

**RECYCLING WOOD OFF-CUTS TO DEVELOP INSTRUCTIONAL  
MATERIALS FOR CREATIVE ARTS EDUCATION AT BOMSO M/A  
PRIMARY SCHOOL IN KUMASI**

**By**  
**Rhoda Wiafe**  
**(B.A. Integrated Rural Art and Industry)**

KNUST

A thesis submitted to the Department of Educational  
Innovations in Science and Technology,  
Kwame Nkrumah University of Science and Technology, Kumasi in partial  
fulfillment of the requirements for the Degree of

**MASTER OF PHILOSOPHY IN ART EDUCATION**

**Faculty of Art**  
**College of Art and Built Environment**

**October, 2018**

## DECLARATION

I hereby declare that this submission is my own work towards the Master of Philosophy in Art Education 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.

Rhoda Wiafe (PG 5638416)

(Student's Name & ID No.)

Signature

Date

Certified by:

Dr. Mrs. Akosua Tachie-Menson

(Supervisor's Name)

Signature

Date

Certified by:

Dr. Mrs. Mavis Osei

(Head of Department's Name)

Signature

Date

## ACKNOWLEDGEMENTS

This research work has been made a success through varied support and immense contribution of many people and I must say I am very much thankful to them all.

My warmest appreciation goes to the Almighty God for his abundant grace and mercies showered on me.

My Sincerest gratitude goes to this wonderful woman Dr. Mrs. Akosua Tachie-Menson, my supervisor, for her enormous supervision, positive criticisms, encouragement and motivation which helped a lot in finishing this race. Not forgetting Nana Afia Amponsaa Opoku-Asare (Mrs.) for her diverse contribution and inspiration which urged me on.

I say a big thank you to the Headmistress and Auntie Hilda of Bomso M/A Primary School for their reception and support without which the project would not have been feasible or achieved.

I also convey my special thanks to the Head of Department, Dr. Patrick Osei-Poku and all the lecturers of the Department of Educational Innovations in Science and Technology of Kwame Nkrumah University of Science and Technology for the knowledge and experiences that they have given to me.

To my parents, Mr. George Wiafe and Gloria Patience Thanki; my brothers and sister I say a big thank you for your motivation and inspiration.

Finally, a big thank you to Mr. Ransford Twumasi-Ankrah for being my backbone throughout the entire project. I must admit that your advice, constructive criticisms and encouragement helped a lot in this research work.

## **DEDICATION**

With my sincerest gratitude to the Almighty God, I dedicate this thesis to my dear parents, Mr. George Wiafe and Gloria Patience Thanki; my siblings, Mr. Ransford Twumasi-Ankrah, Dr. Akosua Tachie-Menson, my friends and all my love ones.

# KNUST



## **ABSTRACT**

The growth of humanity from the primitive state to the present day's highly advanced technology has been closely associated with the dependence on wood. Wood has been used for shelter, fuel, tools, weapons, as well as for beautifications. Hence, it is very much clear that wood plays a vital role in the life of man. However, the off-cuts from the wood after it has undergone a production process are left to go to waste while they could have served a useful purpose. The research therefore sought to recycling wood off-cuts to develop instructional materials for Creative Arts education at Bomso M/A Primary School in Kumasi.

The general objective of the study was to recycle wood off-cuts as appropriate instructional materials for teaching some selected topics in Creative Arts at Bomso M/A Primary School. Specific objectives included identify and examining types of instructional materials used for teaching selected topics in Creative Arts, testing the recycled wood off-cuts used as instructional materials for teaching these selected topics in Creative Arts as well as examine their effects on pupils' academic performance at the School.

A qualitative research design which took into consideration a descriptive and quasi-experimental method was used for this study. The descriptive enabled the researcher to explain the existing instructional materials that was used by the teacher and the quasi-experimental method allowed the researcher to test the recycled wood off-cuts used as instructional materials for an in-depth information using observation and interview as research instruments.

Findings from the research indicated that existing instructional materials did not sufficiently help in the teaching and learning of Creative Arts. Findings also showed that they pupils paid less attention which led to lack of understanding and interest in the subject because there was no hands-on activity. Also, it was found out that recycled wood off-cuts as Instructional Materials were simple to use, sustained the interest of pupils and their attention, made teaching and learning easier and as well as a fun filled activity. This again paved way for those who do not participate in class to willingly take part in class activities.

## TABLE OF CONTENT

<b>DECLARATION .....</b>	<b>ii</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>iii</b>
<b>DEDICATION .....</b>	<b>iv</b>
<b>ABSTRACT.....</b>	<b>v</b>
<b>TABLE OF CONTENT .....</b>	<b>vi</b>
<b>LIST OF TABLES .....</b>	<b>x</b>
<b>LIST OF FIGURES .....</b>	<b>xi</b>
<b>LIST OF PLATES .....</b>	<b>xi</b>
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION .....</b>	<b>1</b>
1.1 Overview.....	1
1.2 Background to the Study .....	1
1.3 Statement of the Problem.....	6
1.4 Objectives of the Study.....	9
1.5 Research Questions.....	9
1.6 Delimitation .....	9
1.7 Limitation .....	10
1.8 Importance of the Study.....	10
1.9 Definition of Terms .....	11
1.10 Abbreviations/Acronyms .....	12
1.11 Arrangement of the rest of Text.....	12
<b>CHAPTER TWO .....</b>	<b>13</b>
<b>REVIEW OF RELATED LITERATURE .....</b>	<b>13</b>
2.1 Overview.....	13
2.2 Primary Education in Ghana.....	14
2.3 Concept of Teaching.....	15
2.3.1 Teaching Theories .....	16
2.3.2 Teaching Methods .....	19
2.3.3 Good Teaching.....	22

2.4 Concept of Learning .....	24
2.4.1 Learning Theories .....	26
2.4.2 Domains of Learning .....	29
2.4.3 Types of Learners .....	30
2.4.4 Active Learning .....	32
2.4.5 Learning through Direct Experience .....	33
2.5 Creative Arts Education.....	37
2.6 Rationale for Studying Creative Arts .....	38
2.7 Creative Arts Curriculum .....	39
2.8 Challenges in Creative Arts Education.....	40
2.9 Developing Creativity in Primary School.....	41
2.10 Instructional Materials .....	43
2.11 Instructional Materials from Local Resources.....	45
2.12 Instructional System Design .....	46
2.12.1 Instructional Design Model .....	47
2.13 Recycling .....	52
2.14 Types of Waste Materials .....	53
2.15 Waste and its Effects on the Environment.....	55
2.16 Safety Measures in Waste Recycling .....	56
2.17 Recycling Waste for Developing Instructional Materials .....	57
<b>CHAPTER THREE.....</b>	<b>60</b>
<b>METHODOLOGY .....</b>	<b>60</b>
3.1 Overview.....	60
3.2 Research Design .....	60
3.2.1 Research Methods.....	62
3.3 Population.....	64
3.3.1 Target Population.....	64
3.3.2 Accessible Population.....	65
3.3.3 Sample and Sampling .....	65
3.3.4 Sampling Design.....	66
3.4 Data Collection Tools .....	67
3.4.1 Observation as Data Collection Tool.....	67



3.4.2 Interviews as a Tool for Gathering Data.....	69
3.5 Types of Data.....	70
3.6 Data Collection Procedure.....	71
3.7 Methodology for Recycling Wood Off-Cuts as Instructional Materials .....	72
3.7.1 Analysis Stage .....	72
3.7.2 Observations Made during the Lesson .....	73
3.7.3 Findings from Interviews with Teacher and a Head Teacher at Bomso M/A Primary School .....	75
3.8 Activities Undertaken for Objective Two.....	79
3.8.1 Design Stage .....	79
3.8.2 Developmental Phase.....	84
<b>CHAPTER FOUR .....</b>	<b>103</b>
<b>PRESENTATION AND DISCUSSION OF FINDINGS.....</b>	<b>103</b>
4.1 Overview.....	103
4.2 Profile of Bomso M/A Primary School .....	103
4.3 Analysis of Results from Observations Made at Bomso M/A Primary School .....	104
4.3.1 Strengths and Weaknesses Observed with the Use of Existing Instructional Materials for Teaching selected topic in Creative Arts .....	105
4.4 Implementation Phase.....	107
4.4.1 Activities undertaken for Objective Three .....	107
4.4.2 Testing the Developed Instructional Materials.....	107
4.5 Evaluation Phase.....	112
<b>CHAPTER FIVE .....</b>	<b>115</b>
<b>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>115</b>
5.1 Overview.....	115
5.2 Summary.....	115
5.2.1 Main Findings .....	116
5.3 Conclusions.....	117
5.4 Recommendations.....	119



<b>REFERENCES .....</b>	<b>122</b>
<b>APPENDICES.....</b>	<b>134</b>
<b>APPENDIX A.....</b>	<b>134</b>
<b>APPENDIX B .....</b>	<b>137</b>
<b>APPENDIX C.....</b>	<b>139</b>
<b>APPENDIX D.....</b>	<b>141</b>

# KNUST



## LIST OF TABLES

Table 4.1: Test results recorded at Bomso M/A Primary School .....	112
--	-----

KNUST



## LIST OF FIGURES

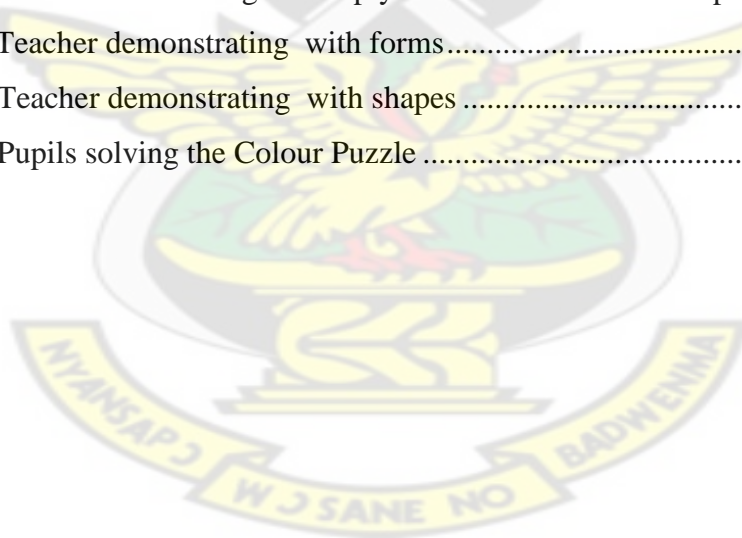
Fig 2.1: Bandura Mediational Process Model (McLeod, 2007).....	28
Fig 2.2: Kolb's Cycle of Experiential Learning (McLeod, 2017).....	35
Fig. 2.3 Dales Cone of Experience (Wilson, 2015) .....	36
Fig 2.4 ADDIE Instructional Model (Godwin, 2016).....	52
Fig 3.1a: Design for the recycled wood off-cuts used as puzzle for mosaic.....	81
Fig 3.1b: Design of the wood off-cuts for shapes .....	82
Fig3.1c: Prototype of the shapes .....	82
Fig 3.1d: Design for recycled wood off-cuts used as 3D forms.....	83
Fig.3.1e Design of irregular shapes used to develop the Ghana Map.....	83
Fig 3.1f: Design of the prototype of Ghana map .....	83
Fig 4.1: Comparison of Test Results on the effects of Existing and Developed Instructional Materials for Teaching Topics in Creative Arts .....	113



## LIST OF PLATES

Plate 3.1: Teacher using illustration on the marker-board to teach Principles and Elements of Design in Primary Four.....	74
Plate 3.2: A chart for teaching Colours and Shapes.....	74
Plate 3.3: Textbook for teaching .....	75
Plate 3.4: Self-made mosaic with cut out coloured paper glued on a sketch pad by teacher for demonstration.....	75
Plate 3.5: The wood waste from which the wood off-cuts were selected .....	79
Plate 3.6: The selected wood off-cuts .....	79
Plate 3.7a: Jigsaw .....	84
Plate 3.7b: Sanding block.....	84
Plate 3.7c: Plier.....	84
Plate 3.7d: Jigsaw blades and nails.....	85
Plate 3.7e: Sanding Machine.....	85
Plate 3.7f: Punches .....	85
Plate 3.7h: White glue .....	85
Plate 3.7j: Acrylic paint and Super glue.....	86
Plate 3.8a: Cutting out the wood off-cut using the piercing machine.....	87
Plate 3.8b: The cut-out Puzzle work .....	87
Plate 3.8c: The work goes through sanding .....	88
Plate 3.8d: Sawdust and Superglue were mixed to fill the cracks in the wood.....	88
Plate 3.8e: The edges were curved and the work painted .....	88
Plate 3.8f: The work was sanded, painted and left to dry three times.....	89
Plate 3.8g: The work was finally sprayed and ready for use .....	89
Plate 3.9a: cutting out the shapes .....	90
Plate 3.9b: The cut-out shapes .....	90
Plate 3.9c: Sanding the cut-out shapes to make them smooth .....	91
Plate 3.9d: Shapes painted, sanded, allowed to dry and painted (done three times).....	91
Plate 3.9e: The finished Shapes .....	91
Plate 3.10a: The mark wood for chiselling .....	93
Plate 3.10b: Joining the wood for lathing .....	93
Plate 3.10c: Chiselling process .....	93
Plate 3.10e: Wood sanded, holes sealed with sawdust and superglue .....	94

Plate 3.10f: The forms were painted, sanded and painted again .....	94
Plate 3.10g: Spraying the work .....	94
Plate 3.11a: Cutting the frame.....	97
Plate 3.11b: Frame of the Map .....	97
Plate 3.11c: Piercing, Filing and Sanding of the regions of the Ghana Map .....	97
Plate 3.11d: The support was sanded, glued and fixed with nail to the Map frame.....	97
Plate 3.11e: Nail heads clipped, concealed with punch and edges trimmed.....	98
Plate 3.11g: Sanding of the wood off-cut for regions .....	98
Plate 3.11f: Portion marked for sanding .....	98
Plate 3.11h: Work painted, dried and sanded again .....	98
Plate 3.11i: Works sprayed and allowed to dry.....	99
Plate 3.11j: The back and cunch are glued and joined together.....	99
Plate 3.11l: Pieces of Velcro fixed to the regions and attached to the frame.....	100
Plate 3.11m: Printed Map joined to plywood with glue stick .....	100
Plate 3.11n: Plywood edges sanded for fixing chamfered wood .....	100
Plate 3.11o: Chamfered wood glued to plywood and sanded to complete work .....	101
Plate 4.1c: Teacher demonstrating with forms.....	110
Plate 4.1b: Teacher demonstrating with shapes .....	110
Plate 4.1d: Pupils solving the Colour Puzzle .....	111



## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Overview**

This chapter presents the background to the study, statement of the problem, objectives of the study, research questions, delimitation, limitation, importance of the study, definition of terms, abbreviations and arrangement of the rest of the script.

#### **1.2 Background to the Study**

Instructional materials stand as the tools used by a teacher in informative teachings, which embraces active acquisition of knowledge and valuations thus making teaching and learning easier for the student and teacher. Instructional materials catch the learner's attention and get him or her to participate fully in whatever is being done in the classroom. The instructional material serves as a component of truth by providing solid understanding and arousing the interest of the learner on what is being taught and urge him or her to learn more and more (Janovsky, 2003).

According to Ibe (1998) as cited in GistArea (2013), an instructional material is an entity or an avenue to relay a message that grasps and allocates the human ability or knowledge, hence, the entirety of a device that conveys detailed facts or messages. Human and resources represent instructional materials in education. This includes the total of instructional system, that is, "the material text in total, student's and teacher's guides that are required to influence the objectives of any instructional unit, course of study which walks side by side with associated events and procedures essential to control the structure as it is programmed to function.

Once more, Esu (2004) as cited in Jimoh (2009) says that, instructional materials allude to all the resources within the reach of the teacher and the learner which are employed to facilitate teaching and learning. It therefore follows that such materials may be both human and non-human provided they facilitate the acquisition and evaluation of knowledge, skills, attitudes, morals and values. Jimoh (1987) supports this in a paper titled “creating your own media or materials”. He says that when students pay no heed to you or others, what are they up to? They could be peeping through the window or taking a glance at bare walls or fidgeting with surrounding objects” so, to get a grip on conditions like this, teachers could mount interesting materials which can easily catch their attention to enable them to participate attentively during the lesson.

The term instructional materials although being defined through various establishments, the outcome still stands as an aid to educational situations. However, Edward (2004) as cited in Ololubu (2015) has it that, instructional materials are the resources the teacher hires to support him during verbal descriptions and a form of demonstration in the classroom. Then again it comprises of designing, implementing and assessing the instructional procedures so as to achieve the instructional ideas. They make teaching and learning more meaningful and useful to life since it is a material that helps one to gain knowledge and generate innovative ideas.

Categorically, these instructional materials come in three forms. Firstly, there are the traditional resources that deal with Textbooks and Workbooks. Mostly these books help in the introduction of new topics, for examples poems and word checks in spelling books. Secondly, there is Graphic Organizer, which is any kind of visual illustration of information such as figures, charts, tables, flow charts, and graphs. An example is using



diagrams to show or depict numerator and denominator in Maths. This is somewhat enjoyed by visual learners when they see clearly what is being taught as compared to the abstract impression on the mind and thirdly, there are the Teacher-Made Resources which include what the teacher has created in the form of handouts, quizzes and projects. This is used as an assessment to know those students who are catching up and those who are still struggling behind (Janovsky, 2003).

Creative Arts education is one of the most operative conducts towards nurturing creative intelligence in pupils to help them stand up to this economical and active world of ours. It is clustered into music, creative movement, writing and performing art. A more distinctive advantage of Creative Arts education embraces high acceptance in schools, training or growth of a child's area of life, enhancement of artistic talents and visual imaginations. Creative Arts such as dance is noted for lessening stress and expanding flexibility, writing is also known to show or help people control their emotions, it helps pupils practise problem solving and invention (Brobbe, 2015).

The teaching Syllabus for Creative Arts in Ghana under Ministry of Education (2007), explains Creative Arts as a mixture of Visual Arts (drawing, weaving, modelling, casting, carving and painting), Sewing, and Performing Arts (music, dance and drama). Looking at the two definitions by Brobbe (2015) and Ministry of Education (2007), they outline the fact that Creative Arts is a platform for self-expression of the individual. According to Dosoo (1996) as mentioned in Boafo Agyeman (2010), primary education is the utmost crucial part of schooling that a nation provides for its citizens. In Ghana, primary education is for six years and after it follows Junior High School education which lasts for three years. Primary education begins from the approved formal school-

going age of six years which is preceded by 2 years of kindergarten education and every Ghanaian child is supposed to have primary education as a share of the nine-year compulsory basic education as a human right, thereby ensuring a complete basis for the socio-economic advancement of the country. It is during this period that children grasp things easily, therefore, the primary school education, specifically, the lower primary which ranges from Primary One to Three, is a platform for coaching these young ones with instructional materials to aid in the learning process.

Ampeh (2011) also has it that, primary education is part of the influential years of pupils whose ages range between six and twelve years. At this evolving stage, children easily socialize a lot and in the process of socialization, they begin to form requisite values and qualities, therefore Creative Arts was introduced to increase the growth of the mind and creative self-expression among the pupils. Likewise, Umoh (2006) as cited in Etor (2013) maintains that pupils should be made to familiarize themselves with instructional materials and this can be achieved by allowing them to touch, use, feel and play with these instructional materials. As contended by Ampeh (2011), the inquisitive nature of children at this stage also gives them the chance to discover, try-out and find new materials that add to their wealth of knowledge which they use to crack difficult situations in all aspect of their life.

According to Eschool today (2008), recycling is turning used materials that is, remnants into fresh products that can be used again. This is done to prevent raw materials from being misused. Recycling requires less energy hence, geared towards lessening air, water and land pollution. Once more, SKM (2016) also defines recycling as reprocessing waste resources into useful materials, cuts the exhaustion of fresh materials and decreases

energy usage. Recyclable materials come from a wide range of sources mostly the home and industry, and includes; glass, paper, cardboard, aluminum, steel cans and fabrics. Another source is wood waste in our local furniture shops that comes off as off-cuts, wood shavings, wood chippings and sawdust.

Oosthoek (2011) confirms that wood commonly has been used for so many things, extending from domestic and public use and due to the cellulose and lignin it holds, it is very strong and can repel pressure. As a profuse renewable reserve, wood has been regarded passionately as the basis for renewable energy. Wood which is used in Ghana and globally as a desired material, extending from households to our outside world, is fibrous, porous and derived from the stems and roots of trees. In the olden days, wood was termed as a country's economy boost due to its availability and abundance (Wikipedia, 2017). It can be used as fuel, for construction, decoration, paper and tools. Wood has also been used in the field of art, where it serves sculpture and carving.

Wood, which can be found almost in everything we have around us, before it is turned into a product, it goes through a lot of processes which generates remnants (wood off-cuts), and take the form of wood shavings, wood saw dust and slicer boards. These wood remnants could be turned into useful products since they are user-friendly that is easy to use and durable. Also, wood in our local setting, is readily available and very much easy to come by. The wood takes many forms and can be easily manipulated to suit the kind of work to be produced but instead they are put away as waste and left to the mercy of the weather. After some time, downpour of rains and heavy sunshine end up decaying them.

### **1.3 Statement of the Problem**

Ministry of Education (2016) clearly states that an instructional material is the integral component in any classroom. It helps in the in-depth understanding of a lesson and easily arrests pupil's attention for full participation in the classroom. The advantages or benefits of instructional materials covers aiding the learner advance in reading comprehension, illustrating or strengthening a skill, separating instruction and relieving uneasiness or boredom by giving out information in a new and exciting way. However, an investigation conducted in Bomso M/A primary school showed that there are not enough instructional materials to enhance teaching and learning of Creative Arts Education. This can be a problem if the class size is big and only few pupils can understand and benefit from the available ones.

Creative Arts as a mixture of Visual Arts (drawing, weaving, modelling, casting, carving and painting), Sewing and Performing Arts (music, dance and drama). Ministry of Education (2007). This points to the fact that Creative Arts is a hand-on activity and interactive subject which gives room for pupils' self-expression. However, Brobbey (2015) makes it quite clear that, Creative Arts cannot be efficiently taught and learnt if there is inadequate teaching and learning materials that will facilitate the teaching and learning of its topics in the primary school, more importantly the government schools.

Also, teachers who are to impact the level of creativity into pupils lack the skill and knowledge for doing so and tag the subject as difficult to teach. In a personal communication with Miss Hilda who is a Class 4 teacher at Bomso M/A primary school revealed that, teachers use the allotted time for Creative Arts to teach other topics such as

Maths and English because they can interpret the subject well hence find it burdensome to teach.

Teachers and school administrators also spend a lot of money to get instructional materials to support effective learning. The available ones as time goes on, turn out to be out-of-date and improper handling also destroys them. Abolade and Olumorin (2004) as referred to in Olumorin et al., (2010) creates awareness from Aguzeamegah (2014) that, instructional materials for teaching that are manufactured from industries typically, are rare and sometimes difficult to procure. The very ones available are generally costly.

A personal communication with Miss Hilda, who is a Class 4 teacher at Bomso M/A Primary School in Kumasi says, it is assumed by the School's Board that, there is enough instructional materials for teaching Creative Arts topics therefore much attention is not paid to that topic it even when messages are sent to them that more instructional material should be provided to support teaching and learning of the Creative Arts. She further stated that Creative Arts is a practical base subject and in some classes, only textbooks are provided for the subject. Therefore, teaching only the theory aspect makes it difficult for the pupils to understand what they are being taught (Personal Communication, June 2017).

In fulfilling course requirement for ATE 733 Production in 2-Dimensional Art and ATE 734 Production Techniques in 3-Dimensional Art which are offered to MPhil in Art Education students at the Department of Educational Innovations in Science and Technology in Kwame Nkrumah University of Science and Technology, permitted a visit to Effiduase M/A Primary School just outside the Kumasi Metropolis to observe teaching. The researcher's observations revealed minimal use of instructional materials



in the classroom. In some classes, there was no instructional material. The pupils were only able to answer questions asked by the class teachers with the help of illustrations she made on the chalkboard when they were silent to her questions. The researcher understood that the pupils only realized they already knew the answers to the questions being asked before illustrations on the board were made.

Again, a class which was found using an A4 sized chart instructional material had only one to use as a demonstration tool. The instructional material now served as a distraction to the class because the instructional material had to be passed round the class for the pupils to look at it as an example to what was being taught in class. While some pupils took advantage of it to make noise and fidget, others took long in looking at it before passing it on to the other pupils in the class which refrained the pupils from paying attention, hence, bringing the class to a standstill. This points to the fact that instructional materials arrest pupil's attention easily and if they are enough will go a long way to improve our primary education, especially Creative Arts which has to do with imagination and self-expression of the pupil. In this case, the idea of creativity if employed can serve as a backup for the outmoded (Aguzeamegah 2014). It is in view of this that the researcher sought to recycle wood off-cuts into instructional materials for Creative Arts at Bomso M/A Primary School to improve the teaching and learning of some topics under Creative Arts. This report will also serve as a reference material to help teachers identify recyclable materials in our environment as well as turn them into instructional materials to support teaching of Creative Arts to boost pupils' interest in learning the subject.

#### **1.4 Objectives of the Study**

1. To identify and examine the types of instructional materials used for teaching and learning of Creative Arts at Bomso M/A Primary School in Kumasi.
2. To recycle wood off-cuts into instructional materials for teaching and learning of Creative Arts at Bomso M/A Primary School in Kumasi.
3. To test the recycled wood off-cuts used as instructional materials for teaching of Creative Arts and examine their effects on pupils' academic performance at Bomso M/A Primary School in Kumasi.

#### **1.5 Research Questions**

1. What are the types of instructional materials used for teaching Creative Arts and how do they affect pupils' academic performance at Bomso M/A Primary School in Kumasi?
2. How will wood off-cuts be recycled into instructional materials for teaching and learning of Creative Arts at Bomso M/A Primary School in Kumasi?
3. How will the recycled wood off-cuts used as instructional materials for teaching Creative Arts affect pupils' academic performance at Bomso M/A Primary School in Kumasi?

#### **1.6 Delimitation**

The study was limited to only the recycling of wood off-cuts, specifically, regular and irregular shaped blocks of wood, wood shavings and slicer boards available in our local wood furniture shops in Kumasi for the development of instructional materials relevant for teaching and learning of Elements and Principles of Design in Creative Arts for



Primary Four pupils at Bomso M/A Primary School in Kumasi in the Ashanti Region of Ghana.

### **1.7 Limitation**

There were various hindrances that interrupted the collection of data for the research from the school. First of all was Inter-school competitions that took the pupils and the teachers to another school hence cancelling the scheduled time for the Observation. Secondly, there were workshops organised for teachers in the upper primary most times which included the class for the involved activity, that is the selected class for the research. This in turn delayed the progress of the research as the teachers were not available to teach. Thirdly, the teachers were reluctant to give their consent to the interview as it was assumed to be used against them. This was however resolved with a letter from the Department of Educational Innovations in Science and Technology which was given to the Head teacher of the school clarifying the reason why the interview was being conducted and followed by prior notice given to teachers to ease pressure.

### **1.8 Importance of the Study**

1. The research will benefit teachers and pupils since the recycled wood off-cut instructional materials will help teachers attain effective instructional materials for pupils' better understanding of the selected topics in Creative Arts at the primary schools.
2. The research will be of importance to the teachers since the wood off-cuts are locally available and less costly therefore they can produce as many as they want to make teaching and learning effective and enjoying.

3. The report will be of great value to primary schools, to instigate recycling as an opportunity for moving forward education through the creation of instructional materials at a low cost.
4. The report will serve as a guide to further research that are conducted to explore more on the other remnants of wood and their uses in the educational aspect to enrich teaching and learning.
5. Last but not the least, the research will be of importance to the artist who wants to take it up as a profession by organising workshops to enlighten teachers and pupils on benefits and how to recycle wood off-cuts into instructional materials.

### 1.9 Definition of Terms

- **Creative Arts:** A subject that allow pupils to express themselves through art, music and drama. These enable learners to interrogate and participate in class work.
- **Instructional materials:** Educational materials in a classroom used under a specific subject to support teaching and learning. They are made to help achieve goals set by the teacher for the learner.
- **Remnants:** When a work is done, the excess or leftover from the greater part of the material used that is not needed again.
- **Recycling:** Turning used materials into useful or new products.
- **Recyclable materials:** Already used materials that can be turned into new and useful products again.

- **Wood off-cuts:** Blocks or pieces of wood that comes off as excess after a furniture work is produced in a wood workshop. They come in varied shapes and sizes are mostly term as waste by the producer.
- **Recycled wood off-cuts:** The wood off-cuts known as waste to the producer which are not thrown away but are turned into useful products.

### 1.10 Abbreviations/Acronyms

- **ADDIE:** Analysis, Design, Development, Implementation, Evaluation
- **CRDD:** Curriculum Research and Development Division
- **GES:** Ghana Education Service
- **IMs:** Instructional Materials
- **ISD:** Instructional System Design
- **M/A:** Metropolitan Assembly

### 1.11 Arrangement of the rest of Text

Chapter Two offers the rational and first-hand analysis in Creative Arts, teaching and learning and instructional materials in general. Chapter Three consists of the procedure that was implemented for the study and presentation of findings as well as the execution of recycled wood off-cuts as instructional material for teaching and learning of selected topics in Creative Arts. Chapter Four deals with the discussion of the main findings and trying out the recommended recycled wood off-cuts as instructional material for teaching and learning of selected topics in Creative Arts. Chapter Five encompasses summary, conclusions and recommendations of the research.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 Overview**

This section pacts with the in depth understanding of recycling wood off-cuts to develop of instructional materials for creative art education. For this reason, there is the need for review of related literature to be made. Below are the sub-topics the review of related literature will follow.

- Primary Education in Ghana
- Concept of Teaching
- Concept of Learning
- Creative Arts Education
- Rationale for Studying Creative Arts
- Creative Arts Curriculum
- Challenges in Creative Arts Education
- Developing Creativity in Primary School
- Instructional Materials
- Instructional Materials from Local Resources
- Instructional System Design
- Recycling
- Types of Waste Materials
- Waste and its Effect on the Environment
- Safety Measures to take in Waste Recycling
- Recycling Waste for Developing Instructional Materials

## **2.2 Primary Education in Ghana**

The way of helping an individual uncover excellence in knowledge, as well as empowering learner with concrete knowledge and skills so that they have serious thinking abilities to make cognizant and better decisions which will enhance and add more value to their own lives, and lives of others, as well as assist in resolving national problems, is known as education (Sakyi, 2015). According Oduro (2000), the first stage of knowledge and skill acquisition procedure in Ghana is primary education. Primary education offers the vital building blocks to enable an individual to attain higher levels of education. For those who do not further to higher education, it makes available the grounds upon which work related skills are established.

Boafo Agyeman (2010) explains primary school education as the most important part of formal education a state lays down for its citizens. In Ghana, primary education last for six years and builds a solid ground for Junior High School education. It commences from the approved school-going age of six years and every Ghanaian child is likely to have primary education as a share of nine-year obligatory basic schooling as per a right and in so doing guarantee a fair footing for the socio-economic growth of the nation. The initial three years' instruction may be in English only or may be mixed with other native dialects. There are certified number of teachers who graduated from a three-year teacher training college, who educate children to read in English. School books as well are in English except for those that aid in teaching and learning of various Ghanaian dialects (Keteku, 1999) as cited in (Agudzeamegah, 2014). The subjects taught at the primary level of education comprises English, Ghanaian Language, ICT, Mathematics, Social Studies, French, Integrated Science, Religious and Moral education, and Creative Arts such as music, crafts, arts and dance (Wikipedia, 2017).

The goal of primary education is to give the individual the education that enhances their acquired skills, knowledge involving oral comprehension, reading, writing, numeracy, improvement in social works, creativity and preparing them for learning methods for the required secondary education (Parque, 2017). Therefore, it is important to expand the quality of primary education to enhance the requisite skills of the Ghanaian child for the socio-economic development of the country.

### **2.3 Concept of Teaching**

Teaching is the way of presenting one's self to the needs of an individual, his skills as well as understanding and feelings, and making precise involvements to help them learn things. According to Ranjani (2011), teaching as a form of impact that aids a person in acquiring skills and also changes the person's behaviour to help him or her in the future. Ranjani further propounded that teaching is an interactive method concerning classroom talk which takes place amongst a teacher and pupils in a certain defined activity.

Lastly, Ryans (1964), as cited in Ranjani (2011) says teaching is putting forth an activity that is concerned with the supervision or controlling of the learning of others to enhance the student's level of understanding and help overcome any situation in an easy way. In other words, teaching is the process of helping an individual learn and acquire new skills and knowledge in an exciting way.

Therefore, the concept of teaching implies presenting an idea to an individual thereby impacting knowledge and attending to their requirements to enable them to acquire new skills for future developments. This can come in different forms such as demonstration, use of instructional tools and stimuli that incite activity and arouse energy or feeling in



an individual and the outcome is the individual's responds to the tools used for teaching and learning.

### 2.3.1 Teaching Theories

Teaching theories are a set of connected ideas or concepts as well as meanings which present a step by step view of teaching in terms of understanding the activities or task of teaching and guidelines for the individual with the aim of making teaching and learning easier (Jeen, 2011). There are three types of theories according to Chaudhary, (2013) in teaching namely;

1. **Formal Theory of Teaching** is a theory based on knowledge and abstract prepositions and under this theory are;
  - a. *The Meutic Theory of Teaching*: This method is self-realization, where the teacher helps bring out the knowledge in the learner by the interrogative procedures.
  - b. *The Communication Theory of Teaching*: In this theory, the student is like a clean slate and that the teacher can inscribe on it anything through communication, as it assumed the teacher knows all the knowledge and the student does not. Hence, the most appropriate way for the student to learn this knowledge the teacher presents through demonstration and explanation is the communication tool.
  - c. *The Moulding Theory of Teaching*: This theory deals with form, shape and moulding of the student's behaviour and this is influenced by the surrounding environment.
  - d. *The Mutual Enquiry Theory*: This theory accepts that everyone can learn new knowledge with shared, reciprocal or common enquiry. It suggests that



a teacher has a model in his mind to use in a situation and the student picks out the model for shared enquiry that is both are exploring from the same model of learning (Chaudhary, 2013).

**2. Descriptive Theory of Teaching:** This theory is based on experimental evidence and observation.

**a. Instruction Theory:** Four features specified by Bruner (1964), under this theory are:

1. Predisposition to learn- this must be concerned with experiences that enables the child to willingly study once he enters school.
2. Structure of knowledge- this depicts ways that knowledge can be organized so that it is eagerly absorbed by the pupil.
3. Order of instructions- this ought to require utmost operative method to give to the materials.
4. Reinforcement- this must stipulate the nature and pacing of benefits touching from outward to inward ones (Jeen, 2011).

**b. Prescriptive Theory:** Stones and Morris (1972) as cited in Jeen (2011) advocates that:

1. The teacher should be in the analysis phase of the teaching problems and test before teaching commence.
2. The second instance is the decision taken on the interconnection of the variables seen suitable for the teaching objectives.
3. The third is concerned with assessing the usefulness and workability of the second point.

**3. The Normative Theory of Teaching:** The normative theory describes the association among teaching variables on the root of observations in a regular

teaching condition. This has been grouped into four categories and explained as follows;

**a. Cognitive Theory - Gage analysed teaching in four ways, thus:**

1. *Types of teacher's activity*- Teachers activity consist of many kinds such as demonstrator, advisor, counsellor, evaluator and curriculum planner.
2. *Types of education objectives*- from Bloom which is the cognitive, affective and psychomotor.
3. *Types of learning theories*- philosophical (mental discipline), reinforcement, psychological.
4. *Types of components of learning*- drive, reward, cue and responds (Chaudhary, 2013).

**b. Theory of Teacher Behaviour: Meux and Smith (1969) as cited in Chaudhary (2013), defines teacher behaviour as the acts that the teacher executes mostly in the classroom to encourage learning and this is supported by two claims;**

- a. *Teacher behaviour is social in nature*- This is about the verbal and non-verbal communication in the class. The instigation and replies are between the student and the teacher hence, they affect each other that is why it is social in nature.
- b. *Teacher behaviour is relative*- Teacher behaviour is upright or bad, operative or fruitless, it can be judged in relation to a specific culture's value system and set of objectives. Therefore, a teacher's behaviour is comparative (Chaudhary, 2013).

**c. Psychological theory of Teaching: This comprises of activities to be achieved by the teacher such as evaluating teaching task, determining learning objectives, locating entering behaviour and selecting teaching plan. The**

teacher conveys teaching tasks by his own know-how and understanding (Neha, 2013).

- d. General theory of teaching: Clarke (1970) as mentioned in Neha (2013), expresses that teaching is a manner which is intended to harness change in behaviour of a student. Teaching activities vary at several levels of teaching and goal. All these mish meshes are possible in a teaching process.

### 2.3.2 Teaching Methods

Teaching method is defined as common values, instruction besides organizational guidelines employed for class instructions to expand giving out lessons and learning. Choice of teaching technique rest on what fits you, your educational viewpoint, classroom structure, subject area(s) and the mission statement of the school (Difference, 2017). Again Wikipedia (2017), is of the view that teaching methods are principles, guidelines or procedures that enhance or improve upon student learning.

However, Kizlik (2017) puts it that teaching approaches are chiefly reports of the learning aim which goes in line with events besides movement of information amongst teachers and pupils. The method of instruction which is appropriate for a definite lesson rests on several things, and amid them are the age and evolving level of the pupil, their existing knowledge, and what they need to know to get ahead with the lesson, the topic content, aim of the lesson, pupils present, period, space and material resources, the physical background and above all, selecting an instructional strategy that best suite a certain teaching style and the lesson-situation. This will aid the teacher in selecting the kind of method to use and at a given environment to help each student to grasp what is being taught in the classroom.

Teaching methods include brainstorming, discussion, role play, lecturing, demonstrations, question and answers. Others include problem solving inquiry, mental modelling, discovery learning and drill and practice (Edward, Ebert II, Ebert, Bentley, 2011). Amid them are explained as follows:

- **Discussion:** This teaching method is the assured measure of encouraging a favourable learning and smooth teaching classroom environment. This instruction gives pupils the chance to direct their opinions or ideas verbally on issues. An individual talk at a time, whereas others pay attention. It does not necessary mean giving out new information or ideas all the time, rather comprises, allotment of skills and experiences, problem cracking and promoting tolerance with understanding (Chopper, 2010).
- **Role play:** this technique gives students the opportunity to take similar roles their own (or their likely one in future) and interacting with their peers so they develop experience and different strategies in a supported environment. Afterwards there is reflection and discussion about the interactions, thus another way of dealing with the situation. The role can be taken up again with modifications based on the result of the reflection and discussion (Glover, 2014). According to Teacher and Educational Development (n.d) as cited in Agudzeamegah (2014), has it that role playing is dynamic and adds variety besides reality to the learning experience. It creates avenue for cracking problems and vocal expression skills, where constant practice shape skills for the real-world importance in addition to where real experiences are not easily accessible. Role playing offers the teacher with prompt response about the learner's understanding and ability to rub on concepts or ideas.

- **Lecturing:** Kaur (2011) explains lecturing as a process of teaching through which the instructor conveys a spoken or verbal delivery of ideologies to students who mostly take notes when class is in session. Lecturing is just one of the varied methods of teaching in our but is often considered as the primary one. It is not surprising either as Paris (2014) propagates lecturing technique as suitable and mostly easy to understand, particularly a large classroom size. Therefore, lecturing is normal for most courses, where the class size is huge, because it allows instructors to address them once, in the utmost manner, while still conveying the most important information, with regards to the lesson design.
- **Project Based Learning:** in this method of teaching, students advance in gathering information and abilities as they work within a stretched time frame to find an answer to intricate or a difficult questions or challenges. Project based Learning allows the student an opportunity to absorb what is taught as the knowledge acquired is used to resolve real-world challenges. They also partake in tasks that require constant engagement and teamwork. The student attains advancement in academics and class performance, irrespective of the previous academic record of the learner. To sum it up, students develop further ability on learning on his own as well as what to learn (Trilling, 2014).

The numerous techniques in teaching suggest a teacher has a whole lot to pick from but in effect, the carefully chosen methods of instruction ought to be executed upon the basis of pupils' already existing experience, making sure that the way of teaching inspires the learner and excites him to learn more, ensure learning springs from practice and carrying out tests, effective use of instructional materials, and generates a favourable learning



atmosphere in the class. The choice of teaching method must also arouse gratitude as well as mental advancement in aid of helping various group of pupils to get the most out of learning all lessons.

### **2.3.3 Good Teaching**

According to Agudzeamegah (2014), teaching is a method or procedure that enhance learning. This can only happen when there is a conducive environment to enable the learning process and inspire learner interest in what is being conveyed to them. Consequently, teaching is not only about the transfer of knowledge, but it deals also with making learning process easier and exciting for the learner. Boafo Agyeman (2010) supports the statement above by saying that, teachers can boost learning by paving way for conditions that allow students to follow their interest with zeal, looking at the learners keenly as they study increasing chances for them to study and do so more. It also means that primary school teachers should teach to address the exact needs of the students in their classroom and do so equally to their abilities.

Dewar (2002), propagates good teaching as beginning through detailed, vibrant and assessable goals and objectives. Goals are those common reports on result, objectives and how the goals are to be achieved. Yet again, teachers can aid learning by realizing that the previous learning and life experiences of students in the primary schools are valuable basics for building new knowledge or skills (even though they can also levy restrictions) and using flexible teaching methods that deals with or improves the diverse learning style of students.

Once more, Hollins (2011), p. 395) as mentioned in (Brandenburg, 2013) argues that, “good teaching includes generating, joining or incorporating and putting in knowledge as well as the skill to make available, reasonable entry then chances that improves upon and cover learners existing knowledge in enabling the skill to gain and generate fresh ideas”. Conferring to Leblanc (1998) as stated in Bofo Agyeman (2010), sums it up by saying that,

- Good teaching is about encouraging students to learn whiles teaching them to learn in an appropriate, meaningful and unforgettable manner. More importantly is about caring for what you do that is the skill, having a reason for it, and conveying that to students.
- Good teaching deals with heeding, enquiring, approachable, whiles recalling that each learner in the classroom is not the same. It is however stimulating answers and building the verbal communication skills of silent pupils. It is also pushing pupils to be the best, whiles respecting others, and standing out as a professional continually.
- Good teaching is deals with caring, encouraging whiles helping grow minds and talents. It is a means of dedicating time, usually unseen, to every student. It is also trying periods of grouping, creating or redeveloping courses, and organizing materials additionally to improve teaching and learning.

Therefore, good teaching is putting into consideration the needs of your students and the resources available, properly arranging these resources to motivate them to learn and excel whiles making it easier but having a greater impression on them.



## 2.4 Concept of Learning

The term learning is being used often in our everyday life. Example is learning how to pronounce words, we learn how to wash the dishes and learn how to ride a bicycle growing up. The educational learning setting is described differently by various people, however, the broad-spectrum we are talking about is the systematic approach that a person undergo constant, lasting changes in understanding things, behaviours, and handling the world (Goodfriend, 2017). Learning is a method by which an activity originates or made, is transformed through a reaction to an experienced situation; as a result learning stands as any enduring reform of behaviour as an outcome of a past event (Woods, 1979).

Ramey and Ramey (2010) as cited in Boafo Agyeman (2010), clearly states that learning comprises of a wide range of individual behaviours described by the energetic procedure of attaining new knowledge and skills, as well as creating new associates among current knowledge and skills. Learning happens in informal, everyday setting and well-planned learning conditions. It consists of links or connections amongst elements such as images of objects, actions, feelings, and many abstract ideas and concepts.

It is hence, plain that concept of learning is when an individual acquires new knowledge and skills owing to an experienced situation which leaves lasting change in behaviour and a means to face the world. Agudzeamegah (2014) sustains this by saying that, learning adjusts effectively to change and challenges. From this, learning should target at assisting individuals in building intelligence, resources that will empower them personally and socially to share in economic improvement and grow as citizens in a varied and changing society.

There are some various types of learning by (Goodfriend, 2017);

- a) **Observational Learning;** this is done by looking at someone's actions and noting the meanings and impacts of his behaviour. For example, we learn how to talk as infants by just observing and paying attention to the people things around us. We also study and practice simple gestures (like waving and nodding to answers) by looking at what others do around us.
- b) **Cognitive Learning;** This way of learning is wholly inside your mind and does not require carnal gestures or behaviours. It also means is an internal thought process. Again, it is learning from active and constructive as well as understanding procedures, like exercising or using our memory. For instance, is learning to tie your shoe lace; you might have as well been taught the need to tie your shoe lace hence, you study it by practicing. All these processes of learning to tie your shoe lace is in your mind.
- c) **Classical Conditioning;** this deals with a specific and the estimation of an anticipated event to take place on our environment. An instance pertaining to classical conditioning is research by the Russian scientist Pavlov, who trained his dogs to the sound of a door bell as a means of telling that is time to feed them. In due course, the dogs started to salivate with expectation every time the bell rang. Therefore, classical conditioning is responding to prompts or signs waiting for what to occur subsequently in our environment.
- d) **Operant Conditioning;** this type of learning comes with a reward or punishment in behaviour and in so doing, we tend to choose the one with reward instead of punishment. For example, you are likely to open up to a teacher who responds positively to you and participate fully in his class and this raises your spirit to

learn more but will fail to answer or contribute in class if the teacher is mean or say bad things to hurt you.

- e) **Cooperative Learning**; this deals with the individual as opposed to learning in a group. There are varied classroom techniques of learning such as giving students group works in terms of project. Some students prefer individual works, but others also enjoy group works so they can relate and communicate with their colleagues.

KNUST

#### 2.4.1 Learning Theories

Learning theories are conceptual frameworks telling how knowledge is engaged, handled, and reserved during learning (Wikipedia, 2017). In other words, learning theories are the methods that enable the transfer of knowledge to an individual and a means of a permanent change in behaviour. Below are two theories of learning that support the research topic.

1. **Behaviourist Theory:** The learner is sensitive to conditions in the environment rather than taking any dynamic role in finding out about the environment. This type of learning is active in making easier learning that involves recalling information, defining and clarifying concepts, working with explanations and repeatedly performing a detailed process. The student's part in this type of learning is chiefly passive and practically or completely reliant on the teacher, video demonstration, etc. (Birmingham, n.d.).

Parkay and Hass (2000) as cited in Molly and David (2014), says that behaviourism is largely concerned with observing and assessing features of the human actions. Behaviourists emphasize the outcome of changes in actions from

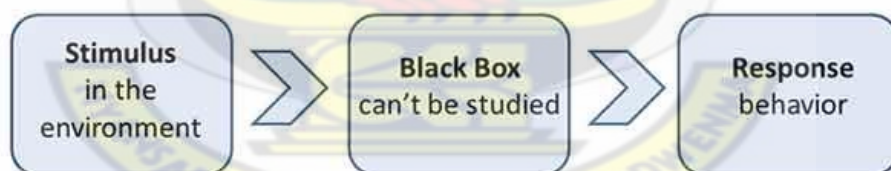
stimulus-response meanings made by the learner. Behaviour is directed by stimuli. An individual selects one response instead of another because of previous conditioning and mental drives present at the moment of the action. It is assumed that a behaviour can be unlearned, thus, an already learnt behaviour if not acceptable could be unlearned again. In assuming that human behaviour is learned, behaviourists also accept that all behaviours can also be unlearned, and substituted with new behaviours; that is, when a behaviour is improper, it can be changed into a satisfactory one. The key component to this learning theory is the rewarded response. The preferred response must be rewarded in manner to enable learning take place.

- 2. Cognitive Theory:** Cognitive theories stress the attainment of information and rational structures which pays attention to idea of students' learning methods while attending to the concerns of just how facts are established, prepared, kept, and recovered by the mind. Highlights are employed on the role of practice with corrective reaction and that of the environmental conditions show in assisting learning (Newby, 2013). The cognitive theory comes in two forms, that is the:
- a.** Social Cognitive Theory (SCT), which deals with behavioural, environmental (extrinsic), personal (intrinsic) factors interrelates for learning to happen or take place.
  - b.** Cognitive Behavioural Theory which designates the role of knowing to determine the behavioural pattern of a person. This theory was developed by Aaron Beck and he clearly states that individuals happen to build self-concepts that affect the behaviour they exhibit. These perceptions are either helpful or undesirable and can be influenced by a person's environment (Sincero, 2011).

Thus, the behavioural theory and the cognitive theory when emerged coins out the mediational process by (Bandura, 1977). The social learning theory enables us to know the ‘gap’ between old-style of learning and the cognitive approach. This is because it concentrates on how the rational (cognitive) factors are involved in learning.

Unlike Skinner, Bandura (1977) believes that people are active information processors thus they easily provide appropriate output to facts that they are given and think about the connection amid their behaviour and its disadvantages. Observational learning could not occur except cognitive processes were at work. These mental factors intercede on the learning technique to choose whether a new response is learnt. Consequently, people do not spontaneously perceive the conduct of someone and emulate it. There is nearly an assumption prior to imitation, and this thought is called mediational processes. This happens between seeing the behaviour (stimulus) and mimicking it or not (response).

**Behaviourist Model** (only study observable / external behaviour)



**Cognitive Model** (can scientifically study internal behavior)



Fig 2.1: Bandura Mediational Process Model (Mcleod, 2007)

Source: <https://www.simplypsychology.org/mediational-processes.jpg>



### 2.4.2 Domains of Learning

Learning seems as if it is a part of the human nature and this is because man is a lifetime learner. Man, always adds up to his previous knowledge or skills through learning at every giving time. With the Commencement of 1948, a cluster of educators namely; Bloom, Englehart, Furst, Hill and Krathwohl took charge of classifying educational goals and objectives. The reason being that a classification system for three domains would be created, thus: the cognitive, the affective, and the psychomotor. This is generally referred to as Bloom's Taxonomy of the Cognitive Domain (Huitt, 2011).

- i. The Cognitive Domain:** This is in relation to knowledge and the growth of intelligent skills. This consists of the simple appreciation and memory of exact details to intricate problem solving and evaluation (Thomas, 2004). The cognitive domain is in six major classifications.
  - a. Knowledge
  - b. Comprehension
  - c. Application
  - d. Analysis
  - e. Synthesis
  - f. Evaluation
- ii. The Affective Domain:** This learning is related to feelings and values therefore impacts our attitudes and behaviours (Huitt, 2011).
- iii. The Psychomotor Domain:** this type of learning deals with actions and motor skills coordination from simple actions to difficult task. The creation of these abilities needs practice and is evaluated in terms of swiftness, accuracy, distance and methods in execution (Clark, 2015).



Consequently, for learning to be effective, there is the need for all three domains to be present in the teaching process. Teachers need to have a fair idea of the different learning domains that will assist their learners with suitable or required materials to hold on to their attention and eagerness to study while considering learners' needs to achieve the highest level of academic performance. In other words, all these three domains come into play during teaching to make it effective.

### 2.4.3 Types of Learners

Students are different from each other in many ways as well as how they learn, others enjoy seeing, hearing, and experiencing things first hand. On the other hand, one of these methods stands out for some students. They remember what they have seen best with materials, some recall things they have heard easily, while others through experiences recollect events they have encountered easily. Research has revealed that studying in a way that supports the learning style of a learner, helps him perform well on tests and improve his grades (Fleming, 2017). There are four types of learners.

- a. **The Visual Learner:** This learner uses a visual aid when studying, like a colourful representation of test materials, he or she may maintain extra facts. These types of learners, enhance their ability in remembering any information more completely through visual tools (Fleming, 2017). Visual learners come in two forms, that is the linguistic and spatial. With learners who are visual-linguistics, written dialects, such as reading and writing tasks support them to study. They learn better when they put down what they have been taught through writing and recall easily when asked, even if they do not read it more than once. They enjoy writing down directions and pay better attention to speeches if they watch them. Learners are visual-spatial usually do not like to write or read

instead they do better with charts, demonstrations, videos and other visual materials. They simply picture faces and places by using their imagination and hardly ever get lost in new surroundings (Clark, 2011).

- b. The Auditory Learner:** This learner learns best through hearing things. They are natural listeners as well as think in a direct manner but speak slowly. They prefer having things explained to them in words rather than to read written information. They also learn by listening and voicing hence, teaching plan for auditory learners should sound well, be strategic and be conveyed in the form of a structured conversation (Friedman, n.d.).
- c. Kinesthetic Learner:** This type of learning comes in two forms that is, kinesthetic (movement) and tactile (touch). Touching and movement is what aids this learner in studying. They easily lose focus if there is little or no outer stimulus or movement. During lectures they write to stimulate and enable them listen better through moving their hands. In aspects of reading, scanning the material first allows them concentrate on the facts (get the big picture first). Usually colour high lighters are used for making salient points as a means of keeping records and also by drawing pictures, diagrams or doodling (Friedman, n.d.).
- d. Reading or Writing Learners:** He or She learns best when he or she is engaged in reading or writing. Interrupting with text is more powerful to them than seeing images or hearing (Nakano, 2016). According to Friedman (n.d.), learners who like reading or writing prefer information to be presented in writing, such as lists of ideas. They highlight text-based input and output and enjoy reading and scribbling in all forms.

#### **2.4.4 Active Learning**

Hartung (2014) opines active learning as a method of learning where lively student input is stimulated through project-based exercises. Active learning permits students to learn from their teacher while engaging in reading, writing with peers and writing. Where there is active learning, students self-directed learning skills, problem-solving and critical thinking skills is improved upon and in so doing students' motivation is also enhanced. Eison (2010) supports this by saying that, when an instructor uses active learning strategies, he or she will typically spend greater amount of time helping students advance in their understanding and skills (promoting deep learning) and a lesser section of time passing on information (i.e., supporting surface learning). In total, the instructor will make available opportunities for students to relate and exhibit what they are learning and receive response from peers or the instructor.

There are several approaches that can be used to engage students actively and these include, role-play, group discussion, problem solving, journal writing and well-organized learning groups. The benefit of these strategies aid students to be creative and improve their critical thinking ability as well as transfer of knowledge. Students are doing more than just listening; the idea backing active learning is skills-development rather than just conveying information. Benjamin Franklin put it perfectly as he said, "Tell me and I forget. Teach me and I remember. Involve me and I learn". For that reason, teachers want learners to recollect what they are taught, but most importantly to learn the materials in order to be able to take lessons that are taught and use them in everyday life (Hartung, 2014).

Eison (2010) sums up active learning as students being involved in doing things and bearing in mind what they do. As a result, active learning deals more with involving students as compared relaying information to them to listen only.

Some of the strategies that arouses students' interest are role play, group discussion, reading and writing. The student's motivation is increased as the teacher helps them advance in their understanding and skills. There is also an immediate response from the teacher which boost the students' involvement in enquiry and judgement.

#### **2.4.5 Learning through Direct Experience**

Learning under direct experience is when students get interactive directly or actively with their environment through their senses. Thus, the sense of touching, seeing, smelling, tasting, hearing and their instinct. According to Galper (2010), when students directly hold objects in surrounding them, they increase in knowledge of the physical assets of the world in which they live. As they try out their skills with a varied range of objects and materials, they learn that somethings are heavy, others light; some are rough or smooth, others sharp or rounded. These concepts cannot be taught through verbal tutoring but can only be learned through practical and first-hand experiences.

Again, Galper (2010) believes that, when students are involved in first-hand experiences, their minds are alive as their bodies. Through the usage of items and seeing things in their world, students start to associate or liken them. They organize and structure objects and things, comparing newly gathered evidence to their current ideas of how the world works, putting it into their patterns of work or concepts. When information does not coincide with their present thoughts, they change these or create new ones. In the

process, they are building their own understanding and storing it as concepts, guidelines, or values.

Direct learning experience which also means experiential learning comes in two modalities, namely; mediated learning experience and direct learning experience. According to Feuerstein (1979), direct learning experience is when the individual is bombarded continuously with stimuli and his reaction to the stimuli produces lasting effect on his behavioural range while mediated learning experience deals with the response of the environment transformed through the actions of a knowledgeable and dynamic human being. Though both modalities are seen vital for development, the argument is that through mediated learning, the skill of the individual to benefit from direct experience is not only improved but is essential for sustained direct learning or contact (Martin, 2003).

Kolb's learning cycle theory (1976) defines the steps of learning as acquiring knowledge, experience and skills. This perception of learning is called 'experiential learning' or 'learning by action'. The sequence can begin from any of the four stages which is feeling, watching, thinking or doing and hence, linked to any other stage.



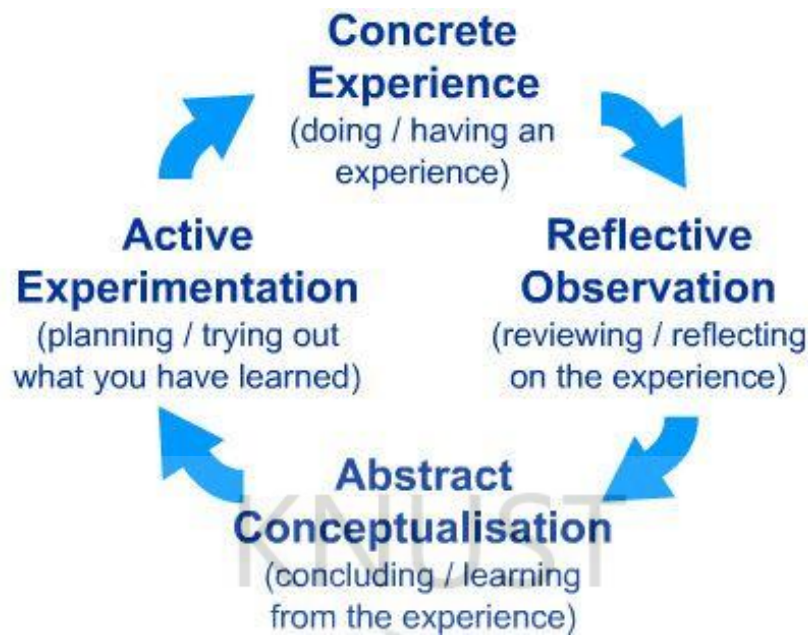


Fig 2.2: Kolb's Cycle of Experiential Learning (McLeod, 2017)

Source: <https://www.simplypsychology.org/learning-kolb.html>

Therefore, learning through direct experience goes hand in hand with learning by the senses, that is, touch, sight, hearing, feeling and taste which enables better understanding, recollections of ideas and preserving them. Learning is faster and easily absorbed in a surrounding where students can easily interrupt with real objects, understand their capabilities and gather information on what they have learnt without necessarily receiving instructions from teacher to do so, also draws conclusion on what they have learnt to understand the lesson better and this leaves a lasting effect on the individual.

Pointing out on the advantages of learning with physical objects and situations, Opoku-Asare (2000) made a remark on the achievements of early scholars like Rousseau, Herbart, Pestalozzi, Froebel and Comenius whose concern on children's education emphasized on the importance of learning from their senses to make the subject on board



more active and operative as compared to cases where there is none to show for (Owusu, 2009).

The reason is that they will retain in their minds what they have seen or touched, better than what they hear. There is an assurance that, better learning outcomes from being involved with real object is obtained faster through as many of the senses as possible. The diagram below from Edgar Dale makes it easy to understand learning pertaining to the use of the senses by breaking it into percentages with other activities.

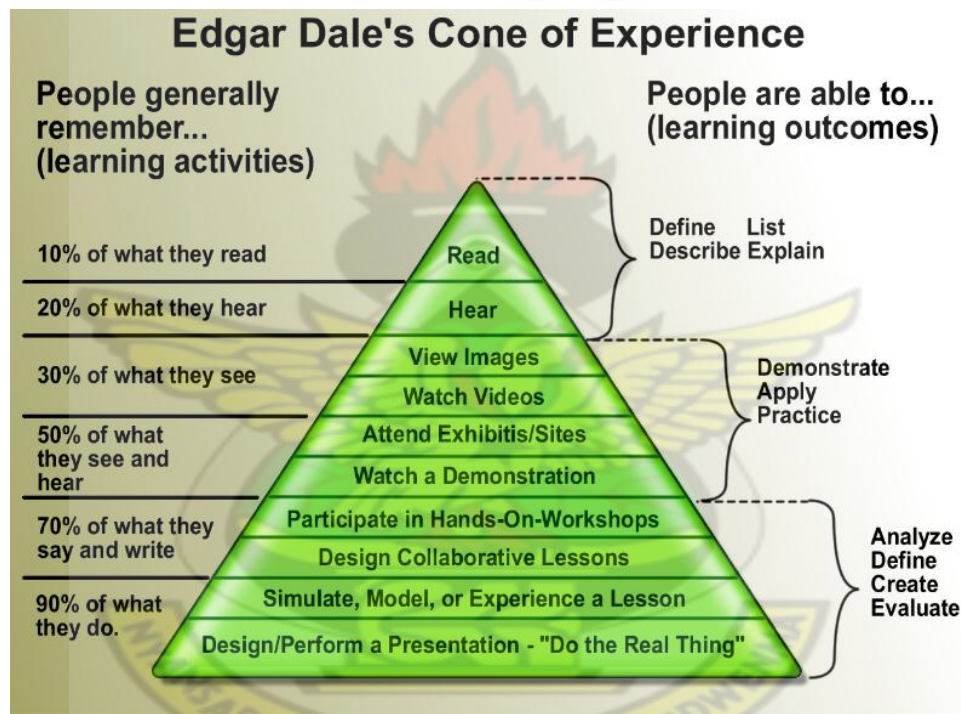


Fig. 2.3 Dales Cone of Experience (Wilson, 2015)

Source: <https://media.licdn.com>

Rendering from top to down, the diagram enables understanding on 10% and 20% which is reading, and hearing is very low as recollection of facts is somewhat difficult. Though, 30% which deals with viewing images and videos (what they see only) may stick, it cannot be compared to 50% which deals the involvement with objects through

demonstrations and exhibitions that is what they hear and see. With 70%, what they say and write is maintained due to participation of hands on workshops as well as design and collaborative lessons. Then 90% which is of greater value deals with the real thing. When students remember faster and easily what they learn with hands-on activity. This explains that, although student may read, hear and view images or video given by and instructor or teacher, learning is more effective when there is demonstration and hands on activities hence, allowing maximum involvement and participation of students in the classroom.

## **2.5 Creative Arts Education**

New Oxford American Dictionary as cited in Chen (2016) has it that creativity is the application of the imagination or original ideas, particularly in the construction or making of an artistic work. Again, creativity is agreeing to oneself in making errors and Art is knowing which ones to keep and the ones to pick up from. Creativity, as is being said, consists largely of reorganizing what we see to help find out what we do not know. Hence, to think creatively, it is essential to look once again at what we usually take for granted (Brobbe, 2015).

The Creative Arts are activities that occupy a child's imagination, and this comprises activities such as art, dance, drama, and music. They excite and help children nurture their abilities through nearly every field, and these come with open-ended activities, encouraging suppleness of the mind. The creative arts stresses on the process, "teaching children in a world that is increasingly more and more product-driven that how you arrived at your target is as more important than the target itself" (Chen, 2016).

Creative Arts education is the most successful ways to grow creative thinking in pupils to come to terms with this economical and active world of ours. It is categorized into music, creative movement, writing and performing art. A distinguishing advantage of Creative Arts education contains high acceptance in schools, training or growth of a child's area of life, enhancement of artistic talents and visual imaginations, Creative Arts such as dance is noted to decrease stress and improve flexibility, writing has also been shown to help people harness their emotions, it helps pupils practice problem solving and invention (Brobbe, 2015).

Ministry of Education (2007) under Teaching Syllabus for Creative Arts in Ghana explains Creative Arts as a mixture of Visual Arts (drawing, weaving, modelling, casting, carving and painting), Sewing and Performing Arts (music, dance and drama). Looking at the two definitions outlines the point that Creative Arts gives room for self-expression of the individual.

## **2.6 Rationale for Studying Creative Arts**

According to Brobby (2015), Creative Arts is one of the most successful ways to grow creative thinking in pupils, so they can be abreast with this economical and dynamic world of ours. It is a cluster of illustrations, weaving, modelling, casting, carving and painting, music, dance and drama. Creative Arts helps preserve our culture and the indigenous art. Examples are music and dance in terms of performing art. The individual learns the movement and reasons for past events.

Again, Creative Arts helps in the development of the individual's talent in a specific field. In this case, he makes meaning out of his hidden talent and explore other fields to collaborate with his to enable him to express himself better. Thus, a sense of judgement amidst what is attractive and hostile, so that people can make precise selections.

Creative Arts helps an individual appreciate his environment as well as accept the world that he dwells in. It is a subject that equips pupils by introducing them to varied ways of thinking and distinguishing things. Creative Arts provides an individual the chance to feel, act, think creatively and implement them through his already existing knowledge and his acquired skills to solve problems that he may come across.

Again, Creative Art helps release stress and boredom as it presents learning in an exciting way and improves the student ability in reading and writing. The creative arts help to cultivate children's imaginations, so that they become creative thinkers and inventors besides developing their physical, emotional, and mental capabilities. As such, it is vital that we work to incorporate better chances for young children to take part in the creative arts, for such measures will offer the basis for future success (Chen, 2016).

## **2.7 Creative Arts Curriculum**

The term curriculum refers to the lessons and academic content taught in a specific programme. Curriculum is usually the knowledge and skills that students are likely to learn, which understands the learning criteria or that they are believed to be satisfied, the components and lessons that teachers teach; the assignments and projects given to students; the books, materials, videos, presentations, and readings used in a course; and the tests, assessments, and other methods. (Partnership, 2015). According to Boafo

Agyeman (2010), who envisaged from the CRDD Manual, fast economic growth has its foundation on quality education which produces critical thinkers and problem solvers. However, the Ghanaian school system is such that students are not trained problem solving of the country. This in other words has resulted in the arrival of emigrants into the country to solve our own problems and looking at where we fall short has taken advantage of us and our resources. A typical example is the of Chinese nationals and other foreigners in the country which confirms this perception.

The curriculum is not only about a well-structured method of teaching and learning or what needs to be taught, instead it captures the development of the individual and helps facilitates his thinking ability. It was in view of this that Creative Arts as a main learning area in the national syllabus was developed to help learners explore, connect ideas, feelings, experiences and understandings. It plays a vital role in empowering students to improve their creative talent and grow their artistic skills. Creative Arts teach learners to cultivate an appreciation of aesthetic and cultural values, identities and broaden understanding of arts in local and global context (Magu, 2014).

## **2.8 Challenges in Creative Arts Education**

Ministry of Education (2016) clearly states that, an instructional material is the integral component in any classroom. This makes it quite clear when Brobbey (2015) says that, “Creative Arts cannot be efficiently taught and learnt if there is inadequate teaching and learning materials that will facilitate the teaching and learning of its topics in the primary school, more importantly the government schools”. This can be burdensome in a case where the class size is big and due to this only a few people will understand and benefit from the available instructional materials.



Many benefits of instructional materials include helping learners improve upon their reading skills, illustrating or reinforcing a skill or an idea, differentiating instruction and relieving fear or dullness by presenting information in a new and exciting way. However, Brobbey (2015) stresses on the poor method of teaching creative art in the primary school and this results from the use of imported instructional materials. This does not raise better understanding of the idea and does not have the required effect on the learner. Aguzeamegah (2014) supports it with the view that, the industrially produced instructional materials teachers used, such as charts and posters are based on foreign models which make it challenging for some children to share in the ideas discussed in the classroom because what is the book is not on their environment.

Conferring with Brobbey (2015), there is no qualms as to the value of teaching and learning procedure, student's textbook and teachers guide are crucial to the classroom as these are the basic reference materials that are to ease the teaching and learning of Creative Arts in schools, but they are inadequate. Most significantly, the textbooks accessible in the public schools are completely out-of-date and not up to standard. As contended by Ampeh (2011), the inquisitive nature in children at this stage also gives them the chance to discover, try-out and find new materials that add to their wealth of knowledge which they use to crack difficult situations in all aspect of their life. Therefore, Creative Art came into being to develop and enrich the imagination and creative self-expression of the individual or learner.

## **2.9 Developing Creativity in Primary School**

Creativity is the ability to have ideas, to invent as well as to explore but in the case of Creative Arts education, it develops young people's capacity for original ideas and



actions, thus the balance of teaching knowledge and skills and encouraging innovation (Dean, 2013).

According to Jesson (2012), developing Creativity in the Primary School starts with the teacher. The teacher must be able to develop his own potentials so that the learning follows. The teacher can start by making different works of art, recreate them with his students, paste them where everyone can see and share ideas by discussing these works of art.

Moyles (1994) as cited in Bofo Agyeman (2010) believes that a display of art works in the classroom especially those made by the pupils' build their curiosity, enhance classroom learning and jog pupils' memories of previous studies and learning of art. It means that a display of pupils' art work in the classroom helps in sustaining their interest in the Creative Arts in particular.

Children curiosity appears not to be ever satisfied. They even learn better by touching, seeing and exploring. This is supported by Clement (1993), as cited in Bofo Agyeman (2010), states that the primary Creative Arts teacher who fills the classroom with inspiring collections of both natural and man-made things, photographs and model of a work of art, and guides his class' attention to the schools' environment and that of their homes. This is to ensure that pupils have more than enough to feed their minds' eye with art works and this would always instil creativity in his pupils.

Ministry of Education (2007) under Teaching Syllabus for Creative Arts in Ghana explains Creative Arts as a mixture of Visual Arts (drawing, weaving, modelling,

casting, carving and painting), Sewing, and Performing Arts (music, dance and drama). In terms of creativity, we challenge ourselves, we make errors and learn from the things we don't know therefore, Creative Arts education is one of the essential ways to nurture creative thinking in pupils to be economical and active in this changing world of ours. Creative Arts is a platform to harness critical and creative thinking therefore, teachers in the public primary schools must decorate their classrooms with art works mainly those created or done by the students to challenge them in problem solving for efficient and effective learning of the subject. Teachers should exhibit good and effective teaching attitudes to improve the teaching and learning of the Creative Arts course in the primary schools. Teachers in the primary schools must be prepared for the class all the time and write their lesson notes before they go to the classroom to help successfully teach the Creative Arts subject.

### **2.10 Instructional Materials**

Teaching and learning must be productive and working, for that reason it is essential and obligatory for the teacher to administer a material which will be able to confront the needs of all learners regardless of their experiences, aptitudes and the level of the academic needs. Instructional materials are the resources used by a teacher in educational lessons, which consists of active learning and evaluation, thus, making teaching and learning easier for the student and teacher. Instructional material catches the student's alertness and gets him or her to fully take part in whatever is being taught in the classroom. The instructional material plays the role of an element of truth by providing solid understanding and kindles the interest of the learner on what is being thought and compels him to learn more and more. (Janovsky, 2003). Nevertheless, Edward (2004) explained instructional materials as stated in Ololubu (2015), as the device the teacher

engages to support him during unwritten descriptions and a form of illustration in the classroom.

Therefore, it consists of the course of designing, employing and assessing the instructional progressions so as to realize the instructional goals. They make teaching and learning more meaningful and useful to life. It is a material that helps gain understanding, skills and generate innovative ideas. Yet again Meduabum (2004) as cited in Ololubu (2015) further explains instructional materials as the most significant or requisite instructional material is the teacher himself, this is because, whatever he uses as a foundation to aid his teaching is intended to help him teach and not to assist teaching by themselves.

Emphatically, these instructional materials come out in three forms. Firstly, the traditional resources which deals with textbooks and workbooks. Mostly these books help in the overview of new topics, for example, poems and word checks in spelling books. Secondly the graphic planner being any type of visual representation of information such as diagrams, charts, tables, flow charts, and graphs. Example is using diagrams to show or depict numerator and denominator in maths. This is somewhat enjoyed by visual learners when they see clearly what is being taught as compared to the abstract impression on the mind and lastly, the teacher-made resources which deals with what the teacher has created in a form of handouts, quizzes and projects. This is used as an evaluation tool to know those catching up and those who are still lagging (Janovsky, 2003).

## 2.11 Instructional Materials from Local Resources

According to Olumorin (2012), locally obtained instructional materials may be grouped based on their manner of production. These classifications, as adopted from Ogunmilade (1984) are:

- Models and ready-made materials (packages). Examples include newspaper, encyclopaedias, maps, charts, still pictures and textbooks.
- Local material made by experts in visual resources. Examples are flip charts made by experts, clay and wooden models and pictures taken during field trips.
- Self-made (inexpensive) materials. Examples are papier mâché, clay and wood models, cut and paste charts as well as cut out flip charts.

It is evident by various studies that instructional materials from local resources are of a good course. This is so because the production of the instructional materials relies on the availability of these resources from immediate environment. They are inexpensive, not time consuming, easy to make and leave lasting effects on the individual since he is much acquainted with his environment. Some of these materials include; match boxes, shells, coconut husk, waste fabrics, plastic spoons, bamboo, pawpaw branch, cans and tins and batteries or fuses and since they come in different forms, they can be easily manipulated to suite the kind of instructional material to be produced.

Agudzeamegah (2014) believes that integration of locally available resources in the classroom setting is very necessary as it enhances teaching and learning. Some of these items can be turned into flute thus; (bamboo and pawpaw branch), pen and pencil holders from (cans and tins like milk), doormats from (coconut husks), torch light from (fuse and remote batteries) and sound transfer from (wire, match stick and tins). These can be classified as self-made inexpensive materials.

Once more, Anini (2011) created instructional materials from locally manufactured leather for kindergarten education. Some of his works were scorching, printing and painting. The finishing and effects of Anini's work portrayed leather as a sustainable resource for making instructional materials. This can be classified, as local resources made by experts in visual resources.

This reveals that local materials can be termed as vital items in the production of instructional materials at all ranks of education and most importantly in our primary schools. However, teachers need to be taught or trained on the skills of producing instructional materials from local resources, and this attainment of expertise can happen only by continuous practice. As supported by Agudzeamegah (2014), teachers must have the knowledge of basic design principles and be acquainted with the items on their environment to employ them in the classroom for backing instruction.

## **2.12 Instructional System Design**

Clark (2015) explains instructional system design (ISD) by saying that, it is often mentioned as ADDIE, which is the acronym for the five phases of ISD:

1. Analysis
2. Design
3. Development
4. Implementation
5. Evaluation

Instructional System Design is an orderly and common way of learning that grows to enhance our skills as well as knowledge. In the past, ISD or ADDIE was usually spoke of as a System Approach to Training (SAT). Instructional System Design supports



learners and their institution in realizing their learning and performance objectives over formal, non-formal and relaxed environments. In other words, Instructional System Design is the step by step procedure that helps enhance an individual's skill and knowledge in a conducive environment whether prescribed or casual manner.

### **2.12.1 Instructional Design Model**

Instructional Design Models, like legends and descriptions helps us to make sense out of our world. Resulting from a critical study or enquiry, a model gives its user the purpose of understanding in other words a complicated issue. An instructional design model gives structure and sense to an Instructional Design problem, permitting the designer to convey his design with an impression of a mindful consideration. Models allow us to picture the problem, to break it down into separate and accessible units. The significance of a model is used in the context of use other tools, where a model adopts a purpose of its user. A model is made easy through the inventor's intention, how well it can share a work load, and how efficiently it moves attention away from itself toward the object of the design activity (Ryder, 2006).

Dudhagundi (2016) explains an instructional design model as an instrument and a framework to improve instructional materials. It helps instructional designers make available an edifice and understanding to the learning material. It permits them to see in your mind's eye the need for training and break down the scheme of designing training material into steps. These models create opportunities to ensure the learning goals and chances on the preferred prospects.

There are varied models used today for solving instructional design problems. These models mostly have been named after their designers or the purpose they served.



Amongst them are; Criterion Referenced Instruction (Robert Mager), Dick and Carey model, ADDIE model, Assure Model, Kemp Design Model, (Morrison, Ross and Kemp), Gagne's Nines Event Training Evaluation, Sam R. Model, Hannafin-Peck Model, Kirk and Gustafson Model and Instructional Systems Design ISD (Culatta, 2013). For this study, the ADDIE model will be used.

The ADDIE model by Robert Addie is a systematic design model. It is categorized into five steps and this make up the whole instructional design process, namely; Analysis, Design, Development, Implementation and Evaluation. The ADDIE model is a dynamic guide used for developing effective learning strategies to help know your learners' challenges, finding solutions to those problems and assessing the solution to weigh the effectiveness.

### **1. Analysis Phase**

Analysis deals with the learning problems, goals and objectives, entry behaviour of the learner as well as the environment. According to Yeboah (2014), Essel (2012) and Morgan (2011), there are three important points that are considered in Analysis Phase.

- a. Make sure the instructional challenge is vivid.
- b. Take notice of the instructional goals and objectives.
- c. Know the existing learning conditions and knowledge basis of the learners.

When these points are overlooked below are some problem that will be encountered

- a. The topic may not attend to the needs of the learners.
- b. The learners' will not enjoy the topic content because it maybe too difficult to understand.
- c. The topic might not be precise, useful or complete.

Some questions usually asked at the Analysis Phase are:

- a. Who are the learners?
- b. What is the likely behavioural outcome?
- c. What are the present learning constraints or barriers?
- d. What are the pedagogical thoughts?
- e. What are the andragogical views?
- f. What is the time frame for the project?

For the above questions to be answered correctly, the instructional designer should do the following:

- a. Identify the existing instructional materials.
- b. State measurable instructional goals.
- c. Carry out instructional analysis.
- d. Examine learners' and their surrounding conditions closely.
- e. Outline the learning objectives.

With the Analysis stage, data is gathered to help know the target group, their objectives and their teaching schedules. The syllabus of the target group is also studied carefully.

## **2. Design Phase**

The data gathered from the analysis phase helped to select the areas the course will cover, and the events involved in the design stage. This is where the instructional designer plans on how the finished work will look like taking into consideration the learning objectives, subject content, lesson plan, resources, exercises and assessment therefore, it is systematic and precise. The instructional designer should have a fair knowledge of what the learners already know through learner analysis and what they need to know during the course. It is vital to consider the content, how it should be organised, presented and measured to ensure that goals have been reached.

### **3. Development Phase**

This phase deals with construction of the actual work along with reviewing design and using the right tools. This helps the instructional designer in creating the prototype, developing the course material and conducting table top review and pilot sessions.

### **4. Implementation Phase**

At this phase the work is put into practice with learners actively contributing. Training is given to teachers and learners on the new learning platform and is based on the course programme, learning outcomes, system of delivery and testing measures. This an important stage because this where the learners' reaction, their views, problems and any observations are considered and where needed are addressed.

### **5. Evaluation**

The evaluation phase is the last stage of the ADDIE model that serves as an assessment tool for the work that is produced. Evaluation is the gathering of analysis and explanation of data besides any feature of a programme of education as part of a known way of judging its usefulness, effectiveness and any results it may carry (Crompton, 1999).

Farooq (2013) clearly states that, a procedure that includes measurement and perchance testing which is evaluation contains the idea of value of judgment.

If tests are administered to a class and the percentages are recorded precisely, it is said that measurement and testing has been established. The scores must be interpreted, which may mean changing them to values such as As, Bs, Cs, and so on or judging them to be excellent, good, fair or poor. This method is called evaluation. The purpose of evaluation is to know the impact or results of an enquiry and this goes a long way to help teachers and learners to improve upon teaching and learning in our various schools. Therefore, evaluation is very important because the information resulting or the outcome

that emerges from evaluation provides teachers with valuable response about their instructional effectiveness that they can use to develop and improve their classroom instructions for effective teaching and learning.

This phase is made up of two parts, thus the Formative evaluation which involves studying the work at the end of each phase and the Summative evaluation which involves judging the work at the end of the whole instruction or course work. Renard (2017) also has it that Formative evaluation is used to supervise pupils' learning to deliver constant response that can be used by instructors to enhance their teaching and pupils also advance in their learning whiles Summative evaluation is used to measure pupil's learning at the end of an instructional course by associating it against some yardstick. Below are some questions, required to be answered throughout the evaluation phase and they are:

1. Did learners appreciate the course?
2. Were the learning aims realized at the close of the course?
3. Did learners' conducts transform in the classroom at the end of the course?
4. Did the course reach its instructional goals?

It is essential for this model to be critically examined for improvements. Pre-test and post-tests are done at the evaluation phase to measure what students learnt and fill in the gaps.



Fig 2.4 ADDIE Instructional Model (Godwin, 2016)

Source: <http://www.tomgodwin.co.uk/blog/blog/addie-model-instructional-design/>

### 2.13 Recycling

Eschooltoday (2008) opines that, turning used materials (waste) into new and or useful products is recycling. This is done so that there would not pressure on the raw materials to be used in a production process. Recycling however, uses less energy and air, water and land pollution controlling in the process. SKM recycling (2016), also puts it that, reproducing materials into new and useful products is termed as recycling and it prevents valuable resources from being wasted, cuts the consumption of raw materials.

Recyclable materials originate from a wide range of sources including the home and industry. They come in forms like glass, paper, cardboard, aluminum, steel cans and fabric. Not forgetting wood waste in our local furniture shops that comes off in off-cuts, wood shavings, sawdust and wood chippings.

Moreover, recycling reduces the usage of raw materials such as metals, forests and so decreases our effect on the environment. The level of our consumption is already having a trivial influence on the environment and we are taking over an amassed quantity of raw materials (Earth, 2008).

Therefore, recycling is the best procedure and tool to curb this problem. Recycling saves energy, cuts cost, create jobs preserve the raw materials as well the environment and reduce global warming.

#### **2.14 Types of Waste Materials**

Biju (2016) defines waste as any material which is thrown away after its primary use or in other words, it is not useful. Again, Mabile (2017) explains waste as anything that is unusable and unwanted. According to Wikipedia (2017), waste is any constituent which is discarded after its main use, or it is rendered irrelevant, ineffective or not important. Examples include solid waste (household trash/refuse), hazardous waste, waste water (such as sewage, which contains bodily wastes (feces and urine) and surface runoff) as well as radioactive waste.

Yet again, an object the holder discards, plans to discard or is required to discard is known as waste. The concept of waste is comparative and in two main respects. Firstly, a product termed as waste when it loses its basic or primary purpose for the user. Secondly, what is measured as waste with respect to its primary purpose may be useful again by a different person for another function. In other words, somebody's waste is often another man's subordinate raw material (Environment, 2012).



Waste is a major environmental, social and economic issue and a growing problem, the volume of waste we create, and its actual or impending harmful effects on our surroundings, are problems that has created uneasiness amongst governments, industry and the community as waste generated continues to rise each year. This diminishes significant resources such as energy, paper, oil, and precious metals of which the world has a limited quantity and so a new way of conserving these limited resources is recycling (Caulfield, 2009, Environment, 2012). Below are some types of waste.

- **Liquid waste:** Some solid waste can be changed into liquid form for disposal. It comprises of point source and non-point source. Point source refers to the contamination from a known source such as oil tanker spill in the water or wastewater management. Non-point source refers to when the contamination is not generated from a recognizable source or from many sources such as fertilizers.
- **Solid type:** Primarily this is any waste found in our homes or any other place. These consist of old car tires, plastic, broken furniture or even any leftover food.
- **Hazardous type:** This poses possible threats to the environment and human life. In other words, waste that are inflammable (can easily catch fire), reactive (can easily explode), corrosive (can eat through metal) or toxic. These take forms like fire extinguishers, old propane tanks, any mercury equipment. Therefore, in many countries, it is required by law to ensure proper disposal of such hazardous waste.
- **Organic Type:** this waste comes from plants and animal sources. They generally consist of food waste, fruits and vegetable peels. This organic waste is biodegradable, meaning they can easily be transformed to manure by organisms over time.

- **Recyclable waste:** This is a way of turning used materials that is, waste into useful items (Waste, n.d.).

## 2.15 Waste and its Effects on the Environment

Biju (2016) defines waste as any portion of a material which is thrown away after main use or in other words, it is of no use. Waste is seen to be a big issue for countless reasons, but the major reasons mostly mentioned are that, waste can harm the environment and human health, costs are increasing in the elimination of waste at landfill sites and waste being the end of a products life sequence causes environmental effects when not disposed of properly and diminishes valuable resources (Caulfield, 2009). Moreover, the amount of waste we generate rises massively each year and this is due to the increase in human population and consumption and as a result, puts pressure on the environment (Environment, 2012).

Moreover, when the raw materials for production are readily available, we tend to misuse it which can cause waste, put the existing ones at risk and in no time, there will be pressure mounted on the available but scarce resources. The European Union Report on Waste Management (2010) coincides with the view point of the living ethics of today where people buy more products. Consumers have much more choice in product selection which are also designed to have shorter life span with stylish packaging.

There are many more single-use as well as disposable products easily accessible now. Improvement in technology also means that now people have and use numerous personal items, also change these items regularly. This lifestyle may have increased the world's quality of life, but it also means that now the world is producing enormous amounts of

waste than previously (Yeboah, 2016). Therefore, waste is rampant and affecting the environment due to man's present way of life.

### **2.16 Safety Measures in Waste Recycling**

Although recycling saves energy, cost and depleting natural resources, there are safety measures that one needs to consider in the process. One must put on working gears and helmets to prevent injury on the head and spills. There is the need to put on the safety boots to protect your toes and feet from any injury as you may encounter some of the yet to be recyclable object falling on you. Some of the protective gadgets include, an apparel, nose masks, ear plugs when there is no important interruption happening in the workshop, gloves and long boots.

Rendering to Victoria (2003), it should be well considered that personal protective equipment at times poses a secondary threat (for example, protective clothing might restrict free movement). These little dangers should be considered, and an evaluation made to confirm that the personal protective equipment is providing the preferred protection and not creating a secondary threat. Personal protective equipment needs to be checked to make sure that it fits accurately and is worn correctly. To guarantee its use, it must be comfortable on the wearer.

Australia (2009) further talks about safety measures by saying that, in the event of a workplace situation where medical services are mandatory, the immediate treatment received is called First Aid. As the saying goes "prevention is better than cure", employers should be fully aware of the nature of the work and keep their environment well ventilated and away from spillage of hazardous substances. Employees could be

trained, or some medical personnel stationed at the work place and facilities provided for him. According to Health and Safety Executive (2007) as cited in Yeboah (2016), there should also be regular hospital check-ups for the employees because they may be sick but look healthy on the outside and will not bother to go to the hospital for no reason. Workers should try as much as possible to separate the recyclable materials to prevent any combustible material from exploding. Some of these spray cans are highly inflammable hence, any contact with heat can cause explosion which is very harmful to the human health.

### **2.17 Recycling Waste for Developing Instructional Materials**

Antwi-Safee (1997) as cited in Anini (2011) wrote about instructional materials and said that the right teaching and learning materials will demand students' inquisitive nature, desire to discover, test and communicate ideas in a beautiful way. Hence, Haury (1998) supports this claim by saying that in selecting instructional materials; first and foremost you need to find them. This is where the recyclable materials come in, thus, you find the appropriate materials or waste that you can recycle then you develop them into these instructional materials.

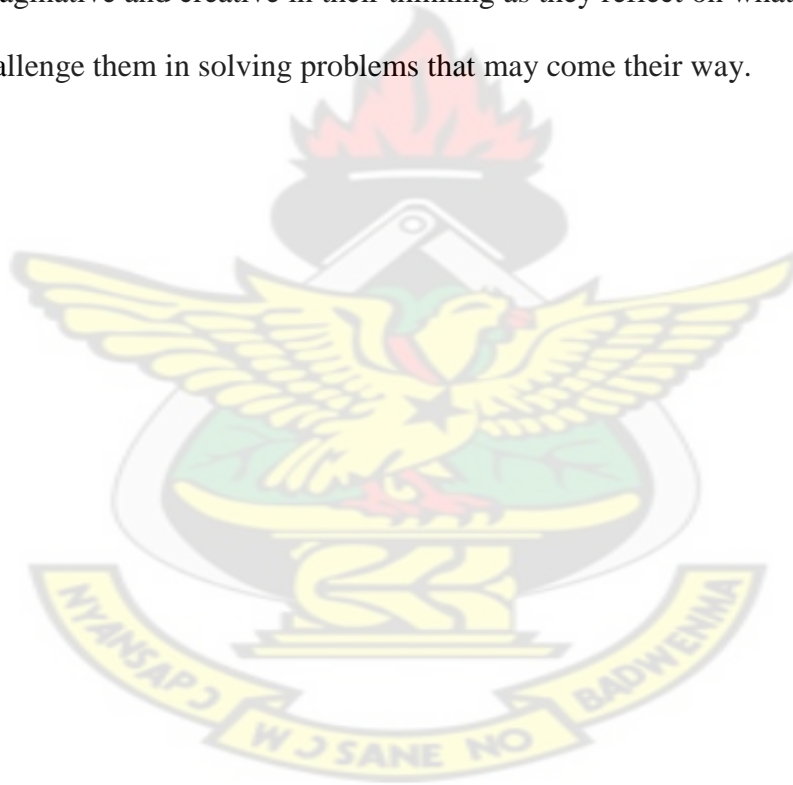
Bose (n.d.), asserts that, we see so many things around us which once were used for a task but generated into wastes now. A rejected worn out dress, a dismantled machine part, a broken gadget as well as porcelains and packages that are wrapped around items also turn into wastes. Examples amongst them are common waste materials used in teaching which covers a wide array from a discarded injection syringe, fused electric bulb, tube light, tubes and tyres, empty packets of cigarettes and other items like metal cans, match boxes and bottles.

Bose (n.d.) again makes clarity by saying that the improvement of technology, industry, commercials and transformation of life style, waste materials have increased in many folds. Development of numerous synthetic materials such as polythene, nylon, plastic and many of such items has created another means for waste materials. Packing of consumer goods come in different, beautiful and presentable forms now which was not so years before. These waste materials can be suitably used to build something useful and creative and this can be supported by an example of Hand Papermaking by Yeboah Rita which is production of useful art paper for illustrations or drawings made out of Waste Fabrics (Yeboah, 2013). This is an amazing usage of wastes for creativity. These unused materials generate an environmental threat with which some maybe recycled or not and needs only to be disposed off. Therefore, coming out with ideas from these wastes purposefully to create something useful will be very much helpful. In other words, it is an alternative way to recycle them.

According to Vladimir Russo (2006), there is the need to consider the kind of materials that would be used and by what means the materials will suit the curriculum, under which you are developing the instructional materials. For example, Graeme Wilson, in Namibia, was asked to create booklets to cater for educational programmes in two Namibian parks. In his research, he identified firstly the materials to use, its usefulness and how it could best support learning programmes within the Namibian school curriculum. Therefore, it is appropriate to know or have an idea of the materials to be used and how best they can best fulfil the kind of task it is required to do.

.

It is true that pupil learn very well by practicing and this can be effective for the child growth in learning. This can only be achieved when the teacher starts appreciating the different levels of learners and how each pupil grasps or perceived things around him or her. Teachers as well must be given in-service training to build their knowledge and skills in Creative Arts Education to increase their sureness in handling the subject (Boafo Agyeman, 2010). Again, the teacher needs to support his or her learners by creating a conducive environment required for learning. He or she can decorate the classroom with attractive works to arouse the interest of the pupil to learn always. Therefore, pupil will become imaginative and creative in their thinking as they reflect on what they see around them to challenge them in solving problems that may come their way.





## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Overview**

The chapter digests the methods and procedures that were used in the collection of data for the study to realize this research's objectives. This includes thorough information on the research approach and design, population for the study, data collection instruments, procedures followed in the design and carrying out of the project and the activities that the population undertook.

#### **3.2 Research Design**

According to Kothari (2004), research design deals with the process of integrating conditions which establish the scheme for the collection, measurement and analysis of data. He adds that what constitutes a research design is finding answers to what, where, when, why, how much and by what means concerning the thoughts of people or a research study. After a careful study and understanding of the different methods of research available, the qualitative research method was used for the study.

Shank (2002 -p.5) as revealed in Ospina (2003) terms qualitative research as “a method of systematic empirical inquiry into meaning”. Furthermore, Denzin and Lincoln (2011), “offer that qualitative research is a world lived of experience where individual beliefs and action intersects culture and in so doing, it attempts to make sense or interprets occurrences in terms of the meaning people bring to them”. On the other hand, Hancock, Ockleford and Windridge (2009), also classify qualitative research as that which takes into account the study of the human behaviour in the natural setting, somewhat focusing

on different ways people look at things which can point to the advancement of a new concepts, theories or an evaluation of organizational procedures.

Hence, qualitative research considered as one of the foremost research patterns, concerns itself with the ideas, feelings and experiences of persons which helps in generating a particular data. Moreover, it defines social phenomena as they happen naturally and does not manipulate events under study. Thus, events or circumstances are just understood and interpreted from the participant's perspective.

However, qualitative research is time consuming in nature due to direct collection of data from participants. Agudzeamegah (2014, p.44) supports this with the view that “some weaknesses related to qualitative research are that information is gathered through direct meetings such as interviews or observations and, so it is time consuming; and large samples cannot be worked with as a result of the intensive and time-consuming nature of data collection”.

- **Reasons for Adopting the Qualitative Research**

The purpose of this study is not in line with statistical processes of enquiry thus dealing with numbers, therefore the qualitative research was a suitable method since it offers the chance to examine in-depth knowledge about the available instructional materials and how they are used in the primary school. Again, it permitted the researcher to find the materials the instructional materials are made of, how they are implemented in teaching and pupils' response to their use in the classroom for the teaching and learning of Creative Arts at Bomso M/A Primary School. The researcher selected this approach since the events studied were based in their natural setting, which is Bomso M/A Primary, specifically, the classroom setting. Qualitative data gathered was examined to

generate a meaningful image of the state and usage of instructional materials at Bomso M/A Primary School for Creative Arts education.

### **3.2.1 Research Methods**

The researcher selected the Descriptive and Quasi Experimental research methods of qualitative research and made use of observation and unstructured interviews as instruments for data collection.

- **Descriptive Research**

Descriptive research is a study intended to show members of a group in an accurate way. In simple terms, descriptive research is all about portraying individuals who participate in a study (Kowalczyk, 2003-2018). Shuttleworth (2008) propounds descriptive research as a systematic process which includes observing and depicting the behaviour of a subject without manipulating it in any way. According to Burns and Grove (2003:201) as cited in Agnes (2015, descriptive research “is designed to offer a clear image of a situation as it naturally happens or as it is”. It may be used to defend present practices, decision making and to build theories. Mangal (2013) stipulates that descriptive research is basically interested with defining the nature or situations and degree in detail of the present state.

Owen (2002) opines that descriptive research is gathering information on a situation and is generally used in education to test for behavioural changes. Its’ worth is built on the evidence that issues can be resolved, and practices enhanced through description, observation and analysis, and description. He sums it up by saying descriptive research generates data that describes the condition of nature at some point in time. In simple terms, descriptive research tries to define or describe existing issues, behaviour or a

phenomenon through gathering data to tell what exactly the study is. Therefore, descriptive research was used for this study to identify and examine the types of instructional materials used for teaching selected topics in Creative Arts at Bomso M/A Primary School in Kumasi and recycling wood off-cuts as appropriate instructional material for teaching selected topics in Creative Arts at Bomso M/A Primary School.

- **Quasi-Experimental Research**

Quasi-experimental research is a method intended to discover the causal effects of an intervention, treatment or stimulus on a unit of study. Although, it has traits of scientific experiments, it lacks the benefit of the random assignment of treatments across a population that is often necessary for broad generalizability (Barrett, 2017). Arthur (2013) is of the view that, quasi-experimental research method is a study in which members are picked for varied conditions from pre-existing groups. However, in quasi-experimental design, to control the assignment of participants to conditions is not allowed. He also puts it that, while the presence of uncontrolled or confounded variables decreases the core validity of quasi-experimental designs, they do not necessarily render them unacceptable.

For results generated not to be distorted, Kowalczyk (2018) advocates that, random assignment helps ensure that there is no pre-existing condition to influence the variables, but quasi-experiment does not have a randomly assigned group. He further made it known that, there are two types of quasi-experimental design, namely; non-equivalent group and the pre-test and post-test design. The pre-test and post-test design of quasi-experimental research was employed for the study. The pre-test and post-test is defined by Kowalczyk (2018) that, the researcher finds a group of people to test for changes, and

this happens when participants are studied before and after the experimental manipulation.

The researcher used the quasi-experimental design to particularly test the recycled wood off-cuts as instructional materials for teaching selected topics in Creative Arts and examine their effects on pupils' academic performance.

### **3.3 Population**

Jupp (2006) projects that any unit or group of people classified as the focus of study refers to population. Then again population involves every individual case that holds the characteristics that is of importance to the researcher. This helps the researcher to understand that every person involved in a venture becomes the population and is through this that the researcher can get the right respondents in the target population for the study (Gratton, 2004). The population for the study was 1 head teacher, 3 teachers and 150 pupils (50 pupils each in three classes) of the Upper Primary department of Bomso M/A Primary School, in the Kumasi Metropolis. Thus, the population for the study was  $1 + 3 + 150 = 154$ .

#### **3.3.1 Target Population**

The complete set of units for which an analysed data is used in making inferences is the target population. Thus, the target group outlines those units for which the findings of the study are meant to simplify (Lavrakas, 2008). Consequently, target population means, the entire units in which the researcher is interested and tends to simplify the results for the study. Since the population was inaccessible, a share of the population was selected for the research. Hence, the target population for the study was made up of 1



headteacher, 2 teachers and 100 pupils (50 pupils each in 2 classrooms) in the Primary Four at Bomso M/A Primary School. That is, the target population was  $1 + 2 + 100 = 103$ .

### **3.3.2 Accessible Population**

The subset from the target population that allows smooth conduct of the research in a certain term is known as accessible population. This is likewise identified as the study group and it is within the accessible population that researcher gather their models. It is more manageable and easy to gather information for the study (Knight, 2014). The accessible population for the study had 1 head teacher, 1 teacher and 50 pupils who were present and prepared to take part in the research. The accessible population was  $1 + 1 + 50 = 52$ .

### **3.3.3 Sample and Sampling**

Etikan (2015) defines sample as a portion of a population or universe. Again, Latham (2007) adds up by saying that sample is a “subgroup of people through which data is collected as research information. According to Jensen (2011), sample is the individuals from whom data is collected to represent the larger group from which they were selected while sampling is using data collection from a smaller number of individuals to represent the larger group from which you selected them. Trochim (2006) posits sampling as a means of picking out units (for instance, people and organizations) from a group of interest so that by learning from the sample we may justly simplify the outcomes back to the group from which they were chosen. Sampling is the collection of a subsection of individuals from within a population to evaluate the features of the whole population (Wikipedia, 2018). In other words, sampling is selecting an element that is



easily accessible from a large group to gather information about that group, but sample stands in as the selected few that helps in gathering data of the large group.

### **3.3.4 Sampling Design**

The sampling plan implemented in the research affects the degree to which the outcomes can be generalized. There are varied sampling designs such as random, systematic, cluster, quota and stratified sampling techniques, but the purposive and convenience sampling techniques were employed for this study. Cherry (2017) explains purposive sampling as looking for individuals that meet certain measures, standards or criteria. Once more Latham (2007) defines purposive sampling as choosing a model “on the basis of your own knowledge of the population, its elements, and the nature of your research aims”. That is, the group is picked depending on a certain attribute such as internal knowledge of the said characteristics. This technique is beneficial if a researcher wants to study “a small subset of a larger population in which many members of the subset are easily known but the list of all is nearly impossible”.

The purposive sampling system was implemented to select teachers, head teacher and pupils because of the in-depth knowledge and information they had on instructional materials used in the school which was important for the study.

Convenience sampling (also known as accidental sampling) looks at how easily accessible the subjects of the population is to the researcher, in other words, sampling where members of the target group meet certain criteria, such as easy accessibility, nearness of location to the researcher, availability at a given time, or the willingness to participate are added to drive the research study (Etikan, 2015).

Latham (2007) sums up by saying that, convenience sampling comprises of participants who are easy to access and have agreed to partake in the study. For the selection of the school and the nearness to the researcher being guaranteed, the convenience sampling technique was employed, and this saved the researcher time from going far to gather information.

### **3.4 Data Collection Tools**

In accordance with the research approach, the data gathering tools used for the research were observation and interview.

#### **3.4.1 Observation as Data Collection Tool**

Observation is a means of collecting information by looking at behaviour, events, or noting physical traits in their natural setting (Briefs, 2008). Johnson (2008) defines observation as an orderly data collection style where the researcher uses all his senses to survey people in usual surroundings or naturally occurring circumstances, studying things of importance to the research, taking notes like writing and photographs of all developments as well as activity. According to Nikhil (2009), observation is looking at another persons' behaviour as it really happens without being aware of it. Raymond Gold (1969) as mentioned in Nikhil (2009), who points out the observer as either;

- Complete observer: as one who remains camouflaged and apart from the condition studied or
- Observer as participant: here the observer is entirely exposed about his research purposes and he interact with people on that basis.

Observation come in two forms; the participant and non-participant. The non-participant observation was employed for the study to help identify and examine the types of

instructional materials used for teaching selected topics in Creative Arts. It again helped to recycle wood off-cuts as instructional materials for teaching selected topics in the subject and helped again to access recycled wood off-cut used as instructional materials for teaching topics in Creative Arts and their effects on pupils' academic performance in Primary Four at the Bomso M/A Primary School.

The observation tool helped to gather extra data on teachers and pupils' attitude to the teaching of Creative Arts with or in the absence of the use of instructional materials as teaching and learning went on. The observation was done with the researcher standing at the back of the class to watch attentively and carefully to activities in the classroom.

A less-structured observation checklist was adopted to aid the collection of data through direct observation of teaching and learning activities (see Appendix C and D). It included observing and ticking the suitable perceived behaviour by the Primary Four teacher and pupils in the classroom. The observation checklist contained questions that required ticking of correct answers on the teaching and learning of Creative Arts with available instructional materials and the effects on pupils' academic performance in Primary Four at Bomso M/A Primary School.

The checklist was assessed by colleagues and the final endorsement and approval was done by research supervisor. In all, there were 30 questions prepared for the two observation checklists that gathered information on instructional materials used in teaching Creative Arts the primary school. Permission was taken from the school head and class teacher and copies of the observation checklist were given to them for study. On the selected dates, critical observation of teaching processes was done to gather suitable data from the classrooms of the selected primary school. The classroom teaching

observation was done within a period of eight weeks. There were various hindrances and delays such as cancellation of scheduled lessons due to interruptions in the academic calendar and rescheduling of lessons because of mid-term exam and workshops conducted for teachers in the school. The classroom observation was divided into two; teaching and learning of Creative Arts phase one took three weeks for the first term while five weeks' period from the second term school's academic calendar was prepared for phase two respectively. The data was gathered through written descriptions and photographs. Observations were conducted with the assistance of an observation checklist (See Appendix D).

### **3.4.2 Interviews as a Tool for Gathering Data**

Kumar (2014) defines interview in research as a conversation between two people with the aim of gathering pertinent information for the research. Interviews can be used to discover the opinions, know-hows, beliefs and motivations of individual participants (Gill, 2008). In other words, interview is a verbal interchange between two people (interviewer and the interviewee), with the aim of establishing facts about an issue. This mostly is achieved by an interview guide which follows a systematic pattern to help the interviewer ask relevant questions on the said issue.

Gill (2008) supports this with the view that interviews are known to offer a thorough knowledge of a social spectacle as compared to what could be gained from purely quantitative measures, such as questionnaires. Interviews therefore, are mostly appropriate where little is already known about the study phenomenon or where thorough knowledge is required from separate participants.

- **Designing of Interview Guide**

Two interview guides were prepared (see appendices A and B); one for the head-teacher and the other for the teacher. The guides were fixed on Creative Arts and the existing instructional materials used for teaching selected topics in the subject at the primary school. This supported the researcher in confirming the matters associated with teaching and learning of Creative Arts in the school. The first interview guide was for the teacher which had 13 questions and second containing 10 questions was designed for the head teacher. To ensure that the interview guides were error-free, duplicates were given to colleagues to assess before taking them to the supervisor for ultimate approval to render the interview guides as impartial as possible. Prior notice was given to the respondents to help them prepare for the interview and to remove needless pressure on contenders, but they were still nervous, therefore a relaxed style through conversation was implemented.

- **Conducting the Interviews**

Arrangements were made for the teacher and head teacher with the dates decided as well. The first interview was with a Primary Four teacher and it was done after the first three weeks of observation for the research and then followed by the head teacher's interview. Preparations were made after the interview guides were established and duplicates submitted at the convenience of the interviewees. The researcher was on time to all dates and arranged periods and recordings were in the form of written accounts.

### **3.5 Types of Data**

The data gathered for this study were two types, thus; primary and secondary data. The primary data gathered comprised field notes or basic information that the researcher got from observing classroom teaching and learning of Creative Arts as well as interviews with the teacher and head-teacher at Bomso M/A Primary School.



Books, journals, online documents, published and unpublished thesis, school records and other documents that are associated with Creative Arts education and the development and use of instructional materials at the primary school were collected as the secondary data.

### **3.6 Data Collection Procedure**

The researcher took a letter from the Department of Educational Innovations in Science and Technology, which was given to the head teacher of the school clarifying the reason why the study was being conducted. The research began with observation in the school after the head teacher and the teacher gave their consent. There were dates set for the researcher on the planned observations for the primary four class on the available Instructional Materials and how they aid in the teaching and learning of Creative Arts to enhance the understanding of the challenging to teach topics. The researcher went to the school on Tuesdays and Thursdays to observe the teaching and learning of Creative Arts. The researcher spent two hours each time during the Creative Arts lessons and this was conducted three weeks between the months of November and December 2017 for the first term during the early stages of the observation.

The next session took place within five weeks thus, January to March 2018 in the second term of the school's academic calendar and this created the continuity of the observation. The introductory study which involved testing the Observation was done in the first three weeks. see Checklist 1 (Appendix C) and was made up of 14 questions to study the situation of the school and look out for what relates to the school with respects to Creative Arts education.



The second was based on Observation Checklist II (Appendix D) and consisted of 16 questions which was developed to collect data required to guide the design for the prototype Instructional Materials that will cater for any identified faults with the instructional materials found in use during the initial study. The observation results and interviews are shown in chapter four. The observation approach used was the Balanced Participant Observation which gave the researcher the opportunity to be a part of the classroom activities and also maintain the position of an observer to look at what was going on.

### **3.7 Methodology for Recycling Wood Off-Cuts as Instructional Materials**

The researcher chose the ADDIE model instructional system design for recycling wood off-cuts as instructional materials. This comprises five phases namely; Analysis, Design, Development, Implementation and Evaluation. The ADDIE model was selected because it was appropriate for the work.

#### **3.7.1 Analysis Stage**

##### **Activities Undertaken for Objective One**

- Objective one: To identify and examine the types of instructional materials used for teaching and learning Creative Arts at Bomso M/A Primary School in Kumasi.

The lessons for the topic were observed for Primary Four during the morning class session. The number of pupils available was 48 in all. The topic was under Principles and Elements of Design. The specified objective per the syllabus was that, at the end of the day the pupil should be able to tell what Principle and Elements of Design is about, their functions as well as examples under them.

### 3.7.2 Observations Made during the Lesson

1. The teacher in Primary Four firstly wrote the topic for the day on the marker board and introduced it by asking the pupils questions concerning the topic to enable her to generate or gather any information the pupils already have about the lesson that was being taught.
2. Pupils were finding it difficult grasping the topic because of their facial expression and body language, hence the teacher referred them to their text books.
3. The teacher also taught by calling pupils to give out answers to her questions and making illustration on the board to help her explain the topics. Pupils were expected to give the types of principles and elements of design but were unable to, so the teacher had to give them a clue by making some drawings on the board and pointing to them the types and how they have been used in the illustrations on the board.
4. This helped answer some question but took time, energy and deprived a lot of pupils the chance to contribute in this class exercise.
5. She sometimes called out key words from the text books and the students also chorus the words after her. This was done to help the pupils identify the types and how they can be used.
6. The concept of the Principles and Elements of Design was presented using illustrations on the marker board (refer to plate 3.1).
7. The teacher also made some demonstration by putting the types such as lines, dots and shapes together to form a human face. During the lesson, some of the pupils kept fidgeting but the class became silent when the teacher took her cane and called out to the pupils to get their attention.

8. The language used for teaching was (Twi and English). After the lesson was over, the pupils were made to copy out the exercise for answering from their textbooks.

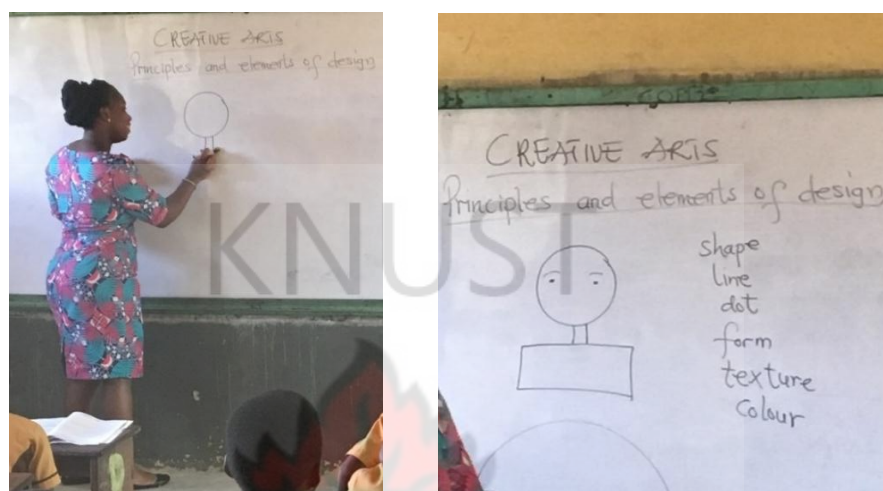


Plate 3.1: Teacher using illustration on the marker-board to teach Principles and Elements of Design in Primary Four.

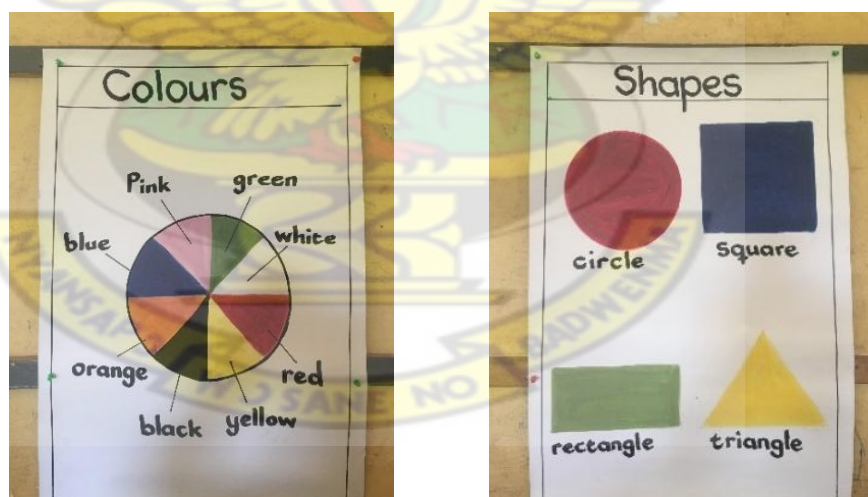


Plate 3.2: A chart for teaching Colours and Shapes.

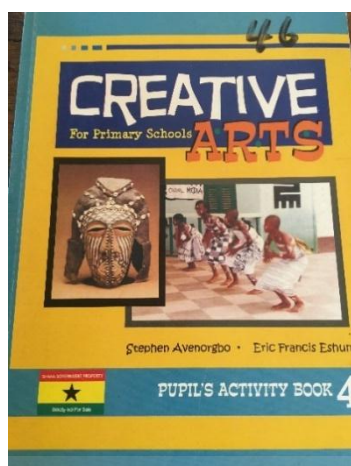


Plate 3.3: Textbook for teaching Creative Arts in Primary Four.



Plate 3.4: Self-made mosaic with cut out coloured paper glued on a sketch pad by teacher for demonstration.

In conclusion, the instructional materials identified for teaching selected topics in Creative Arts for Primary Four at Bomso M/A Primary School in Kumasi through the observation carried out comprise illustrations made on a marker board, charts, textbooks and (self-made object).

### 3.7.3 Findings from Interviews with Teacher and a Head Teacher at Bomso M/A Primary School

One teacher from Primary Four and a head teacher were interviewed. Some of the interview points were the number of years of teaching experience in the lower primary department and their age range. The age of the teacher was between 30 and 40 years while the head-teacher's age ranged between 59 and above. The head-teacher holds a Diploma in Basic Education, Bachelor's Degree and Post-Graduate Degree. The teaching experience of the teacher ranged between 6 and 10 years, and she holds Bachelor's Degree in Education. Charts, textbooks and illustrations made on the marker board were established as the existing Instructional Materials for teaching and learning of Creative

Arts. The teacher stated that charts pasted on the classroom walls were usually bought by the school or made by teachers which were either detailed diagrams or simple outline drawings. However, charts, textbooks, exercise books were provided at the start of the academic year by the Ministry of Education (MoE) through the Ghana Education Service (GES) and upgraded occasionally. Although, materials such as markers, crayons and charts are supplied, they are mostly insufficient. At times the teacher or pupils bring to school real objects to be used in the classroom for demonstration. In other case, Illustrations are made on the board by the teacher or help is sought from other colleague teachers who are skilled in the art aspect to come out with self-made Instructional Materials.

However, the teacher mentioned that there are available instructional materials but are not enough, hence, she prefers to produce some out of paper and other materials from the environment for her class even though she was not skilled in the construction aspect or had any training during her teacher education.

She described the existing instructional materials as helpful, however, they were inadequate and sufficient with enough basic information. It was also established that the textbooks were created based on the syllabus, hence, it provided opportunity to teach in accordance with the syllabus. Nonetheless, the charts and textbooks being paper get damaged easily after a short period of time mainly because of too much handling.

Aside one or two charts posted on the classroom wall, the rest of the instructional materials were kept in cupboard after the lessons were over because classrooms were used for religious meetings. The members happen to throw out activity materials in an attempt to clean the classrooms. The teacher made it clear that it was an opportunity for



some teachers to go about their own duties when it was Creative Arts period. This was because they found it very difficult to teach without Instructional Materials for pupils to understand as well as hold their interest during the lesson. Lastly, the teacher said it would be easy for pupils to describe items in books or connect the ideas to their environment if the diagrams or pictures they come across in their books are exactly what they see around them daily, instead the textbooks are based on foreign ideas which makes it very difficult to express themselves with what are in their textbooks.

The teacher again added that during the lessons with instructional materials, pupils responded positively. Pupils at some point took part in lessons, displayed some understanding by answering questions correctly and paid attention in class. This is because these instructional materials made teaching and learning easier, also fun and exciting and ensures full participation of her class throughout the lesson but in the absence of the instructional materials, marker board illustrations are employed to sustain the interest of the pupils. The interest of the pupils was enhanced with rewards such as clapping during the lesson, but punishments were used as instruments for keeping the class under control.

With respects to the ideal methods of teaching, she stated that different strategies such as lecture, discussion, and demonstration strategies are combined in her teaching. She mentioned that although the government provides instructional materials which basically are textbooks given to the school's administration to supply, are not adequate. Therefore, pupils are asked to bring pieces of cloths, needles, bottles, sticks, papers and strawboards to improvise for the insufficient instructional materials. She again stated that she commissioned someone who is not an educationist and artist to make simple charts for



her to teach her class but finds it difficult to teach principles and elements of design without appropriate instructional materials.

With regards to the responses from the head mistress at Bomso M/A Primary, she specified that the available instructional materials in the school for Creative Arts at the lower primary level are text books and charts. These textbooks are provided by the government when a new academic year begins and are upgraded sometimes but the charts are produced by the school board or the teachers themselves. The head teacher mentioned that, Creative Arts is taught through instructions and practical work and this comes down to the fact that Creative Arts cannot be efficiently taught without the use of instructional materials (Brobbe, 2015). She again stated that teaching and learning is made easier with the use of instructional materials hence, every teacher needs the required instructional material to make teaching and learning effective and useful.

However, the head mistress made it clear that, although workshops are conducted for teachers on subjects to be taught and how to teach them, some give a lot of excuses not to go which prevents them from learning new strategies from consultants, experts and even their colleagues. She has noticed that those who participate in the workshops have an upper hand over those who do not because their learners gain a lot of understanding with instructional materials and do better in their quizzes, examinations and tests. Finally, she said that it has become the Ghana Education Service (GES) responsibility to provide Instructional Materials which should not be so. The teachers during their teacher training education should be taught the skills of creating instructional materials on their own in order to create the most functional ones for teaching to the advantage of his or her pupils' needs.

### 3.8 Activities Undertaken for Objective Two

- Objective two: To recycle wood off-cuts as instructional materials for teaching and learning Creative Arts at Bomso M/A Primary School in Kumasi.

The wood off-cuts appropriate for recycling as instructional materials were selected, gathered and recycled for the production or developmental processes. These wood off-cuts were collected from Wiafe Furniture Company Limited located at Fumesua of the Accra and Kumasi highway.



Plate 3.5: The wood waste from which the wood off-cuts were selected



Plate 3.6: The selected wood off-cuts

#### 3.8.1 Design Stage

There is a strong advocate by the Ministry of Education along with the Ghana Education Service on the use of locally accessible materials or readily available materials found in our environment in our classrooms. This is supported by Agudzeamegah (2014) who clearly states that there are lot of resources or materials on our environment which are easy to attain. Hence, teachers and schools are encouraged to take and integrate them into their instruction and other learning activities to enhance teaching and learning in our primary schools.

The interview conducted brought to the realization of this study the challenging to teach topics that were Principles and Elements of design while findings which were; inadequate instructional materials, dull colour scheme of existing instructional materials not interesting enough to arrest pupils' attention for long and ones hanged on walls which hindered visibility obtained through the observation informed the researcher on the set criteria regarded for the design. These criteria were bright colours, visibility, and being sufficient for pupils to participate actively during Creative Arts lessons. Through the data collected enabled the set criteria for recycling the wood off-cuts for developing the Instructional Materials for teaching and learning Creative Arts. The following are the key elements of Instructional Design that need to be considered:

1. The learners whom the Instructional Material is being produced for. Just as learners differ in many ways, this helps discover their learning levels, abilities, characteristics and experiences as well as obtaining their needs, interest and capabilities of the learner (Morrison, 2010).
2. To enhance visibility and attract the attention of pupils, bright and contrasting colours were used for the various parts of the wood off-cuts. Volts (2018) supports this by saying that visually improved reading materials can offer students with learning practices. Illustrations with vivid colours and details permit students' understandings and thoughts to travel to other times and places they have seen before (Diamond & Moore, 1995).
3. Durability of the material: Bearing in mind the target group are young children who enjoy handling physical items as they participate in hands on activities, therefore, materials that will resist breakage, wear and decay such as the wood off-cuts, acrylic and lacquer were used to create the instructional materials.

4. The main aim was to help teach selected topics in Creative Arts therefore, the instructional materials were made simple as supported by Nikky (2010) that the work should be simple, accurate, informative and achieve its objectives.
5. The Instructional Materials made were portable in terms of not being heavy or too big to handle and also safety measures were ensured when producing the work for such group as children are curious and love to explore. Anini (2011) believes that materials used in executing instructional materials must be child-friendly and not harmful to their health.

The designing stage at this point, ideas and the findings from the teacher were put together by the researcher on selected Creative Arts topics that is Principles and Elements of design which were difficult to teach by recycling wood off-cuts to develop instructional materials to help solve this issue at Bomso M/A Primary. Figure 3.1a to 3.1f show the designs made for the development of the Instructional Materials.

- **Designs of the Prototype for Teaching “Difficult Creative Arts Topics”**

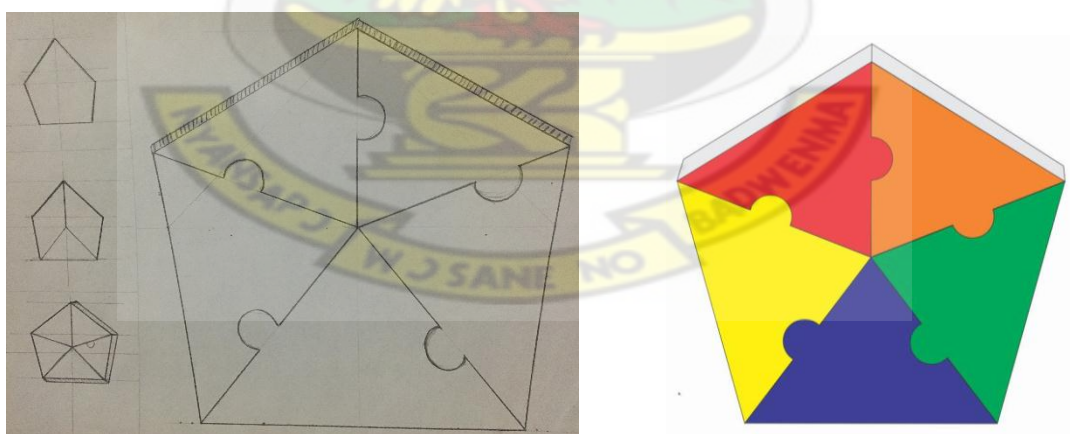


Fig 3.1a: Design for the recycled wood off-cuts used as puzzle for mosaic.



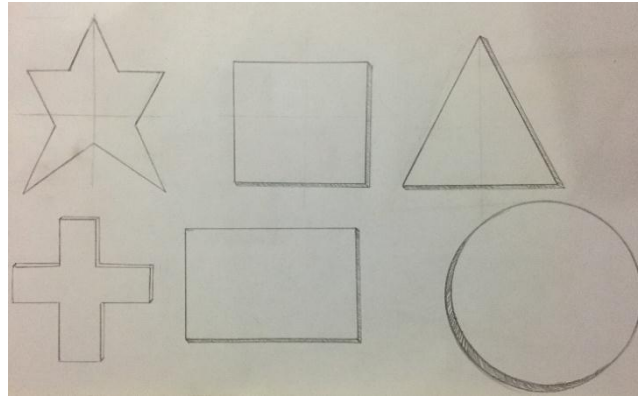


Fig 3.1b: Design of the wood off-cuts for shapes.



Fig3.1c: Prototype of the shapes

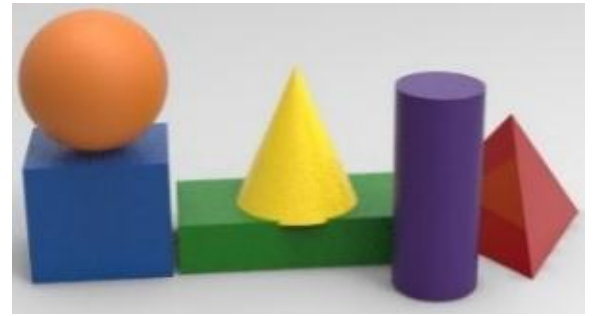
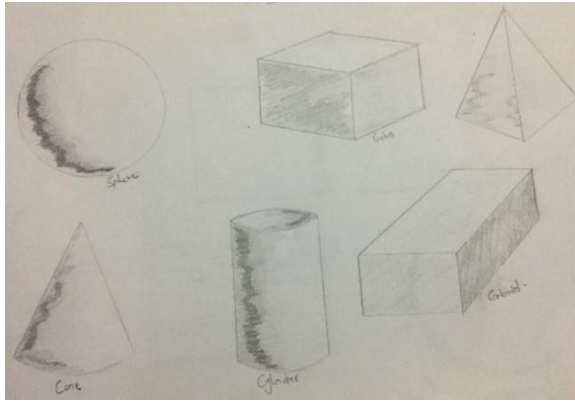


Fig 3.1d: Design for recycled wood off-cuts used as 3D forms

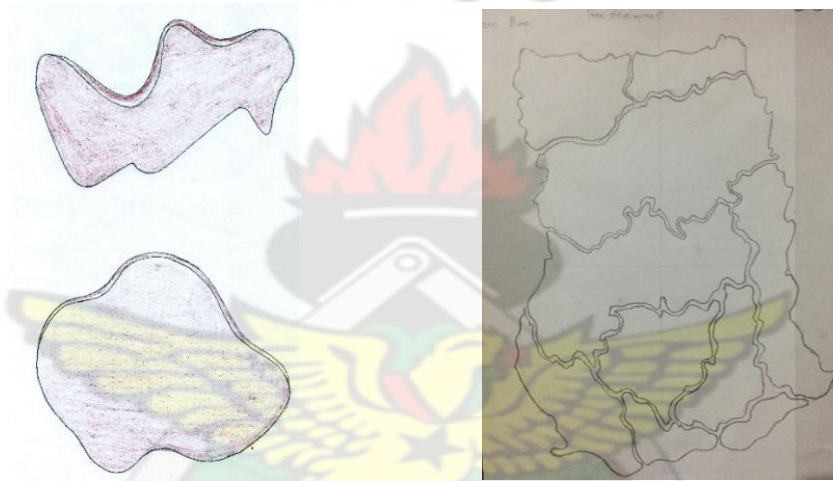


Fig.3.1e Design of irregular shapes used to develop the Ghana Map

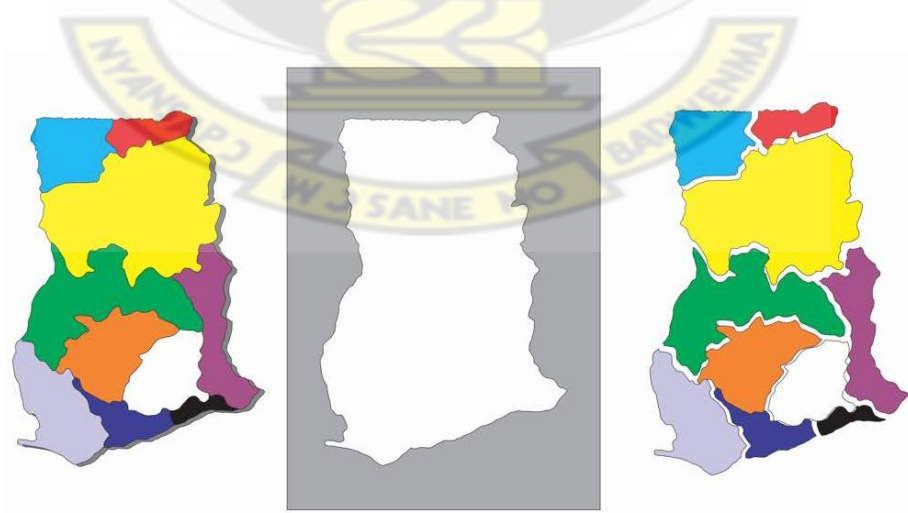


Fig 3.1f: Design of the prototype of Ghana map



### 3.8.2 Developmental Phase

At this stage the designs made on the computer were transferred onto the actual objects using the suitable materials, tools and techniques. Production of the instructional materials started by bringing together the materials, tools and equipment needed. A step-by-step method was adopted in constructing the instructional materials until the right results were realized.

- **Some Tools and Materials for Developing the Instructional Materials**

The tools and materials that were used for the executing the project were wood off-cuts such as Hyedua, Emire, Asanfena, Danta, plywood which were collected from Wiafe Furniture Company Limited. The white glue, shoemakers glue, super glue, cutter, pencils, sandpapers, acrylic paints, velcro and bristle paint brushes were purchased from the market.

Others were the piercing machine, jewellers saw, jigsaw, electric sander, punches, metal rule, chisels, nails, hammer and hand sander collected from a jeweller. Some tools and materials are illustrated in Plates 3.7a to 3.7j.



Plate 3.7a: Jigsaw



Plate 3.7b: Sanding block



Plate 3.7c: Plier



Plate 3.7d: Jigsaw blades and nails



Plate 3.7e: Sanding machine



Plate 3.7f: Punches



Plate 3.7g: Hammer



Plate 3.7h: White glue



Plate 3.7i: Sandpaper



Plate 3.7j: Acrylic paint and Super glue

- **Steps Involved in Developing the Instructional Materials**

- 1. Development of the Colour Puzzle (A Pentagon)**

- a. The design was first made in pencil on paper with series of sketches and the final one selected. The wood off-cut was placed on the flat surface of the piercing machine and then the design was transferred to the machine for cutting through tracing (Plate 3.8a).
- b. The surface was sanded to make it smooth while the edges were sanded as well as to correct the curves and sharp ends. The sand papers used were grade 60 and 120. These sandpapers have a coarse surface hence, are known as rough sandpapers (Plate 3.8c).
- c. With the help of the super glue and the sawdust collected from the sanding, the holes on the wood were filled and then sanded again to take of the bumps created due to the filling (Plate 3.8d).
- d. Afterwards, the sanded work was coated with acrylic paint. The colours used were red, yellow, orange, green and blue. The coating was done three times and after each coating the work was allowed to dry and sanded again. Firstly,



with grade 120 sandpaper, then 240 and finally 400 which is known as smooth sand paper (Plate 3.8f).

- e. When the final coating was given to the work, wood lacquer was sprayed on it and made to dry out from the direct sun and the work was ready (Plate 3.8g).



Plate 3.8a: Cutting out the wood off-cut using the piercing machine



Plate 3.8b: The cut-out Puzzle work



Plate 3.8c: The work goes through sanding



Plate 3.8d: Sawdust and Superglue were mixed to fill the cracks in the wood



Plate 3.8e: The edges were curved and the work painted





Plate 3.8f: The work was sanded, painted and left to dry three times before lacquer was applied on them



Plate 3.8g: The work was finally sprayed and ready for use

## 2. Steps Involved in the Development of the Shapes

- a. The two-dimensional shapes were first made with sketches on paper and further finalized on the computer. The final design was transferred onto the wood off-cut for cutting.
- b. The piercing machine was used for the cutting to get the shapes out from the wood (Plate 3.9a).
- c. The cut-out shapes were sanded to make it smooth and safe to use. With the star shape, the corners were corrected with an artist knife to pluck out the excess wood springing out as a result of the machine cutting.

- d. Afterwards, the work was coated with acrylic paint pink, green, ash, yellow, red and orange. The acrylic paint was applied on the wood three times and after each coating, the work was allowed to dry, then, sanded with smooth sandpaper. The sanding was done to give the work a levelled surface since excess paint was seen clotted on the surface of the wood (Plate 3.9d).
- e. The final work was sprayed and allowed to dry, hence, ready for use (Plate 3.9e).



Plate 3.9a: cutting out the shapes



Plate 3.9b: The cut-out shapes





Plate 3.9c: Sanding the cut-out shapes to make them smooth



Plate 3.9d: Shapes painted, sanded, allowed to dry and painted (done three times)



Plate 3.9e: The finished Shapes

### **3. Steps Involved in Developing the Three-Dimensional Forms**

- a. The designs were first made on paper to have an idea of how the finished work should look like. The forms were Cylinder, Cube, Cuboid, Prism, Sphere and Cone.
- b. The cube and prism were carved out from a rectangular block of wood. The designs were first marked on the wood before it was carved out to attain the forms, but the cone, cylinder and sphere were lathed and the cuboid cut from a cross-cut machine (Plate 3.10a).
- c. The wood off-cut was joined before it was lathed in order to get the required size for the cylinder, cone and prism. The base of the joined block was marked to help position the block correctly to the lip of the lathing machine. (Plate 3.10d).
- d. Holes created on the wood due to the lathing done were covered or sealed with sawdust and superglue after which they were sanded to take off bumps to give the wood the required surface level. This process continued until all the holes on the wood were sealed (Plate 3.10e)
- e. The works were sanded, coated with acrylic paint and allowed to dry. This procedure was conducted three times before the final finishing was given to it (Plate 3.10f)
- f. The work was then sprayed and ready to be used (Plate 3.10g to 3.10h)





Plate 3.10a: The mark wood for chiselling

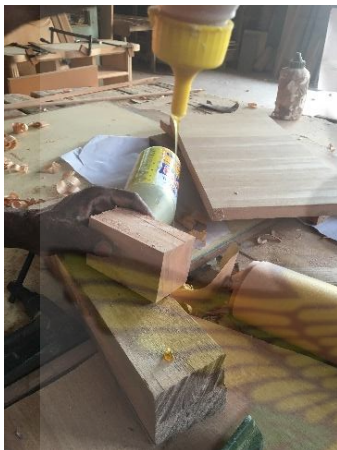


Plate 3.10b: Joining the wood for lathing



Plate 3.10c: Chiselling process



Plate 3.10d: Cross cutting and lathing process





Plate3.10e: Wood sanded, holes sealed with sawdust and superglue



Plate 3.10f: The forms were painted, sanded and painted again



Plate 3.10g: Spraying the work



Plate 3.10h: The finished work

#### **4. Steps Involved in Developing the Ghana Map (Mosaic)**

- a. The design of the map was made on paper out of irregular shapes. The design was transferred onto the wood where the piercing machine was used to cut out the frame of the map (Plate 3.11a to 3.11b).
- b. The shapes for the regions were cut out with jewellers saw frame and the edges trimmed nicely with a rasp file. Excess wood projecting from the corners after the piercing was cut off with an artist knife (Plate 3.11c).
- c. The crack on the frame was sealed with a dowel (thus a small piece of wood fixed at the place with crack to hold the wood together), sawdust and superglue.
- d. One side of the frame was padded with another wood which served as a support to hold the regions when placed in the frame with the help of one-inch nails and the edges trimmed with a jigsaw. The nail heads were clipped off with plier and then pushed further into the wood with a punch. The holes created because of the nails were sealed with white glue and sawdust (Plate 3.11d to 3.11e).
- e. After, the frame of the map was sanded to fall a bit lower so that the regions will overlap the outline, making it easy to remove and put back again. The sharp edges of the frame were rounded by sanding to prevent any cuts.
- f. The pierced-out regions and the frame of the map were then sanded with sandpapers grade 60-120 to make them smooth. Afterwards the works were coated with acrylic paint, sanded with a smooth sandpaper grade 240 and 400 then allowed to dry. The colours used were sea blue, red, yellow, green, violet, orange, white, ash, blue and pink whiles black was used as the

background colour for the frame of the map. This application was done three times (Plate 3.11f, 3.11g and 3.11h).

- g. Wood lacquer was sprayed on the work as the final finish was then allowed to dry. The lacquer was used to prevent the acrylic paint from peeling off the surface of the wood (Plate 3.11i).
- h. Afterwards the inner part of the frame was lined with Velcro as well as small portions of the regions with the help of shoemakers' glue to hold them to the frame when fixed. The back of the frame was also glue and covered with cunch to prevent scratches (Plate 3.11j, 3.11k and 3.11l).
- i. However, a guide was made for the Ghana Map mosaic to enable easy fixing of the regions to the frame. The names of the ten Regions of Ghana were printed out and glued to 1/8inch plywood with a glue stick. A folded cloth was passed to and fro on the printed map after it was glued to the plywood to bring out any air bubbles that may be stuck underneath (Plate 3.11m).
- j. Afterwards, a wood was chamfered, cut into four sizes equal to that of the plywood ends and slanted at the apex which was fixed to the edges of the plywood with the printed map (Plate 3.11n).
- k. Also, the edges of the plywood were sanded, coated with white glue and locked with the chamfered wood known as lipping to prevent the paper from coming off due to too much handling.
- l. The excess glue appearing on the surface after the wooden frame was fixed, was wiped off so that no stain would be seen when the glue dries up and set. The wooden frame was then sanded and the guide ready to be used (Plate 3.11o).





Plate 3.11a: Cutting the frame



Plate 3.11b: Frame of the Map



Plate 3.11c: Piercing, Filing and Sanding of the regions of the Ghana Map



Plate 3.11d: The support was sanded, glued and fixed with nail to the Map frame



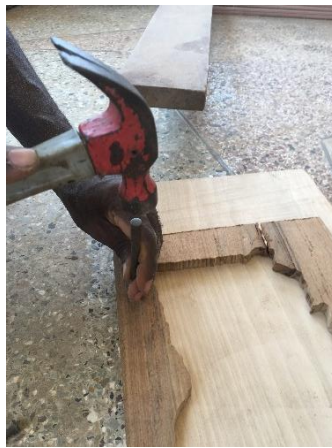


Plate 3.11e: Nail heads clipped, concealed with punch and edges trimmed

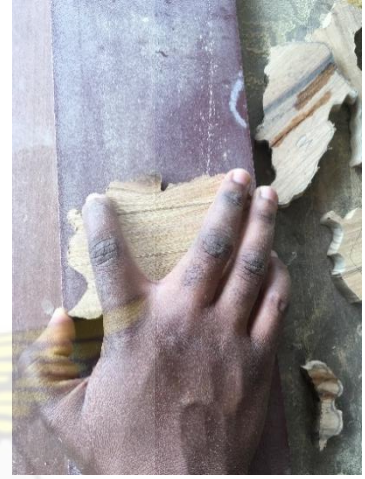


Plate 3.11f: Portion marked for sanding

Plate 3.11g: Sanding of the wood off-cut for regions



Plate 3.11h: Work painted, dried and sanded again





Plate 3.11i: Works sprayed and allowed to dry

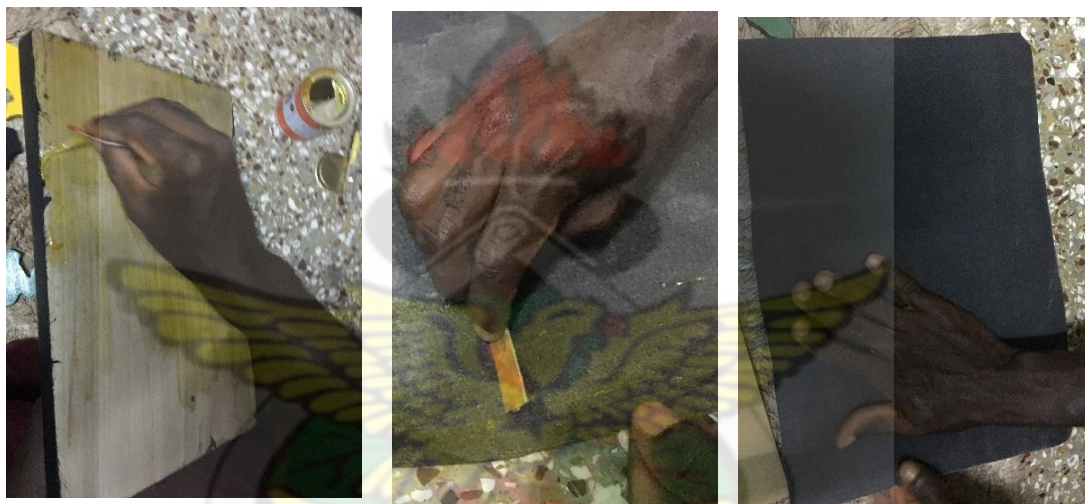


Plate 3.11j: The back and cunch are glued and joined together



Plate 3.11k: Velcro cut like the map and lined on the glued frame





Plate 3.11l: Pieces of Velcro fixed to the regions and attached to the frame

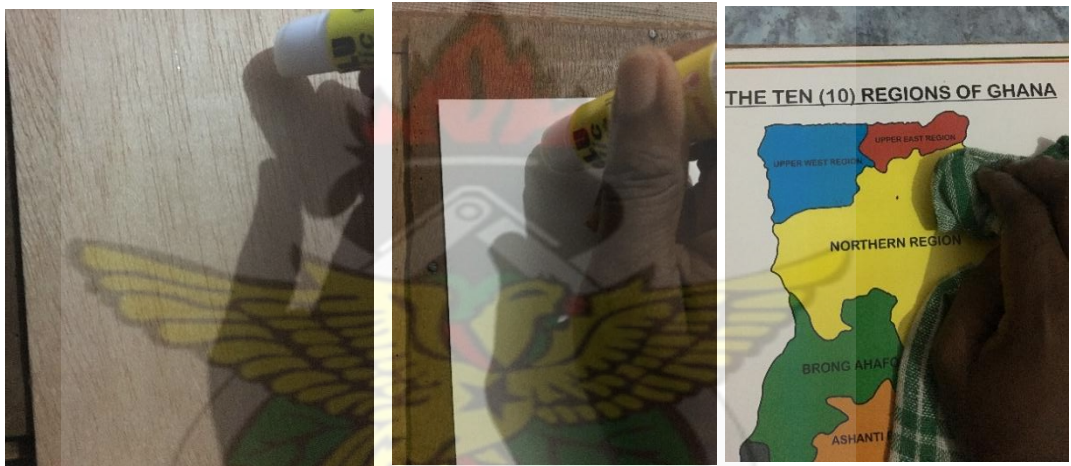


Plate 3.11m: Printed Map joined to plywood with glue stick

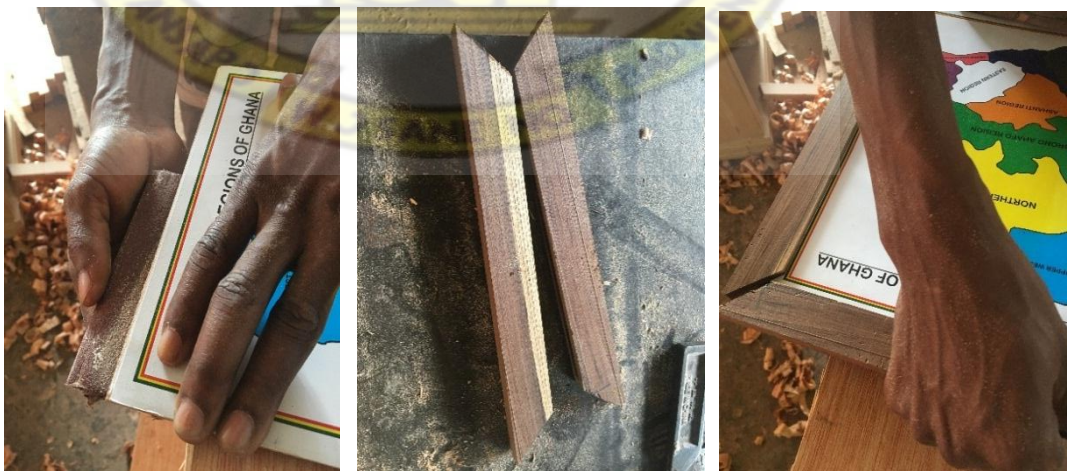


Plate 3.11n: Plywood edges sanded for fixing chamfered wood



Plate 3.11o: Chamfered wood glued to plywood and sanded to complete work

- **Challenges Encountered during the Development of Instructional Materials**

During the development of the project, the researcher came across a number of challenges and some of which are labelled below;

1. The wood off-cut comes in different forms and sizes hence, the wood had to be joined to get the desired results but some did not close up entirely. Since some of the wood were soft, bits of the edges broke when the rough sandpaper was used on them during sanding. This problem was resolved by filling the gaps with sawdust and sealing them with superglue.
2. During the machine piercing of the designs on the wood, some parts of the wood were not thoroughly cut to the end. Example is the map frame. The wood that did not come off at the corners were trimmed with a cutter.
3. It was also a challenge attaching another wood to the back of the map frame because the required nail could not hold the two woods together and the ones appropriate were too long hence splitting the wood when hammered. This problem was solved by cutting off the nail head and pushing it further inside with a punch in order not to expose the sharp ends of the nail.

4. The regions of the map did not fit correctly into the frame after the other wood was attached to the back of the frame. This was corrected by marking the parts of the region that did not fit, piercing them off and filling the edges to curb any distortions of the curves.
5. There were brush strokes left on the surface of the work during the painting, these were taken off by sanding the work without force after the paint had dried.
6. It was also realized that when the painted work came into contact with each other, the dull colours easily stained the bright colours and in other cases peeled off the paint. This was resolved this issue by coating the work with the paint three times each after allowing them to dry and finally spraying wood lacquer on the surface to conceal the acrylic paint to prevent it from coming off the work.





## **CHAPTER FOUR**

### **PRESENTATION AND DISCUSSION OF FINDINGS**

#### **4.1 Overview**

In this section, information was collected from Bomso M/A Primary School. The data gathered helped in recycling wood off-cut used as instructional materials and tested in the classroom, after which the major findings were discussed.

#### **4.2 Profile of Bomso M/A Primary School**

Bomso M/A Primary is a government school in the Bomso community. It was named after the town Bomso in which the school is situated in. It is about two hundred metres away from the Kwame Nkrumah University of Science and Technology campus. The school was established to supply the town folks with the needed education for their wards. Upon entering, the school greets you with a big compound filled with sand and gravels that serves as the playground or school park. The right-hand side of the compound is the Nursery and Kindergarten block while the left-hand has the junior high school. The primary block is right beside the junior high block arranged in a square like manner leaving a small compound in between them filled with trees and a tap at the centre of the compound for water. The primary level has seven teachers including a head teacher, one male and six females. Bomso M/A Primary is a mixed-sex school which holds a population of about three hundred and ten pupils for both the lower and upper primary. There is no shift system but the school functions on the regular morning 7:00 am to 3:00pm classes. It is well fenced to protect human life and school properties.



#### **4.3 Analysis of Results from Observations Made at Bomso M/A Primary School**

With regards to the topics, which were Principles and Elements of design, the instructional materials observed were charts and self-made Instructional Material but writing board illustration and textbooks were the basic instructional materials used in the class. This falls under objective one. This showed that teachers only borrowed the basic items that could be obtained in the environment as instructional materials for teaching the selected topics in Creative Arts education.

The process of teaching Creative Arts at Bomso M/A Primary School were lecture, demonstration and discussion with the language of instruction being a blend of English and “Twi” yet “Twi” was largely used.

The topic taught was Principles and Elements of design and the number of pupils’ present were 47 out 50. The teacher introduced the topic with the help of the marker board illustration. At some point the pupils were confused as to what was being taught in class therefore, they started fidgeting and whispering to each other while the lesson was in session. The available instructional materials somehow helped to make the topic a bit easier to teach and understand but since it was fixed to the classroom walls most pupils easily lost interest and did not fully participate. In some cases, the teacher got the pupils to interact and engage in the lesson with the textbooks but that was not enough to hold the pupils’ attention for long.

Another mechanism that kept the class together was punishment and rewards such as claps and this sustained pupils’ interest during lessons. The teacher sustained pupils’ attention in different ways, amongst which was calling out names of pupils to get their attention and walking through the rows with a cane in the hand as a form of instilling

discipline. This generally got the pupils quiet through most of the lesson. But there was consistent movement and fidgeting at the back of the class instigating distraction. Assessing pupils were done by calling them to answer questions or to the writing board to write the correct answer to the questions asked. Again, exercises were given to pupils to be done in class as well as assignments which they took home and returned them the next day for assessment.

#### **4.3.1 Strengths and Weaknesses Observed with the Use of Existing Instructional Materials for Teaching selected topic in Creative Arts**

- *Strengths Observed*

The existing Instructional Materials such as the text book and the illustrations on the marker board adopted for the lesson, helped the teacher to introduce the topic to the class. The textbooks also provided exercises and assignments for assessing pupils. Some of the Instructional Materials used together by the teacher were able to hold the pupils' attention to some extent during lessons.

- *Weaknesses Observed*

The textbook did not offer adequate information on the topics; which prevented the instructional material from satisfying a basic criterion. As stated by Nikky (2010), instructional materials should be informative, precise and recognize learning objectives. Most instructional materials such as charts used by the teacher were fixed to the classroom wall which hindered visibility, hence, pupils loose focus easily and begin to fidget. Colour scheme of some Instructional Materials used by the teacher to teach causes less attention in class because they were dull and not attractive enough to sustain pupils interest for long. This goes hand in hand with findings from

Rongalerios (2009) and Agudzeamegah (2014) who mentioned that children especially are generally captivated by bright colours since they simply grab their attention and facilitate the learning process. The two-dimensional nature of some charts did not allow pupils to interact with them hence, they were denied the chance of participating in active learning. Therefore, pupils' relation to the instructional materials were only visually engaged.

Opoku-Asare (2000) and Agudzeamegah (2014) stress that, it is of great worth for children to study through their senses to make a topic under discussion more knowledgeable than in the non-use of their senses. Therefore, the more senses involved in the learning process, the higher the retention of pupils' attention.

It could not be ignored that the existing instructional materials such as textbook, charts and illustrations on the marker board did not fully occupy pupils throughout the lessons and even with all the aids available, the teacher still had difficulty explaining the topics Principles and Elements of design to the understanding of pupils.

In a case where learning can be understood, and learner interact with real object in the environment and discover their abilities, break down information without being told what to do so that they understand certain things on their own and that lasts long in memory, but this was not encountered in the class and as a result, there was constant fidgeting and noise in the classroom which distracted the lesson. Therefore, the study realized that the use of Instructional Material for teaching and learning is interesting enough to arrest the attention, arouse and claim active response from pupils (Leus, 2002; Farrant, 1996), (Agudzeamegah, 2014).

#### **4.4 Implementation Phase**

At the implementation stage, the developed instructional materials were tested in the Primary Four classroom of the selected school. The class teacher was first directed on how to use the developed Instructional Materials. She taught the same topics that were taught during observation again with the developed Instructional Materials and the test scores were recorded under the pre-test and the post test.

##### **4.4.1 Activities undertaken for Objective Three**

The objective three was to test the recycled wood off-cut used as instructional materials for teaching topics in Creative Arts and examine their effects on pupils' academic performance at Bomso M/A Primary School.

The developed 'Irregular Shapes for Mosaic', 'Basic Shapes' and 'Forms' and 'Colours Puzzle' were firstly introduced to the teacher, and she was directed by the researcher as to how the developed instructional materials were to be used to teach the selected topics. Besides the basic idea of the topics, understanding the use of the developed Instructional Materials was easy for the teacher inculcate in the selected topics, Principles and Elements of Design. The developed instructional materials were tested in the school to know their effects on pupils' academic performance and in so doing enhance or improve learning of Creative Arts.

##### **4.4.2 Testing the Developed Instructional Materials**

In the school, the Primary Four class was tested on Principles and Elements of Design with the prototype instructional materials. The irregular shapes for mosaic was first tested but before then the teacher introduced the topic through illustrations made on the marker board. The shapes had bold and bright colours for the enhancement of visibility

and with the help of a guide the pupils had it easy identifying and fixing them at their rightful places.

Pupils interacted with the mosaic which was in a map form by taking off the regions and putting them back again in to the frame. Pupils were able to tell the names of the regions as well with the help of the guide. The developed Instructional Materials gave the pupils, the chance to relate easily with them. The Velcro at back of shapes as well as the inside of the frame prevented the shapes from falling which in turn enabled the map to be moved anywhere without thinking of the shapes of the regions coming off. It also gave most of the pupils the opportunity to share in the lessons throughout instructional periods. Thus, the teaching and learning of irregular shapes to create a mosaic out of the Ghana map where proportion aided the shapes to relate well with each other in terms of the sizes (Getty, 2011). This was easy to understand, cooperative and exciting.

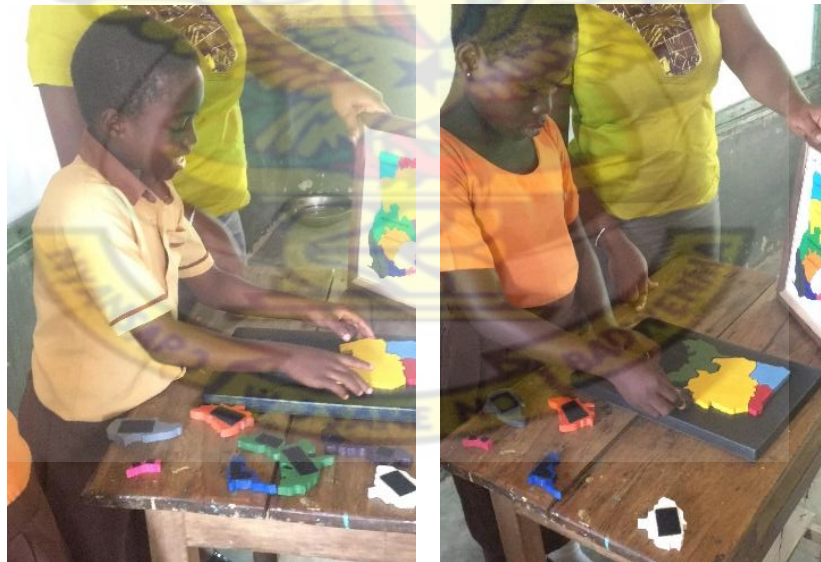


Plate 4.1a: Pupils arranging the irregular shapes of the regions of the Ghana Map



Secondly, she taught the pupils Basic Shapes using the developed Instructional Materials. She initially asked for their general idea about the shapes and then helped them out by demonstrating with the developed instructional materials. Shape is defined as flat, with height and width in an area of enclosed space that are two-dimensional whiles, this enabled and made it easy for the pupils to demonstrate their understanding on the Shapes which they were able to mention their names correctly as well as the number of sides or lines that come together to attain a particular shape.

The teacher also taught the students what forms were. She asked questions to generate an existing idea from the students on Forms. Forms are the three-dimensional version of the shape. They can be observed from diverse angles because they are not flat. They have height, width and depth (Madden, 2018). The pupils again realized the difference in the Shapes and the Forms. It was easy for the pupils to mention the kinds of shapes from the forms using the prototype instructional materials. They also came to understand putting together the shapes and forms to create an object in their previews lesson and this brought us to the realization that Elements of design are the building blocks of an art work whiles Principles of design is how the Elements of design are used in an art work. Therefore, this shows that the prototype instructional material was informative and helped to achieve the learning goals (Nikky, 2010).



Plate 4.1b: Teacher demonstrating with shapes



Plate 4.1c: Teacher demonstrating with forms

Teacher taught again using the Colour Puzzle. She asked the pupils to solve the puzzle by calling them randomly. The pupils were taught balance with the help of the pentagon shape made in a form of puzzle where all the sizes were similar to each other. The colours as well were able to hold the pupils' attention for a longer period of time. Getty (2011), supports the above claim that balance is the dispersion of the visual mass of objects, colours, textures, and space. In symmetrical balance, the elements are used on one side of the design; in asymmetrical balance, the sides are different but still balanced. In radial balance, the elements are organized around a central point and may be similar. Then again, a similar pattern being the triangle was repeated and joined in getting the pentagon shape (Plate 3.6g). This resulted in an exciting uproar which the pupils realized that after solving the colour puzzle, it generated into a pentagon shape. The shouts also called for the attention of pupils from other classes as they were curious to know the reason behind the shouting.



Plate 4.1d: Pupils solving the Colour Puzzle

It was realized that, as the teacher used the prototype Instructional Materials to explain the topic, grins and excitement could be seen through the expressions of nearly all pupils. Pupils were glad to come up and complete various activities with the Instructional Materials. As teacher begun asking questions, fingers shot up in the air even from pupils who were not earlier contributing in the class. Pupils who made mistakes in answering questions were helped by their peers and the teacher. The teacher summed it up by saying that the Instructional Materials made it easy for her to teach by not struggling with the topic as well as getting her pupils to understand what she was teaching. She also said that for the first time in the class her pupils are curious to know something hence, asked and answered lots of questions, especially, those who never took part in class activities. The teacher again commented that teaching with the Instructional Materials was fun, exciting and rekindled the curious nature of the pupils easily.

#### 4.5 Evaluation Phase

After teaching was done with the available instructional materials along with the teacher's own method of teaching and the developed Instructional Materials, the pupils did exercises such as arranging the Ghana Map, solving the Colour Puzzle correctly and answering questions on the Shapes and Forms that the teacher had the marks recorded. Evaluation is the gathering of, investigation and explanation of facts about any piece of an agenda in education or training as part of a known course of judging its usefulness, its effectiveness and any other results it may have (Crompton, 1999).

Therefore, the recorded marks presented the teacher and the researcher with the chance to measure the usefulness or otherwise, the involvement of the prototype instructional materials to find out whether the proposed learning objectives and instructional goals were attained for the selected topics. The summative evaluation type which involves judging the work by the researcher at the end of the whole instruction or course work was adopted to help evaluate the results of the impact of existing and prototype instructional materials.

**Table 4.1: Test results recorded at Bomso M/A Primary School**

Creative Arts topics (principles and elements of design)	Bomso M/A Primary School		Total (100%)
	Test scores of existing IMs	Test scores of developed IMs	
Irregular shapes for mosaic	4 (40%)	8 (80%)	10 (100%)
Basic shapes	8 (80%)	10 (100%)	10 (100%)
Forms	4 (40%)	7 (70%)	10 (100%)
Colour Puzzle	5 (50%)	9 (90%)	10 (100%)

**Fig 4.1: Comparison of Test Results on the effects of Existing and Developed Instructional Materials for Teaching Topics in Creative Arts**

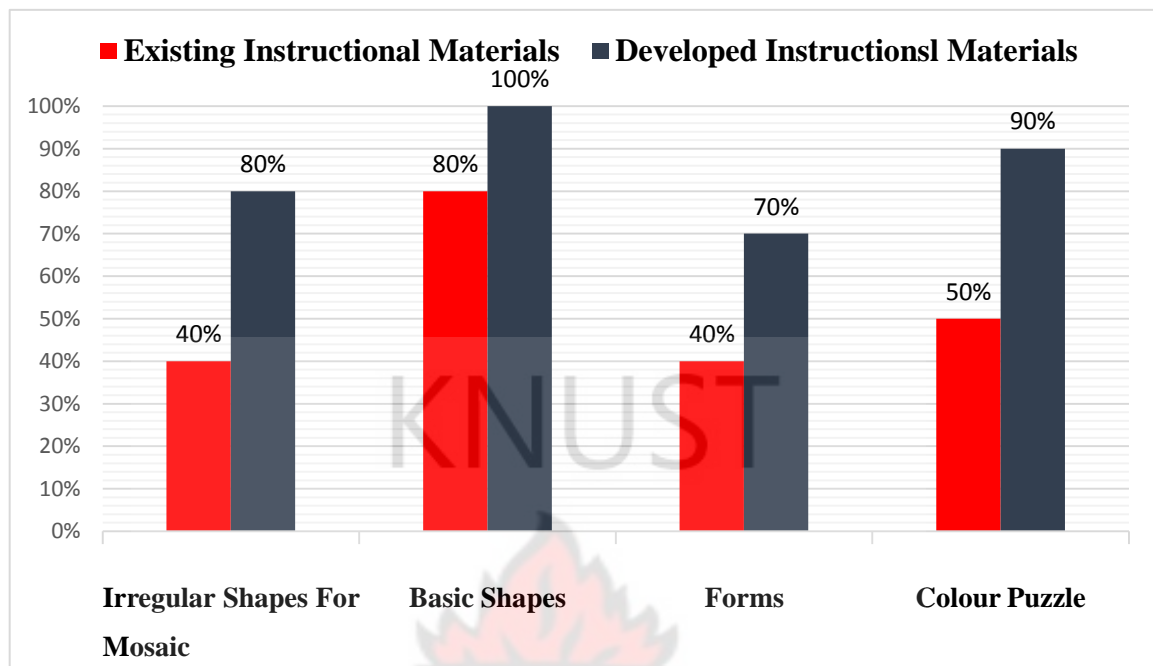


Figure 4.1 above was generated from the results in Table 4.1 and this explains the effects of existing and developed instructional materials on pupils' academic performance at Bomso M/A primary school. It was realized from the study that the developed instructional materials to teach 'Basic Shapes' in place of the existing instructional materials had the most impact on the academic performance of pupils at Bomso M/A Primary School with 100% of the pupils answering correctly from a previous record of 80%. It was then followed by 'Irregular Shapes' for Mosaic with 40%, pushing up to 80%. The margin for 'Colour Puzzle' increased by 90% using the developed instructional materials from the previous marks of 50% with the existing instructional materials while 'Forms' increased by 70% from a previous mark which was 40%.



The test scores above revealed that the use of the developed instructional materials enhanced pupils' academic performance in the difficult to teach topics thus principles and elements of design in Creative Arts at Bomso M/A primary school.

KNUST



## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Overview**

This unit establishes or talks about the summary, conclusions and recommendations of the main results of the study.

#### **5.2 Summary**

This research was aimed at recycling wood off-cuts to develop instructional materials for Creative Arts education at Bomso M/A Primary School in Kumasi, Ashanti Region. The research was steered by the objectives below, with the research questions in mind.

1. To identify and examine the types of instructional materials used for teaching and learning Creative Arts at Bomso M/A Primary School in Kumasi.
2. To recycle wood off-cuts as instructional materials for teaching and learning Creative Arts at Bomso M/A Primary School in Kumasi.
3. To test the recycled wood off-cut used as instructional materials for teaching Creative Arts and examine their effects on pupils' academic performance at Bomso M/A Primary School.

The study was steered by means of the qualitative research design which also implemented the descriptive and quasi-experimental method. The descriptive enabled the researcher to explain the existing instructional materials that was used by the teacher and the quasi-experimental method allowed the researcher to test the recycle wood off-cuts used as instructional materials for in-depth information with observation and interview as research instruments.

### 5.2.1 Main Findings

The study acknowledged charts, textbooks, a self-made object and illustrations made on the marker board as the instructional materials used for teaching and learning Creative Arts at Bomso M/A Primary School. The existing instructional materials were realized through this study as insufficient in terms of helping in the teaching and learning of Creative Arts. Therefore, this became challenging for the teacher to clearly explain the topics as required by the syllabus. Therefore, this failed to harness the spirit of interest, creativity and brain storming in the pupils as simply pointed out in the syllabus.

Again, class four pupils' attentiveness and responses during principle and elements of design under Creative Arts class sessions showed that they paid less attention which led to lack of understanding and interest in the subject. This is because of textbook approach and routine memorization of what has been taught them without any hands on-activity to help them to understand and keep in their memories. Thus, they accept what they have learnt without understanding them.

The readily available resource used was wood off-cuts which were recycled to develop Instructional Materials for teaching selected topics in Creative Arts. The developed Instructional Materials made was based on topics that were difficult to teach by the teacher, in Creative Arts. The developed instructional materials were tested with the help of the teacher using them as a demonstrating tool to identify the effects on teaching and learning of Creative Arts for upper primary pupils at Bomso M/A primary school. The finished work of instructional materials from wood off-cuts gave the wood remnant possible utility as a valuable resource for helping teach Creative Arts at the primary level of education through the invention of appropriate instructional materials.

The data gathered from the school helped in identifying the challenge to teach topics and using the ADDIE model of instructional system design, aided in recycling the wood off-cuts to develop the instructional materials. The recycled wood off-cuts used as Instructional Materials were tested by the teacher in the school.

After the test was conducted it was realized by the teacher that, the recycled wood off-cuts as Instructional Materials were simple to use, made teaching and learning easier and as well as a fun filled activity as a result of the excitement on the faces of the class four pupils. It also made it easy to communicate to the pupils because it caught their attention. Hence, those who did not take part in the class activities previously now got involved by responding to questions with appropriate answers to depict understanding of the topics.

The enthusiasm and eagerness displayed by pupils throughout the lessons with the recycled wood off-cuts used as instructional materials exhibited pupils interest and how ready they were to learn the Creative Arts subject if the required resources were available. This was so because pupils' hands were raised anytime there were questions asked using the demonstrating tool. This means that if suitable interventions are introduced in the classroom, it will help harness curiosity, critical thinking and interest of pupils towards the Creative Arts education in the primary school.

### **5.3 Conclusions**

Although the research was conducted in one school, it sends a message out there that Creative Arts education in Ghana is not communicative enough to bring out the desired qualities or creativity the syllabus plans in cultivating in pupils, especially, at the primary level. This is supported by Edward (2004) as cited in Ololubu (2015) that, instructional

materials are the resources the teacher hires to support him during verbal descriptions and a form of demonstration in the classroom.

Brobbey (2015), clearly states that, Creative Arts cannot be efficiently taught and learnt if there is inadequate teaching and learning materials that will facilitate the teaching and learning of its topics in the primary school. Therefore, textbook method of teaching only and the lack of hands-on activities during Creative Arts educations is slowly reducing pupils' interest in the subject. This allows the teacher the chance to skip topics that she sees to be difficult because the teacher does not have the know-how or any creative means of teaching the topics for the pupils to understand.

Our environment is endowed with lots of resources like wood off-cuts, some can be recycled to serve a new purpose such instructional materials to support teaching and learning. Unfortunately, they are neglected and allow to go to waste because of lack of technical know-how to be able to convert them into useful products again, especially, as Instructional Materials to be used for teaching in our primary schools. This will allow pupils to interact more in the Creative Arts subject. The research again identified that these waste materials in our environment, amongst which is the wood off-cut can be recycled to take care of the need of instructional materials in our primary schools to enhance teaching and learning, particularly, Creative Arts.

It can also be said that identifying and giving these wastes new life can serve as boost to teaching and learning. This means that using carefully designed Instructional Materials from these wastes in the classroom can encourage effective teaching to help young pupils



to obtain the specified knowledge and skills to enhance Creative Arts education in the Ghanaian primary school.

It can again be concluded that, the presence of suitable and communicating Instructional Materials allows pupils to involve themselves in hands-on activities in the classroom all through Creative Arts lessons. This can go a long way to recover the eagerness of primary school pupils in the Creative Arts topic and help teachers teach challenging topics to pupils for them to gain knowledge and skills in the subject. This would help pupils to achieve greater success academically.

Moreover, the study concluded on some issues that interrupted teaching and learning in the classroom. Amongst them is the arrangement of the charts that are fixed to classroom walls which hindered visibility, the background knowledge of the teacher to the subject material where he or she does not have any art background to teach the subject. Then again the teacher's method of teaching being more of lecturing whiles Creative Arts is an interactive subject and requires lecturing, discussion and demonstration. This deters a favourable environment for instruction and knowledge of the Creative Arts topic in the school.

#### **5.4 Recommendations**

The succeeding recommendations can help improve teaching and learning of Creative Arts in Ghanaian schools, specifically, at the Upper Primary level of the basic school in Ghana.

1. The Ghana Education Service should train teachers on the use of classroom instructions for effective teaching by holding workshops for the teachers and

involving qualified personnel responsible for training educators in various aspects of teaching to gather knowledge about the topics in Creative Arts education and how to teach them to pupils for better understanding.

2. The school authorities as well as the head teacher should encourage teachers to frequent the Teachers Resource Centre at Asem in Kumasi of the Ashanti Region to acquire knowledge and skills in developing simple Instructional Materials to enhance classroom instruction for difficult to teach topics to improve Creative Arts education at the primary schools.
3. The use of recyclable materials as a substitute for obtaining rudimentary Instructional Materials ought to be stimulated in schools particularly the primary level. Teachers can ask their pupils to bring available materials from which they can work along to produce basic Instructional Materials. This will increase the involvement of the pupils in classroom activity and also strengthen the teachers and pupils' relationship as they work together.
4. There should be practical acquisition of skills added to the subjects taught at the College of Education to help the teachers develop the knowledge and skills needed to plan and execute suitable Instructional Materials for classroom education.
5. Further research could be conducted on identifying recyclable wastes materials and possible utility as Instructional Materials to support teaching and learning of various subjects in our primary schools. This can serve as a means of curbing waste in our environment.
6. The Ghana Education Service (GES) can help teachers in developing teaching guides that can assist them in creating Instructional Materials out of their own understanding and abilities for operative teaching and learning of various

subjects in their classrooms through in-service training sessions with help of NGOs as well as qualified personnel's.

# KNUST



## REFERENCES

- Aguzeamegah, A. (2014). Developing Three-Dimensional Instructional Materials from Locally Available Resources for Science Education in Primary Schools. MPhil Thesis, KNUST, Kumasi, Ghana.
- Ampeh, G. K. (2011, pp.11-13). Developing Effective Strategies for teaching Creative Art in the Lower Primary Schools: A Case Study In Agona Swedru District Administration B School. Master's Thesis, KNUST, Kumasi, Ghana.
- Anini, F. (2011, p. 18). Design and Production of Materials Made with Leather for Pre-School Education. Master's Thesis, KNUST, Kumasi, Ghana.
- Azoska, S. (2008, March 18). File:Peace Pole, Kumasi, Ghana.jpg. Retrieved from Wikimedia Commons:  
[https://commons.wikimedia.org/wiki/File:Peace\\_Pole,\\_Kumasi,\\_Ghana.jpg](https://commons.wikimedia.org/wiki/File:Peace_Pole,_Kumasi,_Ghana.jpg).
- Barrett, S. (2017, March). Quasi-Experimental Methods. Retrieved from International Institute for Environmental Development (IIED):  
<http://pubs.iied.org/pdfs/17403IIED.pdf>.
- Bernie Trilling and Project Management Institute Educational Foundation. (2014). Project Management Skills & Project-Based Learning. Retrieved from Partnership for 21st Century Learning:  
<http://projectmanagement.p21.org/toolkit-skills/>.
- Boafo-Agyeman, R. (2010, p.37). Creative Arts In Crisis: Teaching And Learning of Creative Arts in selected public primary schools in Kumasi Metropolis. Master's Thesis, KNUST, Kumasi, Ghana.
- Brandenburg, R. and Wilson, J. Z. (2013). Pedagogies for the Future: Leading Quality Learning and Teaching in Higher Education. Springer Science & Business Media, 2013.

- Brobbey, D. A. (2015, December 02). Creative Art Education “A Must Have. Retrieved from modernghana.com: <https://www.modernghana.com/news/659311/creative-art-education-a-must-have.html>.
- Caulfield, K. (2009). Discussion Paper Sources of Textile Waste in Australia.
- Chaudhary, D. A. (2013). Theories in Teaching. International Journal for Research in Education, 82-84.
- Chen, S. (2016, July 16). The Importance of Creative Arts in Early Childhood Education. Retrieved from novakdjokovicfoundation.org: <https://novakdjokovicfoundation.org/importance-creative-arts-ece/>.
- Cherry, K. (2017, May 18). What is a Sample? Retrieved from Verywellmind.com: <https://www.verywellmind.com/what-is-a-sample-2795877>.
- Chopper, Z. (2010, October 29). Discussion Method of Teaching and Learning. Retrieved from Education is life itself so lets preserve it!: <http://zvavanhuchopper.blogspot.com/2010/10/discussion-method-of-teaching-and.html>.
- Clark, D. (2011, July 12). Visual, Auditory and Kinesthetic Learning Styles (VAK. Retrieved from Big dog and Little dog's performance juxtaposition: <http://www.nwlink.com/~donclark/hrd/styles/vakt.html>.
- Clark, D. (2015, January 12). Bloom's Taxonomy: The Psychomotor Domain. Retrieved from A Big Dog, Little Dog and Knowledge Jump: [http://www.nwlink.com/~donclark/hrd/Bloom/psychomotor\\_domain.html](http://www.nwlink.com/~donclark/hrd/Bloom/psychomotor_domain.html).
- Clark, D. (2015, July 27). Instructional System Design. Retrieved from Big dog and little dog perfomance juxtaposition: <http://www.nwlink.com/~donclark/hrd/sat1.html>.
- Crompton, P. (1999). Evaluation: A practical guide to methods. Retrieved 12 30, 2017, from <http://www.icbl.hw.ac.uk/ltdi/implementing-it/eval.htm>.



- Culatta, R. (2013). Instructional Design Models . Retrieved from [instructionaldesign.org: http://www.instructionaldesign.org/models/](http://www.instructionaldesign.org/models/).
- Dean, J. (2013). *Organising Learning in the Primary School Classroom*. (4th ed.). London and New York: Routledge.
- Deborah, L. and Voltz, M. J. (2018). *Connecting Teachers, Students, and Standards*. Retrieved from ASCD.org: <http://www.ascd.org/publications/books/109011/chapters/Supporting-the-Classroom-with-Materials-for-Instruction.aspx>.
- Dudhagundi, D. (2016, August 29). Instructional Design Model – What is it & Why Use it? Retrieved from [commlabindia.com: https://blog.commlabindia.com/elearning-design/what-is-instructional-design-model](https://blog.commlabindia.com/elearning-design/what-is-instructional-design-model).
- Ebert II, S.E, Ebert, C. and Bentley, L. M. (2011, November 18). *Methods of Teaching in the Classroom*. Retrieved from Education.com, Inc: <https://www.education.com/reference/article/methods-teaching-classroom/>.
- Eison, P. J. (March 2010). *Using Active Learning Instructional Strategies to create excitement and enhance learning*. 4202 East Fowler.
- Etikan, I., Musa, S. A. and Alkassim, R. S. (2015). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, 1.
- Eschooltoday. (2008-2015). *What is Recycling?* Retrieved from [eschooltoday.com: http://www.eschooltoday.com/waste-recycling/what-is-recycling.html](http://www.eschooltoday.com/waste-recycling/what-is-recycling.html).
- Etor, C.R., Mbon, U. F. and Ekpenyong, E. E. (2013). *Primary Education as a Foundation for Qualitative Higher Education in Nigeria*. *Journal of Education and Learning*.
- European Commission Directorate-general Environment. (2012). *Waste Prevention – Handbook: Guidelines on Waste prevention programmes*.

- Evaluation Briefs. (2008). Data Collection Methods for Program Evaluation: Observation. Retrieved from Department of Health and Human Services: <https://www.cdc.gov/healthyyouth/evaluation/pdf/brief16.pdf>.
- Farooq, U. (2013). Educational Evaluation, Definition & Concept of Educational Evaluation. Retrieved June 02, 2013, from <http://www.studylecturenotes.com/social-sciences/education/415-educational-evaluation-definition-a-concept-of-educational-evaluation>.
- Fleming, G. (2017, July 15). Learning Styles - Visual, Auditory, and Tactile. Retrieved from ThoughtCo.: <https://www.thoughtco.com/knowning-your-learning-style-1857098>.
- Friends of the Earth. (2008, September). Recycling. Retrieved from no-burn.org: [http://www.no-burn.org/wp-content/uploads/FoE\\_recycling.pdf](http://www.no-burn.org/wp-content/uploads/FoE_recycling.pdf).
- Friedman. (n.d.). Type of Learners. Retrieved from lyceumbooks.com: [http://lyceumbooks.com/pdf/howtoteacheffectively\\_typesoflearners.pdf](http://lyceumbooks.com/pdf/howtoteacheffectively_typesoflearners.pdf).
- Galper, C. S. (2010, July 20). Experience and Education, Firsthand Experience. Retrieved from education.com.inc: <https://www.education.com/reference/article/experience-education-firsthand/>.
- Getty, J. P. (2011). Principles Of Design. Retrieved from The J. Paul Getty Meseum: [https://www.getty.edu/education/teachers/building\\_lessons/principles\\_design.pdf](https://www.getty.edu/education/teachers/building_lessons/principles_design.pdf)
- Gill, P. and Stewart, K. (2008, March 22). Methods of data collection in qualitative research: interviews and focus groups. Retrieved from British Dental Journal: <https://www.nature.com/articles/bdj.2008.192>.
- GISTAREA. (2013, July 25). Instructional Materials in Teaching – Uses, Learning and Importance. Retrieved from gistarea.com: <http://www.gistarea.com/instructional-materials-teaching-examples-importance/>.
- Glover, I. (2014, July 04). Role-play: An Approach to Teaching and Learning. Retrieved from Technology Enhanced Learning at SHU:

[https://blogs.shu.ac.uk/shutel/2014/07/04/role-play-an-approach-to-teaching-and-learning/?doing\\_wp\\_cron=1509031878.6150770187377929687500](https://blogs.shu.ac.uk/shutel/2014/07/04/role-play-an-approach-to-teaching-and-learning/?doing_wp_cron=1509031878.6150770187377929687500).

Godwin, T. (2016, April 21). ADDIE Model (Instructional Design). Retrieved from TomGodwin.co.uk: <http://www.tomgodwin.co.uk/blog/blog/addie-model-instructional-design/>.

Goodfriend, W. (2003-2017). What is Learning? - Understanding Effective Classroom Strategies. Retrieved from Study.com: <http://study.com/academy/lesson/what-is-learning-understanding-effective-classroom-strategies.html>.

Gratton, C. and Jones, I. (2004, p.100). Research Methods for Sport Studies. Psychology Press, 2004.

Hancock, B., Okleford, E. and Windrige, K. (2009, p.6). An Introduction to Qualitative Research. The NIHR Research Design Service for Yorkshire & the Humber.

Hartung, R. (April 2014). Active Learning: Producing Enthusiasm in the classroom. Journal on Best Teaching Practices, 17-18.

Haury, D. L.-M. (1998, December). Choosing Instructional Materials for Environmental Education. Retrieved from ericdigests.org: <https://www.ericdigests.org/2000-2/materials.htm>.

Huitt, W. G. (2011). Bloom et al.'s Taxonomy of the Cognitive Domain. Retrieved from edpsycinteractive.or: <http://www.edpsycinteractive.org/topics/cognition/bloom.html>.

Janovsky, A. (2003-2017). Instructional Materials: Definition, Examples & Evaluation. Retrieved from Study.com: <http://study.com/academy/lesson/instructional-materials-definition-examples-evaluation.html>.

Jeen, P. (2010-2011). Theories of Teaching. Retrieved from Slideshare.net: <https://www.slideshare.net/competents2011/teaching-theories-6823315>.

- Jensen, D. E. (2011, November 23). Sampling and Generalisability. Retrieved from The Practice of Social Research:  
[https://warwick.ac.uk/fac/cross\\_fac/esrcdtc/coretrainingmodules/ird/dtc\\_psr\\_wk\\_8\\_pp\\_sampling\\_and\\_generalisability\\_23.11.2011\\_-\\_handout.pdf](https://warwick.ac.uk/fac/cross_fac/esrcdtc/coretrainingmodules/ird/dtc_psr_wk_8_pp_sampling_and_generalisability_23.11.2011_-_handout.pdf).
- Jesson, J. (2012). Developing Creativity in the Primary School (Illustrated ed.). McGraw-Hill Education (UK).
- Jimoh, M. F. (2009, March 16). The use of Instructional materials in Social Studies Instructions . Retrieved from blogspot.com:  
<http://wwwjimoh4bunuland.blogspot.com/2009/03/use-of-instructional-materials-in.html>.
- Johnson, R. W. (2008). Observation. Retrieved from Qualitative Research Guidelines Project: <http://www.qualres.org/HomeObse-3594.html>.
- Jupp, V. (2006). Definition of Population . In V. Jupp, The SAGE Dictionary of Social Research Methods (p. 270). Sage 2006.
- Knight, P. (2014, February 21). To know clearly about the population. Retrieved from Cross Validation: <https://stats.stackexchange.com/questions/87401/to-know-clearly-about-the-population>.
- Kothari, C. R. (2004, 1990, 1985). Research Methodology (Methods and Techniques). New Delhi: New Age International Publishers.
- Kowalczyk, D. (2003-2018). Descriptive Research. Retrieved from study.com:  
<https://study.com/academy/lesson/descriptive-research-design-definition-examples-types.html>.
- Kumar, V. (2014, January 24). Interview Method in Research. Retrieved from in slideshare: <https://www.slideshare.net/VinayKumar49/interview-method-in-research>.
- Latham, B. (2007, March 08). Sampling: What is it? . Retrieved from Quantitative Research Methods:

[http://webpages.acs.ttu.edu/rlatham/Coursework/5377\(Quant\)\)/Sampling\\_Methodology\\_Paper.pdf](http://webpages.acs.ttu.edu/rlatham/Coursework/5377(Quant))/Sampling_Methodology_Paper.pdf).

Lavrakas, J. P. and Cox, B. G. (2008). Target Population in Encyclopedia of Survey Research Methods . Sage Publications.

Lee, M. (2014). Difference between Research Design and Research Methods . Retrieved from ehow.com: [http://www.ehow.com/facts\\_7329595\\_difference-research-design-research-method.html](http://www.ehow.com/facts_7329595_difference-research-design-research-method.html).

Mabille, J. (2017). Classifications of Waste Products. Retrieved from Health Guidance: <http://www.healthguidance.org/entry/13088/1/Classifications-of-Waste-Products.html>.

Madden, A. ( 2003-2018). What are the Seven Elements of Art? - Definition & Examples. Retrieved from Study.com: <https://study.com/academy/lesson/what-are-the-seven-elements-of-art-definition-examples.html>.

Magu, A. A. (2014). Creative Art in the National Curriculum. Maldives.

Mangal, S.K. and Shubhra, M. (2013). Descriptive Research. In Mangal, S.K Research Methodology in Behavioural Science, (pp. 69-70). PHI Learning Pvt. Ltd., 2013.

Martin, D. S. (2003). Cognition, Education, and Deafness: Directions for Research and Instruction. Gallaudet University Press, 2003.

McLeod, S. (2007). Cognitive Psychology. Retrieved from Simply Psychology: <https://www.simplypsychology.org/cognitive.html>.

McLeod, S. (2017). Kolb - Learning Styles. Retrieved from Simply Psychology: <https://www.simplypsychology.org/learning-kolb.html>.

Ministry of Education. (2016, August 08). Why are Teaching Aids important? Retrieved from educationgy.org: <http://educationgy.org/web/index.php/teachers/tips-for-teaching/item/2143-why-are-teaching-aids-important>.



- Ministry of Education. (2007, September 05). Teaching Syllabus of Creative Arts.  
Retrieved from [ibe.unesco.org](http://ibe.unesco.org):  
[http://www.ibe.unesco.org/curricula/ghana/gh\\_lpr\\_ar\\_2007\\_eng.pdf](http://www.ibe.unesco.org/curricula/ghana/gh_lpr_ar_2007_eng.pdf).
- Molly Zhou, D. B. (2014). Educational Learning theories. Georgia.
- Morgan, P. J. (2011, July 20). Instructional Design Theory for learning Objectives.  
Retrieved from Thoughts on Libraries and Library Related Stuff:  
<https://pamelajmorgan.org/2011/07/20/instructional-design-theory-for-los-addie/>.
- Morrison, R. G., Ross, M. S, Kemp, E. J. and Kalman, H. (2010 ). *Designing Effective Instruction*. John Wiley & Sons, 2010.
- Moyles, J. R. (1992). *Organizing for Learning in the Primary Classroom: A Balance Approach to Classroom Management*. McGraw-Hill Education.
- Mpianing, H. M. (2017, June 09). Availability of Instructional Materials. (R. Wiafe, Interviewer).
- Nakano, C. (2016, April 29). The Four Different Types of Learners, and What they mean to your Presentations [Infographic]. Retrieved from Prezi Blog:  
<https://blog.prezi.com/the-four-different-types-of-learners-and-what-they-mean-to-your-presentations-infographic/>.
- Neha, K. (2013, April). Theories of Teaching. Retrieved from Hiddenstars2012-13:  
<http://medpondi88.blogspot.com/2013/04/theories-of-teachingkumari-neha.html>.
- Newby, P. A. (2013). Behaviorism, Cognitivism, Constructivism: Comparing Critical Features From an Instructional Design Prespective. *Performance Improvement Quarterly*, 44-71.
- Nikhil, M. (2009, November 22). Observation. Retrieved from Mass Communication Tutorials and lessons: <http://mass-communication-tutorials.blogspot.com/2009/11/observation-method-tool-of-primary-data.html>.

- Nikky, S. (2010, July 14). Teaching Aids, Their Characteristics, Advantages , and How and Where to use Teaching Aids. Retrieved from India Study Channel:  
<http://www.indiastudychannel.com/resources/120369-Teaching-Aids-Their-Characteristics-Advantages-And-How-And-Where-To-Use-Teaching-Aids.aspx>.
- Norman K. D. and Lincoln, Y. S. (2011, pp. 2-4). The SAGE Handbook of Qualitative Research. SAGE, 2011.
- Oduro, A. D. (2000, November). Basic Education in Ghana in the Post-Reform Period. Retrieved November 2000, From  
<https://cepa.org.gh/researchpapers/BASIC%20EDUCATION%20IN%20GHANA%20IN%20THE%20POST1.pdf>.
- Ololube, N. P. (2015). Handbook of Research on Enhancing Teacher Education with Advanced Instructional Technologies. (p. 149). Chocolate Avenue Hershey PA. : IGI Global, 2015.
- Olumorin, C. O. (. A. (2012). Development of Instructional Materials from our Local Resource for Art Based Courses. Retrieved from academia.edu:  
[http://www.academia.edu/23405383/development\\_of\\_instructional\\_materials\\_from\\_local\\_resources\\_for\\_art\\_based\\_courses](http://www.academia.edu/23405383/development_of_instructional_materials_from_local_resources_for_art_based_courses).
- Oosthoek, K. (2011, 02 19). The Role of Wood in World History. Retrieved from Environmental History Resource: <http://realneo.us/content/environmental-history-resources-role-wood-world-history>.
- Ospina, S. (2003). Qualitative Research. Encyclopedia of Leadership, 1.
- Owen, E. T. (2002). Descriptive Research and Qualitative Research. in Owen E. T., Introduction to Nutrition and Health Research (2000, p. 219). © Kluwer Academic Publishers 2000. Retrieved from Springer Link:  
[https://link.springer.com/chapter/10.1007/978-1-4615-1401-5\\_12](https://link.springer.com/chapter/10.1007/978-1-4615-1401-5_12).
- Owusu, S. K. (2009). Instructional Media as a Tool For Ensuring Quality Teaching And Learning For Pupils In The Junior High Schools (Selected Schools In The Kumasi Metropolis). Master's Thesis, KNUST, Kumasi, Ghana.

- Parque, C. (2017). Aims and specific objectives for primary education. Retrieved from Colgie Parque :<http://www.colegioparque.com/index.php/en/educational-project/educational-project/objectives/primary-objectives/item/460-finalidades-y-objetivos-espec%C3%ADficos-para-educaci%C3%B3n-primaria>.
- Partnership, G. S. (2015, December 08). Curriculum. Retrieved from The Glossary of Education Reform: <http://edglossary.org/curriculum>.
- Ranjani, R. (2011, 10 26). What is the definition of Teaching? Retrieved from india study channel: <http://www.indiastudychannel.com/forum/79268-What-definition-Teaching.aspx>.
- Renard, L. (2017). The differences between formative and summative assessment - Infographic. Retrieved April 14, 2017, from <https://www.bookwidgets.com/blog/2017/04/the-differences-between-formative-and-summative-assessment-infographic>.
- Ryder, M. (2006, April 27). Martin Ryder's instructional design models. Retrieved from learningonlineinfo.org: <https://learningonlineinfo.org/martin-ryders-instructional-design-models/>.
- Sakyi, D. K. (2015, July 06). The Challenges of Ghana's Educational System – Some Reflections. GhanawebTV.
- Shuttleworth, M. (2008-2014). Descriptive Reaserch Design. Retrieved from Explorable.com: <https://explorable.com/descriptive-research-design>.
- Sincero, S. M. (2011, March 11). Cognitive Learning Theory. Retrieved from Explorable.com: <https://explorable.com/cognitive-learning-theory>.
- SKMrecycling. (2016). What is Recycling? Retrieved from skmrecycling.com: <http://www.skmrecycling.com/education/what-is-recycling.html>.
- Smith, M. K. (2016). What is teaching? A definition and discussion. Retrieved from infed.org: <http://infed.org/mobi/what-is-teaching/#definition>.

- Teach make a Difference. (2017). Teaching methods. Retrieved from Teach.com:  
<https://teach.com/what/teachers-teach/teaching-methods/>
- University of Birmingham, . (n.d.). Learning theories, stages and styles. Retrieved from Enquiry-Based Learning:  
<https://intranet.birmingham.ac.uk/as/cladls/edudev/documents/public/eb1/journey/learning-theories.pdf>.
- University, C. (2017, October 18). Active Learning. Retrieved from Center for Teaching Innovation: <https://www.cte.cornell.edu/teaching-ideas/engaging-students/active-learning.html>.
- Victoria, W. (2003). Non- Hazardous Waste and Recyclable Materials.
- Vladimir Russo, H. L.-S. (2006). Development, Adaptation and the use of Learning Support Materials In support of environmental education processes. SADC Regional Environmental Education Programme, Howick, Republic of South Africa Share Net.
- Waste Management of Australia. (2009). Guidelines for Managing Workplace Health and Safety within the Waste Management and Recycling Industries in Western Australia.
- Waste. (n.d.). Types of Waste. Retrieved from sites.google.com:  
<https://sites.google.com/a/mtholyoke.edu/waste/waste/types-of-waste>.
- Wikipedia. (2017, September 19). Education in Ghana. Retrieved from wikipedia .org:  
[https://en.wikipedia.org/wiki/Education\\_in\\_Ghana](https://en.wikipedia.org/wiki/Education_in_Ghana).
- Wikipedia. (2017, July 25). Waste. Retrieved from wikipedia.org:  
<https://en.wikipedia.org/wiki/Waste>.
- Wikipedia. (2017, May 29). Wood. Retrieved from Wikipedia.org:  
<https://en.wikipedia.org/wiki/Wood>.

- Wikipedia. (2018, January 18). Sampling (Statistics). Retrieved from Wikipedia.org:  
[https://en.wikipedia.org/wiki/Sampling\\_\(statistics\)](https://en.wikipedia.org/wiki/Sampling_(statistics)).
- Wikipedia, E. (2017, September 12). Learning theories (education). Retrieved from  
wikipedia.en.org: [https://en.wikipedia.org/wiki/Learning\\_theory\\_\(education\)](https://en.wikipedia.org/wiki/Learning_theory_(education)).
- William M.K. Trochim. (2006, October 20). Sampling. Retrieved from Web Centre for  
Social Research Methods:  
<https://www.socialresearchmethods.net/kb/sampling.php>.
- Wilson, G. (2015, April 30). How Edgar Dale's "Cone of Experience" optimizes content  
diversification. Retrieved from Linked in: [https://www.linkedin.com/pulse/how-  
edgar-dales-cone-experience-optimizes-content-gabriela-wilson](https://www.linkedin.com/pulse/how-edgar-dales-cone-experience-optimizes-content-gabriela-wilson).
- Woods, C. R. (1979). The Concept of Learning and Education. Maynooth.
- Yeboah, A. A. (2014). Design and Development of Manipulatives for Mathematics  
Education in Selected Primary Schools in the Kumasi Metropolis. MPhil Thesis,  
KNUST, Kumasi, Ghana.
- Yeboah, D. R. (2016). Developing instructional resources from selected recycled  
materials for art education. Master's Thesis, KNUST, Kumasi Ghana.
- Yeboah, R. and Opoku-Asare N. A. (2013). Hand Papermaking with Waste Fabrics and  
Paper Mulberry Fibre . Online International Journal of Arts and Humanities ,  
2(3), 71-82.



## **APPENDICES**

### **APPENDIX A**

#### **INTERVIEW GUIDE FOR TEACHERS ON RECYCLING WOOD OFF-CUTS TO DEVELOP INSTRUCTIONAL MATERIALS FOR CREATIVE ARTS EDUCATION AT BOMSO M/A PRIMARY SCHOOL IN KUMASI**

##### **PART I (a): INFORMATION ON THE SCHOOL**

Name of School: .....

Location of School: .....

Category of School: (a) Government [ ] (b) Private [ ]

##### **TEACHER'S BACKGROUND INFORMATION**

i) Gender: (a) Male [ ] (b) Female [ ]

ii) Age: (a) Below 30 [ ] (b) Between 31 and 40 years [ ]

(c) Between 41 and 50 years [ ] (c) Between 51 and 60 years [ ]

(d) Between 61 and above [ ]

iii) Teacher's Qualification: (a) GCE "O" Levels [ ] (b) GCE "A" Levels [ ]

(c) Higher National Diploma (HND) [ ] (d) Diploma in Basic Education (DBE) [ ] (e)

Bachelor Degree [ ] (f) Post-Graduate Degree [ ]

If others, please specify. ....

iv) Years of teaching experience:

(a) Between 1 and 5years [ ] (b) Between 6 and 10years [ ]

(c) Between 11 and 15years [ ] (d) 16years and above [ ]

v) Years of teaching at the Lower Primary School:

(a) Between 1 and 5years [ ] (b) Between 6 and 10years [ ]

(c) Between 11 and 15years [ ] (d) 16years and above [ ]

**PART I (b): INFORMATION ON TEACHING AND LEARNING OF CREATIVE ARTS IN THE SELECTED SCHOOL**

1. (i) In which class do you teach Creative Arts in the Primary school?

(a) Primary One [ ] (b) Primary Two [ ] (c) Primary Three [ ]

1. (ii) How many pupils are in your classroom?

2. In teaching Creative Arts, what teaching methods do you use?

(a) Lecture Method [ ] (b) Discussion Method [ ]

(c) Field trip Method [ ] (d) Demonstration [ ]

☐ If others, please specify .....

3. Do you know Instructional Materials (IMs)? (a) Yes [ ] (b) No [ ]

4. Who provides IMs for your classroom for teaching Creative Arts?

(a) I create them by myself

(b) Government/school provides them to me

(c) From philanthropist/NGOs

If others, please specify

.....

5. a. Are the required IMs available for use in the classroom? (a) Yes (b) No

i. If Yes to Question 5, do you use the IMs in teaching your lessons? (a) Yes [ ] (b) No [ ]

ii. If Yes to above question, which type(s) of IMs do you employ for teaching Creative Arts to pupils?

(a) Foreign made (b) Locally made (c) Both

b. If **No** to Question 5, what alternatives do you employ to use as IMs for teaching Creative Arts? .....

6. What materials are the IMs that you use in your class made of? .....

(a) Paper (b) Fabrics (c) Wood (d) All

7. Do the available IMs pose any danger to pupils in the classroom during teaching and learning sessions? (a) YES [ ] (b) NO [ ]

If yes to Question 7, what is the nature of the threat to pupils? (a) Cuts (b) Bruise (c) if others please specify.....

8. i) Are the available IMs used appropriate for teaching Creative Arts at the primary School? (a) Yes (b) No

ii) Please state the reason(s) for your answer .....

9. What IMs are available for pupils to learn privately or on their own?

.....

10. How do pupils in your class respond to the teaching of Creative Arts with IMs?

(a) Pupils participate in class [ ] (b) Pupils answer questions correctly [ ]

(c) Pupils demonstrate understanding [ ] (d) Pupils pay attention [ ]

(e) Pupils fidget in the classroom [ ] (f) Pupils sleep in the classroom [ ]

(i) Please specify if others .....

12. Please kindly state why you think the above reason holds. ....

13. How do you sustain pupils' interest or get their attention in the classroom in the absence of IMs? .....

14. a. Can you state topics which are difficult to teach in absence of IMs?

.....

b. Please give your reason(s) for the above answer. ....

15. a. Are there other topics that are difficult to teach even with the use of IMs?

.....

b. Please give your reason(s) for the above answer. ....

Thank You.

## **APPENDIX B**

### **INTERVIEW GUIDE FOR HEADTEACHERS ON RECYCLING WOOD OFF-CUTS TO DEVELOP INSTRUCTIONAL MATERIALS FOR CREATIVE ARTS EDUCATION AT BOMSO M/A PRIMARY SCHOOL IN KUMASI**

#### **PART I (a): INFORMATION ON THE SCHOOL**

Name of School: .....

Location of School: .....

Category of School: (a) Government ☐ (b) Private ☐

#### **HEADTEACHER'S BACKGROUND INFORMATION**

i) Gender: (a) Male ☐ (b) Female ☐

ii) Age: (a) Between 28 and 38years ☐ (b) Between 39 and 49years ☐

(c) Between 50 and 58years ☐ (d) Between 59 and above ☐

1. As a public school, how is the teaching and learning of Creative Arts administered in your school? .....

2. How do you recruit your Creative Art teachers .....

What are the qualifications required? (a) GCE "O" Levels ☐ (b) GCE "A" Levels ☐

(c) Higher National Diploma (HND) ☐ (d) Diploma in Basic Education (DBE) ☐

(e) Bachelor Degree ☐ (f) Post-Graduate Degree ☐

If others, please specify. ....

4. Do you employ Instructional Materials for the school's Creative Arts programme? Yes  
☐ No ☐

5. What type(s) of IMs do you use for teaching Creative Arts at the school?

..... (a) Graphs (b) Charts (c) Books (d) Pictures (e)

Printed Materials

6. How does the school get its IMs? .....

(d) Locally Produced

(e) Government/school provides them to me

(f) From philanthropist/NGOs

7. How often are these IMs acquired? ..... (a)

Weekly (b) Monthly (c) Yearly

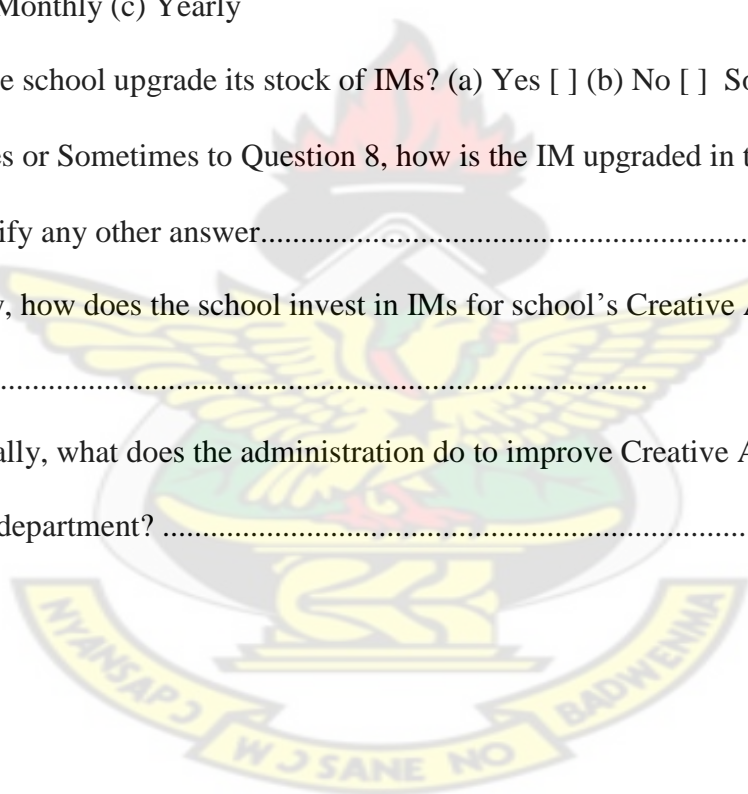
8. a. Does the school upgrade its stock of IMs? (a) Yes [ ] (b) No [ ] Sometimes [ ]

- If Yes or Sometimes to Question 8, how is the IM upgraded in the school?
- Specify any other answer.....

9. Averagely, how does the school invest in IMs for school's Creative Arts programme?

.....

10. Specifically, what does the administration do to improve Creative Arts education in the primary department? .....





## APPENDIX C

### OBSERVATION CHECKLIST I FOR RECYCLING WOOD OFF-CUTS TO DEVELOP INSTRUCTIONAL MATERIALS FOR CREATIVE ARTS EDUCATION AT BOMSO M/A PRIMARY SCHOOL IN KUMASI

Name of School: .....

Location of School: .....

Class: ..... No. On roll: ..... Date: .....

#### Steps for Observing the Teaching of Creative Art

1. Topic being taught. ....

2. Objectives of the topic. ....

3. Teaching strategy being used by the teacher.....

4. IMs employed for the lesson. ....

5. Types of IMs being used.

(a) Self - made (b) Foreign made (c) Locally made by visual experts

6. Materials used for the IMs. .... (a) Paper

(b) Fabric (c) Wood (d) All

- Do they pose danger to pupils?

- What kind of danger do the available IMs pose to pupils?

7. IMs relate to the topic being taught. i) Yes [ ] ii) No [ ]

8. Incorporation of the IMs into Creative Art lesson by teacher. ....

9. Pupils' response to the IM. ....

10. IMs seem to promote understanding. i) Yes [ ] ii) No [ ]

11. IMs engage pupils in the class. (a) discussion (b) understanding of the topic

(c) Demonstration (d) if others please specify

.....

12. IMs distract pupils during lesson. i) Yes [ ] ii) No [ ]

13. Lesson was finished within allotted time. i) Yes [ ] ii) No [ ]

14. Form of assessment given to students. ....

KNUST



## **APPENDIX D**

### **OBSERVATION CHECKLIST II FOR RECYCLING WOOD OFF-CUTS TO DEVELOP INSTRUCTIONAL MATERIALS FOR CREATIVE ARTS EDUCATION AT BOMSO M/A PRIMARY SCHOOL IN KUMASI**

#### **Characteristics of Good Teaching**

1. Do teachers make sure that pupils understand Creative Art concepts taught?
2. Are teachers skilled in using the available IMs?
3. Are Creative Art teachers always resourceful?
4. Do teachers assist pupils when teaching Creative Art?
5. Do Creative Art teachers boost pupils' interest by inspiring them?

#### **Teaching Strategies Adopted**

6. Are different methods of teaching combined to teach Creative Art?
7. Are the teaching methods suitable for the topic?
8. Is Creative Art taught using a hands-on activity?
9. Are teaching methods employed pupil-centered?

#### **Pupils' Response to use of IMs in the Primary School**

10. Are pupils interested in Creative Art lessons?.....
11. Are pupils encouraged to learn Creative Art? .....
12. Do pupils exhibit enthusiasm for Creative Art? .....
13. Are pupils attentive during the Creative Art lessons? .....
14. Do pupils demonstrate comprehension of topics taught in Creative Art without IMs?

.....  
15. Are topics taught with IMs understood by pupils? .....

16. Do pupils answer correctly questions asked in class during Creative Art lessons?

KNUST

