of the basket weavers, carvers and workers in plant materials is not in written words, but in their hand on teachings, especially among their own families and communities” Form the above ,we need to find out from our environment and learn more about their crafts and put them into written forms.

Kirik (1996) explains that experience had taught him that humans are born with instincts and senses that help process information brought to us from our environments. His teaching style has been to encourage this progression. Constant imitation and

practice therefore results in the confidence necessary for independent thinking and innovation.

Every person living today is a descendant from some line of an ancient civilization of hunters and gatherers. As modern technologies affect our communities, life-styles and values, the practice of pre-historic technologies derived from traditional ecological knowledge is essential to understanding our connection to a place. This implies that teaching the discipline of natural fibre weaving can ultimately serve to strengthen each student's own cultural awareness, appreciation and pride. Hands-on natural fibre projects derived from the local traditional cultures and native plants of any given area of the world, can open a doorway to place, providing new skills for expressing a relationship to the land (p.7).

Further to Kirik's ideas, this researcher feels compelled to teach the important concepts from the practice of natural fibre weaving native materials are essential to craft. In every season, there is an important sequence of events involving the need to recognize certain plants, collect their useful parts, prepare, dry and store those materials. Only there is time to learn the techniques for using those materials.

Hugo (1994)Contents Natural fabric history trekking through history people used to make clothes out of plant and animal fibres long time ago. There were a great number of developments and improvements made during natural fabrics history. Since the day synthetic fibers were introduced into the needle world, a plethora of fiber weaving technologies has been developed. Since then few important improvements have been made and the adding of the latest computer technologies is one of them (p.1)

2.2 Weaving Techniques

Several weaving techniques exist for weavers to choose from. The list includes plain, twill, sateen and satin weaves. Weaving is the systematic interlacing of two or more sets of elements usually, but not necessarily, at right angles, to form a coherent structure. No one knows when or where the weaving process actually began, but as far back as there are relics of civilized life, it is thought that weaving was a part of developing Civilizations. — Wynne (2001) www.google.com/advance search-weaving

Hair weaving techniques are very popular in the African weaving; American hair style fashion that creates fun and versatile looks Hair weaving is done either with or without knowledge of hair weaving techniques available to the African American community. A weaving can last from one week to three months, depending on the techniques employed (American Hair Weaving. 1999).

Kirik (1998) describes the foundation of natural fibre weaving and says, “Basketry materials come only from certain places, at certain times of the year. Such knowledge, as well as gathering and processing techniques, is as essential to continuation of the art as is that of weaving itself” (p.3).

Plain Weaves

Plain weave, as explained by Wynne (1997), is the simplest and by far the most popular of all woven structures. It allows the maximum amount of interlacing of the warp and weft and so for the same set of yarns, a fabric produced from plain weave will

have greater stability and firmness than fabrics produced from any other weave(p 168). Figure 1 shows a plan view of the most popular weave, which is called plain weave. This method of illustration clearly shows the order of interlacing in simple structures but it can become quite complicated and also require a lot of space and time when large weaves are being illustrated.

The Cross-sectional diagram in Figure 2: are sometimes become complex when more than one or two longitudinal threads are illustrated on one diagram. However, they are ideal for showing the basic structure of compound weaves. Weaves fall within three main categories, namely basic weave which are the most popular and include plain, twill, stain and those weaves that are developed from then fancy weaves and compound structures.

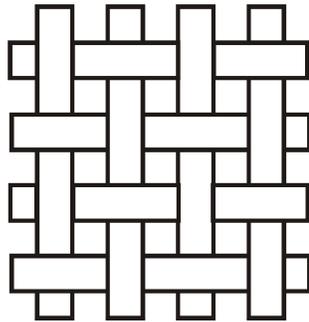


Fig. 1: Plain weave representation



Fig. 2: Cross section

Twill Weaves

Twill weaves are characterized by diagonal lines in the fabric. These may run from bottom left to top right in which case the twill is said to be Z twill because its line is in the direction of the centre stem of that letter. Likewise, twills that run from bottom right to top left are known as S twills example in illustration.

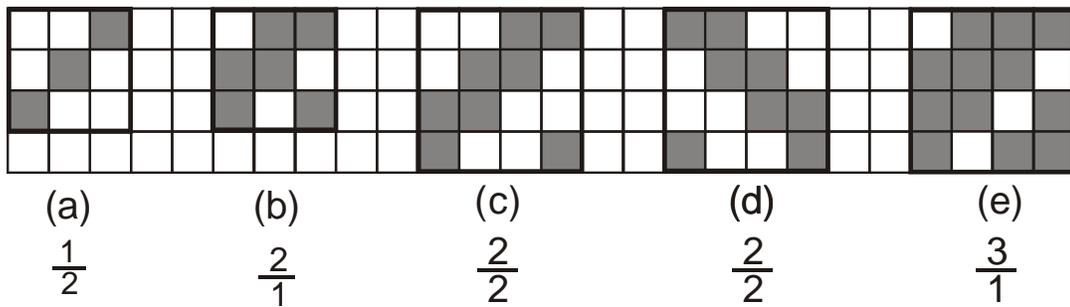


Fig. 3: Basic twill weaves

All of the ends in the twill weave lift alike but each end starts its lift one pick higher or one pick lower than end adjacent to it. This is referred to as a step of one and it is clearly illustrated in the $\frac{1}{2}$ twill in (a) fig.3. The $\frac{2}{1}$ twill shown in (b) is an extension of that weave because each end is given an additional lift to that of the original twill.

The number of ends and picks in any twill weave is the sum of the numbers in the weave description, hence both the $\frac{1}{2}$ and $\frac{2}{1}$ twills repeat on the three ends and three picks. The former weave may be designated as either $\frac{1}{2}$. The common twill weave is the $\frac{2}{2}$ which is illustrated as Z twill and as an S twill at (d) in Fig.3 while a $\frac{3}{1}$ twill is illustrate at (e).

Twills in which the numbers of warp and weft lifts are equal are called balanced twills. The $\frac{2}{2}$ weave is the most popular and it is used in such ends. Unbalanced twills are created when there are more floats of one set of yarns on the surface.

Satin and Sateen Weaving Technique

The characteristic features of satin and sateen fabrics are smooth and lustrous surface created by extensive floating of the warp or weft on the face side of the fabric. One side of the fabric will normally be more lustrous than the other. Wynne (1997)

attributes this to the fact that satin fabrics generally have many more ends than picks per centimeter, while in a sateen fabric the pick will be higher. In this study the Plain, Twill and Jiffy weaving technique were adopted.

Weaving Operations

Four major operations are involved in weaving: shedding, picking, beating up (battening) and taking up and letting off Badae (2000) cites in his thesis.

Shedding: Each alternate warp yarn is raised to form a shed.

Picking: As the warp is raised, the filling yarn is inserted through the shed by a carrier device such as the shuttle.

Beating up (battening): In this operation, the reed pushes or beats each filling yarn against the portion of the fabric that has already been formed. Reed is a comb like structure attached to the loom. It gives the fabric a firm, compact construction.

Taking up and letting off: With each shedding, picking and beating up operation, the new fabric must be wound on the cloth beam a process called taking up. At the same time, the warp yarns must be released from the warp beam a process called letting off.

Knitting: After weaving, the most prevalent method of fabric construction is knitting. Its popularity has grown tremendously over the years. Today, knitting is a very big industry which has two main divisions. One division manufactures knitted goods for apparel production, sewing centres, consumers and others. The other division manufactures finished apparel such as hosiery, sweaters and underwear. According to Tuner (1998) explained

Finger weaving: Cross village Rug works mat and finger weaving sashes and ganders were woven of commercial yarn in three or more colours, one of which was used. Finger weaving was a popular technique, in which the yarn strands were wound around a short set and interlaced with one another. The one set of strands served as both warp and weft.

Mats weaving techniques: Woven mats made of bulrushes were most common. They served as floor coverings and house laid on the ground floor for serving food, especially at feasts. Bulrushes were gathered in early bleached, dried, and dyed. The ends of the rushes were braided to form an even edge and then crossbar between two posts set in the ground. A basswood cord weft was passed from left to right twined around it. The weft rows were about a half inch apart, and the weaving progressed from the braided edge finished it off. Designs were usually geometric, but some zoomorphic motifs, parietal thunderbird and could be used for smaller mats used for ceremonial purposes. Kindersley continues that frame weaving is easy to do. The warp thread is connected to nails at each end of the frame and the weft is woven in with a shuttle stick.

Where bulrushes were scarce, a similar kind of mat was woven from the inner bark of red cedar. In May or June, and split into thin strips about a quarter inch wide. The weaving was done on a flat resembled the one used for the bulrush mats, but the technique was a simple over-and-under woven.

Basketry construction techniques: Experts have debated the classifications and terminology of basketry construction for ages. However, basketry is created with

elaboration and variation of four basic basket construction techniques, namely coiled, twined, plaited and woven structures.

Coiled weaving technique: A bundle of strands or rods is stitched into a spiraling oval or round form with a thin, flexible element to create coiled baskets. (www.Dickblick.co-onlineart). Numerous variations of stitch types and embellishments such as imbrications can afford a wide range of possibilities core materials can include prime needles, straw, willow, yucca, palmetto, sweet grass and other grasses. Stitching elements can be such things as raffia, horsehair, ash wood splint, devil's claw, palmetto, skinned willow, for example.

Twined weaving techniques (www.DickBlick.co-onlineart) Two or more flexible elements are used to encircle other base elements. When two weavers used these techniques is called paining. When three or more elements are twisted it is called waling.

Variations can be achieved by twining rows upon rows or leaving an open warp, crossing the warp, wrapping the warp, twining plain or on the diagonal, among others. Materials can be flexible native naturals like day ladies, cedar bark, elm bark, reed, rabbit bush, or roots. Waxed linen, cordage, or various fibers may also be used.

Woven techniques - Woven baskets have two sets of elements, rigid stakes or spokes which create a warp and more pliable elements which are woven in and out to form a weft. Materials in woven basketry can be flat or round and can be any of a wide variety of materials such as willow, wood splint, paper and reed, (www.DickBrick.co-onlineart)

Plaited techniques (www.DickBrick.co-onlineart) plaiting is the weaving together of like elements stakes and weavers. They are woven together at right angles in either diagonal, or horizontal and vertical orientation in plain or twill weave. The plaiting can be open checker work or closed.

Splint materials are flat weavers that have been splint or pounded from the log of a native hard wood such as white oak, maple or ask. Splint and other flat materials such as river cane, yucca, birch bark, paper and flat reed are used in plaiting from these basic construction methods with a myriad of variations, materials and embellishments many of the baskets we know are created. In the Visual Art syllabus for Senior High Schools, it is stated clearly that art should be taught in the schools to preserve, transmit improve and promote indigenous art technologies so that the students will know their cultural heritage.

(Amenuke et al, 1990) acceptable in the community in which they live and the country as a whole and be in particular, the school system should, in a country like Ghana, aims at instilling in the individual, an appreciation of the need for change directed towards the development of the human and material resources of the country (Ministry of Education, 1990). It is therefore in the right direction for this research to seek to identify problems with the indigenous weaving industry and institution offering textiles as a course of study in order to find solutions to some of them with the hope of making weaving a viable academic subject. This is necessary as a means to improve upon the technical qualities, design and aesthetics of indigenous woven artifacts and the use of indigenous weaving materials in the educational institutions.

2.3 Materials and tools

In this study, medium refers to the material used in the production of artefacts.

The materials used in indigenous weaving in Ghana are:

1 Grasses and sedges

In his thesis, Baah (2000) discusses the use of the guinea grass and rushes as plants that provide raw materials for developing creativity in schools and colleges in Ghana. He states that guinea grass is used for making hats, bags and baskets. He also states that cyperus reed (cyperus articulatus) that is found growing in marshy plains in the coastal parts of Ghana is a useful material for making mats. Baah also explains that guinea grass stalks are twisted by local Ghanaian craftsmen to render the otherwise brittle stalks pliable. After this twisting, the stalks are used for making shopping baskets, hats and fans.

2. Banana and plantain fibre

Abbiw (1990) mentions the use of the stem of both banana and plantain yields a fibre that is used in West Africa for fishing tackle, and in the then Gold Coast as a sort of sponge. Baah (2000) states that the fruit peduncle of the banana and plantain plants are beaten, dried and plaited into long strips used in weaving baskets, and for making articles such as fans and mats.

3. Sisal and pineapple fibre

Baah (2000) mentions sisal and pineapple leaves as sources of fibre for rope making. Asmah (1980) describes sisal as an excellent cordage fibre used in the manufacture of all kinds of ropes, twines and ship cables. He also demonstrates sisal as a substitute material for rug weaving. Sottie (1989) describes sisal fibre as one of the most valuable of all cordage because of its strength, ability to stretch and good affinity for dyes. He states further that it is used in the production of fancy hats and bags, as well as door mats and brushes.

4. Corn Shucks

Corn shucks are not leaves in the normal sense. They are modified protective calyx covering the corncob. Corn shucks are used as wrapper for food and for making mats and cloths. (Asiedu, 1967) Dried corn shucks can easily be dyed and plaited into rope for weaving baskets, doormats, hats and foot wear.

5 Bast fibre

The bast fibre plants roselle, kenaf and Congo jute and a variety of roselle (*Hibiscus sabdariffa* var, *altissima*) are grown for its fibre. Dalzeil(1990) states that Kenaf is comparable to jute and can be used for the same purposes such as tying the rafters used for roof binding, for plaited ropes, hobble ropes, fishing lines and women's coiffure. He indicates that Congo jute is suitable for cordage, sacking, hammocks, fishing ropes and fishing tackle (Irvine, 1961).

Danso (1977) mentions the use of the kenaf fibre as a substitute for jute in the manufacture of twine, carpet, yarn and baskets. Abbiw (1977) list roselle, kenaf and congo jute as plants that yield bast fiber.

6 Palm trees

Both Asiedu (1967) and Abbiw (1990) mention the oil palm as a source of raw material for basketry. Baah (2000) cites Irvine (1961) who states that raffia, a leaf bast of raffia palm, is used for weaving cloth, hats, hoods and bags, as well as for making ropes and ceremonial aprons. Asiedu (1967) confirms that the raches are cut up and used in weaving mats. According to Baah (2000), coconut coir, obtained from the coconuts palm, is used for making carpets, brushes and ropes, the leaves of the fan palm provides raw material for weaving mats, bags, hats and ropes.

7 Rattan and soft cane

The commonest use of the rattan palm is basketry. Abbiw (1990) however, differentiates between two kinds of basketry produced from these canes; as heavy-duty and light, fancy basketry. Soft cane stems are prepared for use by drying them in the sun and often dyeing them for mat making. It is also employed in weaving fish traps and also in basketry.

As can be seen from the discussion, raw materials for weaving different artifacts abound in Ghana, and art teachers can tap these to teach weaving and other textiles

techniques. Since they are widely used across the country for various purposes, nothing stops Art tutors in Ghana from adapting these and other resources for effective teaching of textiles so that their students can become versatile teachers of art in the schools they would teach in.

Weaving Tools

Swing needle: This helps to split guinea grass stalks, for stitching and sewing.

Cutlass or machete: This is a handy household tool for heavy cutting. It is useful when fetching raw materials from the bush and when cutting up hard or heavy raw materials.

Jack knife, kitchen knife, paring knife or utility knife: This is generally useful in cutting up materials to the required sizes and shapes.

A pair of scissors: This is handy for light cutting and clipping.

A pair of round-nosed pliers: This is especially useful in basket weaving. It is used for giving canes a sharp bend without breaking them. Pliers are also useful when drawing a cane through a restricted passage during weaving.

An awl or bodkin: This tool is useful in piercing holes through fabric, leather and other soft materials, and in enlarging passages during cane weaving.

Sandpaper, glass paper or sandpaper leaf: These are useful for sanding canes and other woody materials that need abrasives smoothening.

Broken shell glass: It helps to scrape the outer surface of canes.

Rubber pad: A sheet of soft rubber material, such as the kind used for the sole of traditional sandals (ahenemma) or bathroom slippers (chalie worte) or rubber tyre, secured to the top of a working table or desk makes it easy to roll grass stalks.

2.4 Traditional and Contemporary Weaving in Ghana

In Ghana, indigenous weaving of cloth is mainly done in the Asante, Northern and Volta Regions. The traditional Asante woven cloth is known as Kente while that of the Ewe people is known as Kete, and that of the northerners is called Fugu. The Fugu is completely different from kente and kete in that the cloth is basically woven in plain-weave structure. The common colours are black and white even though some are woven with other colours. Kente and kete on the other hand are somehow similar in structure in the sense that both fabrics are handpicked and shapes and images are introduced in weave structure. However, the two fabrics differ in terms of yarns used, design and their finish. The most significant difference between Ewe Kete cloth and Asante Kente cloth is that images that are introduced in kete fabrics are more representational and evolve from the weaving process whereas in the case of Kente cloth, the symbols that are introduced into the weave are basically geometric shapes. However, both fabrics are woven on traditional looms that are slightly different.

Hesse (1990) states that weaving is the oldest craft known in Ghana. Rattray (1927) opines that before weaving was introduced to Gold Coast, the material used for clothing was obtained from the bark of kyenkyen tree. According to him, the Asantes

stripped off the bark in long, narrow pieces which were then softened in water, laid over the trunk of a fallen tree and then beaten out with wooden mallets with round corrugated heads into somehow flexible material that was used as a covering.

Similarly, Herman (1990) explains that before woven cloth and cotton materials were introduced to the people of Gold Coast, the Ewes made cloth from the bark of trees which they called Logo. Herman indicates that as time went by, people learned to twist fibres and hair of animals together with their fingers, and then rolled them against the thigh, as is still done by some traditional weavers. People found out that the fibres of plants and the hair of animals could be spun into yarns for weaving clothing.

According to Baah (2000) Asante cloths of extravagant woven pieces were being made from costly foreign silks which had been unraveled and woven with all the varieties of colour and pattern. These cloths were worn thrown over the shoulder like the Roman toga.

Adler (1995) describes Kente weaving as a textile production technique whereby very small looms are used to produce long and narrow lengths of cloth, which may then be joined edge to edge to create square or rectangular covers. The technique offers endless possibilities for variations of scale and composition.

Traditional weaving process

Pre-weaving processes involve ginning, balling, bale breaking and mixing, carding, spinning, sizing and dyeing. Ginning is mainly done by women and children.

The cotton is then packed into sacks or especially woven baskets with covers and stored until it is required for use. The next stage is bale-breaking and mixing which involves the removal of fibers from different sacks or baskets and mixing them thoroughly in order to achieve a uniform yarn when these are spun into yarns. This is followed by carding, process of refining the mixed cotton by removing very short fibers ,twigs and other unnecessary elements from them.

Carding is the first stage of converting fibers into yarns and is done by subjecting a mass of fibers to vigorous combing to eliminate irregular ones from the strands. Carding is done by collecting a quantity of cotton at a time, placing them on curved wooden bowl with strings attached to it and using another bowl to run through the fibers so that the needed cotton is collected onto string on the bowl. This is repeated until the cotton becomes fluffy and well opened up with the fibers partially straightened out. When the 'carder' is satisfied with the condition of the fiber, the wet cotton is removed from the bowl and put carefully into a big calabash ready for use.

Spinning is the process where cotton fibers in a lap form are made into silver, roving and finally into yarn with amount of twist imparted to it. Generally in spinning, the spinner draws a number of fibers from that which is wound on the distaff, he twists and fastens them to the end of the spindle. With the right hand,the spindle is raised a few centimeters from the calabash and the spindle is whirled and twist is imparted to the cotton initially. The whirled spindle is allowed to descend slowly. Meanwhile, the spinner continues to draw out a number of fibers with the left hand to the spindle in the right hand and at the same time, inspect the length and diameter of piece of yarn being formed with the right hand for evenness. Sizing is an addition of weight to the yarn. This

is done by steeping the yarn in cassava starch. Sizing is done to strengthen the yarn(Badoe 2007).

Contemporary Weaving

In Africa, the West African sub region has been recognized as procession developed culture of weaving which produces fabrics in over one hundred highly patterned areas. The West African fabrics, designed for body clothing and prayer mats, have characteristic features that could easily pass for well designed tapestries.

Ghana has an old tradition of narrow strip weaving especially among the Fulani of the north, the Ewe of the Volta region and the Ashanti in the Central belt. In the Northern sector, the weaving centres include towns like Daboya, Lawra, Bole, Wa, Kunbugu and Tamale. They produce a variety of patterns which are characterized by stripes created by the use of differently coloured warp and weft simultaneously. Their fabric is used for Fungu or Batakari garments. The Ewes and Ashantes produce the most colourful weaves.

The conventional method of Ghanaian weaving is characterized by horizontal looms. These produce narrow fabrics that must be joined together to obtain the required size of cloth. The Ashante Nsadia Kofi and the Ewe Agbati are the two most popular indigenous looms in Ghana.

The foot-power looms are larger types of horizontal hand looms which have been the traditional weaver's looms in Europe, most of which have had English origins. Although they have similar features, their main differences have been in the number of harnesses fitted on them. Some have only two for plain weave structures only. Others are equipped with four, six or even eight harnesses for designing purposes.

After studying a few indigenous weaves in Ghana, Lionel K. Idan, realized the need to modernize the equipment and techniques of weaving our rich kente. He finally designed a new loom, which although similar was of remarkable improvement to all existing indigenous looms in Ghana.

2.5 The Teacher Training System in Ghana

According to Asare (2000), Teacher training at all levels is residential boarding, essentially public and mostly co-educational. Until recently, two parallel system (post-middle and post secondary) existed for initial training of teachers for elementary schools. While trainees of the post-middle level work in nurseries and primary schools, the post-secondary level trained teachers work in middle schools and currently, junior secondary schools.

Besides training for regular primary, middle and secondary schools, Specialist training is offered for qualified teachers interested in the education of the deaf-mute and the blind. Such trainees teach in special primary and junior secondary schools teacher training colleges and polytechnics occurs in the universities.

The current primary teacher training system

Asare (2000) The training of primary and junior secondary school teacher now occurs in 38 post secondary colleges offering eight core subjects and two elective subjects(Handbook for Principals,)1992 The core subjects comprise mathematics, English language, Basics Science, a Ghanaian language, Physical Education, Culture Studies, Education theory and Agricultural science, In addition to these compulsory subjects, one offers two elective courses chosen from group one option comprising Mathematics, General Science, Agricultural Science, Technical Skills, Vocational Skill and Physical Education or from group two which consists of Social Studies, Vocational Studies, Literature in English and French.

Teacher Education

The concept of Teacher Education may be looked as a process of recruiting, preparing, assessing, certifying and registering people who would function at appropriate levels of a nation's education system as professionals charged with the responsibility of guiding the learning experiences and other socializing activities of the pupils or students.

Each aspect of the process is as important as the other and must be accorded due attention and necessary emphasis. Even though teacher preparation and assessment programme seem to be the major areas, the system or procedure for recruitment of prospective trainees cannot be compromised, or can the whole programme overlook the means of certification as this aspect is closely linked with preparation and assessment Registration of teachers, of course, ensures their recognition both by the state and their

professional association and should be considered as an important link in the chain of Teacher Education.

Okafor (1968) defines Teacher Education as that form of education which is planned and systematically tailored and applied for cultivation of those who teach particularly but not exclusively in primary and post-primary level of school. In its extended dimension, the concept encompasses the training and preparation of administrators, supervisors and guidance and counseling officers within the same frame of reference.

Good (1968) in defining Teacher Education, describes it as all the formal and informal activities and experiences that helps to qualify a person to assume the responsibilities of a member of educational (Teaching) profession and to discharge his responsibilities more effectively. This explanation thus portrays teacher education as an educational programme designed to equip and upgrade prospective teachers with instructional skills, knowledge of subject matter or content, management and administrative skills and competence in order that after their training they can function effectively at the level where they find themselves. It is further understood that teacher education also includes upgrading and equipping teachers who are already in the field (on the job) with instructional skills, management and administrative competence which would enable them to teach better and be abreast with new techniques and modern trends in teaching and education.

Scope of teacher Education

As already indicated in the definition, Teacher Education covers procedures for recruiting would-be teachers by means of suitable screening instructions after which the selected candidates are admitted into the institutions. Secondly, Teacher Education involves the academic professional and social preparation of the trainee who would at the end of the period of training be finally assessed and certified as a qualified professional teacher.

In Ghana the academic preparation comprises encounters with subject matter or content of various disciplines such as Mathematics, English, Social Studies, the Sciences, to mention but a few, which aim at equipping the trainee with adequate knowledge in those subjects so that he would feel competent and confident whenever he is called upon to discuss any aspect of these disciplines (Teacher and Teacher Education 2009, An international Journal of Research and Studies).

Professional preparation of the trainee teacher comprises opportunities to learn various methodologies both theoretically and practically. That is the student teacher is given tuition in methods of imparting subject matter to his pupils. Additionally, he has the opportunity to learn about children and how they develop and learn, what motivates children to learn and how the teacher can enhance children's learning experiences.

Finally, the professional aspect of the would-be teacher's training consists of practical use of the knowledge acquired in both pedagogy and content. This is accomplished through specified periods of supervised practice teaching in actual school situation with pupils.

The trainee's daily interaction with colleagues, tutors, administrators, resource persons, pupils and the entire social environment during the sources of his training forms his social preparation.

Assessment as part of the process of teacher education is inextricably linked with teacher preparation. It is both continuous and terminal for the student is periodically and continually given assignments and questions to answer as the course proceeds this is formative evaluation while at the end of each course and term and most importantly at the very end of the training the student is finally assessed for certification - this is summative evaluation.

The scope of Teacher Education also covers certification and registration without which the programme is not complete. While the voice teacher is certified as qualified to teach by the appropriate body such as the Institute of Education, University of Cape Coast, the beginning teacher's name is entered on the registers of teachers and given a registration number by the Ministry of Education.

Purpose

According to the Inter-Governmental Conference on Teacher Education, (UNESCO, Paris: 1968), the purpose of a teacher preparation programme should be to:

- i. Develop in each student teacher general education of academic and professional nature, as well as personal culture (principles and philosophy of life) and the ability to teach and educate others.

- ii. Develop in the individual the awareness of the principles which underline good human relations within and across national boundaries, and a sense of responsibility to contribute both by teaching and by example, to social, cultural and economic progress.
- iii. Develop in the individual a sense of initiative, creativity and the capability of adapting to rapid social and technological changes as well as the capability of interpreting changes to the pupils by continuing his own personal education throughout his professional life.

The Teacher Education programme also aims at training teachers to provide leadership in community development projects and extra-curricular work. In view of the above every beneficial teacher education programme should have broad cultural base and should be structured to ensure the development of the following qualities in the would-be teacher:

- i. Work with pupils in the spirit of cooperation and professional competence.
- ii. Understand human development and the diverse social backgrounds, and modern skills in pedagogy
- iii. Efficient use of social and natural resources which the local environment and technology provide
- iv. Foster the spirit of disciplined enquiry and understanding of methods and achievement in science for human welfare
- v. Recognition of self development through continued learning

- vi. The ability of the teacher to bring together all the various components that make up professional competence and from these develop style best suited to himself. This will ensure that the teacher Education programme does not produce stereotyped teachers.

In sum, though the major objective of teacher training programmes is the preparation for instructional work, since non-instructional supportive functions are needed to develop socially desirable outcomes in pupils, teachers must acquire skills in the non-instructional areas. That is to say non-instructional supportive functions like administration, organizing clubs and societies, etc, are highly essential and should form part of teacher preparation. In this and others, teachers will be expected to work in teams, and with other specialists in society.

Relevance

Educational systems change in response to changes in society. These changes include technological advancement, enlarging communication network, rapidly increasing population, impact of the mass media and social mobility.

Teachers and teacher educators need to be acquainted with these social changes as well as the impact these changes have on the educational enterprise so that they can if and when necessary adjust, or modify their orientations and techniques in order to keep abreast with time to make education relevant. Hence teacher education as a field of study should constantly keep teachers-in training as well as teacher educators well informed about the system of education they would be functioning in.

Curriculum Principles

From the goals of education in Ghana as stated by Anamuah (2001) the following broad curriculum principles guide the design of the curriculum for the different levels of education.

1. Incorporate spiritual, moral and ethical principles into all curriculums.
2. Provide all children with the foundation of high quality free basic education and to ensure that second cycle education is more inclusive and appropriate to the need of young people in developing demand-driven and market responsive skills to meet the need of a growing and diversifying economy.
3. Inculcate citizenship and a sense of national pride and identity, and individual rights and responsibilities among pupils
4. Focus on the development of knowledge, skill and competencies needed for the job market.
5. Promote analytical, creative , critical and problem solving skills
6. Adopt an outcome-based, result-oriented functional education system.
7. Introduce the development and application of minimum standards of performance in all subjects' areas to ensure that all school leavers acquire critical basic knowledge and skills.
8. Encourage a shift from humanities to science and technology and ICT as the basics for our development.

9. Create a parallel structure to academic programmes at senior high school level in order to promote a shift level in order to promote a shift to TVET.
10. Formalize apprentice training as part of the educational system
11. Promote links with the world of work
12. Provide opportunities for ensuring the inter-connectedness of the different levels of the education ladder
13. Provide opportunities for further education and lifelong learning
14. Promote gender equality, equity and respect for gender differences
15. Place emphasis on nurturing commitment and discipline
16. Promote holistic education that enables the individual to develop his / her full potential.

Developing Creativity

- Society is bound to be in crisis when there is lack of creativity in all aspects of national development. Acquisition of creative skills can be done through any subject in the school curriculum. However, Visual Art has been one of the subjects whose primary purpose is to foster creativity in the individual. In Ghana, little attention has been paid to the role that visual Art plays in the development of the whole person's mind, body and spirit.

- Visual Art Education plays an immense role in solving problems created by Science and technology, population explosion, industrial development and the environment. Persons redeployed from problems created by industrialization, engage in creative activities.

- In colleges of Education, Visual Art must be taught to promote creativity since the teachers will be guiding future citizens of the country. Materials and tools abound in the locality, and can be acquired cheaply. Experts in indigenous skills are also available to provide their expert resources when their assistance is solicited.

- Visual Art education helps student's knowledge and application of the arts of the past and of the present so as to prepare for the future.

- Visual Art objects provide sources of visual knowledge since it is possible to decipher the history, sociology, anthropology, philosophy, religion and psychology of the system that produced the artifact.

- Visual Art is used as a means of visual education on governmental issues such as fire hazards, immunization, primary health care, aids, guinea worm and political ideologies. Visual Art enables a person to understand visual relationship in the environment.

- Ghana needs visually literate individuals of its modern society who can make correct visual judgment about the environment. Art is used as Therapy to temper human tension and other psychological problems of human development. By the nature of art activity, an artist acquires skills in harmonizing contradictory ideas such as shapes, textures, colours and forms. He develops qualities of interpersonal and cordial human relationships. The artifact is an economically viable object and helps to enhance one's income.

- We owe our children the duty of transmitting our accumulated knowledge, values, beliefs and attitudes to them through visual Art activities. The College of Education Visual Art programmed strengthens the creative base in the

development of our local resources. The Visual Arts programme also unearths indigenous Visual Arts Technologies that need to be handed down to our children for improvement towards national development. According to Amenuke et al., (1995)

2.6 Teaching of Visual Arts

The study of Pre-vocational Visual Arts related subjects in Ghanaian's Teacher Education Colleges is based on the theory of learning by understanding, not rote learning. Practical problem solving methods are adopted. As much as possible, time should be spent on the teaching and learning of hands-on activities. While treating each topic, the tutor acts as a facilitator who is constantly resourceful, experimenting, helping, encouraging, directing and guiding the teacher trainees, (CRDD, 2000).

The Pre-Vocational Skills programme consists of 12 discreet subject areas. These are:

- Principles and methods of teaching visual arts related subjects.
- Basketry
- Textiles
- Bead making
- Gourd and calabash work
- Graphic design
- Leather work
- Paper craft
- Picture making

- Pottery and ceramics
- Sculpture

It can be seen from the list that the only two subject areas have weaving as component are basketry and textiles. The details of these two areas are as follows

Basketry: The course covers the study of basketry as a vocation, the rationale for teaching and learning of basketry, a brief historical development of basketry in Ghana, basic tools, equipment and materials, basic skills in making basketry items, costing, pricing and marketing, setting up and managing a basketry enterprise.

Textiles: The course covers the study of textiles as a vocation, the rationale for teaching and learning of textiles, a brief historical development of textiles in Ghana, basic tools, equipment and materials for textiles basic skills in making textiles, setting-up and managing a textiles enterprise. Although basketry and textiles are two distinct subjects the training College curriculum has this one subject.

The rationale for teaching and learning textiles/basketry are:

- Acquisition of basic skills to teach at basic education level.
- It is of socio-economic importance
- Textile items are useful.
- Basketry provides education of the head, heart and hand.
- Basketry transmits and preserves Ghanaian culture.

2.7 Teaching and Learning Strategies

Amenuke et al., (1995) explains that the learner and child centered approach is a method that concerns the specific needs and characteristics of a particular group of students. He explains that appropriate teaching techniques include:

- Field trip: exposure to the real world outside the classroom
- Cultural involvement: cultural activities in and outside school.
- Art exhibitions: exposure to art shows, art galleries and displays
- Leadership roles: through role-play
- Community involvement: out of school activity in the community
- Career orientation: this can be done in art (art vocations) and through art.
- Experiencing art by making artifacts and responding to them (appreciation, criticism, judgment)
- Discussing indigenous and contemporary (modern) values. Beliefs and altitudes.

Art as perception perceptual approach

Perception in this context is the use of sense organs in seeing, hearing, tasting, smelling, touching and moving. Perception deals with the study of immediate experiences of living organisms. These experiences include identifying objects, discriminating, reorganizing and judging the objects by means of information we get from our senses.

Appropriate techniques

Amenuke (1995) asserts that the learner is guided to explore the environment (collect information through the senses) by seeing, smelling, hearing tasting, touching and lifting. This leads to understanding of characteristic of what is perceived.

Perceptual approach requires a process of organization, which leads to awareness and understanding the eye see-colour, size proportion, movement etc. the ears hear-sound and rhythm.

The nose smells – sweet scent, pungent scent, the skin feels-temperature, and hardness/softness. The tongue tastes bitterness/sweetness and hotness. The muscles lift heaviness/lightness.

- The learner must be taken through experiences of the senses.
- Perceptual approach is a training for environmental aesthetics (relationship of things)
- It is training in usual discrimination.
- The learner is guided to experience things around him/her by visually recording impressions and feelings through art activities.
- Let the learner think, act and feel with tools and materials first by exploring with objects and then going through art processes.

Experiential approach to visual art

Amedahe et al., (1994) outlines the following about the experiential approach to art:

1. This method involves direct experiences with art materials tools /equipment and processes (technologies) as the basic for aesthetic and artistic growth.
2. It covers exploration in a variety of tools and materials which leads the learner to discover possibilities and ideas for artistic expression.
3. It is a very extensive approach to art because it requires the use of physical materials, books and a wide range of ideas.
4. This method relates to general goals of art education such as:
 - Art as therapy
 - Art for fostering creativity
 - Art as career
 - Art to enrich the curriculum
 - Art as a process and a product
5. This method encourages learning by doing, which lead the learner to researching (problem solving), discovering, inventing and innovating.
6. The method covers breadth and depth approach to art teaching.
7. There is the need in this method for the learner to articulate and recapitulate the learning experiences as a sequential activity.
8. The major problem with this approach is how to incorporate the intellectual skills with the psychomotor skills of making art. The teacher should ensure that in all

activities, situations are created for learners to think, make, and feel (talk about and products.

Visual Art teaching methods

Amedahe et al., (1994) explains that every subject has its own method of teaching. Visual art teachers may adopt any of the methods so described. However, when teaching by any of the methods, certain techniques may be used. These techniques are lecture, discussion, project, field work, problem solving, discovery, demonstration, role play, experimentation, real-life, brain storming, skill-based methods.

For example in the experiential method of teaching art, discussion technique, project, field trip, group work techniques may be used. The professional art teacher should decide on the suitable techniques to be used in any given art method.

Total development of the learner in the education reforms of Ghana, emphasis is placed on;

- i. Intellectual skills ability to think and reason (education of the head)
- ii. Psychomotor/ manipulative skills: the use of the hands in making artifacts.
(Education of the hand)
- iii. Affective skills (feeling): development of social or interpersonal relationships. This is acquired in art through response to art (appreciation, criticism, or knowledgeable talk about art) i.e., education of the heart.

Whole education – education of the head, hand and heart.

Visual Arts Teaching Techniques

Amedahe et al., (1994) explains that it should be noted that the approaches to art as outlined in this paper are art methods. Every subject has its own method of teaching. Visual art teachers may adopt any of the methods so described.

However, when teaching by any of the method, certain techniques may be used. These techniques are: Lecture, discussion, project, field work, problem solving, discovery, demonstration, role play, experimentation, real-life, brain storming, skill-based. For example in the experiential method of teaching art, discussion technique, project, field trip, group work techniques may be used. The professional art teacher should decide on the suitable techniques to be used in any given art method.

Total development of the learner in the education reforms of Ghana, emphasis is placed on Intellectual skills ability to think and reason (education of the head) and Psychomotor/manipulative skills, the use of the hands in making artifacts. (Education of the hand) Affective skills (feeling): development of social or interpersonal relationships. This is acquired in art through response to art (appreciation, criticism, or knowledgeable talk about art) education of the heart. Whole education, he described as education of the head, hand and heart.

2.8 Policy on Quality Teacher Education

Teacher policy research is a research partnership between education-related universities of different countries which aim at improving the academic and professional

status of teachers. One example of this partnership exists between the University of Alberta in Canada and the University of Virginia. Here, current useful data is provided to education policy makers, to inform their policy decisions on issues in teaching and teacher education. The researcher is funded by organizations interested in evaluating current education policies and issues in education in order to effect change or implement new policies as needed.

The research covers a broad range of issues in teacher education, policy, including teacher preparation, teacher labor markets, how teachers are distributed across schools and teacher retention, particularly in urban, low performing schools. The teacher pathways project is multiyear study of teachers and teacher preparation programs to examine characteristics of teacher education and pathway into teaching and identify attributes that impact students outcomes in New York City schools.

In Ghana, there seems to be no such collaboration between our teachers' universities and a foreign one. However, the government has established a council that sees to the promotion of high academic, professional and moral standards of our teachers. This council is the National Teaching Council.

In sum, though the major objective of this research is to help solve the problem of teaching weaving techniques in schools, under the related literature review the following sub headings were looked at: History of weaving, weaving techniques, tools, equipment and material, traditional and conventional weaving in Ghana. College of Education in relation to Art, Teaching syllabus of visual Arts, Teaching and Learning Strategies and policy on quality teacher education.

CHAPTER THREE

METHODOLOGY

This chapter explains the process and procedure for collecting data that was analyzed to answer the research questions. It describes the use of qualitative methodology, experimental research method, descriptive method and action or teacher research which were used in the research.

3.1 Research design

The study adopted the qualitative research method which encompasses several approaches to research that are, in some respects, quite different from one another. Yet all qualitative approaches have two things in common. First, they focus on phenomena that occur in natural settings that is, in the real world. And second, they involve studying those phenomena in all their complexity. Qualitative researchers rarely try to simplify what they observe, instead, they recognize that the issue they are studying has many dimensions and layer, and so they try to portray the issue in its multifaceted ways (Johnson, 1993).

The experimental research method, according to Best (1991), is a process that provides a systematic and logical procedure of identifying and evaluating the relationship between variables that create a particular state of affairs under controlled condition. The experimental method can therefore be understood to mean a research based on the topic in the hope of making a discovery or as a test of the research questions of a particular study, as in the case of this research on using a variety of media in teaching weaving.

The descriptive research method may be defined as the collection of data for the purpose of describing and interpreting existing condition prevailing, practice, beliefs, attitudes, on-going process Best, (1991). However, the central purpose of descriptive research is not just the description of what is but also the discovery of the meaning. This method can also mean tracing out, drawing or giving an account of anything in words and explaining an existing condition, present and on-going process. (p. 114)

In this project, the descriptive method was used to describe and explain the preparation of the materials, tools and equipment used for weaving and their uses. It was also used to describe and explain step by step, the various methods or processes of making woven artifacts.

Action or Teacher Research

Teacher research is usually referred to as action research, practical enquiry, practice-centered enquiry, practitioner research, and so on, (Downhower et al, 1990; Williamson, 1992). All these terms imply that the teacher is an active generator or constructor of knowledge, rather than a mere passive consumer of knowledge generated by other people (Miller and Pine, 1990; Williamson, 1992). Action research or teachers' practice-centered research involves systematic enquiry with a focus on the practical. It seeks to answer questions and solve problems that arise from the day-to day activities and occurrences in the classroom or the school. McKay (1992), Twine and Martinek (1992) say that action research can take the form of an experimental design, (such as testing the effect of a new teaching method on student learning.) or systematic

observation, as for example, carefully observing a trend in a school or classroom so as to find a solution to it.

Action research can also be a descriptive research, such as one aimed at understanding the nature of a phenomenon in the classroom, the school, or the community at large. Action or practice-oriented research can also be an ethnographic study or a case study, as for example, studying child-rearing practices of a particular family so as to establish a link between their child-rearing practices and the academic performance of their children.

Action research is a scientific method of generating knowledge. As such, McKay (1995) has identified a six-step cyclical process:

1. Identifying an issue that one wants to find out about and understand,
2. Gathering and reviewing related information,
3. Developing a plan of action,
4. Implementing the plan,
5. Evaluating the results, and,
6. Repeating the cycle with a problem derived from what was learned in the first cycle. This cycle goes on until the question is answered.

In recent and current literature on educational reforms, such as the 1990 and 2008 reforms, action research has been heavily emphasized. Teachers are encouraged to conduct practice-oriented research and to use their research findings to inform and enrich practice. First, teachers are enjoined to do action research that entails a review of the curriculum. In their contribution to curriculum development, teachers are enjoined to

identify problems pertaining to the content of the curriculum, especially their relevance, currency, gender-sensitivity, sequencing, and suitability to the grade. When teachers study and point these out, the findings tend to serve as inputs for improving on the system. Textbook evaluation is an important piece of enquiry that can lead to removing author biases, prejudices, and labels. Without a critical classroom-based or school-based curriculum evaluation, the curriculum development process cannot be made dynamic.

Teaching has always been informed by new ideas in psychology, sociology and social psychology. The computer and computer games have also come in with techniques that teachers can adapt to enrich their teaching. The teacher as a researcher is enjoined to develop innovative approaches to teaching, as well as innovative material for learning. Teachers should not be limited to the time-honored methodologies learned in the teacher education institution: they must build upon the heritage by developing their own innovative methods of teaching their subject.

The teacher as a researcher is reflective. To be reflective is to look back over what has been done so as to extract the net meanings which are the capital stock for intelligent dealing with further experiences. Reflective teachers in this case must look back over their accustomed styles of teaching and then assess how effective these styles have been. It is by doing so that they can improve on their teaching. They must also look back over policies and classroom practices that are inimical to teaching and learning.

Problems and issues in the classroom, the school and the community at large are varied. In the primary and junior secondary schools, teacher frequently encounter problems of lateness, truancy, absenteeism, failure to do homework, reading difficulties

and so on. The root causes of these common problems must be investigated through action research; and when results are arrived at, interventions must be put in place to deal with such behaviours of students.

In this era of knowledge explosion, teachers cannot claim to be teaching relevant and suitable and current subject matter unless they bury their heads in research. Teachers must do intensive and extensive study of textbooks, reference books, and other supplementary sources of knowledge, and these must be subjected to careful examination for quality of language and subject matter. By so doing the teacher can deal with, and refresh the content of course, syllabuses, and teaching notes.

It is anticipated that teachers undertake action research in their classrooms regularly so that the learners, the schools, and the community at large will derive innumerable benefits. First, teacher research empowers teachers and gives them confidence in their ability to promote change (Downhower et al., 1990). Teacher confidence is boosted when they are able to generate and use knowledge that they have generated or contributed to generate. Action research makes teachers more critical and responsive readers and users of research findings, rather than mere consumers of textbook content. Miller and Pine (1990) suggest that when teachers become agents of enquiry they tend to become owners of the knowledge rather than mere consumers of other people's knowledge (textbooks and other researchers' ideals). The professional status of teachers is enhanced because teachers actively help to generate and shape the knowledge base of their profession (Johnson, 1993). In this study action research was adopted because it deals with interventions.

3.2 Library research

The following libraries were consulted for this study

- British Council Library in Kumasi.
- ICT Libraries of KNUST.
- Textile Department of KNUST.
- University Libraries of Winneba.
- Akatsi College of Education, Akatsi.

3.3 Population for the study

The research is based on heterogeneous population of teacher trainée in southern Ghana. The target population comprised-all Visual Arts tutors, teachers, students, pupils in Akatsi District. Accessible population was Visual Arts tutors, teachers, students, and pupils in Akatsi College of Education campus.

3.4 Sampling techniques and sample description

The sample chosen consisted of 30% of the second year Visual Arts students of Akatsi College of Education for the demonstration lesson and experiment outcome of the weaving project.

The Stratified and simple random sampling techniques were employed in the research because of the large population. It is the best way yet devised by human beings to obtain a sample that is representative of the population from which it has been selected. Stratified because, it virtually ensures that any key characteristics of individuals is represented in the sample.

3.5 Instrumentation

The researcher used unstructured interviews, observation and demonstration approaches of gathering data from the population Tran selected.

- Interview approach was used to collect information from the students, teachers and pupils.
- Participant observation method was also used to enable the researcher actually participate in the situation.
- Demonstration was adopted to emphasize the process on techniques in the work.
- Questionnaire.

3.6 Interview and Observation

Personal interviews were conducted with students and teachers. Direct contact with the students and tutors created the opportunity for the researcher to observe the various tools and materials used, as well as the actual weaving processes and techniques. These interviews were conducted at four colleges in south-western part of Ghana, namely, Ada College of Education, Peki College of Education, Amedzofe College of Education and Akatsi College of Education.

Apart from the interviews, personal observation of some of the processes and techniques of weaving also took place. The critical observation enabled the researcher to identify the differences that exist among the various tools, especially, the shapes of tools and materials with which the tools were made.

3.7 The Questionnaire

The questionnaire was of two sections. The section A dealt with particulars of the respondents, while the section B dealt with the state of weaving in colleges of education. The latter was further divided into two phases, with the first phase being questions with answers to choose from. The second phase consisted of open questions where the respondents supplied their own responses. The use of the questionnaire as a research tool helped to unearth the reasons that have contributed to the neglect of weaving in Colleges of Education. It has also suggested possible measures to be adopted to enhance the teaching of weaving. Indeed, the responses from the questionnaire have absolutely welcomed the idea of weaving techniques in Colleges of Education in Ghana.

3.8 Administration of Questionnaire

After pre-testing the questionnaire on selected course mates, the researcher had personal consultation with the specific population, for their permission or willingness to answer the questionnaire. The questionnaires were designed to seek data from the textiles Tutors/Teachers, using simple random sampling from selected schools in Ada College of Education, Peki College of Education, Amedzofe College of Education and Akatsi College of Education. In all, 20 copies of the questionnaire were self-administered.

Having won their support, the researcher distributed 12 items of questionnaire to textiles tutors, at the appropriate time, the researcher went round to collect the entire questionnaire. He then assembled the responses, analyzed and interpreted them.

3.9 Identified Materials and Tools for weaving

Palm rachis

The local materials Baah (2000) identified as suitable weaving materials are palm rachis, fan palm, Cyprus reed and off-cuts. These are materials that the indigenous people in the study area use in weaving mats, baskets and other items. Palm rachis is the mid-rib that holds the leaves of the palm tree species which include oil palm, coconut, date palm, fan palm and raffia palm. Palm rachis has a round back and flat front. The back is usually harder than the front but is more pliable and therefore used mostly by local weavers. The front is usually used for stakes and starting the basket.

Preparation

1. Cut the palm rachis from the palm tree and remove leaves.
2. Keep it for two to three days in shade to make it more pliable “this is optional.”
3. Peel off the back and front covers of the rachis.
4. Split and cut the stakes and weavers to the length and size desired.
5. You may choose to scrape the back of the stakes and weavers.

Palm leaves

The leaves of some palm tree species are also used in basketry. These include raffia palm, date palm, oil palm and fan palm. In the local communities, these materials are used to weave traditional sieve, mat, basket, traps, etc.



Plate 1: Palm tree - the source of palm rachis for weaving

Raffia palm

The fibre of the raffia palm leaf is a versatile material for making assorted articles in basketry. Because of its characteristics of being strong and pliable, raffia is easily twisted, coiled, wrapped and plaited to make articles such as bags, belts, hats, mats, baskets, ropes and also used for stitching, tying and binding in basketry.

Preparation

1. Cut the tender shoot of the raffia leaf.
2. Remove the thin foil of cover from the leaf surface.
3. Dry the thin raffia threads in the sun for preservation.
4. Using a needle, split the rest of the leaf into thin strips for weaving.

Date palm

Date palm is a species of the palm family which is found in humid tropical areas. It needs considerable moisture to grow and is therefore found mainly in swampy areas. The tender shoot is ideal for basketry because of its quality of strength and flexibility. It is very pliable – it can bend and be twisted in any form. The leaves are used for baskets, plaited hats, bags and mats.

Preparation

1. Cut and Dry the young shoot in the sun for between five to seven days.
2. Cut the leaves from the mid rib.
3. Use a needle to split the leaves to the desired sizes. You could split, leaving some space at the base to have the splits together in a bunch.
4. You may use the split weave dyed or in its natural colour.

Fan palm

This is found usually on grasslands. The leaves are used for making baskets, mats, fans, hats and other articles.



Plate 2: Fan palm tree

Preparation

1. Harvest the young tender leaves at the stem.
2. Use your fingers to split the leaves into single units and cut them off the stem.
3. Cut off the sharp pointed tip.
4. Dry for about a week.
5. Wet to make it more pliable before use.

Pandanus

This is a variety of the pine species, usually found in swampy areas. Both the leaves and roots are used for basketry. The leaves are used in binding, weaving, plaiting and coiling articles such as baskets, mats and fans. The roots produce fibre for weaving.

Preparation

1. Remove the thorns at the sides of the leaves with a knife.
2. Dry them in the sun for a day.
3. Rub the leaf over the edge of a flat piece of wood. This will make the leaf soft and flat.
4. Dry the soft leaves in the sun for about a week.
5. Roll them firmly and tie together for storage.
6. When ready for use, split into strips of desired width and/size.
7. Wet a little to make it them pliable before use.

Grass

The stem and stalk of some grass species could be used in making basketry articles.

Preparation

1. Roll each arm of the two split stalk on your thumb one at a time.
2. Roll the two rolled splits together until they become well twisted.
3. Dry and store for use. It is advisable to wet before use.

Cyprus Reed

These are found in swampy areas. Their round and soft nature makes them ideal for weaving mats and containers.



Plate 3: Cyprus reed

Preparation

1. Cut the rushes.
2. Dry them in the sun for a day.
3. Beat them gently with a stick on a flat surface.
4. Dry again for a week to prevent rotting.
5. Store and use when desired. Wet to make it pliable before use.

Corn Shucks

This is a common material found in every corn producing community in Ghana. They are used for weaving hats, mats and baskets using the coiling, plaiting, tying and stitching processes.



Plate 4: Corn Shuck

Preparation

1. Remove the shucks from the corn cob.
2. Wash and dry.
3. Tear them into strips for weaving, braiding and plaiting.

Fibres

Fibre for basketry is got from sisal, pineapple, pandanus root, banana and plantain stems and the barks of some trees.

Sisal

Sisal and pineapple are of the same species. To make sisal or pineapple fibers:

1. Cut the leaves from the stem.
2. Beat the leaf into pulp or soak in water to decay.
3. Wash to remove fibre from the pulp or decayed leaf.
4. Dry in the sun for some time.
5. Twist them into ropes and twines for weaving.

Plantain and Banana Stem

Fibre from the stem and stalk of plantain and banana plants could be used in basketry.

Preparation

1. Cut the stalk of the plant.
2. Split the stem into two or four parts.
3. Beat the stem or stalk into pulp.
4. Wash and dry the fibre.
5. Roll fibre into yarns for weaving.

3.10 Weaving Methods

In this study, paper, off-cuts and plant materials were used to demonstrate the feasibility of these local raw materials for the teaching and learning of weaving and basketry. There are a number of techniques associated with weaving. This project was

based on Plain, Twill and Jiffy weaving techniques and the following activities as indicated in the colleges' syllabus guiding the course of studying weaving in the Colleges of Education. The techniques adopted were plain weaving, twill weaving and jiffy weaving and the articles made were paper mats, fabric off cuts mat, traditional fan, and sieve.

3.11 Project One: Plain weaving using paper

Tools and materials used: - Scissors, ruler, pencil/brush, manila cards, poster colour, white wood glue and tape measure.

Procedure: Cut a piece of card in the form of a rectangle measuring 30 cm by 20 cm.

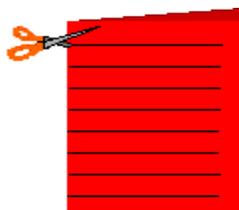


Fig. 4: Folded card for the warp stripes

1. Fold the card in half and draw a series of lines 2 cm apart across the fold. Leave 2 cm margin at the edge as in Fig. 4
2. Cut along the lines and open card and spread flat on table as in Fig 5 below.



Fig. 5: Slits cut in card for weaving

3 Cut strips of other coloured cards 2 cm wide and same length as that of the large piece of card used in the last step.



Fig. 6: Coloured strips of card for weaving

Step Two: Start weaving the coloured strips into the large card ensuring that each new strip is pushed up next to the previously woven piece as in Fig. 7. The strips are numbered as follows: 1, 2, 3,4,5,6, 7, 8, 9. Starting from one, interlace the weft paper over- one under-two, over-three, under-four Pattern and repeat for rest of strips .The card should lie flat on the table. The process continues until the whole sheet is woven, trimmed and glued as shown in Plate 6.

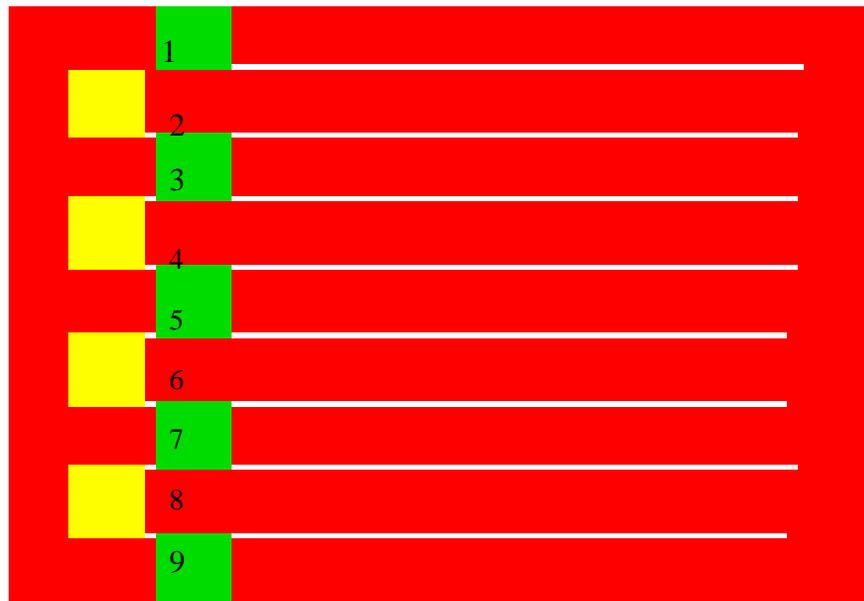


Fig. 7: Weaving with the strips

Step Three

The method of weaving as illustrated was based on the order of interlacing in simple plain weave structure. The most popular basic weave was used based on over-one under one technique as shown in Fig6.

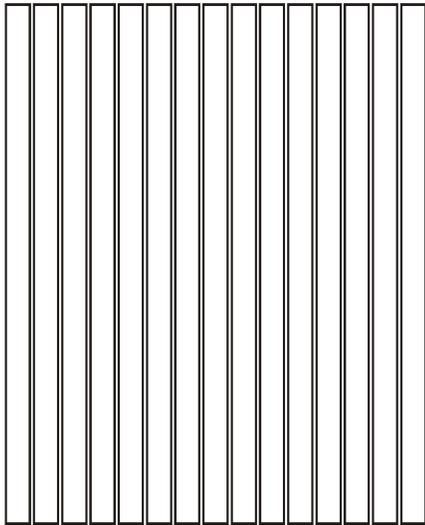


Fig.8: Paper strip warp laid.

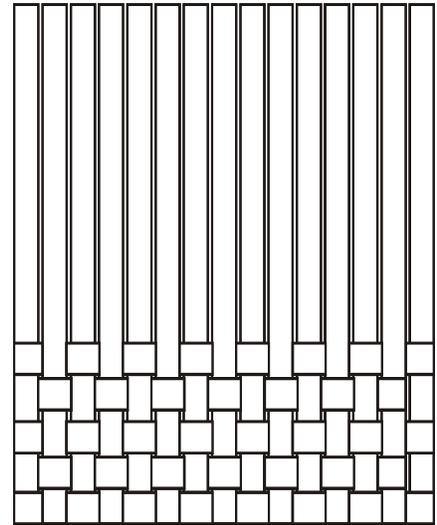


Fig.9: Under-one-over-one interlacing



Plate 5: A demonstration of the over-one-under-one technique



Plate 6: An example of plain weave using paper



Plate 7: An example of plain weave using yarn.

Project Two: Twill Weaving Using Paper

Tools and materials used were pair of scissors, rule, pencil, brush, manila card, poster colour, white glue and tape measure.

Step One

- Cut a piece of card in the form of a rectangle measuring 30 cm by 20cm.

- Fold card in half and draw a series of lines 2cm apart across the fold; leave 2cm margin at the edge as in Fig 1.
- Cut along the lines on card and spread flat on the table as in Fig 2.
- Cut strips of other coloured cards 2cm wide and same length as that of the large piece of card used in the last step.
- Start weaving the strips onto the large piece of card ensuring that each new strip is pushed up next to the previously woven piece. Fig 13 below illustrates that.
- The technique used to interlace the weave was based on under two, over two.
- In Fig 13, the over two under two interlacing was well demonstrated.
- The interlacing was based on under two, over two of the weft paper.
- This process continues until the weft paper ends at the other side of the cut sheet
- Other weaves can be produced by picking the warp in the order of under one, over two, under one, over three, under two, over two and so on
- The end results were trimmed and glued as shown in Plate 8.



Fig. 10: Slits cut in card ready for weaving

Step Two

Next, cut strips of other coloured cards 2 cm wide and same length as that of the large piece of card used in the last step.

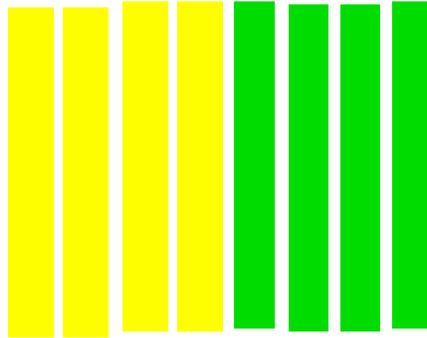


Fig. 11: Coloured strips of card to be woven

Start weaving the strips onto the large strip of card ensuring that each new strip is pushed up next to the previously woven piece. The common twill weave is 2/2 interlacing which is illustrated in Fig 13.

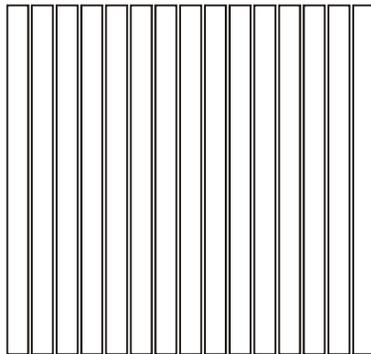


Fig. 12: Paper stripe warp laid

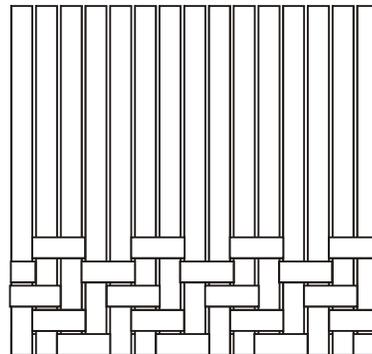


Fig. 13: Under-two-over-two interlacing

Step Three

Finished paper weaves based on over 2-under-2 twill weaves displayed in Plate 8 shows the characteristic features of twill weaves. The diagonal lines, zig-zag lines and wave lines are seen in the woven Artefacts.



Plate 8: Examples of over-two-under-two twill weave using paper.



Plate 9a: An example of over-two-under-two twill weave using yarn.

3.13 Project Three: Weaving on frame

Tools

Weaving frame and a beater.

Materials

Warp: ropes or twines twisted from the fibres of banana, plantain, sisal, roselle, congo jute, kenaf, corn shucks, raffia, coconut coir, or ready-made cotton yarn or similar yarns.

Weft: the same materials as warp or guinea grass stalks, Cyprus reed, cats tail leaves, screw pine leaves, midribs of oil palm leaflets or similar midribs, peelings of the rachis of oil palm or raffia palm, rattan palm canes, fabric off-cuts or similar materials.

Example as shown in plate 9b.



Plate 9b Example of materials for Jiffy weaving

Methods

1. Laying the warp
2. Tie one end of the rope or twine to the first or last nail in one of the two rows of nails on the table loom or weaving frame

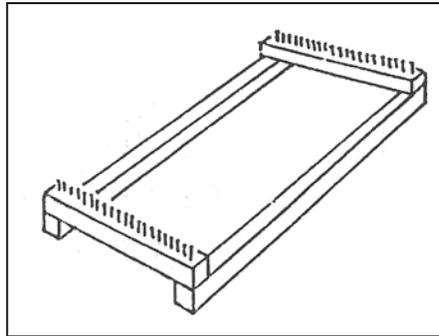


Fig. 14: The weaving frame

3. Pass the rope or twine vertically up and down the length of the frame, each time going around the next nail successively as shown in Plate 10a.
4. Secure the end of the rope to the last nail. This formation will serve as the warp.
5. Take more rope or twine. With the help of the shed-stick, pick the warp in the order of 'under one, over one' from one edge to the other.
6. Insert the rope or twine through the shed, from one selvedge to the other.
7. Beat the weft in to position with the beater. Repeat the process, but pick the warp in alternate order. This will produce a plain or tabby weave.

Other weaves can be produced by picking the warp in the order of “under one, over two: under one, over three: under two, over two” and so on.

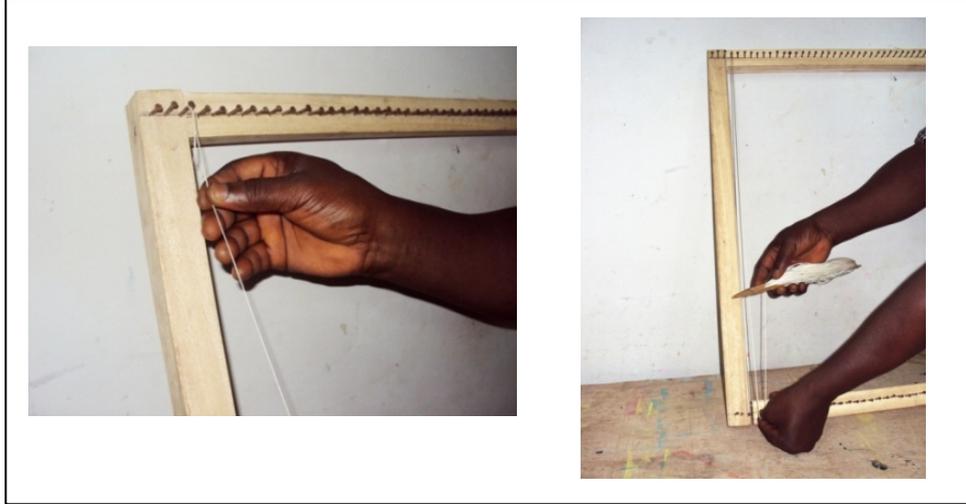


Plate 10a: Laying the warp on the frame

First steps in weaving on a weaving frame.

- A. Laying the warp on the frame
- B. Inserting the weft in the shed
- C. Inserting the shed stick in the alternate order.

Fig. 14: above shows the weave frame. In the preparation of the frame, four sticks, two for the length and two for the breath were used. The nails on the frame were given equal intervals as shown in the figure above.

Step One

Preparation of the Jiffy weave frame

Plate 10a above indicates the starting point of the warp laying. Tie one end of the rope or twine to the first or last nail in one of the two rows of the nails on the frame loom or

weaving frame. Then pass the rope or twine vertically up and down the length of the loom, each time going around the next nail successively. The process continues until the warp is well stretched on the frame.



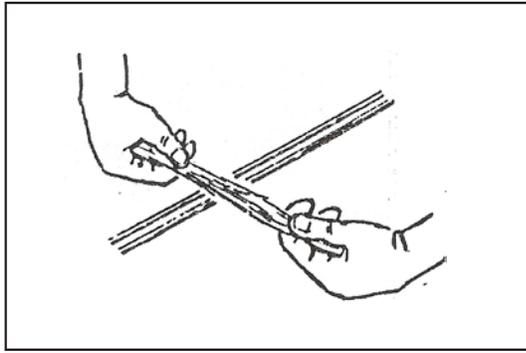
Plate 10 (b): Laying the warp on the frame

Step Two

Fig 15 (A,B,C) show the Downward tuft techniques of Jiffy weaving. The process at (A) explains the procedure of putting off-cut or materials over the warp yarn. You will realized the two strips of lines and the hand showing over lapping,

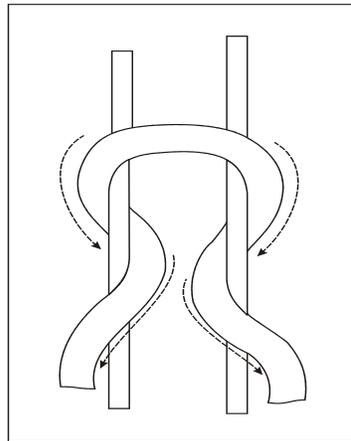
In (B), this illustrates the movement of the weft material over the warp yarns and the arrows indicate the movement of weft around the warp years.

At (C), the illustration indicate or describe the weft yarn was used on the warp yarn on finish the process of Down ward tuft techniques was used.



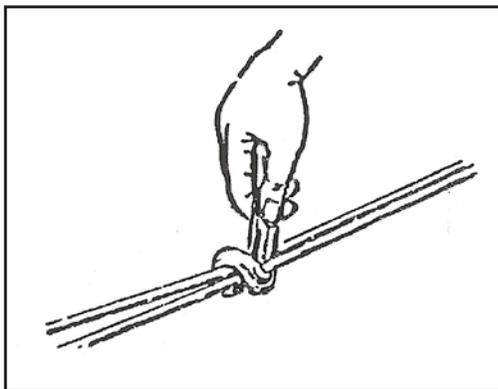
This illustrates the starting point off- cut on the warp yarn.

Fig 15A Downward tuft techniques



This illustrates the movement of the off - cut material around the warp yarn.

Fig 15B Downward tuft techniques



This shows the final stage of the off- cut on the warp yarn.

Fig. 15C: Downward tuft techniques

Start of weaving



Plate 11 (a) : Weaving with off-cuts using the over-two-under-two technique



Plate 11 (b): Weaving with off-cuts using the over-two-under-two technique

Step Three

Plate 11a illustrates the beginning of the process of weaving with off-cut materials. The cut strips of other coloured pieces of cloth were cut 2cm wide and same length as that of the large piece of cloth used in the last step. Weaving with off-cuts using the over-two-under two techniques was carried on throughout.

Plate 11b explains the continuation of the process. Plate 7 (c) Shows how the process continues until the whole warp yarns is woven on.



Plate 11 (c): Weaving with off-cuts using the over-two-under-two technique

Step Four

Plate 12. Displays the back of the mat being woven with off-cut fabrics. It was seen that beautiful colour strips were formed at the back of the woven piece.



Plate 12: A display of the back of the mat being woven.



Plate 13: A display of the front and back views of the woven mat

Students' Activity

Plain, Twill and Jiffy weaving techniques were introduced to Akatsi College of Education students to enhance the aesthetic quality of their works. These students form

part of the second year group of teacher trainees being prepared to teach in Primary and Junior high schools The sample college students were taken through weaving processes involving the use of paper, fabric cut-offs, and plant materials collected from the local environment which included palm rachis and fan palm leaves. The two main weaving techniques employed were the plain and twill weaving techniques. Some of the processes and artifacts produced are documented in the form of pictures.



Plate 14: Students preparing a frame for weaving



Plate 15: Researcher commenting on frames made



Plate 16: A class of students weaving mats using paper.



Plate 17: Students observing a weaving demonstration by a colleague



Plate 18: Woven paper mats ready for appreciation



Plate 19: Students appreciating their woven paper mat.

3.14 Project Four: Weaving Fan

Tools:

A good pair of scissors is required both for cutting into workable length and for trimming of any excess. Knives, cutlass and razor blades are useful alternatives.

Materials:

Fan palm, this is found usually on grass lands. The leaves are used for making baskets, mats, fans, hats etc.

Preparation of Fan Palm Leaves for Weaving a Fan

Harvest the young tender leaves at the stem.

Use your fingers to split the leaves into single units and cut them off the stem.

Cut off the sharp pointed tip.

Dry for about a week.

Wet before use to make it more pliable.

Step One

This illustrates the starting points of the Plain weaving process as shown in plate 20 below.



Plate 20: Starting to weave a fan

The weaving technique used was based on plain weave technique of over one-under-one throughout the process. Plate 21 explains this stage.



Plate 21: A display of the under-one-over-one technique.

Step Two

The finishing stage is illustrated in plate 22.



Plate 22: Tucking in the individual leaves to finish weaving the fan

Step Three

This illustrates the trimming stage of the product.



Plate 23: Trimming off the loose leaves to give the fan a neat finishing

Step Four

The finished product displayed in plate 24 below.



Plate 24: The finished fan

Students' Activity

Back in college, students of Akatsi College of Education were guided to employ the over-one-under-one technique to weave fans. Plates 25, 26, and 27 demonstrate the splitting of the palm leaves for weaving, the actual weaving process using the plain weaving technique and the finishing as well as trimming off the loose leaves (to give the fan a neat finish for use).



Plate 25: Splitting the fan palm leaves apart for weaving



Plate 26: Students weaving the fan.



Plate 27: Students finishing and trimming the woven fan

3.15 Project Five: Sieve Weaving

Tools:

A sharp cutlass and a pair of scissors are required both for cutting into makeable length and for trimming of any excess. Knives and razor blades are useful alternatives.

Materials Preparation:

Palm rachis. This is the mid-rib that holds the leaves of the plan tree species. The palm tree species include oil palm, coconut, date palm, fan palm and raffia palm. Palm rachis has a round back and flat front. The back is usually harder than the front but is more pliable and therefore used mostly for the weaves.

Preparation of palm rachis for weaving was demonstrated by a resource person

- Cut the palm rachis from the palm tree and remove leaves.
- Dry them for two to three days in shade to make them more pliable.
- Split off the back and front covers of the rachis.
- Split and cut the stakes and weavers to the length and size desired. The unwanted white weak part is then peeled off as illustrated in plate 28



Plate 28: Preparation of weavers for weaving the sieve.

The Weaving Process

Step one

It was illustrated by a resource person as seen in Plate 29.



Plate 29: Arranging the stakes for weaving.

Step two

Illustrated the weaving process Plate 30.



Plate 30: Weaving the sieve using the twill weave technique.

Step Three:

Demonstrate the various stages of the weaving process. The basic weaving technique used was twill weave technique. Over-two-under-two was used throughout the weaving.

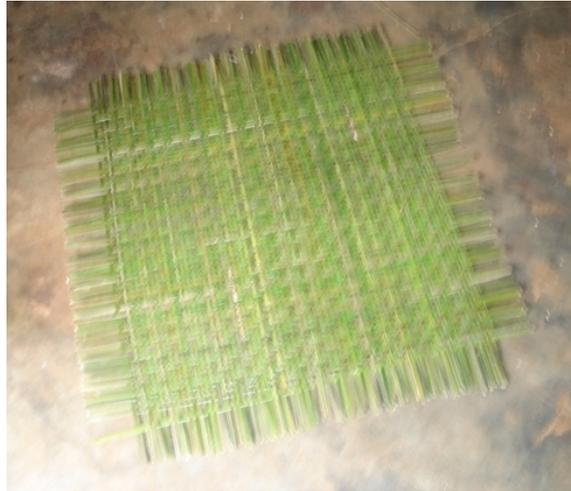


Plate 31: The woven sieve yet to be completed.

Step four:

Step four stage explains the finishing process. Plate 32,



Plate 32: Edge support sticks fixed in place ready for looping in for finishing



Plate 33: Edge finishing using the looping in technique

Step Five

This stage shows the finished product as shown in plate 34.



Plate 34: Back and front views of the finished sieve

Students' Activity

Second year Students of Akatsi College of Education were once again guided in a lesson to weave the sieve as learnt from the resource person. The activities involved ranged from material preparation through weaving to finishing. Some stages of the process were captured on camera and are seen in the plates below.



Plate 35: Students weaving sieves in groups



Plate 36: A demonstration of how to add the support sticks for finishing.



Plate 37: Students finishing the process by the looping technique

It was realized from the demonstration and students' activities that bringing local materials into the classroom can promote creativity in teaching weaving and therefore college tutors should employ local materials such as paper, off-cuts and plant materials in teaching weaving. The general outcome of the project is discussed in chapter four.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

This chapter presents the data collected from the population and lessons taught in the sampled college. The analysis is systematically dealt with in terms of the responses to the questionnaire. In some cases, tables are used to show the factors that affect teaching and learning of weaving in the colleges.

Since the researcher was interested in total responses in figures and stated opinions, consideration was given to absolute figures and percentages, which led to conclusions drawn in the next chapter.

4.1 Discussion of Findings

The works shown below were produced using the plain weave technique. Strips of paper were woven using the plain weave technique which is also described as the over-one-under-one technique. In addition, fan palm leaves were also used to weave fans also by the same technique. Yarns of different colours were also used to weave napkins. This product was also based on the plain weave technique. Examples of the artifacts produced from the exercise are shown in Plate 38



Plate 38. Artefacts produced by plain weave technique

These items and materials were used because they can be easily obtained from the environment.

Uses of the Woven Artefacts

Materials used to demonstrate the weaving technique can be easily obtained from the environment. The students were able to acquire basic skills in weaving. Paper woven products are mainly used for decoration while the fan serves beauty and utility purposes. For example, the fan is used to help burning of charcoal in the kitchen and to fan the human body for fresh air in warm weather.



Plate 39. Artifacts produced by twill weave technique



Plate 40 Artifacts produced by jiffy weave technique

The experiment was done using three techniques: Plain weaving, Twill weaving and Jiffy weaving. The differences existing between the various techniques should not be over emphasized.

However, there were some similarities in their line formation which was common to all the techniques which are the lines, shapes and textures.

4.2 Appreciation

The appreciation of the work produced from the various techniques will give more details of a clear interpretation of their aesthetic qualities and symbolism. In appreciating the works, it is imperative to consider the words of Rader (1976) which says uniqueness, originality, innovation are important characteristics of a genuine or good work of art (p.88)

The twill weave technique was used in producing the artifact illustrated in Plate 39. Emphasis has been laid on zig-zag and diagonal lines which are the characteristics of twill weave. Colour has been a very important beautifying element in all the products. It is more pronounced in the door mat as a result of the material used.

Uses: The sieve is used to separate the chaff in grains such as beans and corn as well as cassava dough. The door mat beautifies the environment it is placed in. It is usually placed at the entrance of doors and in cars for people to rub the sole of their feet to get rid of dust and other unwanted materials before entering. Door mat is also a bedside companion of many people since it is used to get rid of dirt from people's feet before they go to bed.

To find out the kind of weaving taught in the colleges of Education and who teaches or does not teach weaving, a 12-item questionnaire was administered to 20

visual Art tutors in the sample colleges. According to the respondents seen, male tutors accounted for 65% of the population while females were seven (35%) of the total number. This shows that the number of the male textiles tutors in the colleges exceed that of their female counterparts. They need more females in the teaching of weaving in the colleges.

Table 1 Educational Status of Respondents

Category	Number	Percentage (%)
Graduate Teachers	6	30
Graduate Teachers (Professional)	11	55
HND	3	15
Total	20	100

Table 1 indicates that out of the 20 respondents, six representing 30% of respondents are non-professional graduate teachers while 11 (representing 55% of the 20 respondents) are graduate professional teachers. This means that more professional or trained tutors are teaching textiles in the colleges. Those non-professionals may be teaching the subject alright but in the field of teaching, they are regarded as professionally untrained and, therefore, lack skills of effective teaching. Looking further into educational background of the college tutors, the study found that the majority of the respondents graduated from the University of Education Winneba and are therefore professionally trained to teach textiles.

Table 2: Institutions from which Respondents graduated

Category	Number	Percentage (%)
KNUST	6	30
UEW	11	55
HND	3	15
Total	20	100

According to Table 3, out of 20 respondents, six tutors (representing 30%) graduated from the KNUST. The data imply that 85% of the textiles tutors in the four Colleges of Education are university graduates. Only three persons are non graduate tutors. This suggests high quality teaching of textiles and the possibility of having good teachers for the primary and junior high schools. The data also implies that the maintenance and development of textiles and basketry art in Ghana's schools greatly depend on UEW and KNUST.

Table 3: Respondents' area(s) of specialization

Subject Specialization	Number of Teachers	Percentage of total
Textiles	12	80.0
Graphic design	2	13.33
Painting	1	6.67
Total	15	100

Table 3 reveals that 12 (representing (80%) of the respondents) specialized in textiles and teach the subject in the colleges. The fact that non-specialist tutors teach

textiles emphasizes the lack of textiles and basketry tutors in the Colleges, a situation which has induced other art specialists to teach the subject at this level. This means the teaching of textiles and basketry will not be effective in all the colleges.

On the teaching of weaving in the four sampled colleges of education, the study found that only 11 (55%) of the textiles tutors said they teach weaving in the four colleges. This means that some textiles tutors teach other aspects of the textiles syllabus and not weaving. This implies that not all aspects of the textiles syllabus are being taught in the colleges and so the teacher trainees are not getting the full benefits of studying textiles as they prepare to go to teach in the Basic schools.

Table 4: To find out if weaving is taught in the colleges of education

Category	Number	Percentage (%)
Yes	2	18.2
No	9	81.8
Total	11	100

According to the 11 respondents who said that they teach weaving, only two (18.2%) teach weaving techniques. The percentage of those who do not teach weaving techniques is greater than those who teach it. The implication, therefore, is that weaving techniques is almost neglected in the teaching of textiles in the four Colleges of Education. This suggest that the teacher trainees will have little or no knowledge of weaving to enable them teach their pupils Why all the tutors do not teach weaving techniques in the four colleges, nine tutors who do not teach weaving stated the reasons as shown in the Table 5.

Table 5 reasons why all the tutors do not teach weaving techniques in the four colleges.

Category	Number	Percentage (%)
There is lack of technical knowhow.	0	0
There are no tools and materials.	5	55.5
There are no reference/textbooks.	4	44.5
Total	9	100

The reasons that tutors cited were lack of tools and materials, reference and textbooks on weaving. The data pre-supposes that the absence of resources such as books, tools and materials are the main factors hindering the teaching and learning of weaving techniques in the sampled Colleges of Education. The study found that the aspects of weaving taught in Colleges of Education is the theory of weaving which is taught by six of the tutors who teach textiles. It is clearly indicated here that the respondents who claimed to be teaching weaving are teaching only the theoretical aspect of tie dyeing, printing and weaving without doing any practical work. Weaving, like all aspects of art, is practical oriented. Whatever concept or skill taught in theory is normally taught practically as well. The art of teaching the subject solely in theory renders it incomplete. It does not equip the prospective textiles teacher with the knowledge in weaving techniques and relevant practical skills needed to effectively function after graduation.

With regard to measures that can be put in place to arouse and sustain the interest of textiles tutors to teach weaving, Table 6 indicates that 10 (represent as 62.5%) of the tutors proposed that the relevant tools and materials must be readily

available in the Colleges. This would enable the textiles tutors to teach more efficiently and effectively. It would also help the students to practically acquire the skills of weaving with ease.

Table 6 Measures that can arouse and sustain interest

Category	Number of tutors	Percentage (%)
There must be tools and materials readily available in the schools	10	62.5
There must be relevant reference and textbooks on weaving in the colleges.	3	18.6
The welfare of teachers, especially textiles tutors, must be seriously taken into consideration.	1	6.3
The textiles teachers must be made to undergo in-service training courses from time to time.	1	6.3
Weavers be engaged to assist in the practical teaching of weaving.	1	6.3
Total	16	100

The other six argued that there must be relevant reference and textbooks on weaving techniques in the Colleges to enhance and facilitate both teaching and learning of the subject. They said the books would be most useful to textiles tutors who did not specialize in weaving. This is important because they could easily make references in such books to help in effective teaching.

It is obvious from the table 6 that even though tutors expressed divergent opinions about the measures to adopt in order to promote effective teaching of weaving, According to them, they can willingly and successfully teach weaving techniques in the Colleges of Education if they have the relevant reference books

Table 7 Means to strengthen interest of textile students in weaving techniques.

Category	Number	Percentage (%)
There should be a conducive teaching and learning environment	4	30.5
Students should pursue educational trips to weaving centres.	3	23.2
Students should know the benefits derived from learning how to weave.	2	15.5
Students should benefit from their products either in kind or in cash.	1	7.7
Students should be fully involved in the teaching and learning of practical weaving.	1	7.7
The teaching of weaving should be predominantly practical.	1	7.7
Occasional competitive exhibitions of students' works should be organized.	1	7.7
Total	13	100

On the means to strengthen interest in the teaching of weaving techniques, the respondents cited many with the most important factors being teaching and learning environment and educational trips (30.4%)

The four tutors who said that there should be a conducive teaching and learning environment in the colleges mentioned physical structures like workshops, tools, materials, teachers, as well as verbal incentives and encouragement. These measures, when put into practice, could intrinsically motivate the students to develop a taste for weaving techniques.

The students pursue issue of using educational trips to weaving centres to generate interest in weaving is based on the belief that students could acquire first hand and reliable information on weaving techniques. That could whet their appetite for the subject.

The implication is that in order to strengthen the student, teachers' interest in weaving techniques, factors such as conducive teaching and learning environment, educational trips, students knowing the rationale for teaching and learning benefit from woven products as well as full participation in the teaching and learning process, among others have to be considered as serious issues that affect the quality of teacher education in textiles.

Table 8 Other measures that could be adopted to improve the teaching of weaving in schools

Category	Number	Percentage (%)
Qualified and skilful textiles teachers should be employed to teach weaving techniques	7	46.5
The entire public must be made aware of the significance of weaving techniques through education and the teachers output of work	5	33.5
Production units must be attached to the art departments in general where students' work will be sold	3	20.0
Total	15	100

Table 8 shows other factors that should be considered to improve upon the teaching of weaving techniques in schools. As the details show, 15 unique responses or suggestions were submitted. The responses were categorized according to the main ideas expressed as they appear in Table 8

Out of the 15 respondents, seven (representing 46.7%) contended that qualified and skilful textiles tutors should be employed to teach weaving. In the absence of skilful teachers, they alleged that weavers who have the desire to teach must be given the chance to assist with the teaching of the subject but under the supervision of the college tutors. Others also suggested, involving the general public and also making the students aware of the significance of weaving techniques in the lessons and teachers' output of work in weaving.

The main point is that apart from these measures discussed so far, the employment of qualified and skilful teachers, public education on the significance of weaving techniques as well as opening of production units in the art departments can help to improve upon the teaching of weaving techniques in schools.

4.3 Observations of the kind of weaving taught in Ghanaian schools and colleges.

The following are problems Visual Art Tutors encounter in the selected Training Colleges. The problem of choice of subject offered by the Colleges does not permit the teaching of certain areas of art. Area of subject specialization of Tutors does not enable tutors to teach certain areas of visual Art.

Materials are too expensive or unavailable. The observations revealed that 55% of the tutors used imported dyeing and printing materials to teach art. During the weaving lessons that were observed, the tutor taught the lesson without any materials and so the whole lesson was theory. The text and assignment given to the students were all based on the theory lessons. There were no practical lessons taught throughout the semester.

Although materials such as sisal, hemp, and bast fibres, plantain or banana fibre, raffia and coconut coir, off-cuts, of this number, the last six namely sisal hemp, straw, bast fibres, plantain or banana fibre, raffia and coconut coir, off-cut materials are particularly adaptable.

Although only two of the 12 teachers observed indicated that they teach straw work and weaving, the others said they teach picture making. Even that there were no practical works on weaving to show it is important therefore that the teachers are introduced to local materials as vital resources for effective teaching of weaving techniques in the education of teachers.

The implication is that teachers who specialized in Graphic Design and Picture making could also combine the local materials discussed in this report with materials they conventionally use for Graphics, Picture making and weaving. It is therefore possible to introduce more teachers to the effective use of the identified materials.

The problem of high cost and lack of conventional art materials for the teaching of weaving, as identified by the college teachers observed would be solved if the tutors are taught and encouraged to use the local raw materials discussed in this report to teach the topics in the syllabus.

None of the tutors who were observed and responded to the questionnaire indicated that they had specialized in the use of straw, plantain or banana fibre, sisal hemp, bast fibre, palm leaves, coconut coir, corn shucks, raffia, rattan and similar local materials. The lack of training programmes for tutors to use local materials, in spite of the abundance of such readily available resources for teaching weaving techniques, emphasizes the need for this study. If University or Polytechnic Education in visual Arts includes the use of locally available raw materials, college tutors would use them effectively in their teaching.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The researcher envisaged a problem concerning the teaching of weaving techniques in Colleges of Education in Ghana. The problem together with measures to be taken towards its possible solution as well as its impact on school education has been elaborated upon. The definition and history of weaving revealed that different cultures on every continent devised some loom and methods of making webs and further study tells us that there was great similarity in the looms constructed and in the weaves.

It was realized from the demonstration and students activities involving the use of local materials including paper off-cuts and plant materials that bringing local materials into the classroom can promote creativity in the teaching of weaving and therefore college tutors should use local materials.

As can be seen from the discussion, raw materials for weaving different artifacts abound in Ghana and art teachers can tap these to teach weaving and other textiles techniques. Since they are widely used across the country for various purposes, nothing stops tutors in Ghana from adapting these and other resources for effective teaching of textiles so that their students can become versatile teachers of art in the schools they would teach in.

5.2 Conclusions

In the Ghanaian cultural set up, weaving is mainly done by males, therefore, it follows that males go into weaving than females. Besides, the history of education in Ghana shows that males have had access to formal education than females, hence, the greater percentage of textiles teachers being male. The difference here could also be attributed to the fact that culturally, a greater fraction of males are sponsored by parents for schooling than females. It could also be stated that because female students are mostly unable to compete equally with the male students, especially, at the colleges of education, more male textiles teachers are being produced at this level than females.

Regarding the educational status of Textiles Tutors, the study shows that even though about 50% of the textiles tutors in the colleges are professional graduates, other tutors without professional or technical training also teach textiles. The fact that 40% of textiles tutors have specialization in Graphic design, Painting and other art disciplines show that textiles tutors are numerically inadequate to meet the demands of training teachers for Basic schools.

The study shows that in the sampled Colleges, although the majority of textiles teachers in the field teach weaving, they mostly teach the theoretical aspects, while majority of them do not teach weaving techniques at all. Their responses revealed that this situation has come about as a result of lack of tools, materials and other logistics such as reference books to guide the teacher. This suggests that the specialized training given to those who study textiles in the university of Winniba and KNUST is inadequate for the graduates to fully function as tutors of this specialized discipline as the syllabus requires, this probably explains why non-specialist tutors teach textiles.

To get weaving techniques properly taught in the schools, it is expected that the colleges will have the appropriate tools, materials and relevant reference text books to guide the teaching of weaving techniques. It is also necessary that all tutors of textiles undergo regular in-service training to bring their knowledge and skills up to the required standard to ensure effective teaching of all aspects of textiles.

In view, of this the colleges can undertake educational trips to weaving centres, to give opportunity for trainees to learn about weaving. Other findings include encouraging the trainees to be fully involved in the teaching and learning. The tutors who teach weaving techniques should do this practically.

With the identified problems hindering the teaching of weaving techniques in the sampled Colleges of Education, it can be concluded that pointing out locally available materials to teach weaving techniques in particular, to facilitate the teaching of textiles in the Colleges of Education. If this is the situation in the sampled few colleges, there probably are problems in the other colleges.

5.3 Recommendations

The following recommendations are put forward to help facilitate and promote the teaching of weaving techniques in Colleges of Education in Ghana.

1. In-service training courses on all aspects of weaving should be organized for tutors who are teaching textiles in the Colleges of Education in particular. This will help them to upgrade their skills, knowledge and teaching techniques.

2. Since most of the colleges offering textiles lack tutors, UEW, KNUST and any other institution that produce textiles tutors for the colleges in Ghana should expand their facilities and curriculum to provide personnel to meet the rising demand for textiles tutors in the colleges. Engaging students in theory and practical methods of weaving will enable college tutors teach weaving very effectively.
3. Since lack of tools and materials adversely affect production, so far as the teaching of weaving is concerned, the Ghana Education Service should see to it that the needed facilities are made available to the Colleges. This will motivate the textiles tutors to readily and effectively teach weaving to the students.
4. Much as the government provides textbooks for subjects such as Mathematics, English and Integrated Science, textbooks on other subjects such as textiles and other Art related subjects should be provided to schools and colleges because these subjects are equally important for the education, socio-cultural and economic development of Ghana.
5. In addition to the above, it is important that teachers be monitored and effectively supervised to teach whatever subject they are assigned in the colleges since effective teaching of weaving in particular and educational trips to weaving centres will enable the colleges to produce the right kind of teachers for primary and Junior high schools in Ghana.
6. Getting to know what goes on outside the colleges through fieldtrips will strengthen the teacher trainees' interest in the learning of weaving techniques.

7. Textiles tutors have to come together and pool their ideas and resources together to write books on the various components of the textiles curriculum. They can also source information from other individuals in the various communities who are knowledgeable in textiles to produce text books and handouts that can help to improve the teaching of textile.

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APPENDICES

Section 'A'

Particulars of Respondents

1. Name _____ of _____
School.....
2. Sex: Male _____ Female _____
3. Status of Respondent:
- (a) Graduate (Non-Professional) Teacher.
 - (b) Graduate (Professional) Teacher.
 - (c) Any Other

Section 'B'

1. Kindly indicate the institution from which you graduated.
- (a) KNUST (b) U.E.W. (c) Any other
2. Please, indicate your area of specialization.
- (a) Textiles (b) Graphics (c) Painting (d)
 - Any other _____
3. Do you teach weaving in your College? (a) Yes
- (b) No
4. If no, why? Because
5. Do you teach textiles and basketry in the College?
- (a) Yes (b) No

6. If no, why? Because
7. If yes, which aspect do you teach?
8. What is the source of supply of tools and materials for teaching weaving techniques in the College?
9. What do you think could be done to arouse and sustain the interest of tutors to teach weaving in the College?
10. In your opinion, what could be done to strengthen the interest of the textile students?
11. How can this weaving technique be incorporated into the College curriculum?
12. Do you make use of local materials from the environment such as grass, bamboo, corn husk, off-cuts, yarn, etc.?

YEAR 2 SEMESTER 2 COURSE CODE: FVA 228

COURSE TITLE: Textiles NO. OF CREDITS: 2

COURSE DESCRIPTION:

This course covers the study of textiles as avocation, the rationale for teaching/learning textiles, a brief historical development of textile in Ghana. The

study includes Basic tools/equipment and materials for textile as well as basic textiles, setting-up and managing a textiles enterprise.

Course objective

The trainee will be able to:

- i. Explain the meaning of textiles as a vocation in Ghana
- ii. Demonstrate understanding of textiles as a vocation in Ghana
- iii. List careers I textiles
- iv. Explain the socio-economic importance of textile
- v. List textiles and discuss their uses.
- vi. Explain the rationale behind teaching/learning textiles
- vii. Outline the brief historical development of textile in Ghana
- viii. Identify appropriate tools/equipment and materials for textiles
- ix. Design and make textile items.
- x. Discuss the setting-up of a textiles enterprise
- xi. Discuss how to manage a textile enterprise.

nit	Topic	Sub-topic	Du ration
	Concepts of textiles	<ul style="list-style-type: none"> • The art of making fabrics - The broad areas are: - Weaving 	

		<ul style="list-style-type: none"> - Dyeing - Printing - Designing 	
	Textiles as a vocation	<ul style="list-style-type: none"> • Vocations in textiles - Spinning - Weaving - Knitting - Crocheting - Appliqué - Knotting - Embroidery - Tapestry - Printing - Dyeing 	
	Careers in textiles	<ul style="list-style-type: none"> • Careers in textiles - Production of raw materials - Trading in textile raw materials - Production of textile tools/equipments - Trading in textile products - Textile management - Textile designing 	
	Socio-	<ul style="list-style-type: none"> • Textiles provide one of 	

	economic	<p>man's basic need of life- importance of clothing</p> <ul style="list-style-type: none"> • Show cultural identity • Supports other industries • Means of employment/income generating 	
	Textile items and their uses	<ul style="list-style-type: none"> • Listing the items and discussing their uses eg • Items – clothing, house items, medical items, industrial items. • Uses – for dressing, e.g. Shirts, trousers, furnishing – curtain. 	
	Rationale for teaching/ learning textiles	<ul style="list-style-type: none"> • Acquisition of basic skills to teach at basic education level • It is of socio-economic importance • Textile items are useful • Provides education of the head, heart and hand. 	
	A brief	<ul style="list-style-type: none"> • Indigenous method of 	

	<p>historical development of textiles in Ghana</p> <p>Adawumase</p>	<p>making textile in Ghana eg.. Agbozume, Kpetoe, Ntonso, Damboya, Bonwire</p> <ul style="list-style-type: none"> • Development of modern textiles in Ghana e.g. Akosombo, Tema, Juapong • Identification of successful textile artists and textile enterprises 	
	<p>Tools/equipment</p>	<ul style="list-style-type: none"> • Identification e.g. Naming, describing, drawing and exploring • Preparation /acquisition • Care and maintenance • Uses • Preservation and storage 	
	<p>Materials</p>	<ul style="list-style-type: none"> • Identification e.g. Naming, describing, drawing and exploring • Preparation /acquisition • Care and maintenance • Uses • Preservation and storage 	

0	Making textile items	<ul style="list-style-type: none"> • Application of idea development/designing • Application of the design process • Application of skills management 	
1	Costing, pricing and marketing	<ul style="list-style-type: none"> • Costing – factors to consider, e.g. <ul style="list-style-type: none"> - Cost of tools and materials - Time spent in making the item - Overheads charge - Determine profit • Pricing – factors to consider <ul style="list-style-type: none"> - Total cost of production - Profit margin • Marketing – factors to consider, e.g. <ul style="list-style-type: none"> - Advertising - Demand - supply 	
2	Setting up a textile enterprise	<ul style="list-style-type: none"> • Factors to consider <ul style="list-style-type: none"> - Space or room for the enterprise 	

		<ul style="list-style-type: none"> - Labour, raw-materials, transport, market, selecting business name and registration procedure, start-up capital. 	
3	Managing a textile enterprise	<ul style="list-style-type: none"> • Planning, organizing, controlling, customer relations, costing the enterprise, pricing the product and marketing. 	