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## Hands-On Activities on Dagomba Bim' Maŋli Production among Elective Class Students in E.P College of Education, Bimbilla, Ghana

**Mumuni Zakaria Fusheini**

Tutor, Department of Vocational Skills, E.P College of Education, Bimbilla, Ghana

**Dr. Joe Adu-Agyem**

Senior Lecturer, Department of Educational Innovations in Science and Technology, KNUST, Ghana

**Dr. Eric Appau Asante**

Senior Lecturer, Department of Educational Innovations in Science and Technology, KNUST, Ghana

### **Abstract:**

*The study aimed at providing teacher trainees in Evangelical Presbyterian College of Education, Bimbilla, Ghana to learn how to produce the Dagombas' Bim' maŋli cloth as a requisite requirement for their second semester course of study on Weaving and Stitching. For the purpose of this article, the word 'smock' is referred to as Bim'maŋli in the context of the Dagombas' culture. The study also aimed at fostering creative entrepreneurial skills in the teacher trainee to be able to generate Bim'maŋli weaving enterprises as a supplement to their teaching profession. A total of 86 elective class students and 10 traditional Bim'maŋli weavers among the Dagombas were selected by the use of purposive sampling technique. The 86 teacher trainees were guided on how to prepare yarns on bobbins for warping and finally mount the warp beam on the Dagombas' traditional loom for weaving the Bim'maŋli. Interviews were conducted among the 86 teacher trainees to acquire data on the students' demography and their previous requisite skills in the weaving of any traditional cloth in Ghana which include kente, kete and the Bim'maŋli. Observation was used to obtain data by noting down teacher trainees' interactions with the loom and its accessories. Observation was again used to take notice of the nature of woven Bim'maŋli cloth by the teacher trainees. Findings revealed that majority of the teacher trainees did not have prerequisite knowledge or skills in weaving of any traditional cloth in Ghana. Interview granted to 10 traditional Bim'maŋli weavers indicated that the weaving of the Bim'maŋli was practiced among males and females in the olden days. However, males were and have been the majority of weavers. Majority of the teacher trainees were Dagombashence they had some knowledge regarding the names of the parts and accessories of the traditional loom for weaving the Bim'maŋli cloth. The study, therefore, guides the teacher trainees throughout the production processes involved in weaving the Bim'maŋli in Northern Region of Ghana.*

**Keywords:** Elective, Bim'maŋli, hands-on-activities, weaving, Bim'maŋli cloth, warping, reeding, hedding

### **1. Introduction**

The study seeks to foster creative entrepreneurial skills among the teacher trainees offering elective course in weaving the *Bim'maŋli* cloth under the art component of Weaving and Stitching studied in Colleges of Education, Ghana. Teaching and learning in Colleges of Education (CoE) includes the study of art which seeks to provide the education of the head, hand and heart. In the second year courses, art remains an elective subject in which every college is destined to teach one practical course area where the teacher trainees are taught how to create three-dimensional art objects (Fiadzo, 2010).

Weaving and Stitching is the component chosen in E.P College of Education, Bimbilla and according to Ghana Education Service (2012), weaving and stitching aims at fostering creative skills of weaving and stitching in the teacher trainee to be able to teach art at the basic schools in Ghana. The weaving of the Dagombas' *Bim'maŋli* cloth is a major traditional occupation among the people in the North (Abugri, 2017) and most of the teachers find it an appropriate supplement to their teaching professions when they are greatly seen by their looms during weekends and holidays weaving strips of *Bim'maŋli* cloths. The *Bim'maŋli* cloth is woven on the traditional loom and the production techniques are similar with the kente and kete weaving among the Asantes and Ewes respectively. The indigenous production stages of the Dagomba *Bim' maŋli* cloth weaving starts from ginning of cotton to the last stage of weaving the long-stretched warp beam on the loom. However, modern productions of the *Bim'maŋli* cloth starts from the preparation of bobbins with the total neglect of ginning, carding, roving and spinning before bobbins preparations are carried out.

## 2. Literature Review

### 2.1. Origin of Smock (*Bim'maṅli*) Weaving among Dagombas

The smock is a traditional Ghanaian dress made from cotton, wool and rayon. It is basically hand woven and hand sewn. The dress is worn for many purposes. They are worn for entertainment, funerals, festivals as adornment, war and among others (Abugri 2016). The word 'Batakari' is a Hausa palance which literally stands for 'out gown'. This indicates that Batakari as an exterior noble-like garment is worn over inner garments. The Batakari was normally embroidered with fancy designs especially at the front party (Essel & Amisshah 2015; News Ghana 2015). Batakari may consists of a flowing outer garment, long sleeves, inner robe and a trouser collectively known as three piece wear. "Fugu" also means cloth in Moshi language. It describes a variety of loose garment sewn from strips of cloth woven on the traditional looms in northern Ghana (Jasmine 2013).

The origin of the Dagomba *Bim'maṅli* trace able to different ethnic societies. One school of thought indicates that the *Bim'maṅli* originated from Tang people, a village under Karaga district in the northern region (Essel & Amisshah 2015). Tettefio (2009) also indicates that the Moshi ethnic society from the Burkina Faso who migrated to settle in the north arrived with the art. Similarly, Essel and Amisshah (2015) state that; 'Others maintain that the part of the Mossi ethnicity in Burkina Faso who migrated to settle in Northern Ghana came with the craft' (pp 33-34). Tettefio (2009) also opines that the Moshi people from Burkina Faso were in the past, practising barter trade system from Upper Volta to the North and this clearly indicates that the Moshi people have had earlier contact with Dagombas.

Heathcote (2013) cited in Essel and Amisshah (2015) justifies that from about 8<sup>th</sup> Century A.D., the Hausa people from Nigeria were well established in the marketing of hand-woven cloths in the West African diaspora. Allman (n.d) cited in Essel and Amisshah (2015) stresses that the Mossi business men and women were probably first custodians of the *Bim'maṅli* weaving craft in the lands of Ghana. Essel and Amisshah finally posited that the smock culture and art gained fame among ethnic societies in the three Northern Regions of Ghana because of possibilities in acculturation, enculturation, and transculturation of smock weaving.

### 2.2. Definition of Weaving

TEonline (2016) purports that one major technique for making fabrics or cloths globally, is by weaving. In the weaving industry, two separate sets of yarns known as the warp and the filling or weft are intertwined with each other to make a fabric. Similar to the method of weaving are felting, braiding or plaiting and knitting (Fiadzo, 2009). Yarn is a long continuous length of interlocked fibres. The warp refers to the lengthwise or longitudinal yarns and they run from the back to the front of the loom. The crosswise or lateral yarns are the filling or weft. According to TEonline weft or woof is an old English word referring to that which is woven. It an obvious observation that the characteristic of any woven cloth largely depend on the method employed in interweaving the two sets of threads.

*Bim'maṅli* cloth is indigenously woven on the Dagomba traditional loom which is a wooden constructed mechanism for holding the warp threads in place while the filling threads are woven through them using the shuttle. Natural fibers like cotton, wool and silk and synthetic fibres such as nylon and Orlon are commonly used to prepare yarns for weaving smock and other textiles (Frimpong & Asinyo 2013). Other fibers can and are also used for weaving. Yarn to be used as the warp goes through operations such as spooling, warping and slashing to prepare them to withstand the strain of the weaving process.

### 2.3. Strip Weaving

There a lot of strip weaving traditions in West African diasporas. Strip weaving is seen from Senegal in the west to Cameroon in the east, and from the edge of the South Sahara to the coast (Frimpong & Asinyo 2013). Strip-woven cloth is in most cases made by men on narrow double-heddle looms with mostly two or four heddles. With technological advancement, most traditional looms for strip weaving such as those used by the Asantes and Ewes in Ghana are designed with up to six heddles which allow the weaver to create more intricate structures such as variations of twill weave. However, strip weaving of *Bim'maṅli* cloth in Northern Ghana uses only two heddles and is plainly woven. They weave a continuously long, narrow band of cloth, and then sewn them together side by side by stitching to produce one large piece of cloth or dress (News Ghana 2016). In some cases, the weavers will dye the yarns before pooling or warping in order to add patterns, textures, and colours to the strips (Frimpong & Asinyo 2013; News Ghana 2016).

In Ghana, not all woven cloths are incorporated with symbols at the weaving stage. The incorporation of symbols or motifs into the weave is mostly seen among the Asantes and Ewes' weavers who skillfully weave adinkra symbols and totemic animals into cloth (Sabutey 2009), meanwhile *Bim'maṅli* woven strips from Northern Ghana are typically plain weave without the incorporation of symbols. However, symbols or motifs are later on embroidered onto the *Bim'maṅli* during sewing by special *Bim'maṅli* designers (Abugri 2017; Essel & Amisshah 2015).

These elements incorporated into the weave by the Asantes and Ewes' strip-cloth weavers are frequently very skillfully planned to give the final cloth a distinctive overall design. The names of woven cloth types are uniquely proposed by the overall quality of the cloth or the warp-strip pattern (Avins & Quick 1998, cited in Frimpong & Asinyo 2013).

### 2.4. Weaving Operations

Some authors including (Onder & Omer n.d; TEonline 2016; Unal n.d) mention four main operations that are involved in weaving and these operations include Shedding, Picking, Beating up (Battening) and Taking up and Letting off. Contrarily, Onder and Omer have rather specifically outlined five main operations by making each of take-off and left-off motions to stand as individual motions. The motions are as follows:

### 2.4.1. Shedding

This is the process of separating the warp threads into two layers to form a tunnel known as the shed. This is done by the lowering and raising of the heddles through the peddles. In the Dagombas' loom, the treadles are made of simply flexible sticks tied to the heddles with cords.

### 2.4.2. Picking

It is the art of passing the weft threads through the shed. In the weaving process, immediately the gab (shed) is created by the lowering and rising of the warp, a yarn is inserted through the shed by a carrier device known as the shuttle. According to TEonline (2016), there are different types of devices used in propelling the filling yarn through the shed and this also depends on the type of loom used. This is because there are shuttle looms, shuttle less looms, circular looms etc. However, all the traditional looms of the Dagombas weavers are shuttle looms.

### 2.4.3. Beating up (Battening)

Unal (n.d) opines that with each picking operation, the reed is used to beat each newly inserted weft to the fell of the cloth. A reed is a comb-like structure attached to the looms and it is made up of dents (holes of the reed). Beating with the reed gives the fabric a firm, compact construction. In the Dagombas' *Bim'manli* production, beaten is done with the reed on the loom and after the cloth beam is detached from the loom, a wooden hammer is again used to beat the cloth which gives it a smooth and lustrous texture. These three motions-picking, shedding and beating up are known as the primary motions on the loom.

### 2.4.4. Taking Up and Letting Off

Frimpong and Asinyo (2013) explain that when there is enough length of the newly woven cloth, the cloth must be wound on the cloth beam which is called 'taking up'. The action of the taking up motion also allows the warp yarns to be released from the warp beam to the 'weaving zone' which is called 'letting off'. For *Bim'manli* cloth weaving, the operations involved are shedding, picking, beating up, taking off and letting off motions. The mechanisms involved in the various operations are similar with kente weaving except that the heddles are two for *Bim'manli* and four to six heddles for Kente.

### 2.2.5. Weaving Technique of the *Bim'manli* Cloth

Several weaving techniques exist for weavers to choose from. The list includes plain, twill, sateen and satin weaves. But with the Dagomba *Bim'manli* cloth, the woven structure is purely plain weave.

#### 2.2.5.1. Plain Weaves

Plain weave, as explained by Textile Fashion Study (2012), is the simplest and remains the most common 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 solidity and firmness than fabrics produced from any other weave (Md Sohannur, 2015). Figures 1a and 2 show plain views of the most popular plain weave, which is the basis of many indigenous Ghanaian traditional woven fabrics such as the *Bim'manli* cloth.

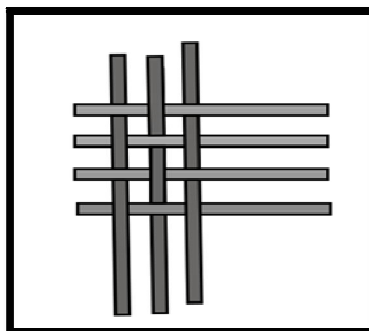


Figure 1: Plain Weave

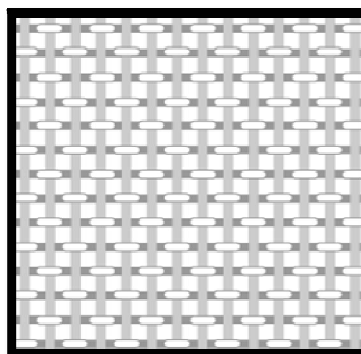


Figure 2: Plain Weave

As seen in Figure 1, the filling threads pass over and under successive warp threads and repeat the same pattern with alternate threads in the following row, producing a chequered surface (Babu, Koushik, Lakshmikantha & Subramaniam, 2011). They do not ravel easily but tend to wrinkle and have less absorbency than other weaves. The plain weave is variously known as calico or tabby weave. It is the simplest of all weaves having a repeat size of 2. Similarly, the *Bim'manli* cloth is basically a plain weave structure and its indigenous weaving style consists of one coloured warp pattern stretched on the loom with another weft yarn of the same or different colour than the war inserted across the whole length of the warp yarns. Even today, the same weaving style is done but with the people desire for wearing *Bim'manli* cloths with many colours, there have been innovations into the indigenous characters of the *Bim'manli* cloths.

### 2.3. The Strip-Cloth Loom and Accessories

Narrow strip looms were the main indigenous looms used for weaving in Ghana. However, due to the recent advent of technology, other types of looms with modifications in accessories have been made and used among some weavers in Ghana (Frimpong & Asinyo 2013). The Dagombas' *Bim'manli* cloth weaving is still practiced on narrow strip looms. Though other looms are invented and used in Ghana, the narrow strip loom is the main device used by the weavers to produce strip-woven cloths in Ghana. Frimpong and Asinyo expound further that these looms used by the weavers are in different shapes, sizes and heights depending on the weaving locality and the creativity of the weavers.

The traditional narrow loom is normally a box-like wooden structure in which the weaver sits to weave. It is usually, among all weavers across Ghana, made of double-heddle looms that mostly have two or four heddles. In the Northern part of the country, traditional narrow looms have two heddles while most looms in the Southern and Volta regions are composed of four heddles (Badoe & Opoku- Asare 2014; Sabutey 2009). *Bim'manli* looms are fundamentally simple frames that hold a set of yarns in tension; they have no warp beam hence weight is used to give tension to the warp yarns during weaving.

Likewise, Frimpong and Asinyo (2013) state that, 'Found in the Ghanaian society, strip loom is a narrow double-heddle portable loom, mounted on a simple semi-permanent frame' (P. 5). They explain further that this makes it removable coupled with the fact that the loom can be dismantled and re-assembled at any time which allows the weaver to move from village to village looking for orders. Frimpong and Asinyo conclusively purport that the most advantageous aspect of the traditional looms in Ghana to the weavers is the fact that they are quickly dismantled in the raining seasons whenever rain threatens to fall, or to pack up after a weaving session

The loom (Kpalu dari) among the Dagombas is similar to that of the Asante and the Ewe people. Most of the looms are the immovable types constructed with wood. The looms are locally constructed by the weavers themselves out of wood cut from the bush. The looms constructed among the Dagombas are the simplest in terms of structure (Frimpong & Asinyo 2013). They are made up of two front posts which are Y-shaped with a stick across to support the tensioned warp yarns and the reed and the heddle are connected to the roof of the shade with a string. These wooden structures of looms are normally fixed in the earth and after the day's work; the accessories of the loom are dismantled and taken home.

The accessories are basically the equipment that are separated from the loom for the production of the cloth. These include bobbins, shuttle, bobbin winder, shed sticks, spool rack, skein winder, heddle, reed, pulleys, among others. The accessories of looms among the various strip-cloth weavers in Ghana have vast similarities with few differences. The differences are seen in terms of the shapes, sizes and composition of the accessories (Badoe & Opoku-Asare 2014; Frimpong & Asinyo 2013). Badoe and Opoku-Asare added that the accessories have unique names and meanings which are peculiar to the various cultures. The pulleys designed by the Ewes are sometimes carved in figurative forms and become culturally unique among them. The carvings on other accessories make them unique but they basically perform the same functions.

## 3. Data Collection

Data for this qualitative study were gathered through direct observation of indigenous Dagomba *Bim'manli* weaving processes at E.P College of Education, Bimbilla in the Northern Region of Ghana and interviews conducted with teacher trainees and traditional master weavers. The next stage was exposing the teacher trainees to hands-on-activities on the weaving of the Dagomba *Bim'manli* cloth to demonstrate the possibility of teacher trainees' acquisition of skills in weaving that will enable them carry out quality teaching and learning of weaving and stitching at the basic level of education in Ghana. The population for this study comprised 86 teacher trainees and 6 traditional master weavers. The teacher trainees are Elective students in Art of E.P College of Education (Bimbico) for the 2017/2018 academic year, whose second semester project for the course, 'Weaving and Stitching', was to prepare and weave a two-yard 'guineafowl' *Bim'manli* cloth in their groups. This elective class comprised majority of students who had no background knowledge in textiles from Senior High School and a few who had prior learning in other Visual Art subjects but not textiles. However, a few of the students have learnt how to weave the *Bim'manli* cloth from their masters.

### 3.1. Processes Involved During the Weaving of the *Bim'manli* Cloth

The teacher trainees underwent several processes involved in weaving the *Bim'manli* cloth, and the first most two important stages were idea development and preliminary designing.

#### 3.1.1. Idea Development

Students were guided on how to create new weaving patterns from existing woven patterns or from any other pattern that can generate a woven pattern. The students comprised of four groups and each group created patterns for their own. In this stage, the students went through a lot of observations in order to have broad knowledge about different

styles of laying the warp yarns so as to create different patterns. They developed sketches from known ones and at the end they got ideas about how to construct patterns. See the creation of some selected patterns through idea development by the teacher trainees in Figure 3.



Figure 3: Idea Development

### 3.1.2. Preliminary Designing

Under this stage, the teacher trainees created several examples of the patterns of guineafowl *Bim'manli* cloth of their choice to be woven. They created the replicas of their final semester's projects of a woven *Bim'manli* cloth in two yards so that they will be assessed by University of Cape Coast. See some examples of preliminary sketches selected among the teacher trainees in Figure 4.

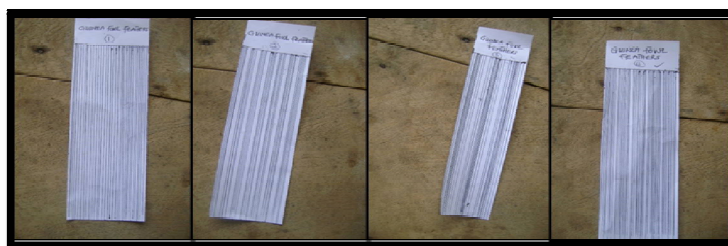


Figure 4: Preliminary Sketches

### 3.2. Preparing Bobbins

The teacher trainees went through the processes of unwinding skeins, cheeses and cones onto bobbins by using the skein and bobbin winders. These activities were carried out so that the teacher trainees will get yarns for warping and for filling yarns. Figure 5 portrays the teacher trainees carrying out the bobbin preparations.

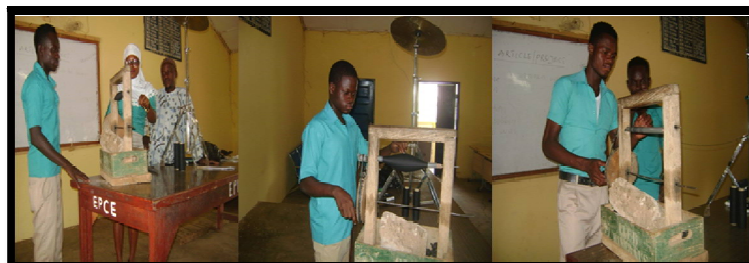


Figure 5: Bobbin Preparation

### 3.3. Warping

Before warping is done, the searcher guided the trainees to calculate the size of the cloth to be woven. This is done by considering the width of the warp beam which is calculated by the number of yarns to be propelled around the pegs. This also depends on the number of rounds that the weaver will make with each colour of yarn on the bobbins.

Bigger bobbins known in Dagbani as *kahwuhisi* are used for warping after the skeins or cones have been unwound onto them. During warping, the teacher trainees inserted pegs at the appropriate distances and with the spool rack, they walked around the pegs and the bobbins rotated to propel yarns around the pegs as depicted in Figure 6.



Figure 6: Warping

After stretching the warp yarns (warping), the warp beam is collected by folding it in the traditional way (see in Figure 7 below).



Figure 7: Collecting (Coiling) The Warp Beam

### 3.4. Heddling

Here, the teacher trainees were guided through the process of passing the individual warp yarns through the healds of the heddles. As the Dagomba *Bim'majli* cloth loom has two heddles, the warp yarns are passed through the healds of the two heddles in alternating order so that during peddling, two separate warp yarns are opened to create the shed for the insertion of the weft yarn. See heddling processes in Figure 8 below.

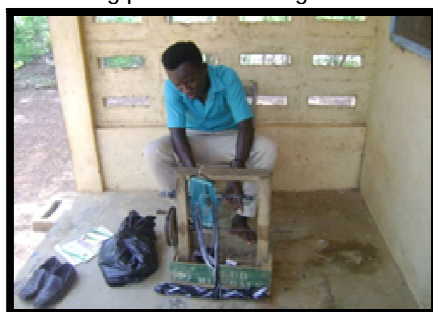


Figure 8: Heddling

### 3.5. Reeding

After heddling then comes the process of reeding in which the ends are passed through the dents of reed as they emanate from the heddles. In both the heddles and the reed, the ends are centered through the center so that there is stability of the heedless and reed.

### 3.6. Tie-up

Tie-up refers to the way the shafts are tied to the treadles on the loom. The teacher trainees were guided to do tie-up so that they will learn to know that, to open a shed, a treadle must be depressed and because they are tied to the shafts (heddles), they cause one of the shafts to be lowered and the other to be lifted up. The shafts or heddles carry the healds on which the ends are suspended; this causes the ends to be divided into two sheds.

### 3.7. Weaving

The teacher trainees were taken to learn how to insert weft yarns through the shed. In the weaving process, two treadles are used and each is connected to a heddle. When a treadle is depressed, it creates a shed. A weft thread is then propelled through the shed with the shuttle and the newly inserted weft is also beaten to the fell of the cloth. When the fell of the cloth becomes long (extended beyond the weaver's hand at the fell of the cloth), it makes insertion difficult, therefore, the cloth beam is rolled onto the cloth beam stick (Bamdohu) by pulling the *kpaanjili* (ratchet pawl). When weft yarns are finished in the shuttle (Gombo), a new weft bobbin (Kukonli) is replaced. The process is repeated over and over

till the required length of cloth (yard) is woven. See teacher trainees in Figure 9 executing the weaving of the *Bim'manli* cloth.



Figure 9: Weaving Process

#### 4. Findings and Discussion

This section presents the findings and discussion of the data gathered from the field. The discussion has been organized into sub-sections to reflect the key issues identified.

##### 4.1. Demographic Characteristics of Respondents

The male teacher trainees in Table 1 are 68(79.1%) and the female teacher trainees are 18(20.9%). This shows that there are more male teacher trainees offering an elective in art than the female students. This according to Solomon and Opoku-Asare (2012) could be attributed to the fact that the society lacks knowledge in art to give proper counseling to students, and more especially girls (S.K Amenuke, personal communication, February 18, 2018) which make the girls fear drawing than boys. This makes girls turn to choose other courses than art in schools.

In Table 1, 7(8.1%) teacher trainees offered Visual art courses in the Senior High School, 79(91.9%) teacher trainees offered non Visual Art courses. It portrays the fact that the few students who choose to offer Visual arts courses in the Senior High Schools do not even perform well in their final exams. This issue is attributed to the finding that the Basic Design and Technology (BDT) subject studied in the Junior High Schools has great challenges in terms of logistics in teaching and learning (Osei-Opoku & Yeboah Okrah, 2017) and leads to many students not choosing to offer Visual Arts in Senior High Schools in Ghana.

Table 1 also indicates that 1(1.2%) teacher trainees is a master weaver in *Bim'manli* weaving, 2(2.3%) are apprentices in *Bim'manli* weaving, 2(2.3%) had knowledge in kete weaving, and 81(94.2%) have no idea about traditional fabric weaving on the loom in Ghana. This means that only 5(5.8%) teacher trainees have idea about traditional fabrics weaving. This explains the fact that the youth in school does not cherish much in taking up the weaving of the *Bim'manli*, kente and kete as vocations that can offer them financial freedom to supplement their teaching professions. This may also be attributed to the fact that majority of the youth who are weavers in the *Bim'manli* at home are having poor Senior High School certificates to enter into Colleges of Education in Ghana.

Information	Frequency	Percentage (%)
Sex:		
Male	68	79.1
Female	18	20.9
Total	86	100.00
Course read at SHS:		
Visual Arts	7	8.1
Non Visual art courses	79	91.9
Others (specify)	-	-
Total	86	100.00
Teachers' Background Knowledge in <i>Bim'manli</i> Weaving:		
Master weaver in <i>Bim'manli</i> cloth weaving	1	1.2
Apprentice in <i>Bim'manli</i> weaving	2	2.3
Knowledge in kente or kete weaving	2	2.3
Have no idea in any traditional fabric weaving on the loom in Ghana	81	94.2
Total	86	100.00

Table 1: Demographic Characteristics of Respondents

#### 4.2. Traditional Master Weavers' Views on Rules Governing the Weaving of the *Bim'mañli* Cloth

Information	Frequency	Percentage (%)
Are there stringent rules governing the weaving of <i>Bim'mañli</i> cloth among the Dagomba?		
Yes	1	16.7
No	5	83.3
Total	6	100.00
Are females forbidden to weave <i>Bim'mañli</i> cloth among Dagomba?		
Yes	0	0
No	6	100
Total	6	100.00
Can the traditional loom be mounted in schools for teaching and learning?		
Yes	0	0
No	6	100
Total	6	100.00

Table 2: Responses from 6 Traditional Master Weavers

In Table 2, 1(16.7%) traditional master weavers responded yes to the question as to whether there are stringent rules governing weaving of the *Bim'mañli* cloth or not, while 5(83.3%) of them responded no to the question. This clearly shows that the weaving of the *Bim'mañli* cloth does not go with strict rules that can forbid any person who wants to go into the business of *Bim'mañli* production and marketing.

The one traditional master weaver who testified that there are stringent rules governing the weaving of the *Bim'mañli* cloth only made testimony to a past conscience that women on mensuration should not sit among men. This then affected those women who were weavers to isolate themselves from men in the shed so that there will not be spiritual infections to these women. However, the majority of the traditional master weavers testified that this belief among menstruation women is nullified by other belief systems from Christianity and Islam which both forbid people worshipping and believing in spiritualities, deities or lesser gods. Hence, 5(83.3%) in Table 2 accepted that women who are menstruating today are not forbidden to weave among the men.

The absent of stringent rules governing the weaving of the *Bim'mañli* cloth has also made it freelance for the researcher to teach it in E.P College of Education, Bimbilla without entertaining any fears. This goes to confirm all the 6 traditional master weavers' response in Table 2 that the loom for weaving the *Bim'mañli* cloth can be mounted in schools for practice without any bridge of traditional beliefs or practices.

#### 4.3. Observations Made on Teacher Trainees during the *Bim'mañli* Cloth Production

Reactions/Attitudes	Poor	Good	Very good	Excellent
Critical thinking			✓	
Punctuality				✓
Creativity			✓	
Understanding			✓	
Handling of tools/materials/equipment		✓		
Females' level of participation				✓

Table 3: Reactions/attitudes

In Table 3, teacher trainees' critical thinking level was rated very good. This indicates that when learners are exposed to hands-on-activities, they develop critical thinking skills. This fact is further buttressed by Yildirim (2001) that making students to explore with tools and materials promotes their ability to think critically in solving problems. Right from the idea development stage, teacher trainees explored high level of thinking to come out with different patterns of *Bim'mañli* cloths. In the weaving processes as well, teacher trainees exhibited high spirits of thinking as to how to freely open the shed and insert picks continuously.

Punctuality was another observable attitude which was rated excellent. A register of attendance was cross checked during the teaching and learning periods and it was found out that 98% of the teacher trainees were always present in each lesson. The few absentees always sought permission to attend to other pressing issues such as visiting the bank and hospitals for their allowances and health issues respectively. This clearly proves that when teaching and learning is practicalised students get motivated to always be part of the hands-on activities in which they appear to learn by doing (Susak, 2016) and Jennifer (2011).



Creativity was also rated very good. It was found out that teacher trainees were able to transfer their previous knowledge acquired in first year foundation classes into the second year course. This means that when teaching and learning is made interactive and with the use of appropriate teaching and learning materials, students stand the chance of retaining a greater percentage of knowledge in what they learn. This also supports the fact that tutors need to coach learners well (Aziz, Quraishi & Kazi, 2018), so that when the aim is for the learners to transfer their knowledge and skills to new situations, they stand the chance of remembering what was learnt previously. The teacher trainees showed good skills in innovativeness or originality and this remains one of the standards for students' assessment in Visual Arts (Fiadzo, 2010).

The teacher trainees' level of understanding was also rated very good. The researcher observed that after the tutor's demonstration of the weaving processes on the loom, the trainees were capable to be on their own, though with minimum support from the tutor, till the project was finally executed. It was also found out to be as the result of the influence of the master weaver among the teacher trainees who was part of the elective class. This obviously shows the impact of peer influences on students' learning abilities as indicated by Ampadu (2011) and Dulonsky et al (2013) that student-centered approaches enable students to interact among themselves to solve problems on their own.

In Table 2, the teacher trainees' ability to handle tools and materials was rated to be good. It was found out that they needed enough time to be conversant with the use of tools and materials for weaving. This is as a result of majority of them being lay persons in the *Bim'maṅli* cloth weaving as well as being non Visual Art students. Therefore, the teacher trainees' reaction with the weaving tools and materials is progressive. This supports Cabrilla and Mayan (2017) as well as Beaman Wheldall (2000) indication that teachers must consider the learning pace of individual students because most classrooms are mixed abilities classrooms.

The participation of female teacher trainees was rated excellent. The tutor observed that the few female counterparts were very active in all processes involved in producing the *Bim'maṅli* cloth. This points out to the fact that female students can equally do what their male counterparts can do in the teaching and learning diaspora within Colleges of Education, hence equal opportunities should be given to female teachers in classroom management and learning affairs. Zakaria, Chin, and Daud (2010) enforced this teaching strategy by indicating that teachers should provide equal chances for all learners in class to promote effective teaching and learning and gender equity.

#### 4.4. Teacher Trainees' Reactions/Attitudes after Production

Reactions/Attitudes	Yes	No	Total
Visit master weavers/elders at home during Easter break to enhance their skills in weaving the <i>Bim'maṅli</i> cloth.	65(75.6%)	21(24.4)	100%
Students continued practicing weaving on the loom mounted in the school	76(83.4%)	10(11.6%)	100%

Table 3: Post-Reactions/Attitudes of Teachers

In Table 3, 65(75.6%) of the teacher trainees visited master weavers and elders at home during Easter Break within the second semester to learn more about *Bim'maṅli* weaving. This makes learning a continuous process as students go beyond the classroom to acquire more in-depth information about what is learnt in class. According to the reasons given by the respondents who could not visit master weavers for more information regarding *Bim'maṅli* weaving, that they stayed at places where weaving is not done. This shows that the art of traditional weaving is not a full time occupation practiced in some villages and towns in Ghana. In most villages, farmers will remain very active on their farms than any other business during the raining season, hence most weavers in villages stop weaving until farming activities are minimized. This is related to Frimpong, Asinyo and Amankwah's (2016) view that *the* cotton cultivation in the northern part of the country which feeds the textiles factory dwindles because of farmers' desire for food crops cultivation than cotton.

In Table 3, it also showed that 83.4% of teacher trainees continued practicing the *Bim'maṅli* weaving on the loom after the main project was over. This is usual with students subjecting the facilities to use when learning facilities are made conducive and available to them (McGowan, 2007). From the view of some of the respondents, it was found out that the teacher trainees needed to improve upon their skills of weaving so that they can supplement their teaching professions with *Bim'maṅli* weaving after they finish school. This is why Fusheini and Bukari (2017) indicate that art offers students self-employable skills to uplift their economic status.

## 5. Conclusions

In teaching a skill in a practical course area like art, tutors in Colleges of Education should adopt teaching and learning processes that completely fall under the learning by doing principle. In exposing the teacher trainees' independent execution of weaving the *Bim'maṅli* cloth, they developed very necessary critical thinking skills which offered them abilities to solve problems in life. The teacher trainees' interactions with master weavers in their communities have helped them acquired much knowledge about the material culture of their people which will enhance their understanding of the environment. This will help them cope with many norms in the societies where they will be doing their teaching practices as well as their final postings.

The *Bim'maṅli* weaving is a major traditional handicraft among the Dagomba people and it does not have strict rules exempting females from the job. This is as a result of the fact that the Dagomba women were earlier on the pioneers

in making fabrics by weaving and stitching for the homes coupled with the fact that Christianity and Islam have denounced a lot of practices in occultism such as forbidding women for certain roles in life.

The teacher trainees in the elective class had majority of them who did not offer Visual Arts in the Senior High Schools. One of the reasons is that majority of parents or guardians are never ready to applaud art education in the midst of the children due to lack of knowledge about art. Also, female teacher trainees took active participation in the weaving processes in order to gain much experience in *Bim'majli* cloth weaving. They exhibited competitive skills with boys and produced very intricate paper designs and weaves. This resulted from the fact that gender equity has received a great concern in recent times for the economic enhancement of women in all fields of endeavor.

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