DEVELOPING AN INSTRUCTIONAL MEDIA (DIGITAL VIDEO) FOR TEACHING SCREEN PRINTING IN SENIOR HIGH SCHOOLS AND COLLEGES

By

Gilbert Sudah Agbavor (BA Publishing Studies)

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DECLARATION

I hereby declare that this submission is my own work towards the MA 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 for references.

Gilbert Sudah Agbavor PG3312209 .... 10/11/11

Student,s Name & ID. No   Signature   Date

Certified by:

Dr. Patrick Osei-Poku 10/11/11

(Supervisor)   Signature   Date

Certified by:

Nana Afia Opoku – Asare Mrs 10/11/2011

(Head of Department)   Signature   Date

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ABSTRACT

The education system is fundamental in encouraging people to develop commercial awareness but our schools do little to nourish these skills. (Gavron *et al.,* 1998). Visual Arts for Secondary schools was introduced into Ghana's educational curriculum in 1987, to promote culture, increase education, equip the learners with employable skills and to meet the commercial and industrial demands of art in the country. However, virtually all students and teachers are deprived of effective teaching and learning due to inadequate facilities such as a well furnished Art Studio, reading materials on the courses in Visual Art Department, computers, projectors and video cameras. Other challenges include lack of access to current technological information and upgrading; and lack of entrepreneurial skills to become self – employed. As a result, most of the Senior High School graduates who are assumed to have secured knowledge and skills to become self employed largely continue to roam the streets, aimlessly and hence become a burden to the society. Sometimes, those whose expectations of acquiring skills are not met in the classroom, have themselves enrolled as apprentices to the wayside artists. As laudable as this is, Ng'ethe & Ndua (1992) observed "With the present system of apprenticeship, masters teach their apprentices the way that they were taught and there has been little infusion of new technology and new designs". Thus, masters mostly pass on their skills and knowledge to apprentices, but rarely create new knowledge. Because most of them (masters) lack formal education, and this limits the theoretical base of apprentices and impacts negatively on productivity. It is upon this that the researcher had adopted an Action Research Method to solve some of the identified problems and also to "Plan and deliver a Project on the Practical way of Teaching Screen Printing using video. This Video when developed will not only strengthen the traditional methods of teaching and significantly improve productivity, but the theoretical base of both students and their

teachers and offer continuing education to the latter to upgrade their knowledge and skills in order to offer students' better training to become self employed. It will enhance retention of concepts and transfer of skills and knowledge, thereby helping the students to visualize the lessons easily. It can be used at workshops, seminars and tutorials to support learning through examples and visual elaboration. Having gathered substantial amount of data through observation, questionnaire and interview, it became evident that the availability of the above stated facilities, to a great extent, determines the students' skills acquisition and academic achievement. However, it was observed that there was neither GES- recommended text books or other course - books on Graphic Design in the school libraries. As a result, teachers had no choice but to depend only on the syllabus and other materials for the teaching of the subject. This has affected the teaching and learning of the subject a great deal. Also there was the absence of Art Studio where the students would execute their practical work. Since, the acquisition of skills has been identified by the President of Ghana as a way of sustaining the socio-political stability of the nation, he must plan and focus on Technical and Vocational Education and Training (TVET) at post JSS level within the formal and informal sectors so that the teaming unemployed youth will have an opportunity to acquire skills for livelihood and to enhance their chances on the labour market (Kwarteng 2006).

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CHAPTER ONE

INTRODUCTION

1.1: BACKGROUND TO THE STUDY

Visual Arts was introduced into Ghana's educational curriculum to promote our culture, increase education, equip learners with employable skills and to meet the commercial and industrial demands of art in the country. The course covers subject areas in Ceramics, Metalwork, Leatherwork, Textiles, Graphic Design, Bead - making, Calabash Art and Wood Work which are supposed to be practically oriented.

Apart from achieving some of the aims stated above, it has been that the programme continues to encounter problems when it comes to equipping the learners with employable skills in meeting the demands of both commercial and industrial art in the country. Some of the courses, especially the Graphic Design are still treated as theory subject in many cases and fail to achieve the philosophical bases of their introduction. As a result, most of the Senior High School graduates who were assumed to have secured knowledge and skills to make them self - employed largely continue to roam the street, aimlessly and hence become a burden to society.

Sometimes, those whose expectations of acquiring skills are not met in the classroom, have themselves enrolled as apprentices to the wayside artist. Laudable as this idea is, Ng'ethe & Ndua (1992) observed, "With the present system of apprenticeship, masters teach their apprentices the way that they were taught and there has been little infusion of new technology and new designs". Thus, masters mostly pass on their skills and knowledge to apprentices, but rarely create new knowledge. Most of them (masters) however lack formal education; this limits the theoretical base of apprentices, and impacts negatively on productivity.

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This study therefore aims at examining the existing tools, teaching and learning materials in the Graphic Design department of the Dzodze- Penyi Senior High School (SHS) and also to develop practical ways of teaching Screen Printing using video.

1.2: STATEMENT OF THE PROBLEM

The Visual Arts programme in the SHSs is designed in such a way that students will become self- employed after graduation. However, there is the speculation that most of the students who study graphic design, do not acquire the necessary skills to enable them set up their own small scale industry.

The unfortunate situation is that those who have the opportunity to further their education do not come back to the teaching field, thereby leaving the teaching of the subject in the hands of the few ones who know the subject matter and those sympathizers who did ceramics, textiles and sculpture, to mention a few, to teach the subject.

Moreover, there is the non-availability of instructional and other teaching and learning materials and facilities such as darkroom, light box and well organized art studios for effective teaching and learning of the screen printing.

It is upon the above assertions that the researcher decided to develop an instructional media (digital video) to enhance effective teaching and learning of Screen Printing.

1.3: OBJECTIVES OF THE RESEARCH

The researcher's objectives are:

1. To identify the tools and materials necessary for developing video for screen printing.

2. To design and a produce video for teaching screen printing.

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1.4: RESEARCH QUESTIONS

1. To what extent will the use of digital video enhance students' performance and the acquisition of skills to become self employed?

2. What technological requirements are to be considered when incorporating video into teaching and learning ?

1.5: DELIMITATION

My focus is on developing a system for teaching Screen Printing using video clips and slides.

1.6: LIMITATION

1. My attempt to collect data on the number of students who have become self- employed after graduation proved futile.

1.7: DEFINITION OF TERMS

Intervention: The novelty of introducing something new with the aim of improving on a current situation in a research environment.

Instructor: Teacher

Instructional Media: This may include traditional materials such as chalkboards, handouts, charts, slides, overheads, real objects, and videotape or film, as well as newer materials and methods such as computers, Digital Video Device (DVDs), Compact Disc read-only memory (CD-ROMs), the Internet, and interactive video conferencing, which an instructor might use to implement instruction and facilitate learners' achievement.

Learners: Students

Schemas: Chunks of multiple individual memory units that are linked into a system of understanding.

1.8: ABBREVIATIONS

CRDD	Curriculum Research and Development Division
GES	Ghana Education Service
ICT	Information and Communications Technology
SHS	Senior High School
WASSCE	West Africa Senior Secondary Certificate Examination
DVD	Digital Video Device
CD-ROM	Compact Disc read-only memory
CD video	A system of simultaneously reproducing high quality and video pictures from a compact disc.
ICT4AD	Information and Communication Technology for Accelerated Development.
NTTI	National Teacher Training Institutes
WYSIWYG	What you see, is what you get.

1.9: IMPORTANCE OF THE STUDY

The study will contribute to teaching and learning.

It will encourage both learners and teachers to use the available video as resource materials to enhance teaching and learning and the acquisition of skills

It can be used at workshops, seminars and tutorials to support learning through examples and visual elaboration.

1.10: ORGANIZATION OF THE CHAPTERS.

In order to achieve the research requirement, the chapters are organized as follows:

CHAPTER ONE: It contains the Introduction, background to the study, statement of the problem, objectives, research questions, delimitation, limitations, definition of terms and the importance of study and the profile of the study area.

CHAPTER TWO: This contains the review of related literature and covers areas in Graphic Design as a course:

- Introduction of Graphic Design in school curriculum

- Computers and the creative process

- Screen printing, brief history of screen printing

- Instructional media

- Integration of video in classroom

- Steps in the implementation of (video) instructional media

- Factors in selection, Can video illuminates teaching?

- Video production as an instructional strategy

- Instructional plan

CHAPTER THREE: This chapter dwells on Methodology which comprises

- The Research Design,

- Libraries Visited,

- Population for the study

- Sampling

- Data Collection instruments

- Types of Data

- Administration of Instrument

- Data Collection Procedures

- Data Analysis Plan.

CHAPTER FOUR: This contains Presentation and Discussion of findings

CHAPTER FIVE: This chapter comprises the summary, conclusions and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1: Overview

This chapter embodies reviewed related literature on the development and the production of an instructional media (video) to achieve learning outcome. According to Goodman (1996), "The power of technology is unleashed when students can use it in their own hands as authors of their own work and use it for critical inquiry, self-reflection, and creative expression"

2.2: Graphic Design

Graphic Design is a creative process undertaken in order to convey a specific message or messages to a target audience. It refers to a number of artistic and professional disciplines that focuses on visual communication and presentation.

According to Jenkins (1991), it can be defined as "the process and the art of combining text and pictures to communicate an effective message in design of logos-shirts, brochures, posters, signs and any other type of visual communication."

The graphic designer may use typography, visual arts and page layout techniques to produce the final result. Common uses of graphic design include identity (logos and branding), publications (magazines and newspapers), advertisements (printing of T-shirt and banners) and product packaging.

2.3: Introduction of Graphic Design in school curriculum

The inclusion of Graphic Design in the educational reform programme in Ghana supports the argument put forward by Tindal & Marston (1990) that "the curriculum is designed

with the needs of having the nation in mind, this is done by taking into consideration the beliefs, values, philosophy and the technological needs of the people." (p. 62).

This implies that, the instructor must carefully; use the curriculum to instruct the learners with the aim of equipping them with the requisite knowledge and skills capable of making them desirable members of the society. This, notwithstanding, has reiterated the fact that Graphic Design is important to the socio-economic development of the country, looking at its application and the job opportunities that await the learners after graduation.

Since Graphic Design is closely bound to technological advancement and innovations, Sarah Singer (1998) defines it "as a creative process that combines art and technology to communicate ideas". This became apparent as the Ministry of Education in collaboration with the Ghana Education Service, introduced the teaching of computer and software applications in the teaching syllabus. This, if taught well can serve as a tool to enhance the teaching and learning of graphic design and performing tasks in drawing, painting, designing, layout designing, composure, illustration and animation. This can be reflected on the excerpt of the scanned teaching syllabus in Table 1.
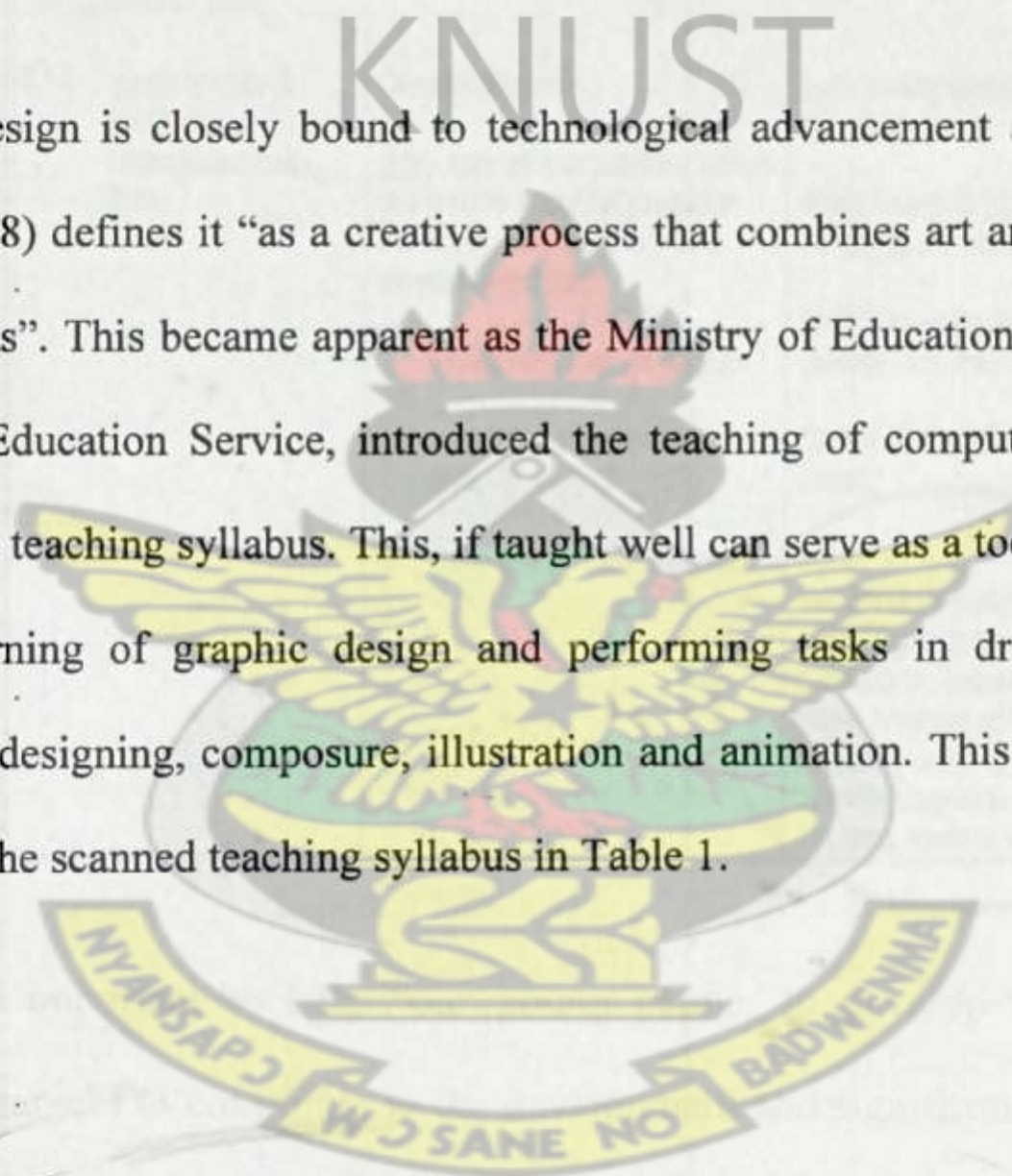
Table. 1: The scanned portion of the teaching syllabus

SENIOR HIGH SCHOOL – YEAR 3

SECTION SIX

COMPUTER AS A GRAPHIC DESIGN TOOL

General Objectives: The student will:

1. develop computer skills in accessing information, ideas and designing graphic communication media

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES
UNIT 1 **INTRODUCTION TO COREL DRAW AND ANY OTHER SOFTWARE** - Paint box, Photoshop Illustrator Quak-xpres, etc	The student will be able to: 6.1.1 use the computer to design visual communication media items.	Computer aided work Note:- Icons are small pictures or symbols on a computer screen that you point to and click on with a mouse to give the computer an instruction. i) creating images with the computer ii) designing visual communication items iii) accessing and presenting information	Guide students to identify various icons of the software Assists students to create images using the icons of the software Students to use the computer to design greetings cards, posters, etc Students display their works and discuss NOTE: The computer with its accessories and other ICT gadgets can be used as tools to enhance the teaching and learning of graphic design and performing tasks in eg. drawing, designing, painting, layout designing, composure, illustration, cartooning, animation, etc.

To this end, it is important to help "our young people to develop their skills and capabilities in the subject to contribute to the development and significant of science and technology. Not only this, but also industry, commerce, economics, social studies and indeed, our proud history as a nation" (CRDD, 2007, p. ii).

2.4: Screen Printing

Screen - printing is a printing technique that uses a mesh to support an ink-blocking stencil. The attached stencil forms open areas of mesh that transfer ink as a sharp-edged image onto a fabric. A roller or squeegee is moved across the screen stencil, forcing or pumping ink past the threads of the woven mesh in the open areas. "One major advantage of screen - printing over other printing processes is that, it can be used in printing on both two and three dimensional surfaces. (Eshun, 2002).

2.5: Brief History of Screen Printing

Screen printing first appeared in a recognisable form in China during the Song (960–1279 AD). Japan and other Asian countries adopted this method of printing and advanced the craft using it in conjunction with block - printing and hand - applied paints.

It was originally used as a popular method to print expensive wall paper, it was also used print on linen, silk, and other fine fabrics. Western screen - printers developed reclusive, defensive and exclusionary business policies intended to keep secret their workshops' knowledge and techniques.

Early in the 1910s, several printers experimenting with photo-reactive chemicals used the well-known as actinic light activated cross - linking or hardening traits of potassium, sodium or ammonium chromate and dichromate chemicals with glues and gelatin compounds. Commercial screen - printing now uses sensitizers far safer and less toxic than dichromates. Currently, there are large selections of pre-sensitized and "user mixed" sensitized emulsion chemicals for creating photo-reactive stencils.

Screen - printing was eventually adopted by artists as an expressive and conveniently repeatable medium for duplication well before the 20th century. It is currently popular both in fine arts and in commercial printing, where it is commonly used to print images on

posters like those used in the "Aids is Real" and campaign for advertising goods and services on T- shirts, for telecom companies like MTN and Expresso. Others are done on hats, CDs, DVDs, ceramics, glass, polyethylene, polypropylene, paper, metals, and wood.

2.6.: Instructional Media

Instructional Media encompasses all the materials and physical means an instructor might use to implement instruction and facilitate learners' achievement of instructional objectives. This may include traditional materials such as chalkboards, handouts, charts, slides, overheads, real objects, and videotape or film, as well as newer materials and methods such as computers, DVDs, CD-ROMs, the Internet, and interactive video conferencing (Craig, 2010). According to Reiser & Gagne(1983), it is the physical means, other than the teacher, chalkboard and textbook, via which instruction is presented to learners" Different types of educational experiences exist- from hands - on apprenticeships to role- playing, from demonstration to reading printed text. Some educators believe that different experiences are more or less effective for achieving different types of instructional outcomes. For example, text with pictures is not as effective as live demonstrations for teaching motor skills.

Hoban, Hoban & Zissman,(1937) stated that "The value of audio visual material was a function of their degree of realism". And books will soon be obsolete in the schools... [as] it is possible to teach every branch of human knowledge with motion picture, and our school system will changed. Saettler (1968,p.98).This was supported by Wiley (2002.) when he said "unless instructional theory is incorporated in any learning objective implementation, learning would not be facilitated and aspired". This implies that the use of instructional materials and learners' active involvement in lesson will, no doubt, foster understanding and retention of information. The researcher agrees with Edgar Dale

(1946), for elaborating on these ideas when he developed his famous Cone of Experience which presents concepts in a concrete manner.

2.7.: Integration of Video in Classroom

Media should be used whenever it can facilitate learning or increase understanding of material you are presenting. Of course, communicating to facilitate learning can be a challenging process, often requiring creative efforts to achieve a variety of implicit instructional goals like: attracting attention, developing interest, adjusting the learning climate and promoting acceptance (of idea). (University of Saskatchewan, n. d.)
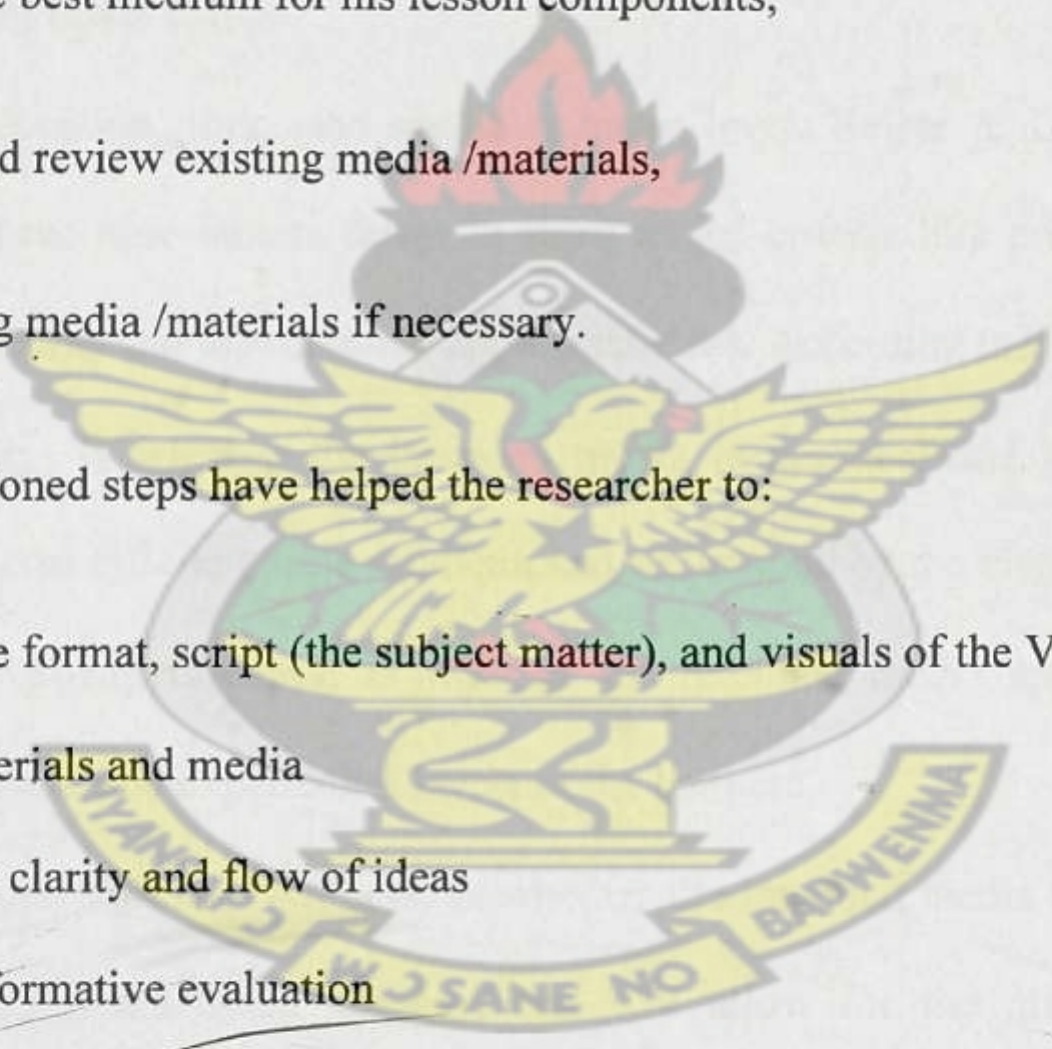
Here, it became clear that educational experiences that involve the learner physically and give concrete examples are retained longer, and are more enthusiastic about what they learn. This means that, with video as one component in a thoughtful lesson plan, learners would make new connections between curriculum topics, and discover links between these topics and the world outside the classroom.

The reality is that, most of us have experienced a situation where we have learned something, but cannot recall it when we need it or that we know we should be able to solve a problem but the details escape us. One reason for this lack of recall, according to Brown (1989) is that the knowledge was learned in a sterile classroom situation and was never applied in a real context.

Mishra & Tooth (2000) observed that, video is useful to show practical and real life activities; thus, it can be used to capture hazardous and costly experiments for presentation and for repeated use. Though, its resources are expensive to produce, they are very useful where practical demonstration of skills is required. No doubt, the government of Ghana .

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had launched the President's special initiative on Distance Learning & ICT for Accelerated Development Policy, (ICT4AD, 2003).

2.8: Steps in the Implementation of Instructional Media: Once it is concluded that using instructional media will help us achieve our explicit and/or implicit goals, it is useful to apply the basic steps outlined by (St. Cloud State University, 1997). According to them, in the instructional development process one has to.

(a) Review instructional goals, objectives, audience and instructional strategy,

(b) Determine the best medium for his lesson components,

(c) Search for and review existing media /materials,

(d) Adapt existing media /materials if necessary.

The above mentioned steps have helped the researcher to:

- Determine format, script (the subject matter), and visuals of the Video.

- Draft materials and media

- Check for clarity and flow of ideas

- Conduct formative evaluation

- Implement/apply it and

- Evaluate it

2.9: Factors in Media Selection: Models for media selection range from simple procedures to complex theoretical schemes. Some are based on the communication 'channel' being used (audio, video, etc) or the characteristics of the media itself. Others emphasize the learning outcomes being addressed, while still others focus on learner

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attributes or educational theory or the teaching-learning process. Because of these, the following factors should be considered when selecting a media for instructional purposes. (Strauss and Frost ,1999):

- he institutional resource constraints,

- course content appropriateness,

- learner characteristics,

- instructors attitudes and skill levels,

- course learning objectives,

- the learning relationships,

- Learning location, time, and media richness level. Reiser & Dick, (1996), also distilled these nine factors down to three major criteria like practicality, student appropriateness and instructional appropriateness. According to them:

- **Practicality**: Is whether the intended media is practical and that the media is available, cost efficient, time efficient, and understood by the instructor.

- **Student Appropriateness**: Is whether the intended media appropriate for the developmental and experiential levels of the learners.

- **Instructional Appropriateness**: Is whether the intended media is appropriate for the planned instructional strategy, and will allow for the presentation of the proposed lesson in an efficient and effective manner. Also if the media will facilitate the learners' acquisition of the specific learning objectives.

On the issue of **practicality**, Gagné, Briggs, & Wager (1992) suggested that instructors address the following series of practical questions before implementing any instructional media:

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1. What size of group must be accommodated in one room on a single occasion?

2. What is the range of viewing and hearing distance for the use of the media?

3. How easily can the media be "interrupted" for learners responding or other activity and for providing feedback to the learners?

4. Is the presentation "adaptive" to the learners' responses?

5. Does the desired instructional stimulus require motion, color, still pictures, spoken words, or written words?

6. Is sequence fixed or flexible in the medium? Is the instruction repeatable in every detail?

7. Which media provide best for incorporating most of the conditions of learning appropriate for the objective?

Appropriateness. The first of the above set of questions (What are the most important tasks or requirements? What are my learning outcomes? Based on the learning outcomes, what are the most applicable media attributes?) focuses on media selection by learning outcome.

Gagné, Briggs, & Wager (1992), recommended that instructors apply the following exclusion and inclusion criteria in selecting media for the various common learning outcomes.

Table 2.Common Learning Outcomes

Learning Outcome	Exclusions	Selections
Intellectual Skills	• Exclude media having not interactive feature	• Select media providing feedback to learner responses
Cognitive Strategies	• Exclude media having not interactive feature	• Select media providing feedback to learner responses
Verbal Information	• Exclude only real equipment or simulator with no verbal accompaniments.	• Select media able to present verbal messages and elaboration.
Attitudes	• Exclude only real equipment or simulator with no verbal accompaniments.	• Select media able to present realistic picture of human model and the model's message
Motor Skills	• Exclude media having no provision for learner response and feedback	• Select media making possible direct practice of skill, with informative feedback

Regarding media richness and instructional appropriateness, the researcher considered various characteristics of common media in the selection process as stated by Newby, Stepich, Lehman & Russell, (2000), and applied it to the project. He selected Video, Computer Softwares and Slides to achieving the following Learning Outcomes: **Intellectual Skills, Cognitive Strategies, Verbal Information, Attitudes and Motor Skills. This can be seen in both Tables 1 and 2 respectively.**

Most forms of instructional media involve teacher modeling, demonstration, implementation, or more broadly, facilitation. However, creating quality instructional media is costly, in both time and money, enterprise.

Table 3. Characteristic of Common Instructional Media

Learning will be enhanced If media:	Real Objects	Text (han outs, Books, etc)	Chalk or whiteboard	Overheads or computer presentations	35mm slide	Video (tape, discs, TV)	Audio (tape,CD)	Computer software
shows realistic images					☐	☐		☐
can be used independently		☐			☐	☐	☐	
shows motion						☐		☐
allows drawing, writing or highlighting during lesson		☐	☐	☐				
can be used independently		☐			☐	☐	☐	☐
can be easily reordered	☐			☐	☐			
presents problem solving situations						☐		☐

2.10: Teaching with Digital Video

Indeed, inbuilt digital cameras on mobiles and games have become increasingly popular with a generation that demands the freedom to interact with digital imagery anytime, anywhere. If this need can be harnessed, digital media has an important and powerful role to play in education. Digital video offers an opportunity to not only enrich your lessons but also to explore teaching and learning.

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As stated by Becta (2002) the integration of digital video into classroom practice has the potential to enhance learning across all curriculum areas. In particular, it increases learner's engagement with the curriculum; promotes and develops a range of learning styles; motivates and engages a wider range of students than traditional teaching methods, so providing greater access to the curriculum.

Digital Video is a very creative activity that encourages discussion and planning, as well as communication, technical and ICT skills, and the development of ideas. It also instills the ability to discriminate and to evaluate. Becta (2002) confirmed that students develop the ability to be self-critical of their work and are constantly motivated to refine what they produce.

However, the integration of Digital Video technologies into subject teaching does not automatically improve the quality of work or standards of attainment. High-quality teaching and a well-designed project focus remain key factors in raising achievement.

2.10.1: Importance of Video in Students Learning

Video has the potential to capture many aspects of classroom practice through the capability to record visual and aural richness and detail. It has the potential to provide rich and thick representations of practice that leave distinctive mental images in the mind of the viewer. Video provides a means by which teachers can have access to teaching that would otherwise be difficult to observe in real life; it can enable the manipulation of time. (Radtke *et.al*, 1994)

Accessing practice through accelerating, slowing down, pausing, and even juxtaposing places in time.

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Video has the potential to provide a relatively unfiltered representation of practice. According to Lampert & Ball(1998), it was referred to as a form of 'virtual observation" Video may also function to expand the horizon of possible practice for viewers by providing access to practice which may previously have been outside one's realm of experience. Video therefore offers possibility in bringing the foreign and innovative closer to home. In this way it can make accessible practice that is temporary, geographically, and pedagogically distant (Wetzel *et.al*, 1994)

The potential to manipulate time using video technology also contributes to making practice more readily accessible. One can pause; move forward, or back, moving to different time codes as desired. Video enables aspects of practice to be manipulated temporary, thus making accessible an examination of practice that would not be possible in real time.

Kinzer (1997) compared print and video-based cases for example and concludes, "The fact that the case is written after the fact means that it is influenced by the perceptions, re-collective nature, and subconscious biases of the writer, the 'raw data' of a video-based case is preserved and presented, allowing for a more powerful, real-time analysis of embedded data rather than consideration of recalled data" (p. 13). Video records of practice have the potential to be positioned closer to the unfiltered representation of real life than other medium used for representing practice.(comment in relation to the screen printing)

2.10.2: Challenges to Practice

A number of challenges to the integration of video production exists with ongoing educational practice. These challenges include restrictive models of literacy in school curricula (Beavis, 2001; Burn & Parker, 2002); insufficient attention to popular culture in

school curricula (Buckingham, Grahame, & Sefton-Green, 1995; Buckingham & Sefton-Green, 1994); and the lack of specific attention to media education in general, specifically in Art Education. In addition, challenges with the tools, lack of infrastructural facilities, lack of teacher education, and time are considered obstacles to practice.

According to Hobbs (1998), "The practical limitations of many production activities preclude their being offered to most elementary- and secondary-school students. For example, video and multimedia production often requires more equipment, classroom time, personnel, and teacher training than is available in many schools (p. 20)

The second obstacle frequently cited is lack of teacher education. Kirwan, Learmonth, Sayer, and Williams (2003) and Grahame and Simons (2004) reported little or no training in the area. Hart and Hicks (2002) identified an overemphasis in media teaching on activities of analysis and interpretation. Reid, Parker, and Burn (2002) emphasized the direct relation between the quality of video production by students and the ability of teachers to teach aspects of moving image "language" explicitly.

The third obstacle frequently cited is time. The process of planning, recording, and editing digital videos is too time - consuming to be used in any sustained way in their practice. (Girod, Bell, and Punya (2007).

2.10.3. Video Production as an Instructional Strategy

One way to combat concerns about video production as decontextualized or without a focused content is to link it with the ongoing curricular requirements of particular learning contexts. Video production then becomes an instructional strategy for teaching content, not a set of tools and processes to be mastered as isolated skills.

According to Dabbagh & Bannan-Ritland, (2005), instructional strategies are what instructors do to facilitate student learning. Jonassen, Grabinger, and Harris (1991) also agreed, they are " plans and techniques that the instructor uses to engage the learner and facilitate learning" (p. 34) and represent "a plan, method or series of activities, aimed at obtaining a specific goal" (p. 31). Thus, for example, video production as an instructional strategy might link video essays with the printmaking concepts or documentaries with the study of historical invention, or the concept of screen printing. In this application of video production, the media are not studied formally, but the analysis of media text and the creation of media messages are emphasized as components of course work in the traditional disciplines.

This approach, in the hands of a well-qualified educator, carries with it the potential for students to gain exposure to media analysis and production activities while simultaneously mastering the complexities of disciplinary knowledge (Hobbs, 1998). As Hofer and Swan (2005) wrote, "The engaging and flexible nature of digital moviemaking projects offers great potential to ground the use of technology in discipline-specific content and processes.

2.10. 4: Instructional Plan

Instructional design models are used to control the design process. These models generically include five steps: analysis, design, development, implementation, and evaluation. During analysis, the instructional designer might perform a needs assessment and create a problem statement. The design entails creating a plan of operation that would guide the designer in setting competencies and outcomes, writing objectives, creating assessment strategies and a selection of the proper media (videotapes, texts, facilitation aids, etc.). Development means turning that plan into reality, creating the necessary

session plans, study guides, workbooks, job aids, etc. that are needed for delivering the instructional program. When the program is ready it is implemented on a trial basis and evaluated so improvements can be made (Seals & Glasgow, 1990). In as much as Brookfield, (1985, 1986); Friere, (1970); Galbraith, (1991,1992) agreed on what Seals & Glasgow, (1990) said, their concern with the selection of the proper video to use in a learning activity is with the design phase.

Inferring from what had been stated above, the researcher established a plan that will results in the learners' needs being met through the use of the video. This plan was generically outlined as having an introduction, a body, and closure. The introduction includes the objectives of the lesson, the benefits that will be derived from the lesson, and some sort of "attention getter." The main body have a presentation of the content and some demonstration example," How to Screen Print a T- shirt" It also allow time for learner reflection on the content and application. He continues this presentation- application- reflection cycle until all the objectives expressed in the introduction are met. At the close of the lessons, he reviewed what has been learned and motivates the learner to apply the content to their lives. Quality indicators for instructional design are organized around this structure and are considered important when he evaluates the videos for instructional purposes.

2.10.5: Are Video Inherently more Effective than other Types of Learning Activities?

Research on cognitive learning and media technology has shown that no specific educational media is inherently more effective than the other.(Clark, 1983). Rather, the viewing context of the message and the instructional strategies found within the presentation are critical factors in how learning is fostered by a particular instructional presentation. In other words, what the teacher and the students do with the media

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presentation and its message are much better predictors of educational effectiveness than whether the presentation is a video, lecture, reading or CD ROM presented "multimedia"

2.10.6: Strengths of Video

On the research question *"To what extent will the use of digital video enhance students' performance and the acquisition of skills to become self employed?*

Video can present visual information that is difficult to convey in other ways. For instance, a student who sees the suffering of Nigerian tribal war victims will likely be more affected than one who reads textual information about it. However, video, like television, may condition students to be insensitive or to feel helpless in the context of such events.

Videos can be used to demonstrate manual skills or physical processes either in a normal speed, in slow motion or speeded up to reveal relationship, principles or practices, for example , the process of stretching the mesh on the wooden frame by the use of stapling gun.

Video can provide visual asses to situations or experience that would otherwise be dangerous or expensive for the students to experience personally. For example, the mixing of Potassium Dichromate (chemicals) with emulsion paint / PVC glue to sensitizer.

Video can be use to model positive behavior and to motivate students, for example, the student printing his own design on a T- shirt for the first time. Videos' are particularly useful for introducing a topic or reviewing materials already studied when motivation is the key to students' involvement in the learning sequence.

Video may help to promote learning in students with high visual orientation in their learning styles. For example, the process of coating and burning the design on the screen in the darkroom.

2.10.7: Implementation

Inferring from the suggestions given by Gagné, Briggs, & Wager (1992) to the instructors in the revie w literature: thirty students (30) were selected to form a class and were accommodated in the visual arts studio for viewing the video lessons on the screen printing. The general rule of thumb for viewing distance for an HD-capable projector, is 1-1/2 times the screen — so if the screen's diagonal measurement is 96" (8 feet), then the students have to sit about 12 feet from the screen . To take advantage of the power of video in the classroom, the researcher changes instructional methods every 10-15 minutes, and limit teachings to 20 minutes to keep the students alert (Reed and Woodruff 1996)

The presentation of the screen printing on video was adaptive to the end and could easily be interrupted at intervals for students to respond to questions and provides feedback. The desired instructional stimulus was of motion, colour, spoken and written words were sequence fixed in the medium (Willis, 1994).

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CHAPTER THREE

METHODOLOGY

3.1: Overview

This chapter embodies the methods employed in the research. The researcher discussed in detail the research design used; the population and sampling techniques employed in the research and the tools for data collection procedure.

3.2: Research Design

The researcher used Qualitative Research Methodology, which is a form of social inquiry that focuses on the way people interpret and make sense of their experiences and the world in which they live. It is also aimed at understanding the social reality of individuals, groups and cultures. (Denzin & Lincoln,1994). Under this method, falls Descriptive and Action research, which the researcher used to explore the behavior, perspectives and experience of both the instructors and learners towards the teaching and learning and acquisition of skills.

3.3: Library Research

The following Libraries had contributed immensely to the compilation of this study. The KNUST main library, College of Art library, the department of General Art Library. Various literatures were consulted on (instructional media) and reviewed.

3.4: Population for the Study.

Population is defined as the group of teachers and learners or objects that the findings of a research work are interesting applicable to (Fraenkel and Wallen, 1996) such as learners

and teachers in Senior High schools in Ghana. The Graphic Design Students in SHS 4 of Dzodze – Penyi Senior High Secondary school and the teachers formed the *accessible* population. In all thirty (30) students were selected for the study together with five (5) teachers

3.4.1: Purposive Sampling

The researcher employed **Purposive Sampling** for the study, as its targets for a particular group of people, most especially when the desired population for the study is rare or very difficult to locate and recruit for a study. This sampling became the only option for the researcher, as he purposefuly sampled out some learners and collected a particular data from them. . The Graphic Design students in SHS 4 in the school and the teachers formed the *accessible* population. In all thirty (30) students were selected for the study.

3.5: Data Collection Instruments

Ary, Jacobs and Razavier (2002) refers to instrumentation as a process used to solicit information in research. The researcher used observation, interviews and questionnaire as his data collection instruments to eliminate any particular weakness or bias and to generate more adequate data.

3.6: Types of Data

3.6.1: Primary data. With the primary data, Denzin (1989), observed "the researcher must go to the participants to collect the rich and the in- depth data that may become the basis for theorizing". The interaction between the researcher and the participants leads to the generation of the concept which is a product of the research act.

Generally, the data collection instruments were based on *interviews* with direct *observations* of activities that went on in the classroom. These data were classified as the primary data.

3.6.2: Secondary sources. The secondary data were those collected through the journals, books, magazines, brochures, libraries, CD ROM and in the internet.

3.7: Administration of Instruments

Interview Schedules

The researcher developed an interview schedule, and conducted the interview after his lesson. The importance of this method is that, it allowed the interviewer to clarify any question that was not clear and also asked the respondents to expand on answers that are particularly important or revealing. (Frankel & Wallen, 1996).

3.8: Data Collection Procedures

The Headmaster, Mr. Quarmine Agbadi of Dzodze Penyi Senior High and the head of Visual Arts Department, Miss. Joan Addo, were informed about the project and all the necessary arrangements were put in place for the project to go on.

Teachers were interviewed individually about their academic qualifications, and their awareness of other instructional resources apart from those found in the school, their views on the use of digital video as the instructional tool in the classroom and the ability to make their own instructional resources for teaching graphic design.

The second method was observing the teacher, teach with and without instructional materials. The researcher acted completely as an observer at the beginning and observed the learners and the instructors without participating in the activities they engaged in. This method enabled him to critically observe the teaching methods employed; behavior and activities (the general interaction between the instructors and the learners) during lessons

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and after lesson; and described them as such. He later acted as a participant observer, as the days went by and played a role as an instructor in a form of *intervention*.

Notes were taken, about the teaching methods used by the teacher, his interaction with the students, the students' interest level, during and after lessons and how they interacted with their instructors. Data was collected from field notes, text books, syllabus, and practical works done by students and official records from the school.

To identify those unit plans and action research reflections that integrated video production, the researcher collected some CDs on the President's Special Initiatives on Distance Learning for Senior High Schools on agriculture, biology and physics subjects from Ghana Broadcasting Corporation to study. Each printed reflection was examined to identify those that integrated video production as an instructional strategy, as opposed to the use of or analysis of existing video only.

The researcher used his personal flip digital camcorder, to take shots of the teaching and learning activities during lessons as part of the data collection process. In addition, the Flip digital camcorder easily facilitated in-camera editing, downloading, and rendering. Several of the shots were edited using software Windows Movie Maker and were created in segments during the final editing. The researcher had compiled a small selection of videos that explore a range of film-making techniques especially those on the President Special Initiatives, as case study examples. This was used as the starting point for collecting data. He then designed a video analysis worksheet, to analyze each film and take time to discuss each video with colleagues.

3.8.1: The Project

The needed Equipment and Resources.

Incorporating DV into a lesson can be a simple and enjoyable experience, but it requires a clear understanding of all the technological requirements. Before the researcher got started, he considered in the first instance:

- Hardware, software and other equipment, such as peripherals.
- The classroom / studio – that is how spacious the room is for filming and editing.
- Knowledge base – how experienced the researcher is in using DV equipment.

He also, identified the following equipments, as some of the tools necessary for developing the instructional media on screen printing. For instance, (a), A set of Computer and its accessories, and digital video editing software (Windows Movie Maker) (b) A Camcorder Video Camera (c) A Projector (d) Tables and Lab stools (e) a place where the learners can use the Projector and the Computer for viewing films, documentaries for teaching and learning.

On a practical note, the researcher also considered how much computer storage space is available to him to download the movie and then edit it. Because storing and editing movies are very 'memory - hungry' processes, the researcher ensures that he had access to a high specification computer.

3.8.2: The Subject Matter / Lesson

Screen Printing is a process of forcing a paste or ink with squeegee through an open area, in a piece of silk,(mesh/ organdie) stretched on a frame on a substrate. According to A. Dennis & J. Jenkins (1991).It is a process where heavy bodied inks are forced through a

fine mesh screen to be directly printed on any type of product, whether flat or three dimensional.

Screen printing is most commonly used for T-shirts, garments and other fabrics. It can also be used on all sorts of other materials ranging from plastic to metal. Although intricate details can be captured, screen printing is ideally suited for bold and graphic designs. The picture below display the most basic component of a single colour screen printing set up.
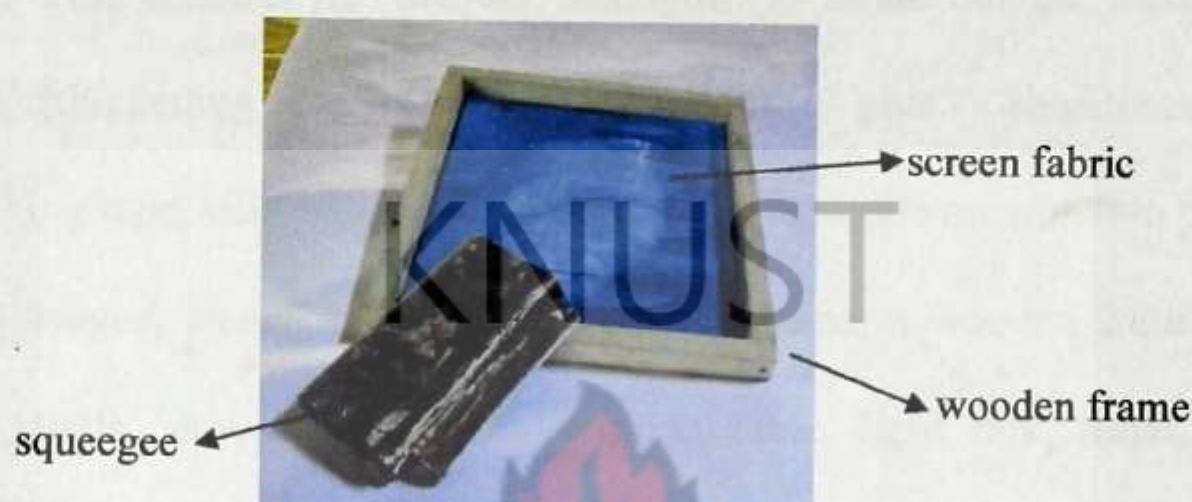
Plate 1: Principal Parts of a Screen

Its principal parts of are: (1) screen fabric 2).wooden frame to hold the screen fabric. 3).stencil 4).squeegee and the Ink.

The screen is tightly stretched around the frame, which in this case is made out of wood; the blue emulsion is dried on the screen and serves as the mask. The squeegee is nothing more than a strip of rigid rubber mounted in a wooden handle.

To begin the screen printing process, the designer positions the screen directly on top of the item to be printed. Next, ink is to be applied to the area directly above the unmasked image, and the squeegee is used to press the ink through to the substrate. As the designer firmly presses down with the squeegee, it is slid along the surface to ensure that ink penetrates through all areas of the unmasked image. If additional colours are required, the process is repeated with additional screens

How to Print T- shirt.

For this tutorials, the researcher is going to teach how screen printing short runs of a simple design on T-shirts can be done very easily at school with just a screen, a squeegee, some ink, a piece of paper and a craft knife. To effectively do this, the researcher needs the following tools and materials.

3.8,2: Materials: This consists of lacquer, wax/gum to block out the screen-printing paste/ink, binder(thickening agent), emulsion/white glue, sensitizer(potassium dichromate), masking tape, silk/mesh/ organdie, paper or substrate on which to print.

Tools such as squeegee, stencil knife, stapler gun and pins, a wooden frame, brushes, spatula, hammer, nails, saw, tracing table, printing table, light box, timer and other facilities such as the Art Studio, darkroom and a bath full of water. Electric fan and electric iron.

The squeegee is used to force the printing ink through the stencil / screen.

The stencil knife is used for cutting the mesh /organdie.

The *stapler gun* is used for fixing the mesh /organdie on the wooden frame.

The brush is used for correcting pin holes on the screen.

The spatula is used for scooping printing paste /ink.

Hammer for knocking the nails when constructing the wooden frame.

Saw is used for cutting wood ready for construction.

The light box is used for tracing intricate designs and also for shooting photographic stencils when preparing the screen.

The printing table; The artists print reproductions using the table as the base for the print.

3.8.3: Preparing the Screen

Building screen printing press units is not hard. With some basic woodworking skills and power equipment, building takes only a short time. Wood for the frame is usually Wawa, white pine or poplar. The first thing you need when setting up a home print shop is the screen. Screen with wooden frames are easy to construct and less expensive, and it can be used for both short and long run printing.

3.8.4: Frame Construction

The frames can be of any size, but the screen usually has a (2/3) two-by-three proportion. The inside dimensions of the frame should be at least 12.

If the frame is weak or poorly built, the printing result will be poor. To keep the edges of the squeegee from distorting the printed image, the total fabric area should at least be double the image area. The dimensions; the width and the thickness of the wood for the frame must be larger as the overall frame size increases, because strength is important

Table 4. Screens and Image Size Ratio (Inches)

Suggested Largest Image Size	Inside Screen Dimensions	Frame Wood Dimensions
3 by 6 cm	9 by 12	1 by 1.5
6 by 9 cm	12 by 18	1 ¼ by 1 ½
9 by 15cm	15 by 23	1 ¼ by 1 ¾
12 by 20cm	18 by 27cm	1 ¼ by 2
15 by 24cm	22 by 30cm	1 ¼ by 2 ¼

The researcher selected the screen size from the table above and cut the framing stock to the right length. He assembled the frame, using glue and nail.

3.8.5: Attaching the Mesh to the Frame

He considered the mesh count. The mesh count here refers the tightness of the weave in the mesh fabric of the screen. A higher mesh count means the fibres of the mesh are closer together and a lower count means the fibres are more loosely woven, so more ink can pass through the screen. A screen that is tight will allow you to print images with finer details and thinner lines. Since fabric is generally more absorbent than paper, you need a screen that lets through more ink when printing on t-shirts, or anything cloth. For fabric printing, you should use a screen with a mesh count of 110 or 160 (those tend to be the standard counts sold).

Plate 2: A Mesh

When stretching the fabric on the wooden frame, care must be taken to ensure equal tension on all the sides of the frame. Weak frame should be reinforced with nails before the fabric is stretched on.

Activity:

Plate 3: A mesh and the wooden frame

5. Stretch the frame on a flat (table), spread the mesh over it. With a staple gun, tack one end of the mesh to the frame at corner A. The tacks should be in L shape.

6. Stretch the mesh to corner B of the frame and tacked; ensure that the tensions between the tacks are good enough.

7. Stretch the mesh down the frame and ensures that the threads of the mesh run parallel to the sides of the frame and tacked at corner C.

8. Filled in- between the corner tacks with more tacks to hold the tension and fabric to the frame.

9. Stretch the mesh diagonally along the frame with maximum tension and tacked it at corner D.

Plate 4: Stapling the mesh on the wooden frame

10. Stretch the mesh in between corner C and corner D in the middle and tack.

11. Along AD he stretched the mesh in the middle and tack

Plate 5: Trimming off the excess mesh

12. Stretch and tack in the mesh along AD.

13. With a cutter blade, trim off all excess mesh from the wooden frame.

14. The frame is ready for use.

Plate 6: Washing the screen to remove grease out

Once the frame is ready for use, he washed it out with cold water and a degreasing agent getting any grease out to help the emulsion to bond with the fabric. He later guides the students to understand the orientation of the screen. The flat "back" of the screen which sits on the printing surface is called the "print side" or "paper side" and the "front" of the screen, recessed inside the lip of the frame, is called the "squeegee side."

Plate 7a: squeegee side Plate   **Plate 7b: Paper side**
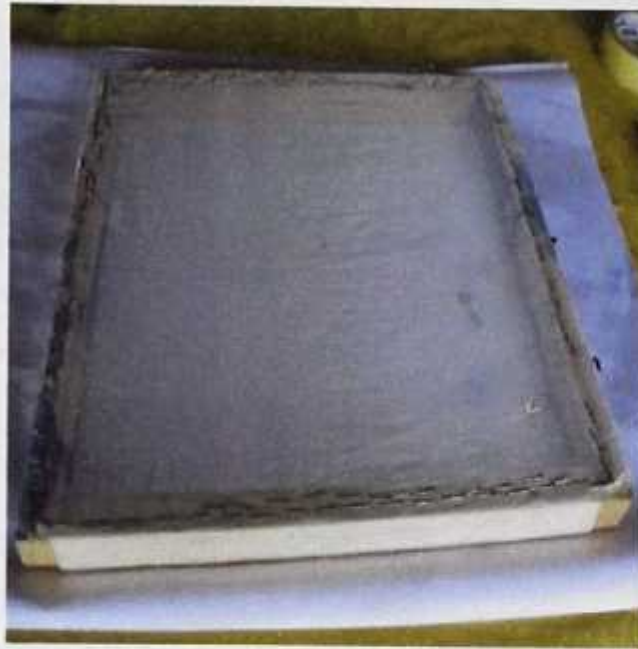
3.8.6: Preparing the Artwork

Screen printing is a very "flat" medium, so images that are starkly contrasted work best. When preparing your artwork to be burned to the screen (to create the stencil), work in black and white only — grey tones and the subtleties of photographic images will not produce a workable stencil. If you start with a photo, as in the example below, reduce the information to a line drawing, or apply a filter or halftone screen in Photoshop which will reduce the image to a series of dots.

Plate 8a. Coloured image   **Plate 8b: Black and white image**

The researcher used the photo on the left as a source to produce the drawing on the right, you can print in any colour you want, but the artwork used to make the stencil must be black. Every colour you want to print requires a separate stencil.

Plate 9: Design to be burn on the screen

Once you have the artwork prepared, print or photocopy it onto transparent film, and you will be ready to produce the screen stencil. It is very important that the black areas printed on the transparency are completely opaque, so hold it up to the light and make sure all the black lines are totally dense.

The first thing to do, after your screen is degreased and completely dry, is to coat the screen in emulsion. Emulsion is the photosensitive goop that will make the stencil on the screen. In areas where the emulsion hardens, the screen is blocked so no ink can pass through. In areas where the emulsion is kept soft and eventually washed out of the screen, the ink will pass through to produce your print. Emulsion is hardened by exposure to light, so you need to conduct this entire process in a darkroom using photo safe lights to see by.

3.8.7: Coating the Screen: Under this activity, you need the following items:

- The screen, emulsion and sensitizer(potassium dichromate),

- A squeegee,

- Rubber gloves,

- A rubber spatula

- A darkroom and photo safe light

- Black bristol board, or black cloth or blanket

- Transparencies containing your artwork

- A light box / table

- A timer

- A spray bottle full of cold water

- A shower head, spray nozzle or garden hose

3.8.8: Preparing the Light sensitive Emulsion.

Working by the red light, mixed a tin of milk of emulsion (white glue) with 4 tablespoons of Potassium Dichromate in the darkroom or one Coca cola bottle of emulsion with 6 teaspoons of sensitizer. Once sensitized, emulsion is good for about 3 weeks at room temperature, or about 3 months if refrigerated. Always wear gloves! When handling emulsion. The direct photographic method of preparing the screen involves the coating of the screen fabric with a light sensitive emulsion and exposing it (the artwork) to light.

Plate 10: Red bulb in the light box

Plate 11: Thoroughly mixing the chemical and the emulsion paint / white glue to get sensitizer.
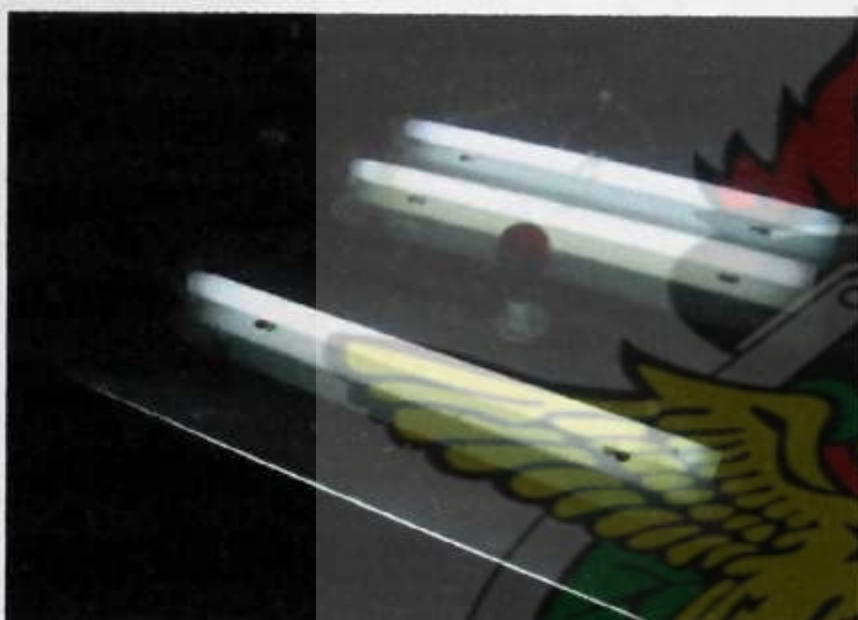
Plate 12: fluorescent light in the light box

3.8.9: Sensitizing and Coating the Screen

In sensitizing the screen, a darkroom is the safest area to work in. Here, a yellow or the red bulb in the light box is turn on while the fluorescent tubes are turn off. This is done to avoid the strong light since the emulsion is highly sensitive to light.
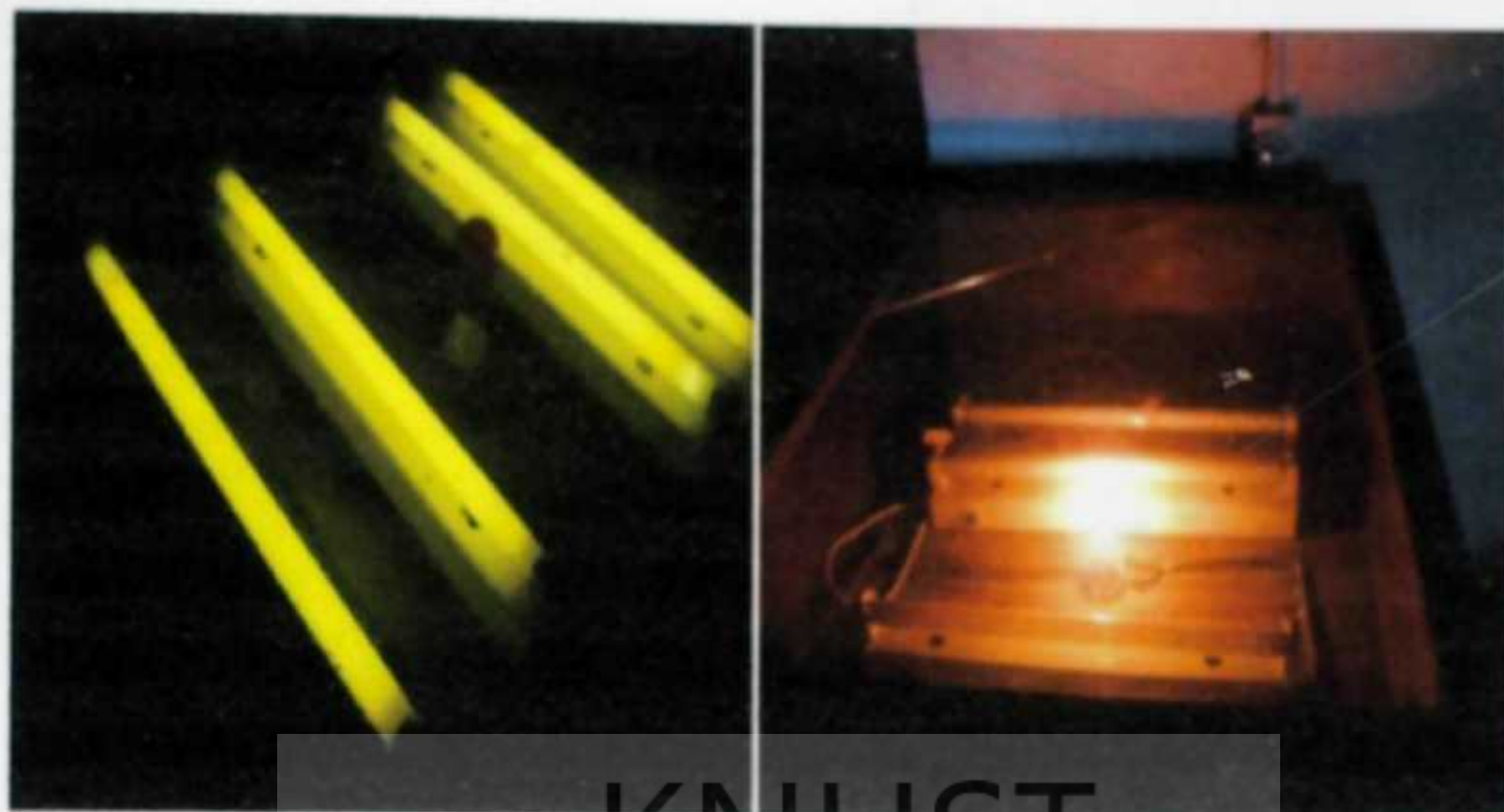
Plate 13: yellow or the red bulb in the light box

Plate 14: Coat the screen from the bottom to the top on the outside.

Plate 15: Turn the screen and coat from the bottom to the top on the inside.

Turn the screen and with a palette, remove the excess emulsion from the bottom to the top. Turn the screen and repeat the previous step. And allow the frame to dry standing vertical or lying horizontal on a table, keeping it away from dust. Once dried, screen can be stored in a cabinet till ready to be used.

Leave the coated screen in the darkroom to dry for at least one hour. Some tutorials say 45minutes, which is if you use electric fan. The important thing is that the emulsion must be completely dry before you expose your image. No stickiness allowed.

3.8.10: Exposing the Screen / Shooting the Screen

Once the coated screen is dry, you can expose it by positioning the already prepared design on the light box. Having finished, carefully place the coated screen on it. Stuff the inside of the coated screen with sand bag or books so that the screen gets into contact with the design and the glass on the light box. Cover it with a blanket and switch on the fluorescent light Allow the screen to remain on the light box for 15 – 20 minutes. After the said minutes, quickly remove the screen and send it to water bath for a tap to be open on it. You will observe that all the spot which had been painted black on the image after transferring it on to the screen will fail to be hardened and thus wash away. Get a piece of foam and carefully wash out the screen if the tap water is not strong enough to wash out the screen. Dry the washout screen on the sun or at open space. Having finished, check the pinholes and block it with lacquer. Masked the squeegee side with a paper tape as well as the paper side, to prevent bleeding of paste whilst printing. To be quite sure of a quality print, proof print before the actual printing is down on the fabric or the T – shirt.
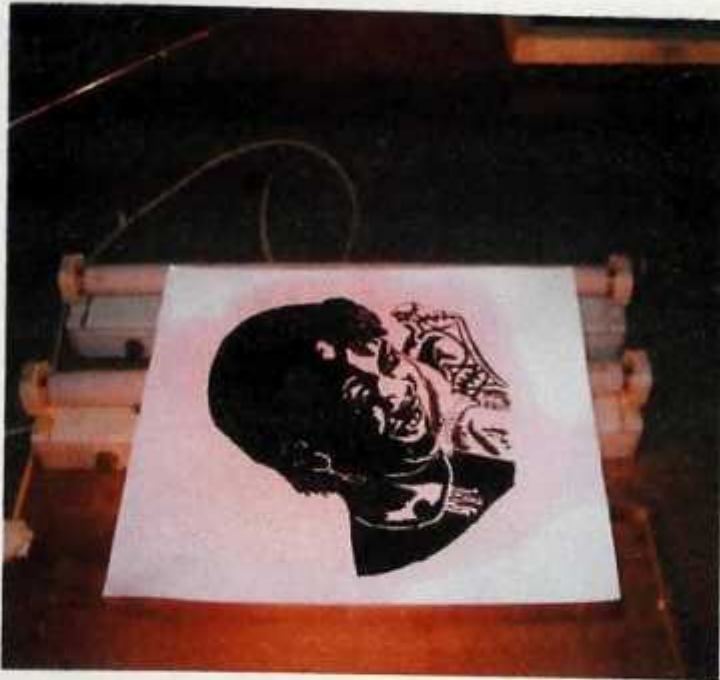
Plate 16: Setting the design to be burned onto the dried screen on the light box

Plate 17: Stuffing the squeegee side of the screen and covering it with blanket and exposing it to strong light.

Plate 18: Removing the burned screen and sending it to water bath to be washout.

Plate 19: Washing out with a pressure washer at around 1300 psi.

Plate 20: Once the image is washed out, it is double checked with the films for accuracy.

Blocking   Tape

Plate 21: The Final Touches

3.8.11:Printing the image,

Here you need the following tools and materials:

A flat table, the finished stencil on the screen, packing tape, a squeegee, printing paste, whatever you plan to print on (T-shirt],a rubber spatula, electric iron, old newspaper and a drying line.

Activity:

To set up for printing, prepare a printing table (with light sheet of foam and cover it with a leatherette). Or counter its top with two hinge clamps installed at the far side (at least 2 feet long — much larger than the paper or fabric you are printing onto)..

Position the T-shirt on it (prepared table). Set the screen and pour some of the printing paste on the space left on the screen to serve purposely as an ink duct. In between each print, flood your image. When you're done printing, wash the screen of all ink right away. Any non-gender cleaning agent) can be used to wash out ink (if necessary) without degrading the emulsion.

Plate 22: Inking and flooding the image.

Print the image by holding the squeegee at about 45 degrees and applying even, strong pressure to pass the ink through the screen. With the use of the squeegee, pull the paste

towards the bottom of the screen. Repeat this activity and carefully remove the screen from the T-shirt.

Beautiful print

Ironing the printed singlet.

Plate 23.One of the mistress wearing the printed singlet.

Dry the T-shirt. Screen ink dries very quickly, so If you are printing on fabric, let the image dry for at least 45minutes and then iron over top of the image on the hottest setting for at least 1 full minute. Ironing the image fasten the dye to the T-shirt to prevent it from

fading . After successful print, wash the screen, the spoon and the squeegee and tidy up the place.

The Software Used - Windows Movies Maker

There are several video editing software programs, each with different capabilities, but the one that the researcher employed was that of Windows Movies Maker. This software is very good in the sense that, you can use it to capture audio and video to your computer from a digital video camera, and then use the captured content in your movies. You can also import existing audio, video, or still pictures into Windows Movie Maker to use in the movies you create. After editing the audio and video content in Windows Movie Maker, which include adding titles, video transitions, or effects, you can then save your final movie and share it with your friends and family.
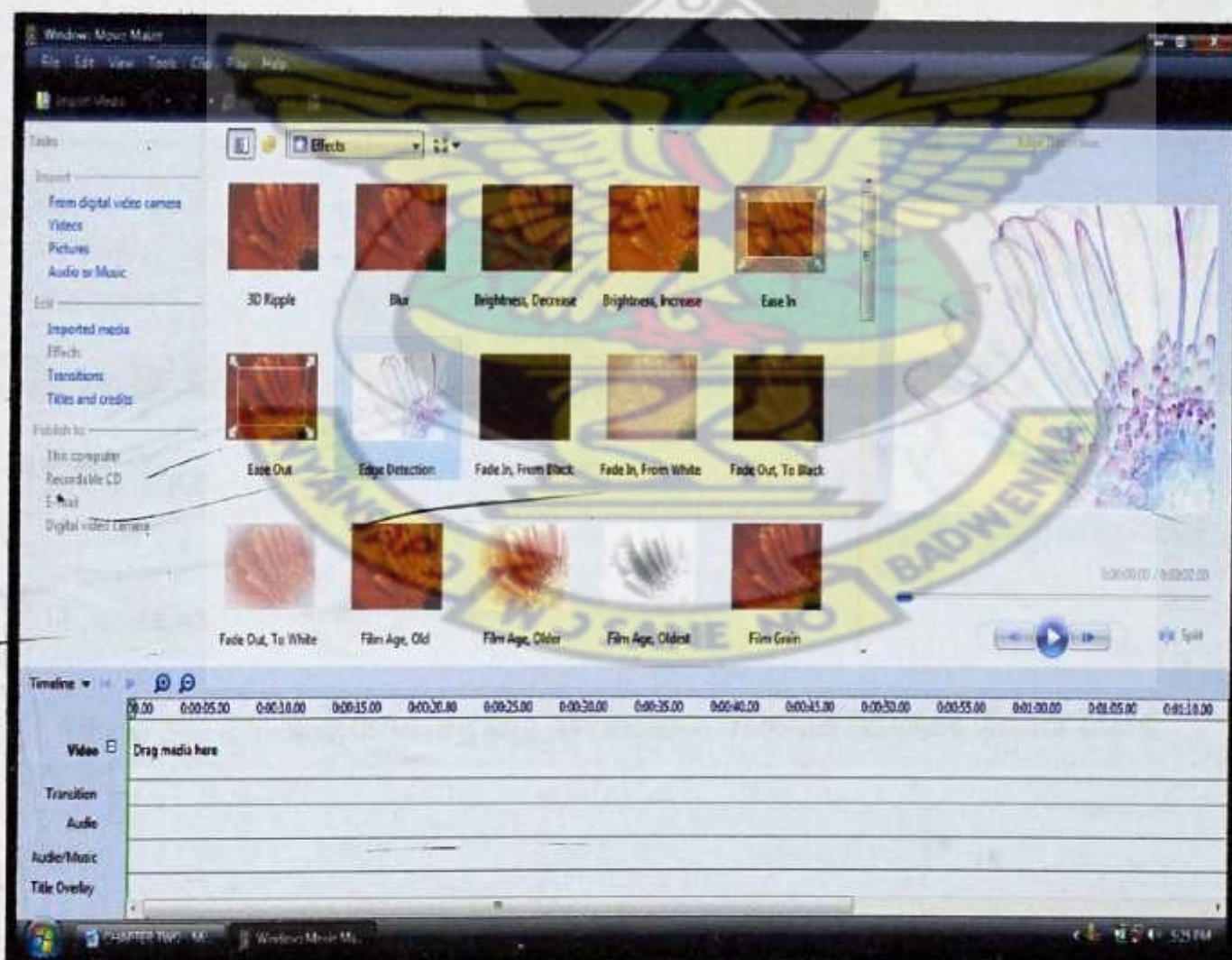
**Plate 24: Windows Movies Maker (software)**

Understanding the Windows Movies Maker Tools Used

Windows Movies Maker is divided into three main areas: the panes, the storyboard/timeline and the preview monitor.(plate 26). Depending on which tasks you want to complete, you can alternate between using the Collections view and the Tasks views.
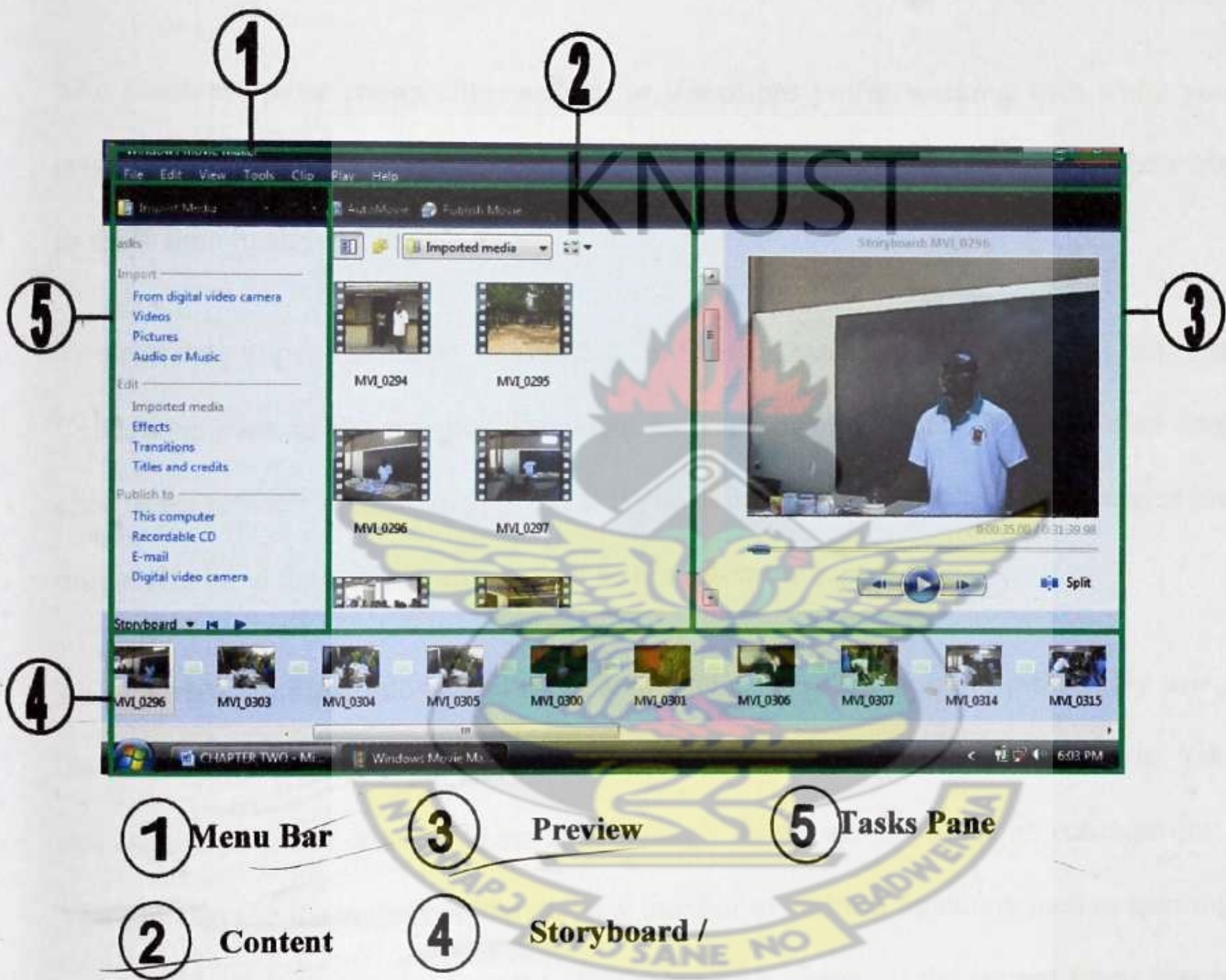

Plate 25: Understanding the Windows Movies Maker Tools Used

The Tasks pane lists the common tasks that you may need to perform when making a movie, including importing files, editing your movie, and publishing your movie.

The Collections pane displays your collection folders, which contain clips. The collection folders appear in the Collections pane on the left, and the clips in the selected collection folder are displayed in the Contents pane on the right.

The Contents pane shows clips, effects, or transitions you're working with while you create your movie, depending on the view you're working with. You can change the view to show thumbnails or details.

You can drag clips, transitions, or effects from the Contents pane or a collection from the Collections pane to the storyboard/timeline for your current project. You can also drag clips to the preview monitor to play them. If you make changes to a clip, those changes are only reflected in the current project; they do not affect the source file.

The preview monitor allows you to view individual clips or an entire project. By using the preview monitor, you can preview your project before publishing it as a movie. You can use the playback controls to navigate through an individual clip or an entire project. You can also use the buttons on the preview monitor to perform functions such as splitting a video or audio clip into two smaller clips or taking a picture of the current frame that is displayed in the preview monitor.

Transitions: A transition controls how your movie plays from one video clip or picture to the next. You can add a transition between two pictures, video clips, or titles in any combination on the storyboard/timeline. You can change the playback duration of a transition up to the duration of the shorter of the two adjacent clips. Transitions you can add include fading in from a black screen, sliding one clip across the screen to reveal

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another, or making it appear that one clip is shattering to reveal the next. Any transitions that you add appear on the Transition track of the timeline.

About the Storyboard/ Timeline

The area where you create and edit your project is displayed in two views, the storyboard and the timeline. You can switch between these two views when making a movie, or use the storyboard to look at the sequence or ordering of the clips in your project and easily rearrange them, if necessary. This view also lets you see any video effects or video transitions that have been added. Audio clips that you have added to a project are not displayed on the storyboard, but you can see them in the timeline view.

Plate 26: Storyboard
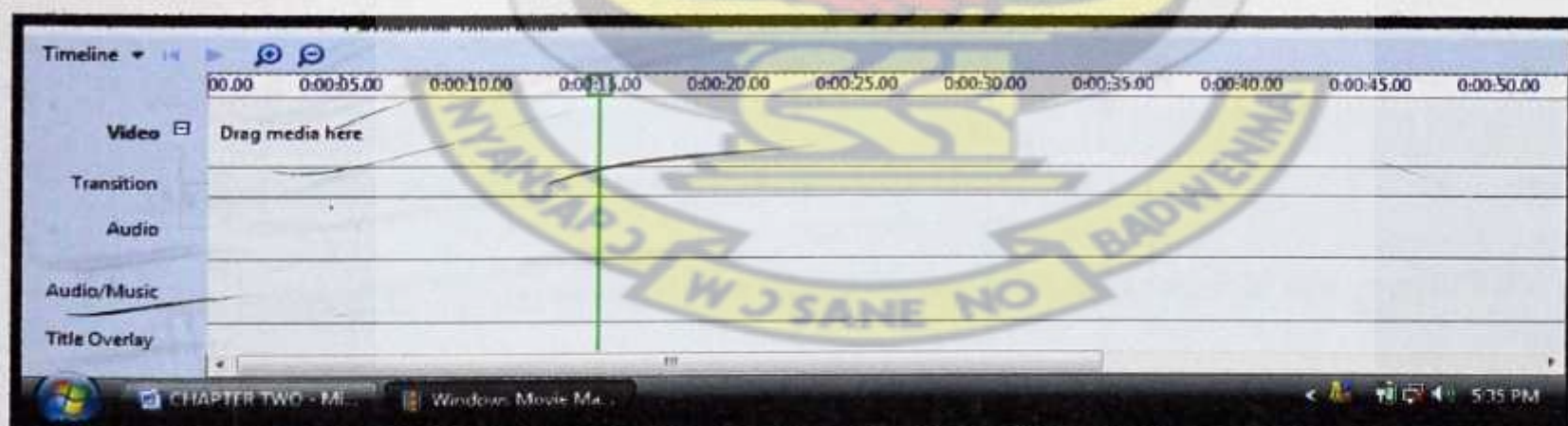
Plate 27:Timeline

Once you have edited the movie on the storyboard /timeline, it enables you to render it – create a new file with all the effects superimposed on the original clips. The faster the computer, the faster the rendering time. The new rendered file will be large, so a computer

with a bare minimum of ten gigabytes of hard disk space would be needed for a project (a larger hard disk would be desirable).

Getting started / Plotline

The researcher takes into consideration the various steps and strategies outlined by the renowned authors like Dabbagh & Bannan-Ritland (2005), video production as instructional strategy; Brookfield (1985, 1986); Friere, 1970; Galbraith, 1991, 1992), instructional plan; and Becta (2002) in video utilization strategy in the related literature review.

- The researcher kept the focus simple not only to reduce the technical demands but also to cut the shooting time which means less storage space required, He worked in the art studio in good natural light and lights on to reduce the need for extra lighting.

- The researcher checked that the batteries are fully charged and have a good long extension lead as back-up to attach the camera directly to a power supply; and ensured that the camera was close to the person being filmed so that sound can be picked up by the in-built microphone while shooting.

- The researcher demonstrated the three types of shots which are frequently used with camcorder video camera: wide (used to cover a large area, such as the students taking notes while the lesson was going on); medium (focuses on an aspect of the wide shot, which might be the coating of the screen); and the close-up (the printing the design on the T - shirt, for example).

- The researcher sometimes paused the recording and restarted when one is to proceed on to another unit and get the camera rolling.

Importing pictures and Audio files into Windows Movies Maker

Having finished, the researcher imported the digital images of the screen printing processes which were taken by pressing and holding down the CTRL key and then click each clip that he wanted to import into Windows Movie Maker. For instance plate 29, clip MVI 0296 and MVI 0300, shows the researcher, introducing the screen printing lesson and the coating of the screen in the darkroom respectively. (clips can be created automatically for Windows Media Video (WMV) files and Audio-Video Interleaved (AVI) video files that use the DV codec.)

Plate 28: Imported pictures and Audio files

The researcher edited the video by splitting and combining clips, trimming parts of it and creating a clip. For instance, he splitted the clip at the point where he wanted to insert the video transition, and combined contiguous clips, so that the start time of the second clip immediately followed the end time of the first clip in the storyboard/timeline. The transition length is determined by the amount of overlap between two clips. To see the track, the researcher expanded the Video track. Plate 30 shows the project on the storyboard with a transition:

Plate.29: Transition on the Storyboard

He compiled the digital images on an electronic storyboard, to allow him to sequence events (via the use of a timeline), added effects such as title, transitions between clips, colours, sounds as he would want them to appear in the video.
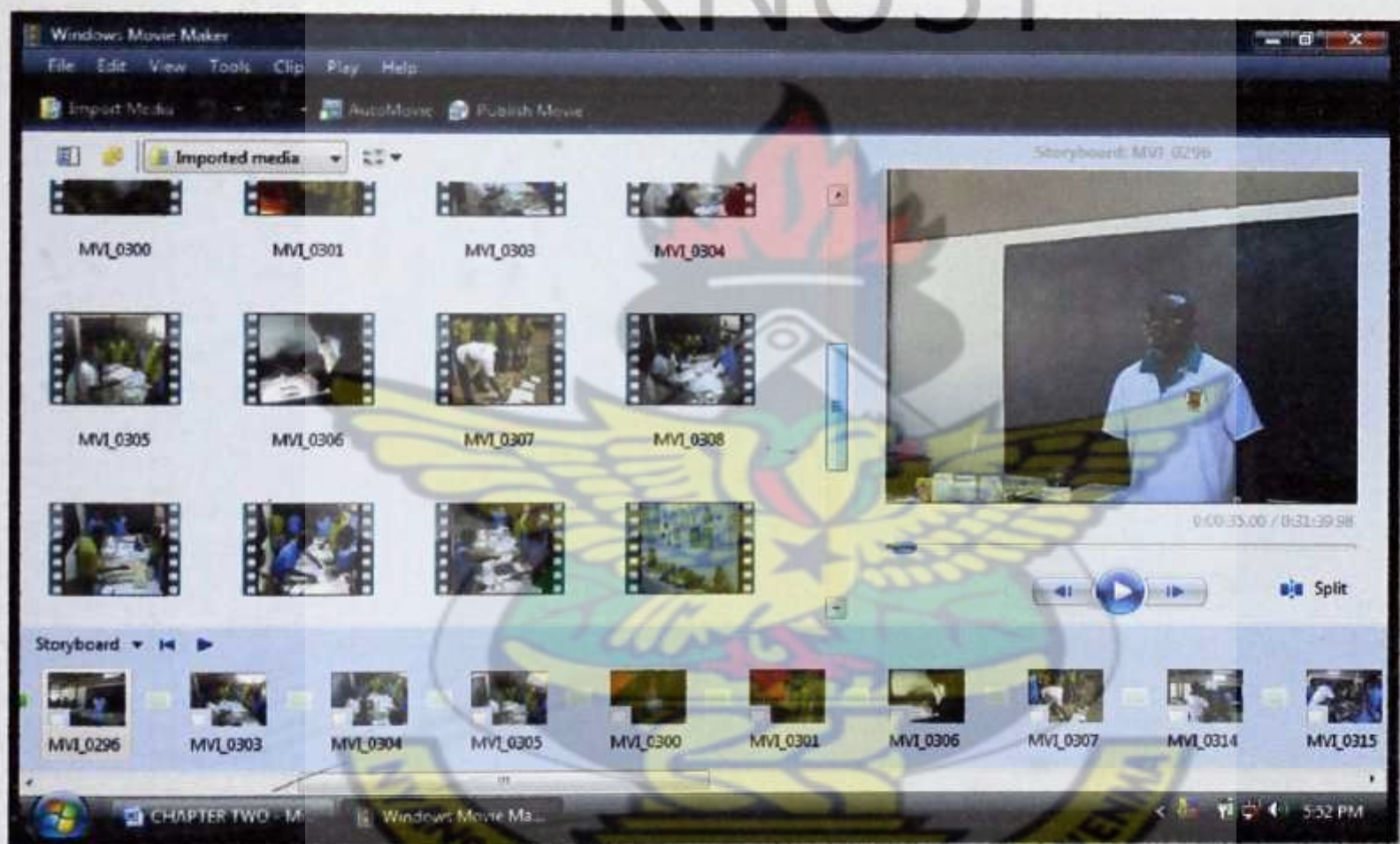
Plate 30: The final work after editing and transition.

He asked questions, for instance "state two reasons why screen coating and developing is done in the darkroom?"

Having finished filming and editing, he involved another colleague from the ICT department, to critique the finished film, using the analysis sheet (the lesson plan and video analysis sheet can be seen in APPENDICES A and B respectively).

3.9: Data Analysis Plan.

The data collected in the form of field notes, practical works done by students, official records and pictures have been assembled, analyzed, interpreted. Conclusions are drawn and recommendations are made in the next chapter.

CHAPTER FOUR

PRESENTATION AND DISCUSSIONS OF FINDINGS.

4.1: Overview

According to Edgar Dales (1946,) in the literature review, the most effective method of learning, is that of the direct purposive learning experiences, such as hands – on experiences or activities which represent reality or the closest things to real or everyday life and results in up to 90% retention. This suggests that students learn best when they use perpetual learning styles which are sensory based. The more sensory channels possible in interacting with a resource, the better chance that the students can learn from it. It also implies that, students' learning is greatly enhanced when each student has the opportunity to correct misconceptions, build on prior knowledge, and create schemas of understanding around the topic. Learning is optimized when students can see where new concepts build on prior knowledge.

4.2: Testing / trying the Video

After successful development of the video on how to screen - print T- shirt, the researcher decided to test the video to see if he had achieved his learning outcome. To do this, researcher resorted to the Video Utilization Strategies outlined in the related literature review.

4.2.1: Before the Class:

- The researcher carefully previewed the program to determine its suitability for the lesson's objectives and student's learning outcome and also assessed the value of the program's support material.

- He selected a brief video clip that can spark students' interest or demonstrate the concept of Screen Printing.

- He also, prepared the art studio and got the room set for viewing, by checking the equipment such as the projector, the computer, monitor, VCR, remote control and the wall on which the video will be screened (Plate. 8). After that, he arranged the seats, checked the lightings and cue videodisc(s).

Plate 31:The researcher and. J. Byrne putting the equipment together to preview the video.

- Lights were left on during the lesson, to indicate that video is an integral active part of the lesson and that they are responsible for its content, as well as any pre-viewing or post-viewing instruction that may be given. Not only this, but also it was done to reinforce the fact that the video is not a passive entertainment.

4.2.2: During Lesson:

The researcher began the lesson with an introductory activity that draws students into the lesson and lets them know what to expect in the video. For example, the researcher used the already prepared screen to print on a T- shirt and some handkerchiefs and conducted related hands – on activities.

- The video had been segmented to teach the concepts of Screen Printing- the lesson topic. – "How to screen print T- shirt". This was done so that its content can be more easily understood.

- ***With picture on***: The researcher provided the students with a specific task to complete and to identify during or after viewing of the video. For instance, he introduced the video segments with a question, "What is Screen - Printing"? 'State three tools and materials that are required for screen printing project, and some of the activities that will make the program's content more clear or meaningful.

- By charging the students with specific viewing responsibilities, he kept them "on task" and directed the learning experience to the lesson's objectives.

- After that, he used the pause; to control a scene and asked the students to predict what will happen next and again used the pause to control stop after a particular line of dialogue and have the students to predict the next line.

- In order to make the viewing as interactive as possible, the researcher paused, while viewing to check students' comprehension, and asked questions, for instance, *Mention two chemicals that are used in screen - printing and explain the reason why screens are coated and burned in the darkroom?* He allowed students to answer the questions, record information, make predictions, on procedures on the image on the screen more closely to have them drawn and labeled.

- **With audio off**: To ascertained how concentrated the students were on the visuals or narration. . The researcher, eliminated the sound to have students describe what had happened without the assistance of the soundtrack. For example, the researcher replayed a segment of "How to mix Potassium Dichromate with the Photo Emulsion and the coating of the screen in the darkroom" Not only this, but also to have students predict line of dialogue after viewing an entire scene without the sound.

- **With picture off**: The researcher again put off the picture, to have students predicts the situation and characterisations by listening to the soundtrack without watching the picture. For instance, the researcher replayed "How the design and the dried, coated screen were positioned and placed on the light box and its removal for washing."

- The lesson had ended successfully, without experiencing power cuts and malfunctioning equipment.

4.2.3: After the Video Lesson:

To recognize the validity of divergent reactions, the researcher discussed some line of the video with them and helped them to relate the program to their own experiences and feelings   by giving those culminating hands- on – activities. For examples, the researcher asked them to design and print a Logo of a new brand of Orange Juice Company on a T-shirt for advertisement, and gave them the questionnaires to fill.

4.3: Assessing the Video after Lesson.

Two classes were observed. In the first class, the teacher taught without using the video and in the second class, the video was used. In both classes how to screen print T- shirt

was taught for 25 minutes a period, and observed for twenty (20) minutes, and assessment was made after the lesson. In the class which was taught with the video, the researcher asked 17 questions, and 15 students answered correctly, that is 81%. The other class which was taught without the video was tested with 14 questions and 7 students got the answer correct that is 50% of the answers was correct.

This procedure was repeated in the other classrooms and the results were similar. The class that used video scored higher percentage of the correct answers than the classes which did not used the facility.

This was done by the researcher to have a fair knowledge of how effective the instructional tool is in achieving the students learning outcome.

At the end of the lesson, 75% of the students said the video was effective, informative and appealing. 25% said, it was interesting and imaginative and had conveyed the message clearly. On the issue of introduction sequence, 80% of the students were very interested from the beginning of the video to the end, while 20% said the beginning did not capture their interest.

4.4: On the Choice of Project, all of them agreed that the

Video was relevant and helped to convey the key message. Events and messages were very clear.

About the assignment, 40% of them said most elements of the assignments were addressed satisfactorily. And 60% were of the view that all the elements were addressed satisfactory.

Evidence for thinking and learning.

All of the students them responded the video showed creativity, motivation and critical thinking. The presenter had a clear understanding of the processes.

Good audio and visual continuity

All of them say video moved smoothly from one segment to another. Sound was well placed and consistent. Good but not excessive use of effects. From the foregoing analysis, it can be said that the students' responses to the use of video as instructional media in general, has been positive.

In the course of evaluation, the students have been able to articulate a variety of benefits they derived from interacting with the video. They believe that viewing, writing about, and discussing the video, had helped them think about the teaching and learning of screen printing by providing real life classroom examples. They feel better prepared having acquired the skills and print their own T- shirts after hands- on activity. They said using video or film in a classroom situation has the advantage of presenting abstract ideas in a realistic context, which helps them to grasp the subject more easily and retain the material longer. The lesson had enhanced retention and transfer of knowledge; this can be seen on how best the students were able to execute their work during the hands –on activity. It has also helped them to visualize the lessons and transfer abstract concepts into concrete, easy to remember objects.

4.5: On the Instructional Video Evaluation Instrument for Teachers, they have this to say:

The content of the video was accurate, useful and suitable for learning as it stimulates, motivates and informed the learner to act on the information that was being presented.

On the Instructional Plan, they all agreed that it was good and met the learning objectives and needs of the learner. It visually depicted fit the learning objectives as key elements were made clear in the introduction.

On the Content Presentation, 50% said, it was good. The video was able to simplify complex tasks and avoid introducing extraneous information while 50% agreed that the content was detail controlled to promote understanding.

On the Learner Reflection and Application, they said, the video allowed time for the learner's to react to a scene and **also** allowed the facilitator to provide feedback on the learner's application of the materials.

On the Learner's Interaction and Integration into the Learning Environment, they all agreed it was exceptional. It was conducive to learner interaction and can easily be integrated into the learning environment by supplementing more traditional methods.

On the Visual Quality, 60% said it was good while 40% said it was on the average. The camera was able to capture the scene from the learners' point of view and changes of the scenes appear to be appropriate. Special effects were used to enhance learning by drawing attention to specific attributes of what is being seen. Also varying types of camera shots, close-ups to long shots, were used to provide variety in the video.

On the Audio Quality, all of them (teachers) said it was exceptional. The vocabulary of the narration was appropriate for the intended audience and the speed of the narration was slow enough to be understood.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1: SUMMARY

This research reveals that the most effective way by which a lesson can be enhanced is through the use of video. Of course, no video should ever be used in the classroom until it has first been previewed by the instructor. Digital video as an instructional tool in the classroom, taps into emotions which stimulate and enthrall students, and it provides an innovative and effective means for educators to address the curricular concepts. It provides another sensory experience that allows concepts to actually be "experienced" and come to life while you guide your students on each adventure. The more engaged the students are, the more interactive your lesson is, the more your students will enjoy, learn from and retain information from your lessons. Video is a very flexible medium. The ability to stop, start and rewind it can be invaluable. You can stop the video and challenge your students to predict the outcome of a demonstration, or elaborate on, or debate about, a point of historical reference. You can rewind a particular portion of a show to add your own review or view a segment in slow motion to ensure that your students understand the key concept. Furthermore, you can ensure interactivity by replicating activities, workshops, demonstrations and experiments in your classroom environment. Regarding the use of instructional video in the classroom, the overwhelming majority of the teachers in the visual arts department concluded that the programs: (a) Help students learn new information; (b) Spark student interest; (c) Help students understand concepts; (d) Encourage classroom instruction. It can be used at workshops, seminars and tutorials to support learning through examples, and visual elaboration.

FINDINGS:

It is evident in the study that;

Using digital video in projects and lessons offers not only a range of opportunities for students to develop vital skills, but also gives instructors a chance to explore innovative ways to enhance the learning experience.

The use of video increases motivation for learning and engagement levels of a wide range of learners. Also, it broadens access to the traditional curriculum as well as offering students a chance to work at their own pace and in their own style.

It has an impact on learning, creativity and ICT skill.

- **Learning** There is evidence that digital video as the instructional tool increases the engagement of students with a project, which increases motivation for learning: This is evidenced in the way many students seem to want to spend extra time on a project, often asking to work after school hours.

- **Creativity** Students are able to develop creative skills, depending on the freedom given by teachers – for example, having the freedom to use different camera shots. The most rewarding and creative aspect of DV happens during the editing phase, such as students' sequencing experiments.

- **ICT - skill** The use of digital technology in the classroom brings a rich array of ICT skill development. This starts from the point of transferring the video from the tape into an editing program, and is followed by editing, which allows students to develop a range of vital ICT skills.

5.2: CONCLUSION

From all indications, Digital Video, is a learning and teaching tool that has much to offer; which we cannot afford to ignore. DV has become an essential part of the teacher's 'toolbox', because it has the potential to:

- promote active learning and acquisition of skills to become self employed.

- promote students curiosity, speculation and intellectual engagement.

- promote group learning discussion and activities which allow learners to use knowledge they already have and higher – order cognitive skills to extend their knowledge.

- allow learners to make their own input in learning experiences and to realize the personal importance of learning itself.

Combining digital video with other instructional strategies, it is up to the instructors to develop processes and circumstances to get the interactive learning from video and help bring video experiences into the real world of the students as a learner.

5.3 RECOMMENDATIONS

The quest of quality education and importance of utilizing instructional media (video) in the teaching and learning of Visual Arts (Graphic Design) in SHS in Ghana makes it imperative for basic aids, tools and materials to be available to schools as a matter of urgency . It is therefore recommended that :

1. The Ministry of Education and the Ghana Education service should re-establish and revamp the numerous Teachers Resources Centres in the country and staff them with qualified personnel to produce appropriate teaching and learning aids (instructional materials) for distribution to all schools.

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2. The government should provide the schools with well - furnished art studios with computers, video camcorders, projectors and other necessary facilities to provide the right environment for the execution of Graphic Design work. Students cannot become truly media literate until they can experience making photographs, planning and organizing ideas through storyboards, writing scripts and performing in front of a camera, designing a web page, and reporting a news story.

3. Local workshops and seminars should be organized to make teachers to train teachers in the acquisition of skills that will enable them to teach various lessons using video.

4. Decentralized resource centres should be established in various schools to help both teachers and students to update their knowledge in the use of computers and its software, and the production of instructional medium for teaching and learning. The centres could be staffed with experts and should be located where both students and instructors could get access to.

5. The Curriculum Research and Development Division of the ministry of Education should specify and order accompanying instructional aids (video) to complement textbooks and to encourage teachers to use it in their lesson.

6. Art Resources Centres should make effort to encourage the use of hardware materials like the projector, computer and its accessories like the camcorder cameras. The use of these materials will adequately prepare the students and equip them with the needed skills that will enable them to video some of the hands - on activities in classrooms.

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APPENDIX A

Schemes of work and Lesson Plan.

The Project.

To provide a professional screen printing workstation for art, design and enterprise projects.

To provide training for students and staff in the use of the equipment and the management of a screen printing business.

To provide in depth schemes of work and lesson plans for use with the equipment for art and design based projects.

Planning.

Careful planning is essential. If you are a teacher using the Screen printing equipment then preparation is probably 70% of the overall time needed to teach the skills. For the pathfinder project I spent 36 weeks on preparation and planning (this included the production of schemes of work, lesson plans and the development of instructional DVD).

What is involved?

The project has taught students to:

- Design and develop ideas that can be easily transferred into a screen print design.
- Understand the process of photo emulsion textile screen printing
- Use photo emulsion to place an image onto a silkscreen.
- Mix and prepare inks for screen printing

- Use the developed screen to print onto cotton garments.

- Assess marketing possibilities.

- Cost of production.

- Plan their time to enable efficient running of a screen printing business.

UNIT PLAN	TITLE: SCREEN PRINTING.
Lesson preparation: Students need to prepare their screen. Instruction for this are included in the appendix	**General expectation**: Explain what a screen printing is. Use appropriate terminology related to the art works and demonstrate an understanding of its historical context.
Time Frame: 2 – 3 weeks	
Instructional aids: A projector, computer with access to adobe Photoshop, Flip digital camcorder.	**Specific expectation**: Research and describe recent and historical works of art related to the processes used (screen printing).and the issues and concern express in their own work.
Art exemplars: Students will be encouraged to research into their own exemplars which are not definitely limited to: Japanesse stenciling- T-shirts, advertisements, banners, Pop art, Contemporary street art	**Experimenting and Producing:** Demonstrate competence in screen printing techniques through the production of T – shirt designs or fabric design with a minimum of 2 colours .Solve a series of artistic problems showing an awareness of formal qualities, visual conventions and related ideas and concepts .Create and
Accommodation: Ensures that you make it very clear to students when and how to reverse their images. This project also	

requires excessive cutting with exacto knife. Ensure that all students are aware of safety and proper techniques.	transform visually images using both new and traditional method, Use materials, equipment and processes safely when producing art works.
Materials: Wooden frame, organdie or screen mesh, squeegee, printing paste/ink, stapling gun and its pin, masking tape, card boards, potassium dichromate, photo emulsion/white glue, old newspapers, teaspoon, brushes, printing table.	**Methodology**: What is screen printing?; students will complete a research project on the History of Screen Printing. They will briefly research 2 artist that have used silk screen and comments on their work. This activity is the preparation for the idea generation phase. Hopefully the students will research the artist whose work inspired them. **Idea Generation:** Students should spend a lesson generation ideas. At the end of the lesson the students should hand in some thumbnails' and at least one image. **Demonstration:** The following demonstrations are necessary to the techniques of the silk screen. For details please watch the video. Do each of the demonstration then allow for some time for the student to work on the technique. For instance "How to alter the image by hand,

	create a stencil, register and print."
	Work Periods: Once you have done this, allow them time to print. Encourage them to follow the steps outlined on the chalkboard as it is easy to get confuse.

Instructional Video Evaluation Instrument for Teachers

Video Title: _____

Name of Evaluator: _____

Phone: _____ Date Viewed: _____

Please rate the video according to the following quality

indicators by CIRCLING one response for each item (1 equals Poor and 5 equals

Exceptional). Poor-----Exceptional. Give comments where appropriate.

Content

1. Accurate   1 2 3 4 5

Was the content of the video accurate and up-to-date?

Comments:_____

2. Useful   1 2 3 4 5

 Was the content of the video generally useful?

Comments: _____

Instructional Plan

3. Stated the Objectives   1 2 3 4 5

 Comments:_____

4. Content Presentation   1 2 3 4 5

Was the content detail controlled to promote understanding?

Comments:_____

5. Learner Application   1 2 3 4 5

Comments:_____

6. Learner Reflection   1 2 3 4 5

Did the video allow for learner reflection?

Comments:_____

7. Met the Objectives   1 2 3 4 5

Comments:_____

8. Learner Interaction   1 2 3 4 5

Was the video conducive to learner interaction?

Comments: _____

9. Integration into the Learning Environment   1 2 3 4 5

Can the video be easily integrated into the learning environment by adding emphasis to or

supplementing more traditional methods?

Comments:_____

Technical Production

10. General Video Design Characteristics   1 2 3 4 5

Was the video well planned, organized, and structured? Was the technology transparent

and non-threatening to the learner? Did the video demonstrate its ability to transcend space

and time?

Comments:_____

11. Visual Quality   1 2 3 4 5

Is the camera looking at the scene from the learners' point of view? This is especially

important when psychomotor skills are being taught. Did the scene changes appear to be

appropriate? Were special effects used to enhance learning by drawing attention to

specific attributes of what is being seen? Were varying types of camera shots, close-ups to

long shots, used to provide variety in the video?

Comments:_____

12. Audio Quality   1 2 3 4 5

Was the vocabulary of the narration appropriate for the intended audience? Was the speed

of the narration slow enough to be understood? Was the music fitting for the visual effects

or audio narration? Was background noises used that was conducive to learning? Were

sound effects used to add emphasis to the

15. Clarifies and Summarizes Content   1 2 3 4 5

          Total (Sum the Scores, 85 Max.) _____

Additional Comments: ---