**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND
TECHNOLOGY, KUMASI, GHANA**

Developing Digital Techniques for Fashion Illustration

KNUST

by

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DECLARATION

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

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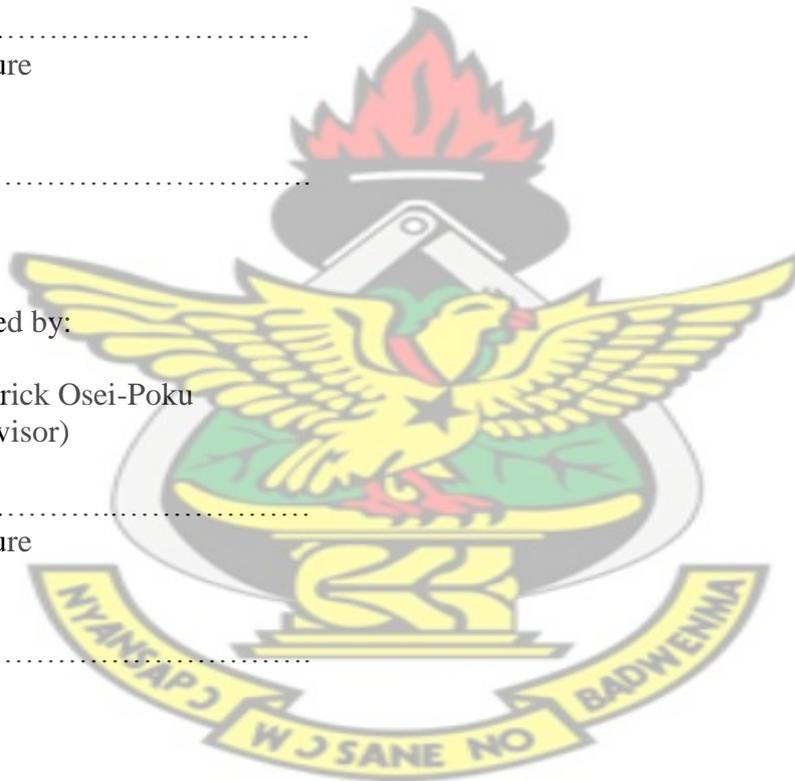
ABSTRACT

Fashion illustration has the potential to attract the attention of its viewers by way of communicating fashion design ideas through various presentable media. But in situations where fashion designers have challenges in fashion illustration, creativity tends to become an imitation of others' works. In the case of the Fashion Design and Textiles studies Department of the Kumasi Polytechnic, students are admitted from diverse background with basic requirements. Most of these students often have little or no background in the visual arts and for this reason, their output in fashion illustration and creative design tend to be low. Again, the fashion industry, in its quest for new opportunities and better ways of production is now employing the assistance of new technologies into the production system. It is for these reasons that this research sought to develop digital techniques to solve fashion illustration problems in the Fashion Design and Textiles studies Department of Kumasi Polytechnic. Action Research processes were used with selected students to address the concerns of the department and by so doing Qualitative and experimental research methods were employed as the case maybe. The project focused on the development of digital techniques in the form of sourcing for inspiration, drawing techniques, colour combination techniques and fabric selection techniques with the CorelDraw software. Students were trained systematically to use the techniques for fashion illustrations in more than one semester. In order to demonstrate the level of skills acquired, the selected students produced samples of works with the techniques in various outfits. These works were assessed critically according to the expected results. Finally, the study recommends that more research into new technological ways of solving problems with artistic software should be encouraged for the fashion industry to progress.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The reason or mission for establishing the polytechnics in Ghana is to provide high calibre career–focused middle-level technical personnel, possessing knowledge-based modern skills for various sectors of the economy. For industry, they are crucial for transforming knowledge and ideas into goods and services through productive processes. They are needed to ensure and sustain efficient productivity in industry. The Fashion Department of Kumasi Polytechnic was established with the aim of building competence in technological and scientific development in the field of Fashion Design and Textiles studies.

The fashion industry has come a long way and has grown into one of the largest industries in the world. With the advancement of technology, a lot of fashion designers in this contemporary world are changing to computer aided application for designing. Therefore, Computer Aided Design has become an essential tool for the modern fashion designer. Considering the benefits that can be derived from the use of digital designs, most fashion and textile industries are now training their personnel into the application of computer software for designing.

Different application software exist for different design professions such as; architecture designing, fashion designing, automotive, engineering and others. Nevertheless, the right approach to solve problems with software in most Ghanaian institutions has not yet been utilized. Because of this inadequate direction, a lot of fashion designers, students and fashion instructors get confused with CAD systems

and tend to lose interest along the way. For this reason, this project aimed at providing a better approach to the use of simple digital tools to solve fashion illustration and design problems in Kumasi Polytechnic.

1.2 Statement of the Problem

The Fashion Department of Kumasi Polytechnic admits students from different fields of study with the basic prerequisite results. Among these are graduates from the Senior High Schools, Vocational schools, Intermediate certificate holders in fashion, advance certificate holders in fashion, personnel of the Prison Service, Fire Service, Police with basic requirements. Most of these students may be very good in the area of practical sewing and textiles but may have little or no background in art and design which includes drawing and illustration. For this reason, their output in fashion illustration and creative design turn to be low.

Besides, with the advancement of technology, a lot of fashion designers in this contemporary world are exploring other techniques in connection with computer aided application for designing and illustration. However, the right approach to solve fashion illustration problems with software in most Ghanaian fashion institutions has not yet been utilized. It is for this reason that the researcher aimed at developing a different digital techniques for fashion illustration and design with identifiable effective software and experiment the techniques with selected students to solve problems related to fashion design and illustration in the Fashion Design and textiles Studies Department of Kumasi Polytechnic.

1.3 Objectives

1. To identify the effective CAD software for fashion illustration.

2. To develop digital techniques for fashion illustration and design with the software.

3. To train selected students of Kumasi Polytechnic on how to apply these techniques to fashion illustration.

1.4 Research questions

1. Which of the CAD software tools are effective for fashion illustration?

2. What are the most effective digital techniques for fashion illustration?

3. What skills are needed by the fashion students to execute digital fashion illustration?

1.5 Delimitation (scope)

This project was limited to fashion illustration techniques that address the problem of sourcing for inspiration, fashion drawing, colour combination and fabric selection for digital designs. CorelDraw was the CAD software employed.

1.6 Importance of the study

1. This project will help designers to identify the efficiency of a number of tools in the CAD software for producing creative designs.

2. After successful completion of this project, students can experiment with other CAD software.

3. This project would serve as a reference material for fashion institutions and the industry.

1.7 Definition of terms

Bitmap - An image represented as a two dimensional array of brightness values for pixels

Computer Graphics - An image that is generated by a computer

Raster - The rectangular formation of parallel scanning lines that guide the electron beam on a television screen or a computer monitor.

Swatch – A small sample of colours

Trace bitmap - A process of converting bitmap image to vector image

Technique - A practical method or art applied to some particular task

Vector images - Are made up of many individual, scalable objects. These objects are defined by mathematical equations rather than pixels.

Art board **-** The area where the fashion drawing is created and edited (sometimes called 'the drawing board').

1.8 Abbreviations Used

- CAD **-**Computer Aided Design**.**

- CAM - Computer Aided Manufacture.

- PC -   Personal computer

1.9 Arrangement of the rest of text

This report begins with an introduction and continues with chapter two which deals with educated thoughts of scholars. Chapter three deals with the methodology. Chapter four also embodies overview of computer graphic display, development of digital techniques for fashion illustration and Sample works. Lastly, Chapter five comprises summary, conclusions and recommendations for the study.

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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The literature Review gives the researcher the opportunity to gather relevant data on educated thoughts of scholars and also to know other areas that have not yet been explored in order to know which direction to take in the area of study. In this project, the researcher found it prudent to review literature on the background of the study, Computer Aided Design (CAD), Computer software, Fashion design software, transformation of illustration techniques, Digital illustration, Digital graphics image display and computer design skills.

2.1 Background

Polytechnics are higher educational institutions responsible for training in scientific and technical subjects. Since 1992, when Government directed Polytechnics in Ghana to run tertiary programmes, significant gains have been made in the output of the Polytechnic graduate. The Polytechnics provide the bulk of our people with technical education that is relevant, up-to-date in technology, and forward looking in approach. As such polytechnic graduates play a significant role in the development of the nation. (The Polytechnic Law [PNDCL 321], 1992)

The Fashion department of Kumasi Polytechnic, just like those in the other polytechnics in Ghana, is made up of students of different or diverse backgrounds with the aim of building competence in technological and scientific development in the field of Fashion Design and Textiles Studies. The school believes that fashion design and textiles studies have begun to gather momentum in Africa with the upsurge in fashion or mode of dressing for both the young and the old. The principal

goal of the programme is to prepare students for meaningful employment in the Fashion and Textiles industries, and to facilitate the industrialization of the country's goal of self – reliance.

2.2 Trends of Fashion

The wearing of clothing is exclusively a human characteristic and is a feature of most human societies. A clothing style is usually introduced as a fashion but its use becomes a custom after it has been handed over from generation to generation. A fashion usually remains popular for some time and then is replaced by yet another fashion (Hazel, 1968:75).

According to Wolf (1998), a fashion trend is the direction in which fashion moves. It is a new clothing, fashion style or accessories, that is gaining popularity and wide acceptance in the market place. Mankey and Tortora (2003) believe that fashion trend is the direction in which styles, colour, fabrics and designs are tending to change. They add that political events, films, personalities, dramas, social and sports events often influence fashion.

For many decades, trends in fashion have been discussed in so many ways. A trend is a general direction or movement. For example you will often read in fashion magazines that "there is a trend toward longer skirts": it means that several designers, including some leading ones, are ˈshowing longer skirts, leading retailers are buying them and 'fashion-forward' customers are wearing them. In the same way, the garment production system has gone through a number of transformations. Looking through the history of the garment industry, it could be noted that production systems has gone through transitional stages together with the technology of the day.

2.3 Transformation of Illustration Techniques

2.3.1 Illustration

To begin with, an illustration is an image presented as a drawing, painting, photograph or other work of art that is created to elucidate or dictate sensual information (such as a story, poem or newspaper article) by providing a visual representation graphically.

According to Wikipedia Encychropedia, (2012) the earliest forms of illustration were prehistoric cave paintings. Before the invention of the printing press, books, such as Medieval illuminated manuscripts, were hand-illustrated. Illustration has been used in China and Japan since the 8th century, traditionally by creating woodcuts to accompany writing. The source added that, during the 15th century, books illustrated with woodcut illustrations became available. The main processes used for reproduction of illustrations during the 16th and 17th centuries were engraving and etching. At the end of the 18th century, lithography allowed even better illustrations to be reproduced. The most notable illustrator of this epoch was William Blake who rendered his illustrations in the medium of relief etching.

2.3.2 Fashion Illustration

Fashion Illustration is the communication of fashion that originates with illustration, drawing and painting. It is usually commissioned for reproduction in fashion magazines as one part of an editorial feature or for the purpose of advertising and promoting fashion makers, fashion boutiques and departmental stores (Blackman, 2007).

Laird, (2000), reveals that Fashion Illustration has been around for nearly 500 years. Ever since clothes have been in existence and there was a need to translate an idea or

image into a garment there has been a need for fashion illustration. Not only do fashion illustrations show a representation or design of a garment but also served as a form of art. Over the years, there was a decline of fashion illustration in the late 1930s when Vogue magazine and others began to replace its celebrated illustrated covers with photographic images. He also states that:

"Fashion Illustration has gone from being one of the sole means of fashion communication to having a very minor role. The first photographic cover of Vogue was a watershed in the history of fashion illustration and a watershed mark of its decline. Photographs, no matter how altered or retouched, will always have some association with reality and by association truth. I like to think of them [fashion Illustrations] as prose poems and having more fictional narratives. They are more obviously filtered through an individual vision than photos. Illustration lives on, but in the position of a poor relative to the fashion".

The above statement gained attention and dominated the fashion scene when photography was invented and was able to depict the reality of clothing on various figure types. However, with the advancement of technology where experiment with different fabrics and colours are very easy, flexible and convenient, a lot of fashion designers are using illustration as the best option.

2.3.3 Fashion Illustration and Fashion Design

Fashion design and fashion illustration has been used interchangeably as a working definition for this project. In general, fashion illustration professionals work very closely with fashion designers to produce artistic, unique and creative visual images with the aid of traditional and digital media.

Actually, fashion illustrators are basically tasked to develop eye-catching drawings aimed to boost the interest of the buying public to a particular clothing trend. The images created by fashion illustration professionals are commonly integrated in print ads, television commercials, and online advertisements. Although, fashion illustrators are mainly tasked to make sketches, layouts, or images, they are still expected to fulfil other duties which may include creation of designs for garments, shoes, fashion accessories, and other apparels with the use of imaging software programs like Photoshop, Illustrator and others (International Academy of Design and Technology, 2011).

In connection with the above idea, some basic functions of fashion illustration can be addressed in the following bulletin:

- Create designs for garments, shoes, fashion accessories, and other apparels.

- Bring the vision of the fashion designs to life through the illustration of the actual design plan.

- Sketch drawings using various mediums including paint, charcoals, coloured pencils, and computer software programs.

- Produce drawings and layouts that will be used in catalogues, magazines, brochures, flyers, commercials and other advertising media.

- Communicate fashion ideas through sketches, layouts, drafts and drawings

- Select the appropriate colour, sound, and animation that will go well with the fashion concept developed.

- Develop fabric patterns and designs that will be used for manufacturing garments and wardrobes.

- Maintain open communication with the fashion designers, art directors, and buyers.

Drudi, (2008) believes that fashion illustration and technical drawings are used to visualize new clothing designs. It is of the utmost importance that these illustrations be clear, easy to understand, and accurately represent the aims of the designer. Therefore it is expedient to visualize texture, colour and feel in both fashion illustration and technical drawing. In connection with this statement, she undertook a project in a published book where she used already made fabrics like denim, corduroy, and others, to illustrate different garment designs with both manual and digital techniques. She also suggest that the same item of clothing can be changed with insertion of different fabric design and this will enable a designer to quickly experiment with the fabric swatches and also to visualize the end product.

2.4 Computer Aided Design (CAD)

The computer is one of the most powerful creative tools an artist can possess, and it is well on its way to revolutionizing the making of visual art just as word processors have transformed the way most people write. The Oxford Dictionary (2000) defines Computer Aided Design as the use of computers to design machines, buildings, vehicles and so on. Wolfe (1998) also defines CAD as a computer system used for designing textiles, apparel and other products.

The two definitions look somewhat different in the way they are presented but in principle they are similar in meaning. Computer Aided Design is a system used in the designing field of study and it gives the opportunity to every branch of the design field to define the term 'CAD' in context of their study. Almost all definitions of CAD trace its root from a particular branch of the designing field of interest. For example, Wolf defines CAD as a computer system used for designing textiles, apparel and other products from fashion background.

In practice, Computer Aided Design could be defined as the use of computer technology to assist the design process. Specialized CAD programmes exist for various types of design: architectural, engineering, electronics, civil, and woven fabrics to name a few. However, there are many acronyms associated with the CAD system that tend to define the right type of system in context. Examples of such acronyms are listed below:

CAD - Computer Aided Design

CADD - Computer Aided Design and Drafting

CAM - Computer Aided Manufacturing

CIM - Computer- integrated Manufacturing

CAD software provide the user with input-tools for the purpose of streamlining design processes; drafting, documentation and manufacturing processes. CAD output is often in the form of electronic files for print or machining operations. CAD software use either 'vector based graphics' to depict the objects of traditional drafting or may also produce 'raster graphics' showing the overall appearance of designed objects (Eshun, 2005).

Schoeser (1995: 7) describes the move towards the use of computer technology in every aspect of the fashion and textile production pipeline as the ''third industrial revolution''. The first industrial revolution resulted in the process of mass production. The second industrial revolution brought about higher standards in products, increased speed of production and greater conformity of product specifications. In the third industrial revolution the use of CAD/CAM is resulting in greater manufacturing flexibility. This idea justifies that CAD is an essential tool for the modern fashion designer (Wolfe, 1998).

Sayem et al. (2009) opine that today's clothing industry comparatively prefers to use computer-aided design (CAD) techniques for both fashion design and pattern creation as it offers greater efficiency and time-saving solutions to many complicated tasks as well as facilitating Internet-based communication amongst designers, manufactures and retailers. This suggests that Computer Aided Design has become part of the designing instrument of today because of the benefits that can be derived from the system.

Traditionally, designers have made sketches of ideas with traditional tools and some designers still work in these ways. However, the methods are very slow for high volume production (Wolf, 1991). The writer believes that CAD terminals can include sketch pads with electronic pens for drawing images into the computer. Previous drawings or actual fabric patterns can be scanned into the system with equipment that can read an image on paper and put it into the computer. All works can be saved and retrieved on command for updating. Seasonal colour palettes can be incorporated, with hundreds of thousands of colour options (including tints and shades).

Aboagye (2009), made a similar statement and he holds the view that using repeat generating programmes such as 'Style Manager' by 'Animated Images' (Lectra), an image may be scanned in and the designer may randomly select a small area to be repeated. With a few clicks of the mouse a fabric swatch is available for approval or dismissal. Instantaneous colour changes can also be made. This technique offers the designer a trial and error method that was previously, time consuming. He believes that this is one of the biggest benefits of CAD.

2.4.1 Arguments against Overreliance on Computer

Alberta (2010), argues that while the benefits of CAD seem endless, there are some downsides as well. Before a business can purchase a system, time must be invested researching the large variety of software options currently on the market. Often, new hardware must be purchased to support the software. Once a company matches its needs with specific software, it has to plan ahead for training and support. Training, in some cases, accompanies the software purchase. In other cases training must be sought and can be time consuming and expensive. Training is also available in large cities by way of travelling seminars, acquired through college courses or offered by the individual software company.

Although, the above statement is true, considering the operational processes of the garment manufacturing companies, the fact still remains that the advantages of the CAD system out-weighs the disadvantages and challenges of traditional methods.

Thornton, (1996), made some comments on the low level of creativity in publications by design professionals and blames all that is happening on the advent of computers. According to him, untrained individuals have access to inexpensive tools that can be used for a variety of publications. New software have templates that facilitate the creation of newsletters, logos, announcements, letterheads, business cards, and home pages on the World Wide Web. With this comment he believes that the advent of computer is a threat to the graphic design profession.

Markwei, (2009) agrees with Thornton and stated that the untrained artists have access to the computer software which makes designing easier and faster. Nevertheless, many people think they can do design without any formal training. It is obvious that, when graphic design started and it was all about drawing and painting of the advertisement, it was left for the professional artists.

The researcher, on his part, believes that it is very important to have basic skills in formal and informal training for all designing sectors. However, the advent of computers has contributed rather positively to the design industry than its minor disadvantages.

2.4.2 Computer Software

According to Wikipedia encyclopedia (2011), a computer program or software is a sequence of instructions written to perform a specified task with a computer. A computer requires programs to function, typically executing the program's instructions in a central processor. The program has an executable form that the computer can use directly to execute the instructions.

Similarly, Stair, et al (2003) also defined Computer Software as the stored machine-readable code that instructs a computer to carry out specific tasks. Computer source code is often written by computer programmers. Source code is written in a programming language that usually follows one of two main paradigms: imperative or declarative programming. Source code may be converted into an executable file (sometimes called an executable program or a binary) by a compiler and later executed by a central processing unit. Alternatively, computer programs may be executed with the aid of an interpreter, or may be embedded directly into hardware.

There are two important functional lines of the computer systems: System Software and Application Software.

 According to Webopedia (2011) Systems software consists of low-level programs that interact with the computer at a very basic level. This includes operating systems, compilers, and utilities for managing computer resources.

In contrast, applications software includes database programs, word processors, and spreadsheets. Figuratively speaking, applications software sits on top of systems software because it is unable to run without the operating system and system utilities. This implies that applications like Microsoft Word, CorelDraw, Photoshop and others could not function without the operating system.

2.4.3 Popular Illustration and Designing Software

Eshun, (2005) states that Corel Draw is a vector-based drawing programme which has grown to become one of the leading drawing programme available on the PC. It's users range from amateurs to professional designers, who use the programme for projects which include simple logos to intricate technical illustrations. He also believes that it has been the obvious choice for many for different reasons.

2.4.4 Fashion Design Software

The fashion industry has come a long way, as stated earlier, and has grown into one of the largest industries in the world. In view of this, the use of technology in this field has increased. Fashion designing software are increasingly being used by fashion designers.

According to Wolfe (1998) Fashion design software greatly aid the work of a fashion designer and help in more effective performance. They help in saving a lot of time, money and energy. These software packages help the designer in experimenting with a number of textures, colours and patterns for producing the perfect designs. They provide a variety of sketch backgrounds, tools for designing and repeating patterns and texture mapping.

There are various fashion design software packages available in the market today, such as Adobe Photoshop, Adobe Illustrator, CorelDraw, Digital Fashion Pro among others. Fashion designers have often been observed to use particular software according to their own individual requirements. They aid the designer right from the stage of designing to the production of apparel. The process of creating an illustration, design or a pattern as well as cutting has become easier with the help of software. Designs and illustrations can be made faster and more accurately. Some have a number of basic designs incorporated in the software, which the designer can make use of. The designers can make modifications in the basic designs and personalize them. Even 2D and 3D formats of a design can be created. These designs can be printed or sent to other sections through e-mail on soft copies.

2.4.5 Digital Illustration

Computer illustration or digital illustration is the use of digital tools to produce images under the direct manipulation of the artist, usually through a pointing device such as a tablet or a mouse. It is distinguished from computer-generated art, which is produced by a computer using mathematical models created by the artist. It is also distinct from digital manipulation of photographs, in that it is an original construction "from scratch". Photographic elements may be incorporated into such works, but they are not the primary basis or source for them (Wikipedia encyclopedia, 2012).

The general term usually used for drawing, illustrations, photo management and design to communicate, educate or advertise through computer is known as computer Graphics. During a typical day, a lot of the images that we see around us are created on a computer. In the daily newspaper and popular magazines, many graphics are either created or retouched by draw or photo-manipulation programs. Graphic artists using common

3-D modelling programs produce the titles of many popular television shows and other events.

Eshun and Appiah, (2004), believe that although graphics software was a relative latecomer to the computer world, it has advanced a long way in a short time. In the early 1980s, most graphics programs were limited to drawing simple geometric shapes, usually in black and white. Today, graphics software offers advanced drawing and painting tools, and virtually unlimited colour control. In newspapers and magazines, on posters and billboards, in TV and the movies, you see the products of these powerful tools.

2.4.6 Digital Graphics Image Display

The two main types of computer graphics are vector graphics and bitmaps (or raster). They fall into two primary categories; those that work with bitmaps are called paint programs and those that work with vectors are called draw programs. Each category has advantages and drawbacks, depending on the kind of output needed.

All CAD systems are referred to as raster based or vector based. Vector graphics are made of lines and curves, and they are generated from mathematical descriptions that determine the position, length, and direction in which lines are drawn. Bitmaps, also known as raster images, are composed of tiny squares called pixels; each pixel is mapped to a location in an image and has numerical colour values (Eshun, 2005).

Aldrich, (1994) also believes that images can be displayed on screen in two fundamental ways: a raster or vector display. From a design viewpoint it is important to understand the differences, and the benefits and restrictions of each, in other to avoid confusion and frustration in the computer system,

especially, when creative results are required.

According to Appiah and Eshun, (2005) Vector graphics are ideal for logos and illustrations because they are resolution independent and can be scaled to any size, or printed and displayed at any resolution, without losing detail and quality. In addition, one can produce sharp and crisp outlines with vector graphics.

On the other hand, bitmaps are excellent for photographs and digital paintings because they reproduce color gradations well. Bitmaps are resolution-dependent - that is, they represent a fixed number of pixels. While they look good at their actual size, they can appear jagged or lose image quality when scaled, or when displayed or printed at a resolution higher than their original resolution.

2.7 Computer Design Skills

The fashion Department of Kumasi Polytechnic and JICA, (2010) organized a Skills Competition to promote and award students competence in the field of art. The selected areas were sewing skills, drawing skills and Computer design skills. Different objects and a human figure were composed for contestants of the drawing section to draw, illustrate and paint in any paint media. On the other side, contestants were given a poster project to execute with designing software of their choice. Among the programmes that were selected by the students were: CorelDraw, Adobe Photoshop, Adobe Illustrator and others.

The results provided gave some ideas of the capabilities of the various software. However, the poster project given to the contestants and the purpose for which the competition was organized could not fully demonstrate the capabilities of the individual software, but, rather the competence of the individual contestants. Nevertheless, this event was the first attempt to compete, demonstrate and exhibit

talent with computer software in the Kumasi Polytechnic, which was adopted from Japan.

After this competition, the researcher, who also served as one of the organizers and a judge, identified some prospect in training of students in different software for designing and believes that if the needed attention is given to the study in the department, it will go a long way, not only to develop the skills of the fashion students in the Faculty of Creative Arts and Technology but also, graduates who are now operating as managers in their own shops and the entire garment production industry.

<center>**CHAPTER THREE**</center>

<center>**METHODOLOGY**</center>

3.0 Overview

This chapter discusses the methods adopted by the researcher for gathering information to achieve the objectives of this research. In other words, this chapter presents research design, library research, sampling techniques, as well as the instrumentation employed for this study. It again discusses the administration of instruments, sources of data, data collection procedure and data analysis plan.

3.1 Research Design

The purpose of this study is to develop digital techniques for fashion illustration with the fashion students of Kumasi polytechnic. This necessitated the research to adopt action research method.

3.2 Qualitative Research Method

The purpose of this study was to experiment and develop digital techniques for fashion illustration with appropriate software that can produce works as a means of promoting the fashion industry. In order to adequately deal with the study, qualitative research design was employed in this study to identify, understand and assess the significant of the computer aided system and how best it can be used to assist the fashion industry in terms of illustration and design. Best (1981) defines qualitative research as the type of research that is usually based on quality rather than quantity.

Qualitative research is a field research in which the researcher makes an effort to study all elements in the setting in order to understand the reality of the situation.

This calls for detailed investigations aimed at understanding the computer aided design system, the available software and the efficiency of the various tools in fashion illustration/design.

According to Borg and Gall (1989), qualitative research method is largely subjective, and that they rely heavily on the investigation skill of observation and interpretation to provide valid information. This research method investigates the why and how of decision making, not just what, where, when. Hence, smaller but focused samples are more often needed, rather than large samples.

3.3 Action research

Action research is a process in which participants examine their own educational practice systematically and carefully, using the techniques of research.

The researcher employed the use of Action Research design because, typically, action research is undertaken in a school setting. It is a reflective process that allows for inquiry and discussion as components of the research. Again, it allows practitioners to address those concerns that are closest to them, ones over which they can exhibit some influence and make change.

Action Research in this project, gave the researcher opportunity for collaborative activity amongst students and lecturers, searching for solutions to everyday, real problems experienced in the school, or looking for ways to improve creativity and increase student achievement.

3.4 Experimental Research Method

Experimental research designs are used for the controlled testing of causal processes. The general procedure is one or more independent variables are manipulated to determine their effect on a dependent variable.

This project employed the experimental study that manipulates and explores different kinds of variables in the form of motifs, colour schemes, textures and design techniques with regard to different colour combinations, sizes of motifs and textures to produce fashion illustration.

The researcher selected qualitative method because it is meant to investigate and provide understanding of the computer aided systems and the techniques used to generate fashion illustration. The descriptive and experimental methods of research were used based on qualitative research design. However, it is important to note that the experimental method in this sense does not mean scientific enquiry of quantitative research, but art studio base experiment and description.

3.5 Population

Population in any given research study is essential. This is because the main objective of most researches is to determine principles that have universal application. But in most cases the study of a whole population for a project to arrive at generalization is just not possible considering the enormous size of some population, and the indeterminate or open-ended nature of others. Best (1981), define population as any group that has one or more characteristics in general that is of interest to a researcher.

The population for this study covered all fashion students in the fashion institutions in Ghana.

3.6 Target population

The target population covered all fashion design students in the Kumasi Polytechnic. This included the HND one, two and three Students, and Non- HND students who are into fashion and design studies

3.7 Accessible Population

The accessible population is a group or section of the target population that a researcher can easily reach for data collection for a study. This study though targeted a huge number yet the researcher was only able to access seventy students, from his target population as an accessible population.

3.8 Sampling Techniques

A sample is a subset of a population. It is a list of all the units of a population, who are to participate in a research project (Black, 1999). According to Tryfos (1996), a sample is a part drawn from a larger whole. This research applied Tryfos' theory since it was inconvenient to sample all the available population that was present. Convenience and purposive sampling methods were used in this research to help the researcher achieve the objective of the study.

Convenience sampling was used in the selection and interviewing of some of the students from HND 1, 2 and 3 and also 20 graduates from fashion studies that were available. Purposive sampling was used to select 70 students out of the three classes for the project as the accessible population.

3.9 Collection of Data

The qualitative research which emphasizes the use of action and experimental research design was extensively used in this project. Participant observation was used to carry out the project with the selected students.

Preliminary study through interview guide was carried out. Structured- Interview Guide was used to collect data from students and graduates in the fashion shops on their preference to the available and most commonly used illustration software. The researcher employed the use of Action Research design because, typically, action research is undertaken in a school setting.

3.10 Instrumentation

Participant observation was used to carry out the project with the selected students.

After identifying the problem of the students, the researcher experimented with the CoralDraw software to develop digital techniques with same essential tools. The researcher then organized the students at a computer laboratory. The researcher then demonstrated the processes of applying the newly develop techniques. This included the processes of sourcing of ideas, drawing techniques, colour combination techniques and fabric selection techniques. Finally, with the assistance of the researcher, students were able to illustrate creative fashion designs for different occasions.

CHAPTER FOUR

DEVELOPING DIGITAL TECHNIQUES

4.0 Overview

This chapter of the project focuses on the overview of computer graphic display and the fashion illustration techniques developed by the researcher with the aid of computer software. The illustration process began with the development of the four techniques and followed by various illustrations created by selected students and the researcher.

4.1 Computer Graphic Display

Computer graphics are graphics created using computers and, more generally, the representation and manipulation of image data by a computer with help from specialized software and hardware. A Computer programme, although may have different abilities, are developed to solve particular problems in our daily activities. In view of this, some programmes maybe very powerful in one area but may also be limited in some areas of visual arts.

Appiah and Eshun (2005) state that, Adobe Photoshop is computer software programme for editing graphic images. Adobe Photoshop possesses the professional image-editing standard. With its integrated Web tool application, Photoshop delivers a comprehensive environment for professional designers and graphics producers to create sophisticated images for print, the Web, wireless devices, and other media.

The writer clearly emphasize that the programme works better with picture or image editing. On the other hand, bitmap based software, while they look good at their actual size, can appear jagged or lose image quality when scaled, or when displayed or

printed at a resolution higher than their original resolution. This is to say that, they are resolution dependent which is one major limitation in terms of digital illustration.

Corel Draw is a vector-based drawing programme which has grown to become one of the leading drawing programme available on the PC. Its users range from amateurs to professional designers, who use the programme for projects which include simple logos to intricate technical illustrations (Appiah and Eshun 2005).

In addition, CorelDRAW offers the tools that create accurate and creative vector illustrations and professional-looking page layouts. Vector based programmes like CorelDraw, are resolution independent which is one of the major advantage in digital illustration.

An interview was conducted to access students and fashion managers' preference of the available illustration software. The result shows that 42.46% of people (fashion students and managers) that were interviewed believe that CorelDraw is the most appropriate and available software for fashion illustration.

Table 4.1: Represents the public preference on the available CAD software for fashion illustration

Software	Frequency	Percentage
CorelDraw	31	42.46
Adobe Photoshop	16	21.91
Adobe Illustrator	08	10.96
Others	06	08.22
No Answer	12	16.44
Total	**73**	**100**

4.2 Launching CorelDraw X3

- Click on the start menu of the task bar (at the bottom left corner of the screen)

- Move cursor and select CorelDraw X3

- Double click on CorelDraw X3 to display it.

4.2 .1 Corel Draw Application Window

When you launch CorelDRAW, the application window opens containing a drawing window. Although more than one drawing window can be opened, you can apply commands to the active drawing window only.

The CorelDRAW application window appears as in **Fig. 4.1.** with a description of its parts.
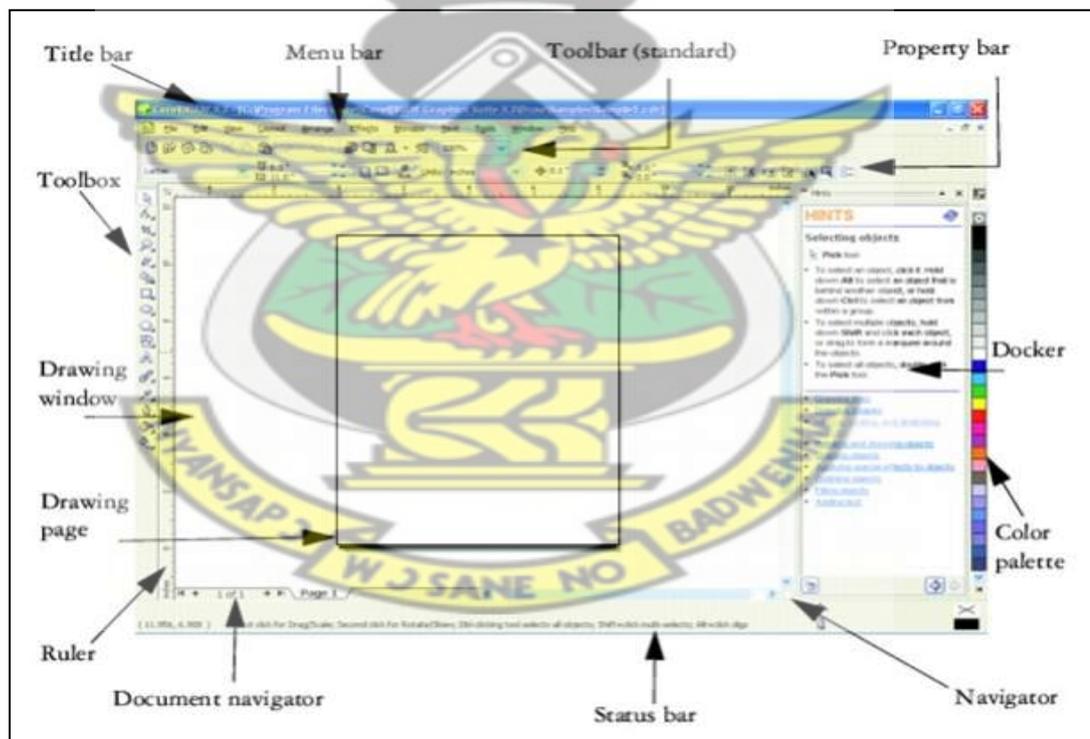
Figure 4.1: CorelDraw application window

A workspace is any arrangement of various elements such as panels, bars, any windows which help to create and manipulate documents and files.

4.2.2 Detail Description of CorelDraw Application Window

Title bar: It displays the name of application / document (file name)

Manu bar: Provides access to Corel Draw 12 mean commands

Standard bar: This will give you a quick access to editing commands.

Property bar: Displays icons and shortcuts to features in the application

Tool box: The tool box provides Coral 12 tools. These are the default tools.

Status bar: Displays Status or mode information (object information)

Scroll bars: They allow you to move your drawing area, either left or right, up and down, for better viewing.

The Drawing Area: Actually you can draw anywhere but the drawing area shows the printable area. It also shows the size of paper you can print.

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Paper: The rulers are used to measure the sizes of object. It also shows positions of objects.

Page buttons: This enables you to add pages and also to see next or previous pages.

Coral Palette: Displays default colours

4.2.3 CorelDraw Toolbox

The CorelDraw Toolbox has a set of tools that performs similar but alternative actions. At a glance, only one tool can be seen on a set but when flipped-opened, other alternative tools are displayed as shown in Fig. 4.2
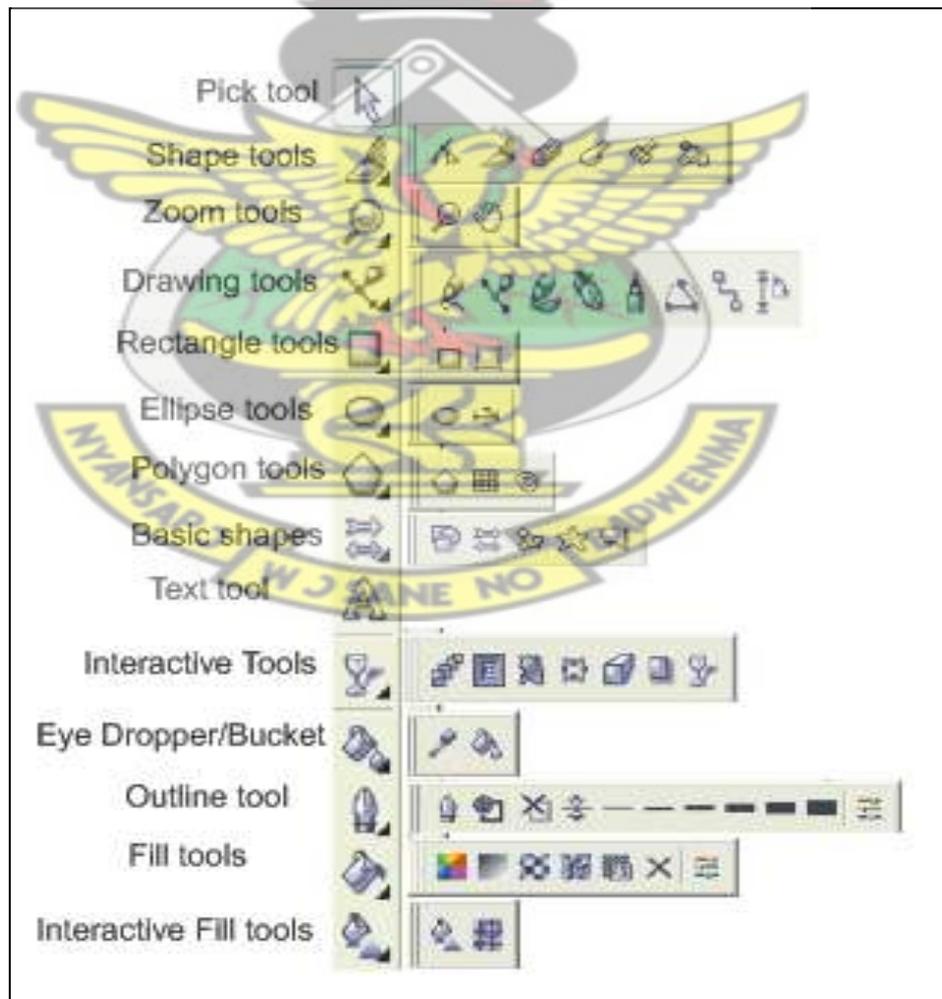

Figure 4.2: CorelDraw Flipped Tool Box

4.3.0 Developing Techniques

The major stages in most designing profession, including fashion designing, begin from idea development to the final work. In this project, the researcher developed techniques along these lines; Sourcing for inspiration, drawing techniques, colour combination and fabric selection.

4.3.1. Sourcing for inspiration

Professionally, it is required of every good fashion illustrator or designer to develop its ideas from a source. People take inspiration from a number of sources; artistic history, trends, reflecting on culture at any given time, times of war or turmoil, feminine and others. Most of these areas have been explored so when taking inspiration from similar media, there is a fine line between "inspired by" and "copied". This is the reason why most of our fashion designers rely only on calendars and magazines for production and its resultant copy works that we see around. Some of the designers, when lacking ideas, turn to design galleries of western fashion to find ideas without looking at our local environment for unique ideas.

The researcher therefore developed a technique that takes inspiration from uncommon sources like items found in the kitchen (Fig 4.3a). The original image (water Jug) was manipulated and developed with digital tools such as 'Smart fill tool', 'free hand tool' and the 'Shape tool' in CorelDraw to arrive at the final design (Fig.4.8).

Process of Sourcing for Inspiration

The process started with converting the image (bitmap image) to vector image for easy manipulation with the vector based programme (Corel Draw). Before this can

be achieved, a desired image from a book, magazine or sketched paper is scanned on to the computer. On the other hand, an image can be copied directly from the internet.
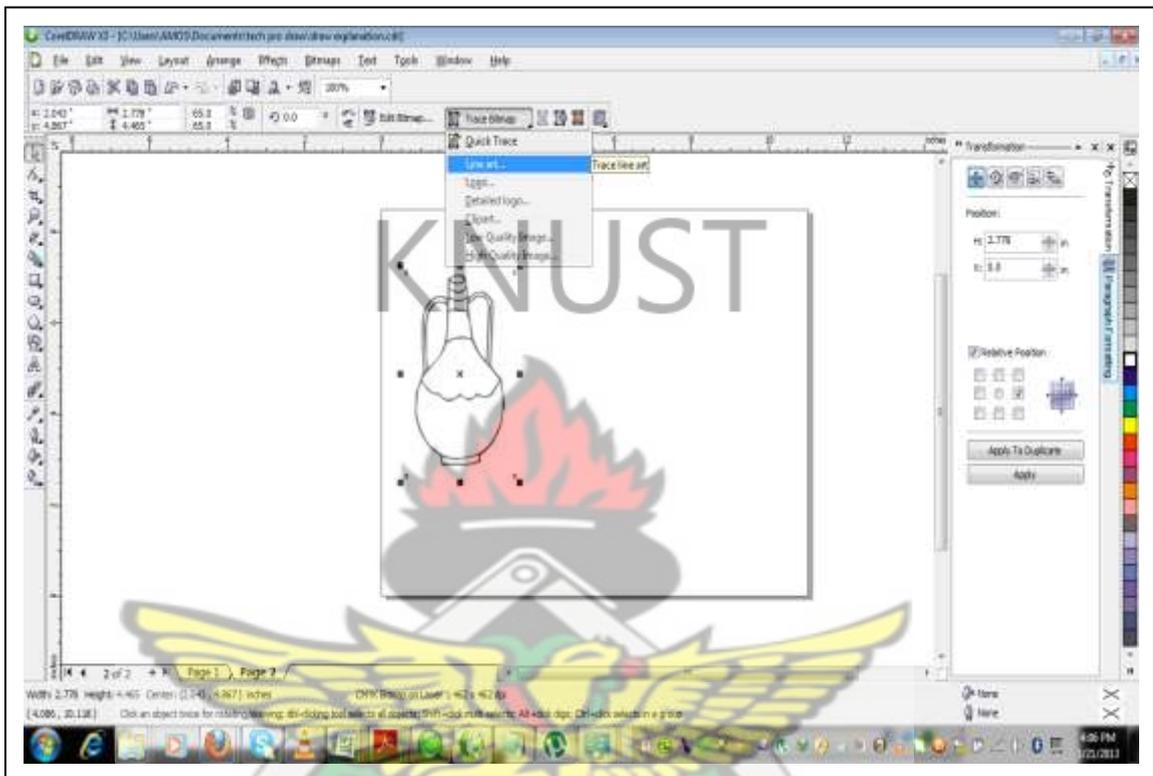


Figure 4.3a: converting image to vector image
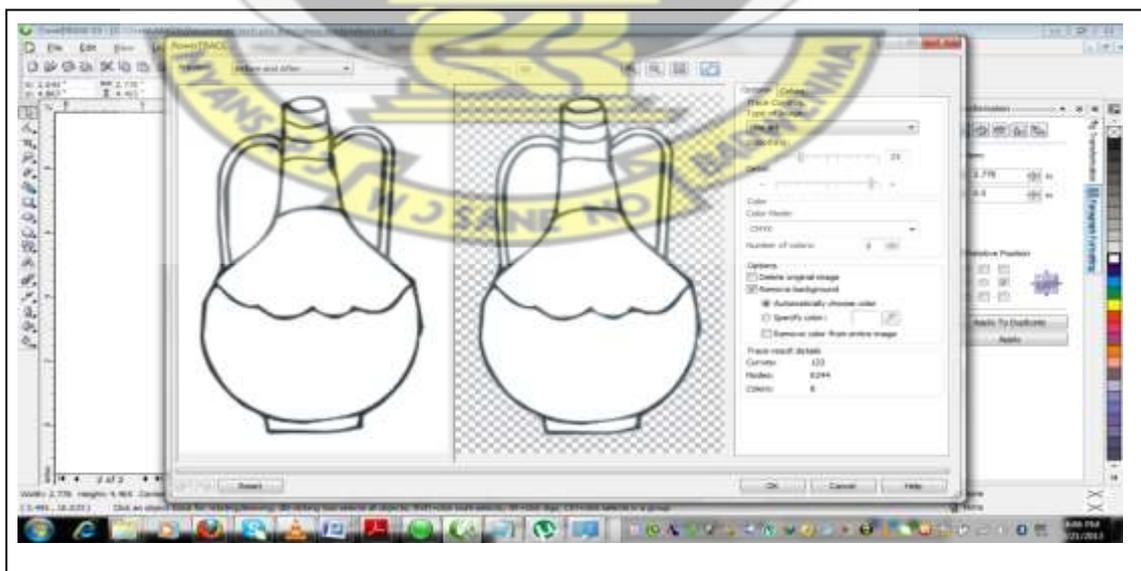
Figure 4.3b: Preview of converted image

The second stage was to observe the object carefully and select the interesting features out with the 'smart fill tool' as shown in Fig. 4.4. This was achieved by following these steps:

1. Select 'smart fill tool' on the tool box

2. Click on any interesting shape (a selection would be made automatically with a default colour – in this case it was yellow as shown in Fig.4.4)

3. Drag or move the selected shape aside with the navigation keys on the keyboard (fig.4.4)

These steps were repeated for the other parts to get all the interesting shapes that form the basis of the idea development.
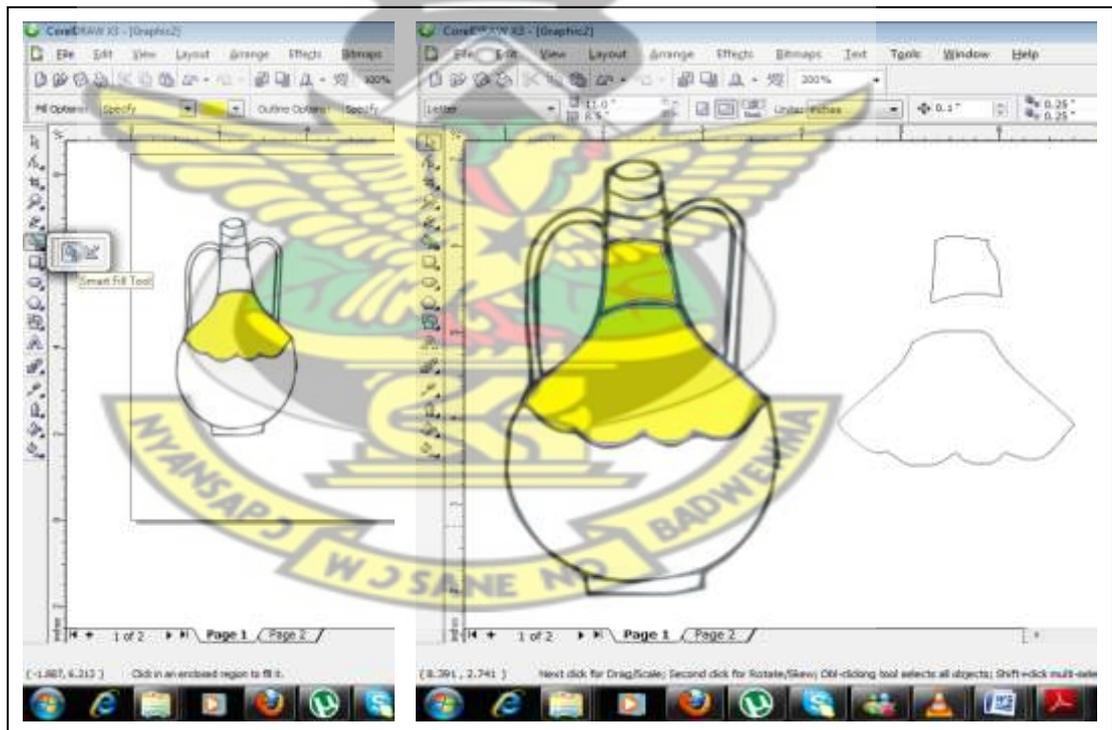

Figure 4.4: Selecting interesting features of the image

In the third stage, the selected shapes were arranged and other parts drawn with the 'freehand tool' in order to complete the garment design (Fig. 4.5). These parts were

the bust and the skirt. The freehand tool is used like a pencil by dragging the mouse according to the artist's desire. However, because of it's lack of acuracy it is not advisable to be used for detailed drawings.
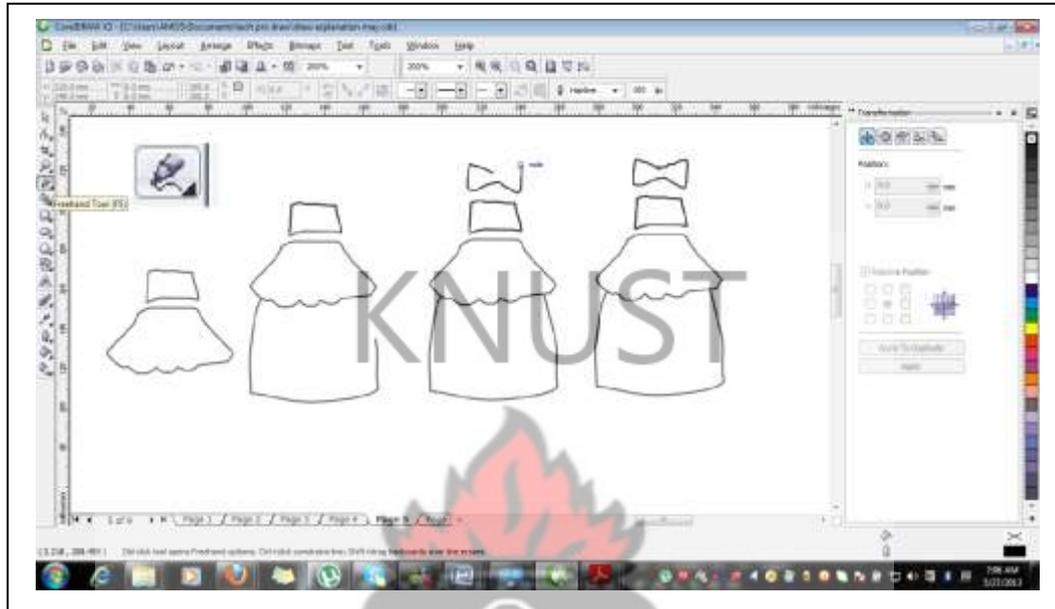

Figure 4.5: Drawing other parts with the 'Freehand Tool'

Finally, the 'shape tool' was used to re-shaped the features to conform to a garment design.

During the re-shapping process it is important to consider the following steps:

1. As it has been stated already, lines drawn with the 'freehand tool' lacks precision and are normally characterized by rough edges. These edges are joined together by some square points known as nodes (Fig. 4.6). For a straight or sharp line to be achieved, some of these nodes must be removed by selecting and deleting them using the 'shape tool'.

   This was applied to achieve sharp curve lines for all the rough lines.

2. Additional approach to the re-shapping process was to move the lines to its expected places.

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This was done by dragging the nodes with the 'shape tool' as shown in Fig. 4.7a.

3. The last approach to the re-shaping process is to adjust the curves to a desired shape.

This is done by dragging the two arrow-bars in between the nodes (Fig. 7a).

One after the other, some of these actions were repeated, as the case maybe, to accomplish the re-shapping process.

Figure 4.6: Drawn object with excess nodes
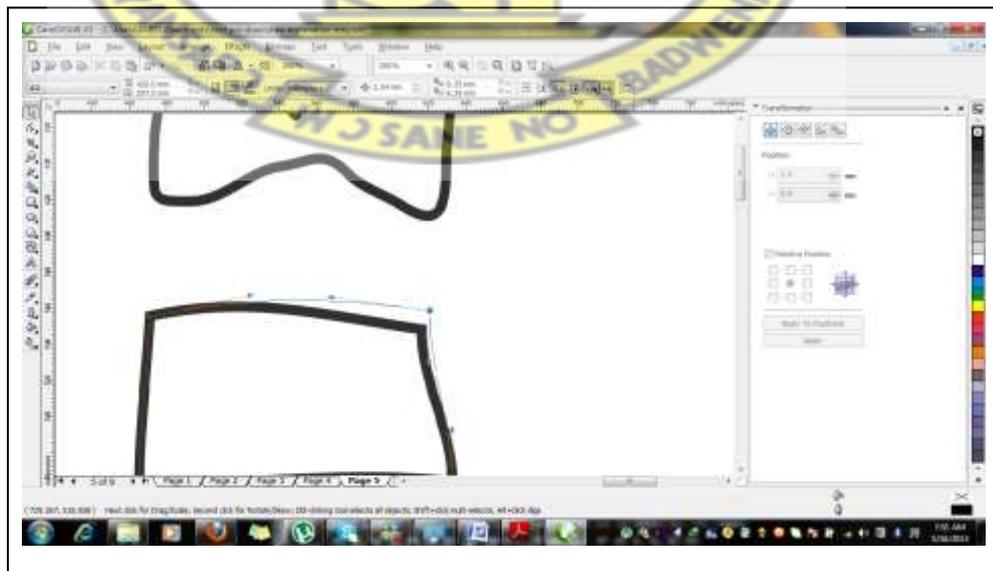

**Figure 4.7a: Re-shapping with the 'shape tool'**

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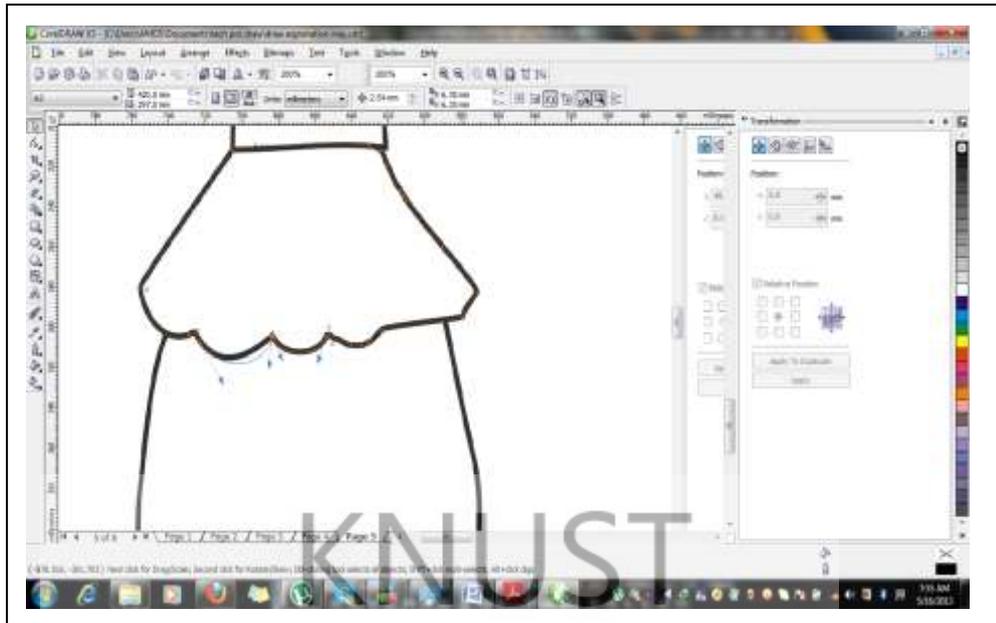
**Figure 4.7b: Adjusting the curves with the 'shape tool'**
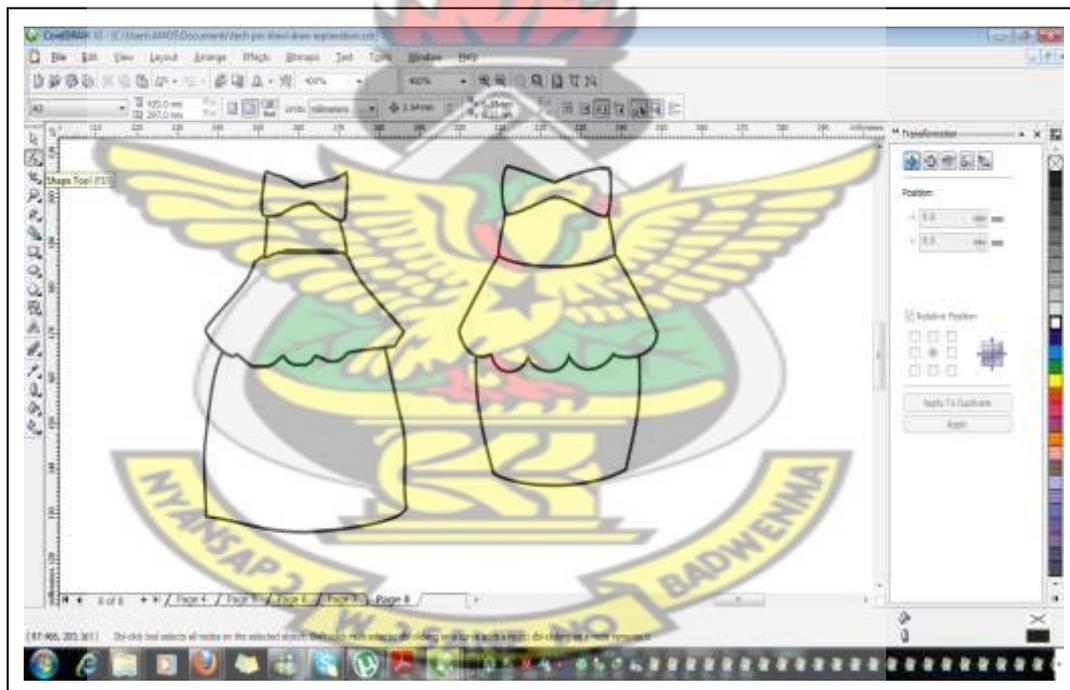
Figure 4.8: Drawn garment and the re-shaped garment

The process is summarized in the following five steps:

1. Scan, import or copy a bitmap image to CorelDraw

2. Select and convert bitmap image to vector image as shown in Fig. 4:3a and

    Fig. 4:3b.

3. Use the 'smart fill tool' to select interesting parts of the object (Fig. 4.4).

4. Select the 'Freehand tool' to draw other parts; like the skirt and the bust as shown in the forth image (Fig. 4.5).

5. Use the shape tool to adjust certain portions (Fig. 4.6), (Fig. 4.7a) and (Fig. 4.7b).

4.3.2. Drawing Techniques

Drawing is an integral part of any form of fashion illustration and this is one of the areas where many students have a lot of difficulties. Digital artists have developed several complicated techniques to present works of art over the years. In this project the researcher developed a combination of simple techniques that will make drawing easier for students. The techniques employed here are the tracing technique and direct drawing technique. These techniques can either be used together or separately but for the sake of clarity it has been dealt with separately.

4.3.2.1 Tracing Technique

The tracing technique begins with manual drawing with pencil and pen.

Appiah, (2003) stated that we draw from the known to the unknown. This technical statement found meaning in the processes of this project. For the sake of beginners, a silhouette of   the human figure is traced with a pencil and scanned onto the computer.

When objects are captured into the computer, either by a digital camera or a scanner, they are stored and encoded as bitmap image (also known as raster). The image in this form is very difficult to manipulate, especially when it comes to fashion illustration where some other parts need to be extended and also given definitions.

However, with the introduction of this technique, simple sketches can be converted to generate complex and creative illustrations for fashion design.

Process of the Tracing Technique

The tracing process starts with importing scanned image drawn with pencil and ink as shown in Fig. 4.9.
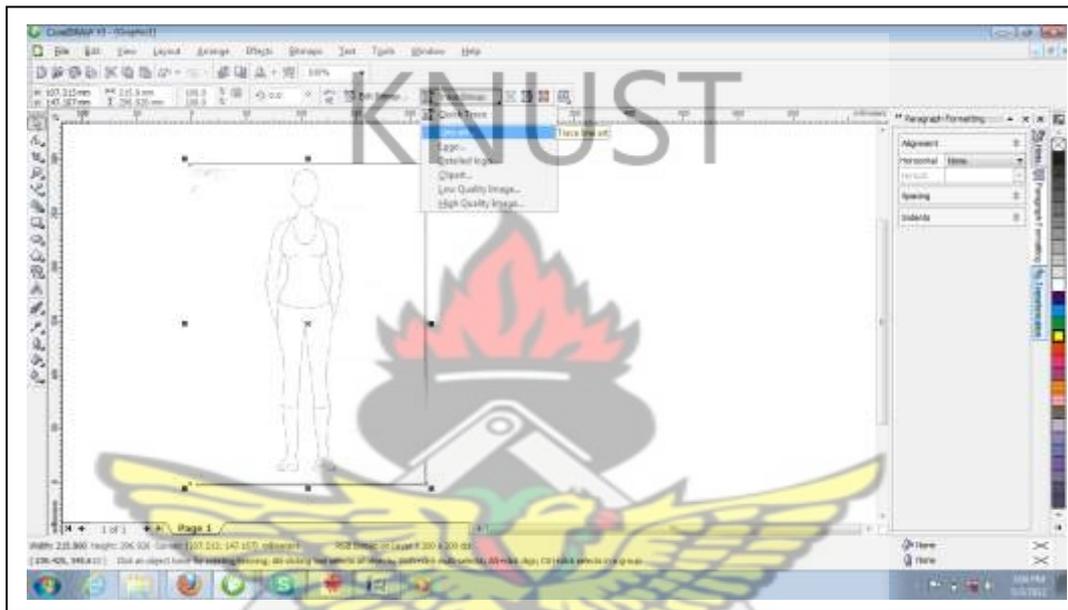

Figure 4.9: Scanned drawing (sketch)

Tracing is done by selecting the trace bitmap which is located in Bitmaps on the 'Manu bar' and it can also be located on the property bar (Fig. 4.9) The command 'Trace Bitmap' has options and it is advisable to choose 'Line Art' then click O.K.
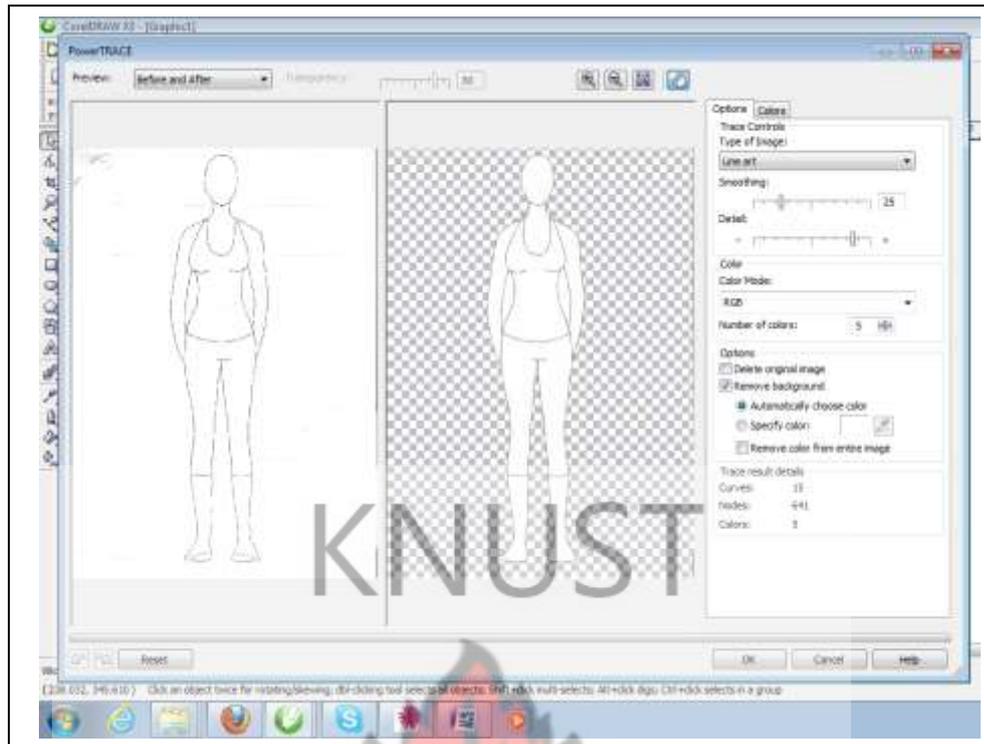
Figure 4.10: Preview of traced sketch

When 'line art' is selected another window would be opened to preview the results of the trace command as shown in Fig. 4.10. The first image on the left represents the original scanned image and the second one, with checkered background, is the preview of the result. The commands of the tracing steps are simplified as follows:

1. Select the scanned image with the pick tool

2. Select 'Trace Bitmap' on the Property bar

3. Choose 'Line art' to open a new window

4. Click Ok.

With this technique in mind, several silhouettes can be traced by hand from sketches, templates, catalogues and magazines then converted to digital images for further manipulation to complex illustrations and designs. Moreover, other designs in garment such as appliqué, embroidery and others which are sometimes difficult to

draw, can also be scanned, converted and applied by the same processes as shown in

Fig. 4:12.
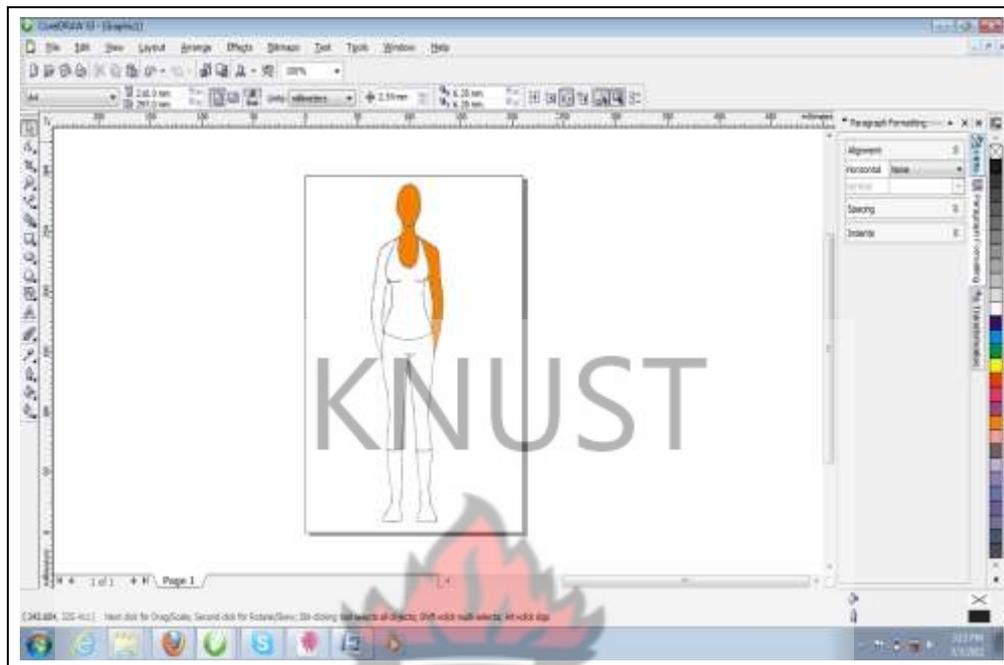

Figure 4.11: converted image (vector image)
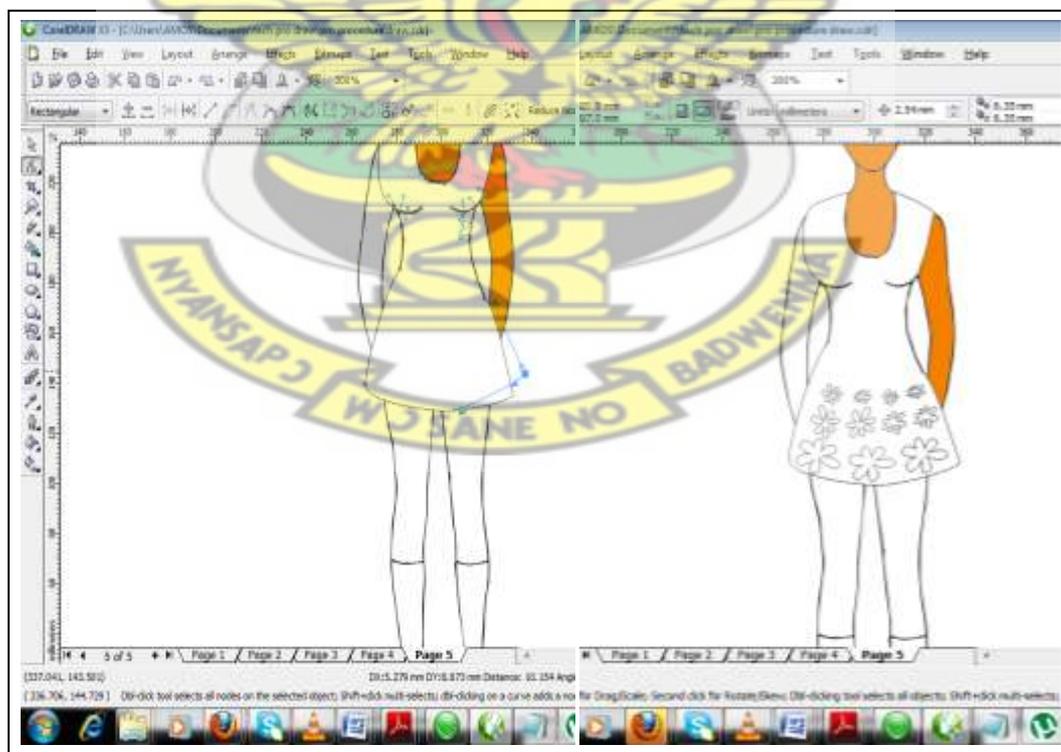
Figure 4.12: Manipulating scanned and converted image to complex design

4.3.2.2 Direct Drawing Technique

Drawing with digital tools requires extra attention to some details. The technique makes extensive use of the 'Bezier' tool and the 'shape tool' (CorelDraw). In Adobe Photoshop and Adobe Illustrator they are called 'Pen tool' and 'Convert Anchor point tool' respectively. On the tool box, the Bezier tool is located on the fort- flip of tools, also known as drawing tools. When flipped, it is number two on the list of 'shape tools', as shown in Fig. 4.12.
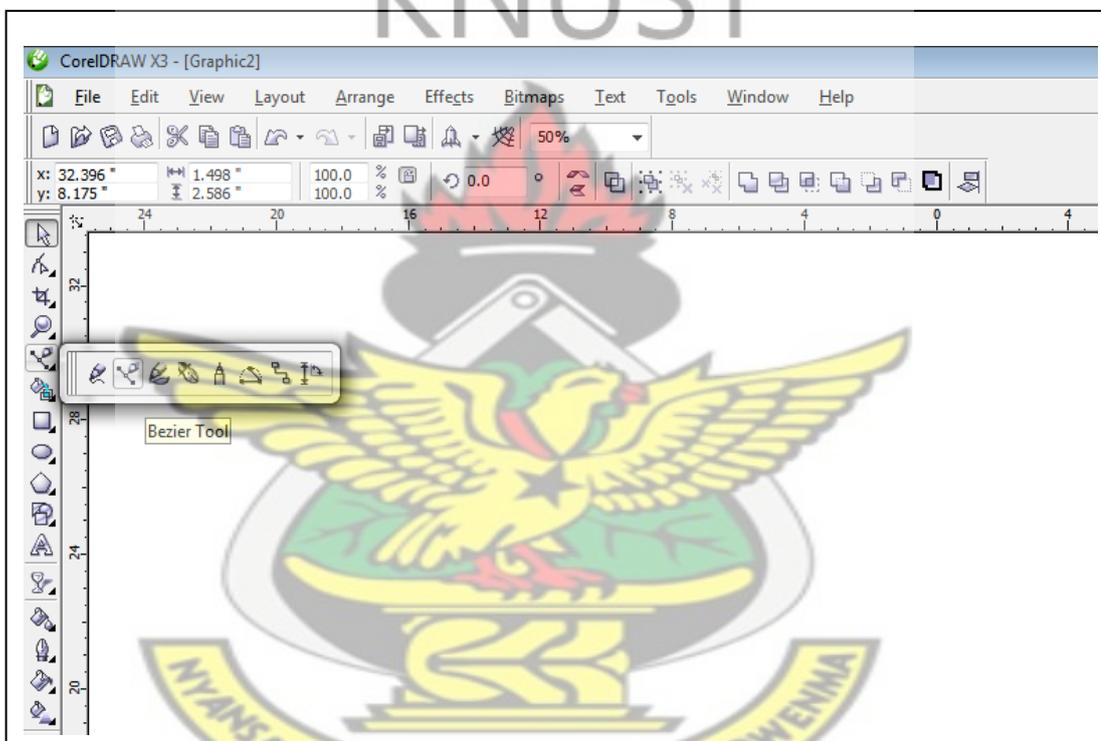
Figure 4.13: Locating the Bezier tool

Process of the Direct Drawing Technique

The general technique in direct drawing with the Bezier tool begins with the making of spots at vantage points of your perceived drawing area (Fig. 4.14). The spots are made by selecting the Bezier tool and clicking (not dragging) at vantage points of your drawing area. This can also be done with all computer drawings. (It must be noted that the last point should be clicked on the first point in order to enclose the

shape). This makes it possible to fill the drawn shape with colour, texture and pattern.

When working with direct drawing technique there are three optional guidelines to consider according to the user's level of skill in computer illustration. These are: the use of grid, the use of sketch figure and drawing with perceived guide.

1. The use of grid – The grid is a repeated vertical and horizontal lines that look like a graph sheet that guides an illustrator to make spots at calculated points with the 'Bezier tool' as shown in Fig. 4.14. This method is usually used by those whose computer drawing skills fall in- between high and low (intermediate) and it is recommended when making drawings for mass production. After the drawings the grid can be checked off by clicking on the grid command.

2. The use of sketch figure – This also provides a guide through which a digital illustrator would make his spots with the 'Bezier tool' as shown in Fig. 4.15. This method is recommended when different drawings are needed in a short time because less time would be spent on converting straight lines to curved lines.

3. Drawing with perceived guide - Drawing with perceived guide is a method where spots are made without a guide but according to the artist's imagination. It is the fastest but requires a bit of skills. (Fig. 4.16)
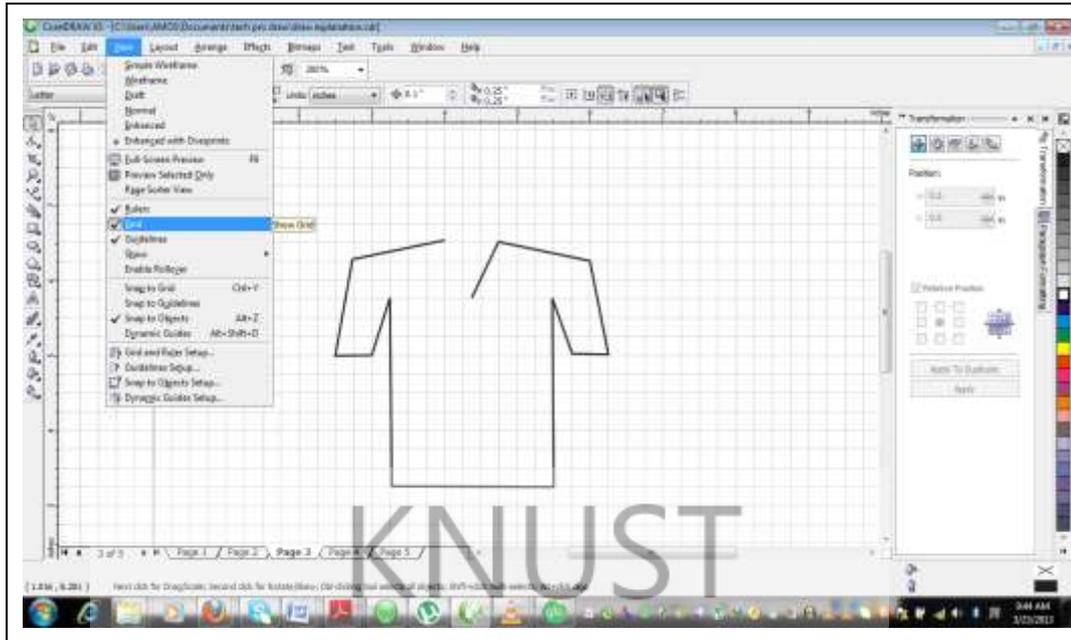
Figure 4.14: The use of grid as a guide
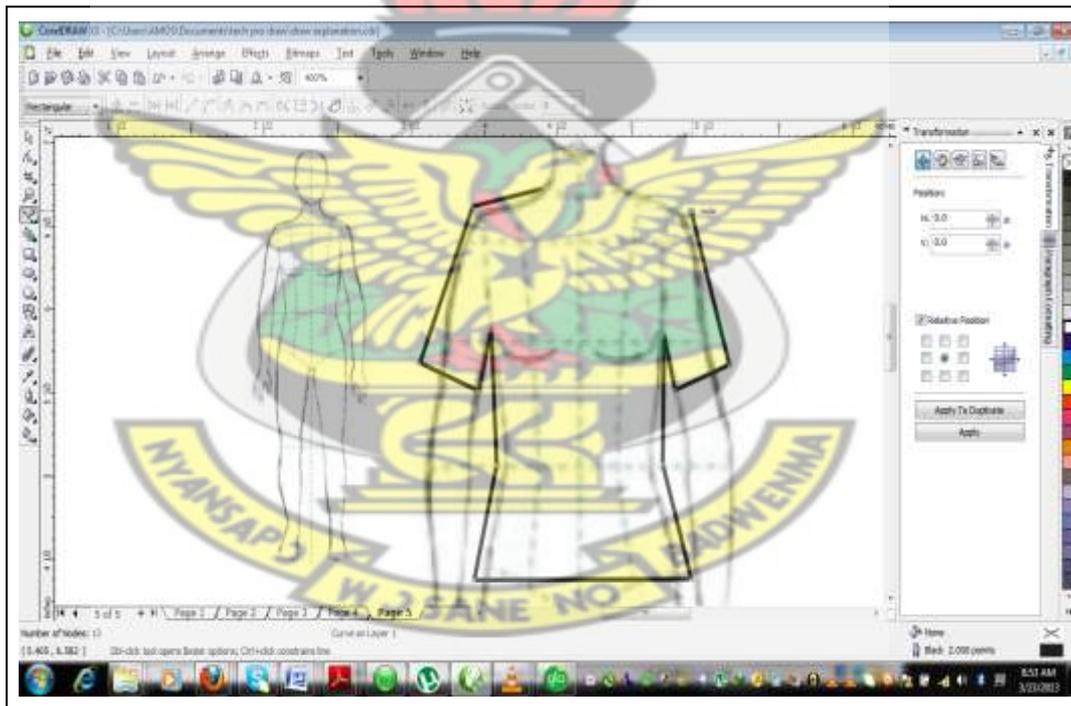
Figure 4.15: The use of the human Figure as a guide to drawing
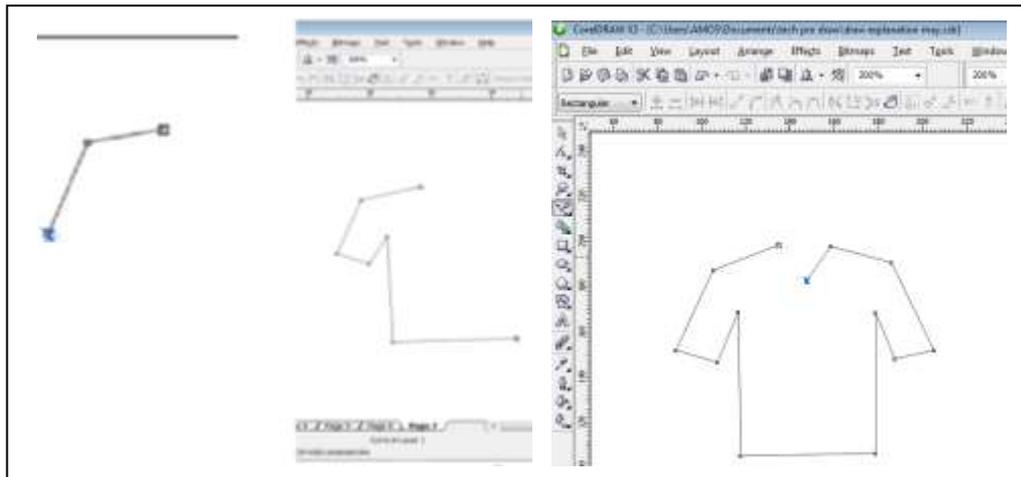
Figure 4.16: Making spots with the 'Bezier tool' (Drawing with imagination)
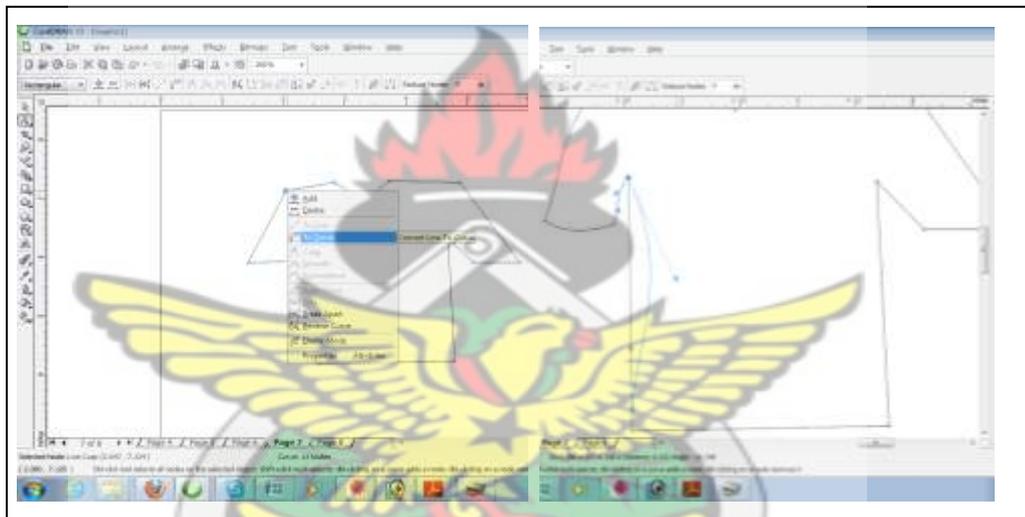
Figure 4.17a: Converting straight lines to curves

The second stage of the drawing process consisted of converting the drawn lines to curves by adjusting the small square points (also known as nodes). Actually, the above Fig. 4.17a is showing the character of the line when adjusting them to curve lines: the black line represents the original line and the blue line with arrow bars also represent the new state of the line being converted.

With the shape tool, one can convert lines to curves and adjust the lines by the following few steps:

1. Select an end point of a line (a node) with the shape tool.

2. Right-click and select 'to curve' (Two arrow bars will appear).

3. Adjust them to the required shape by dragging as shown in Fig. 4.17a and
   Fig. 4.17b
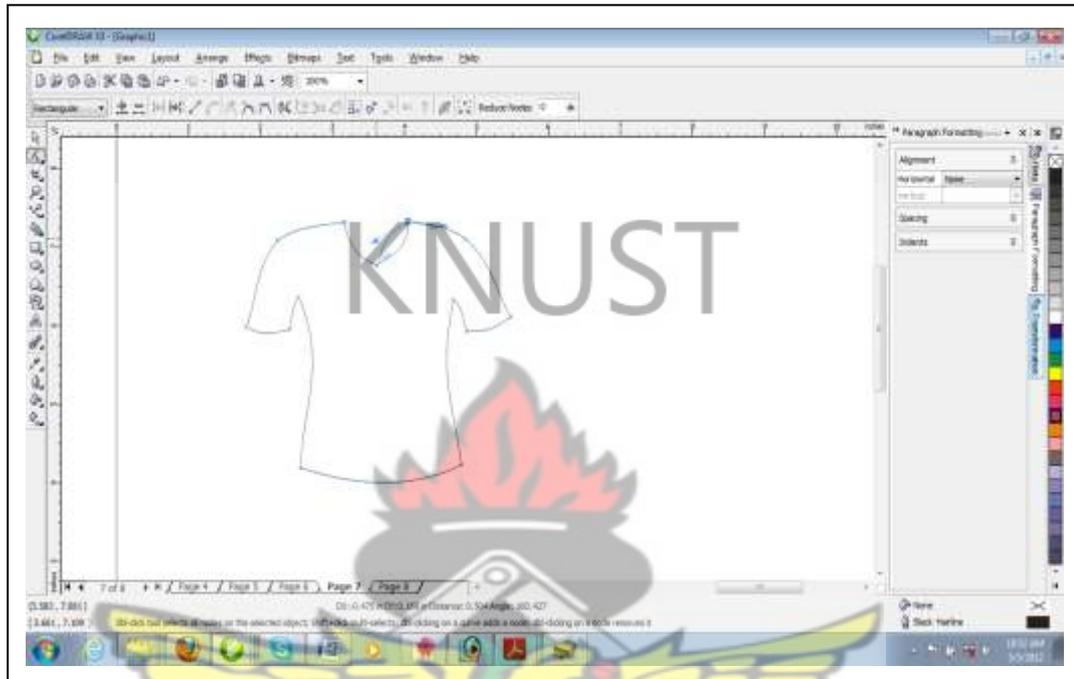
Figure 4.17b: Straight lines converted to curve lines

Figure 4.18: Creating designs in dress

The next stage is to create patterns/designs in the garment, which is one of the major component in fashion designing.

The technique applied here makes use of the 'Smart Fill Tool' which is next to the freehand tool on the tool box as shown (Fig. 4.18). A line is drawn in any part of the dress to enclose an area with the Bezier tool . Then, the smart Fill Tool is chosen to select any enclosed pattern as illustrated on the sleeve and cape of the dress in Fig. 4.18.

One can choose to make a yoke, long or short sleeves, pockets, front openings and others.

4.3.3 Colour Combination Technique

Colour is one of the major components in fashion illustration and design because it is the first element you see on any design. There are so many theories propounded to suggest good colour combination in designs; the use of analogous colours, harmonious colours, triad, complementary colours, split complementary colours and others. Unfortunately, a lot of people still have problems with the choice of good colour combination. This is because choosing the right colour combination for a garment requires some technical skills.

Under this technique, the researcher used natural images (birds) to generate suggested colour combination for fashion illustration and design to reduce a lot of theoretical constraints.

Process of the Colour Combination Technique

The first stage is to select images of birds with interesting colours; either from nature, books, magazines, internet and other sources. It is advisable to copy pictures with high resolution when using the internet.

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The next stage is to convert the bitmap image to individual colours. This makes it possible to select individual colours from the whole picture and then a table of colours according to its tones and values could be created (also known as colour swatches).

Finally, because these colours come with their own unique combination they can be selected and applied for garments with ease without going through colour selection constraints.

The following steps demonstrate the application of the colour combination technique:

1. Select a good picture (jpeg bitmap format) of a bird and copy to corelDraw

2. On the property bar select 'trace bitmap' then, 'quick trace' to convert it to individual colours

3. Create squares for your own colour swatches with the rectangle tool

4. With the 'eye dropper' and 'paint bucket tool', select individual colours from the converted image, then apply these generated colours for the drawn figures as shown in Fig. 4.19a and b.
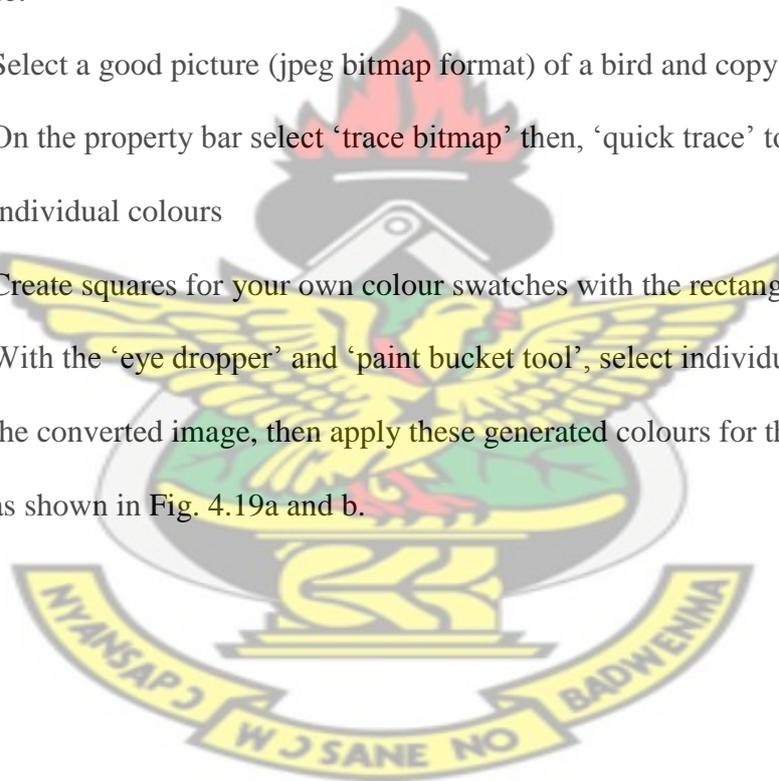
Figure 4.19a: Generating Colour combination from a bird (i)
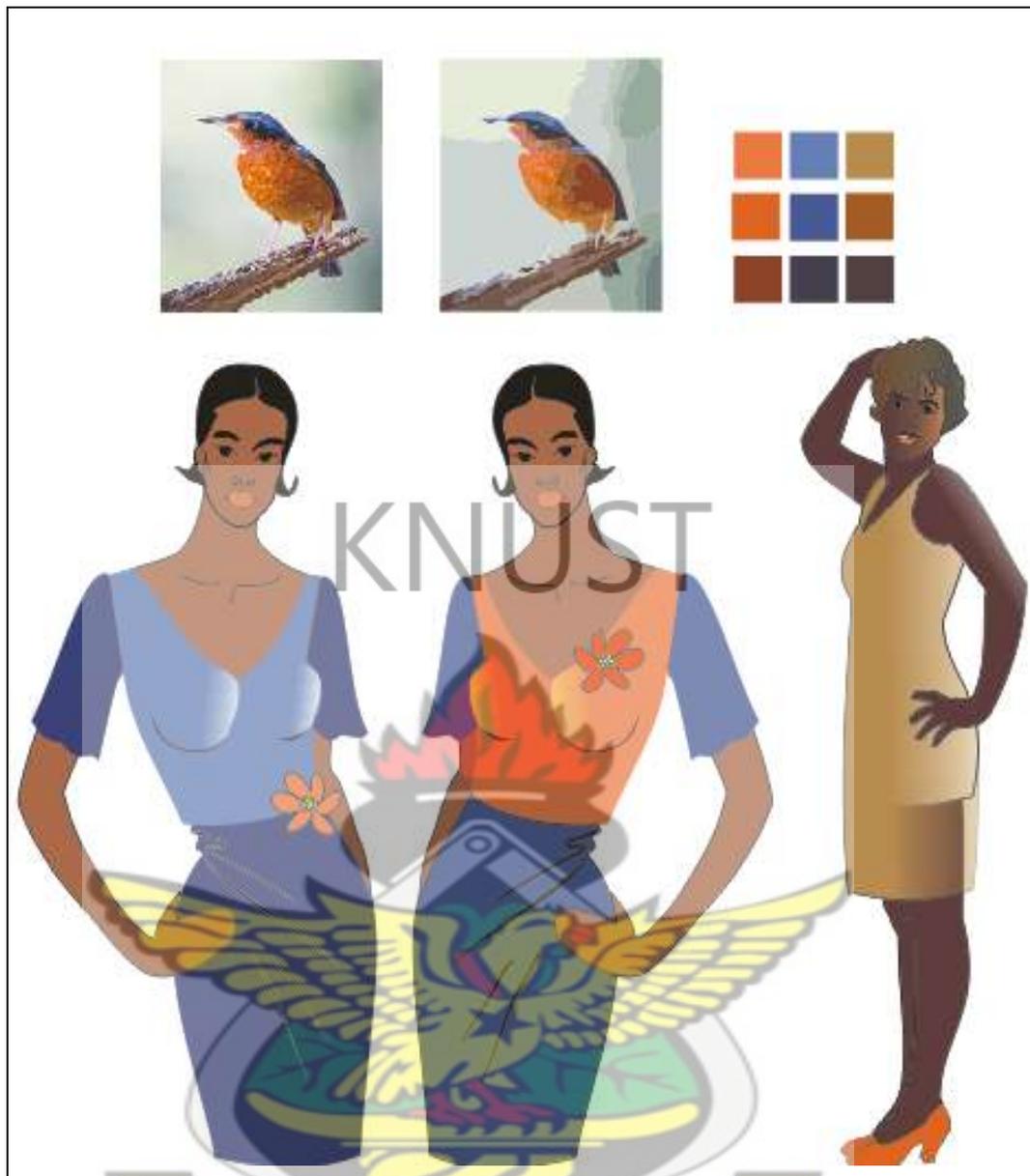
Figure 4.19b: Generating Colour combination from a bird (ii)

4.3.4.1 Fabric Selection Technique

The traditional method of illustrating fabrics in garment is by drawing and painting. However, in cases where a particular style of garment needs to be illustrated in different fabric texture it becomes very difficult for most designers.

Drudi, E. (2008) developed a technique where she cut out the silhouette of a garment and placed fabrics behind the template to illustrate how the finished work will look

like. Several of these techniques have been illustrated in her book "Fabric Texture and Patterns".

The researcher in this project developed a digital technique where fabrics of different textures could be illustrated in garment designs and the fabrics so created could also be manipulated to see their effects.

Process of the Fabric Selection Technique

First of all, interesting fabrics can be scanned or downloaded from the internet or could also be created by a textile designer. These pictures can be saved in one folder.

Again, an enclosed area in a digitized garment was selected (this could be a pocket, a sleeve, a skirt etc.) then the fabric was loaded into it.

By following this technique, fabric can be applied by these four steps:

1. Select an enclosed area (pattern)with the pick tool

2. On toolbox, select fill tool (then flip it open for pattern fill dialog) as shown in Fig. 4.20

3. Select full colour then click on load (this will open storage places of your fabrics in pictures)

4. After selecting a desired fabric click import then O.k
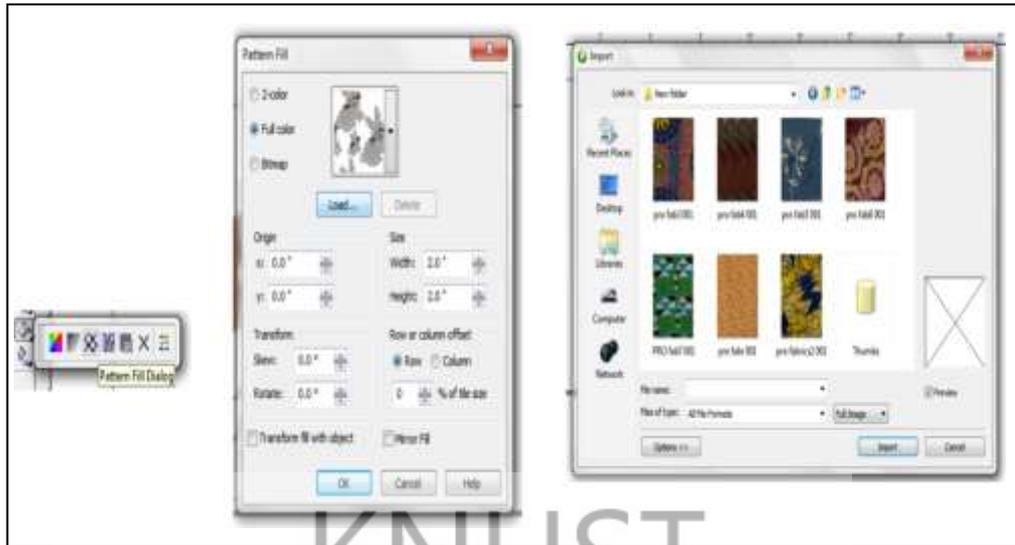
Figure 4.20: Generating already-made fabric in garment

Figure 4.21: Illustrating already-made fabric in garment

4.3.4.2 Manipulating Fabrics in Garment

Fabric comes with it's own characteristic colour, arrangement of motif and repetition according to the concept of the fabric designer. However, the fashion designer works directly with the wearer and therefore takes responsibility as to how best garment will look on the client. With this technique, it is possible to adjust the sizes and orientation of the patterns, even as and when they are already selected into the garment. This is necessary for testing how a particular fabric will look on a given figure type.

The process could be done in the following four steps:

1. Select the pattern area with the pick tool

2. Flip- open the Interactive fill tool (last on the tool box)

3. Choose the first button (the property bar would change to give you the properties of the Interactive fill tool) as shown in the Fig.19.

4. After selecting the desired size and arrangement of the pattern (as displayed in the plate above) click on O.K.
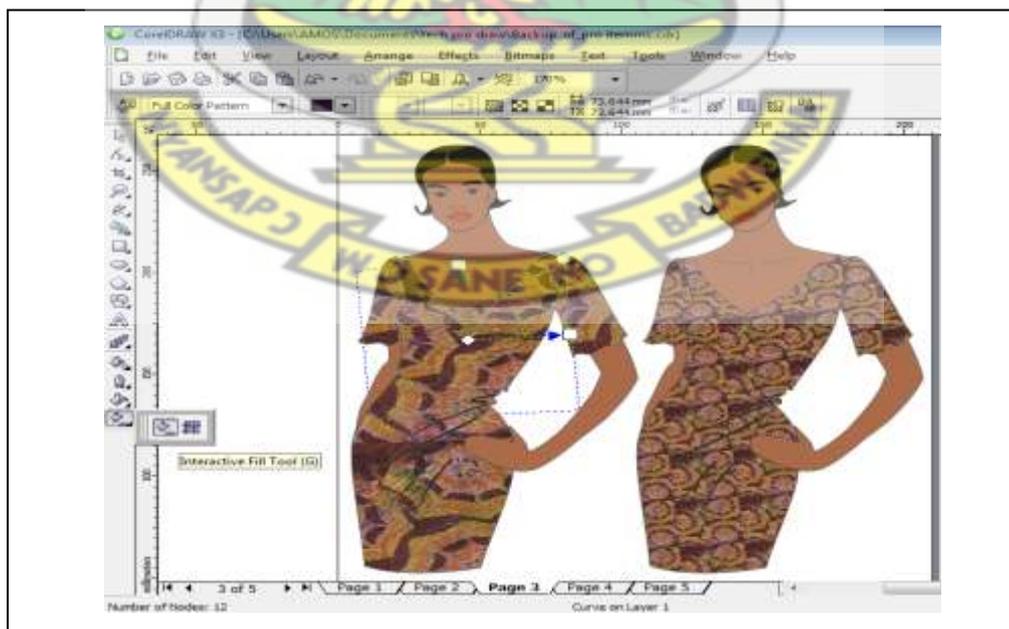
Figure 4.22: Manipulating already-made fabric in garment

The introduction of the CAD system has provided avenues for professionals and wayside designers to create a lot of designs. The numerous complicated and less creative designs that can be seen on the internet and other forms of media are enough evidence to show that a lot of unskilled members have come into the fashion business. However, it takes a long period of observation and participation to solve problems in a given area of study. In the situation of Kumasi Polytechnic fashion illustration studies, the researcher is convinced that these techniques, when used appropriately will continue to improve the skills of students.

4.4.0 Samples of Digital Illustration Techniques

After more than one semester of training with CorelDraw, the researcher together with the students engaged in some exercises of the techniques with different figure types, motifs, fabrics and garment designs. The designs created in this section were done by categories of students that were selected for the design tasks. This also determines their level of skills attained with the usage of the CorelDraw software in relation to the techniques and the expected results. After every successful research training such as this, the researcher would like to access the output of some variables as against the others. In this case, the researcher assessed the output of selected students with the following ratings: Basic, Intermediate and Advance.

Basic – This was used for simple and significant output of the trainees

Intermediate - This was also used to represent output of trainees who are around the middle of a scale of evaluation.

Advance – The Advance was also used to stand for trainees who develop further. In other words these trainees were able to combine two or more techniques to come out with more creative works than others.

4.4.1 Straight Dress (Sourcing for ideas)

The designer took an inspiration from a water jug and developed it to a simple skirt. The idea was then developed to a straight dress, popularly known as 'accident' (Fig. 4.23). The colours used for idea development are plain white, yellow and orange. The digital illustrator employed a very simple technique that can be replicated by any fashion beginner. The designer used bezier tool, the shape tool and smart fill tool. The design can be used for any social gathering where formal dresses are not required .

Figure 4.23: Idea Development process for a straight Dress (sample)

4.4.2 Bridal wear (Sourcing for ideas)

A kitchen shredder is the source of inspiration for the design in this sample. The illustrator demonstrated idea development abilities to generate the three final designs (two straight dresses and a skirt). The designer employed yet another simple technique of sourcing for inspiration from an uncommon item known to the general fashion industry. The designer decided to render the development processes and the

final design in black and white, probably, to exhibit the bridal nature of the two straight dresses.

The digital illustrator used the 'Free hand tool', 'Bezier tool', 'shape tool' and the 'smart fill tool' through out the idea development processes.

The uniqueness of the work requires the use of technical skills in computer illustration therefore, this work could be rated as advance. The last two designs can be used for weddings and diner parties or any social relationship gathering.
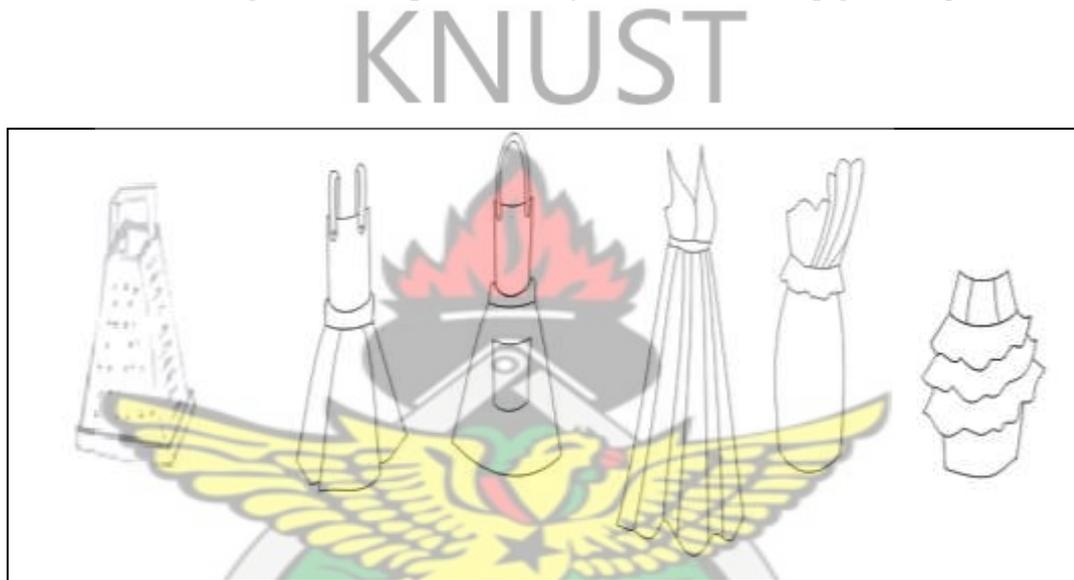
Figure 4.24: Idea development process for Bridal wear (sample)

4.4.3 Beach Wear – (Direct Drawing Technique)

Beach wear is the main focus for this exercise. They are a combination of all green and all pink in a swim wear.

The illustration was made with the bezier tool and the shape tool. By rating , this design can be rated as advanced because of the skillfull application of the digital tools which can be seen in the smooth lines, proportion and acurate technical measurements. It is also possible for patterns to be generated directly for mass

production. The designer also incoporated some rasta hair do in the second design which requires technical skills and attention.

The second design could be used for any sporting and casual occasion, where vigorous activity is necessary. Again, both designs can be used at the beach.
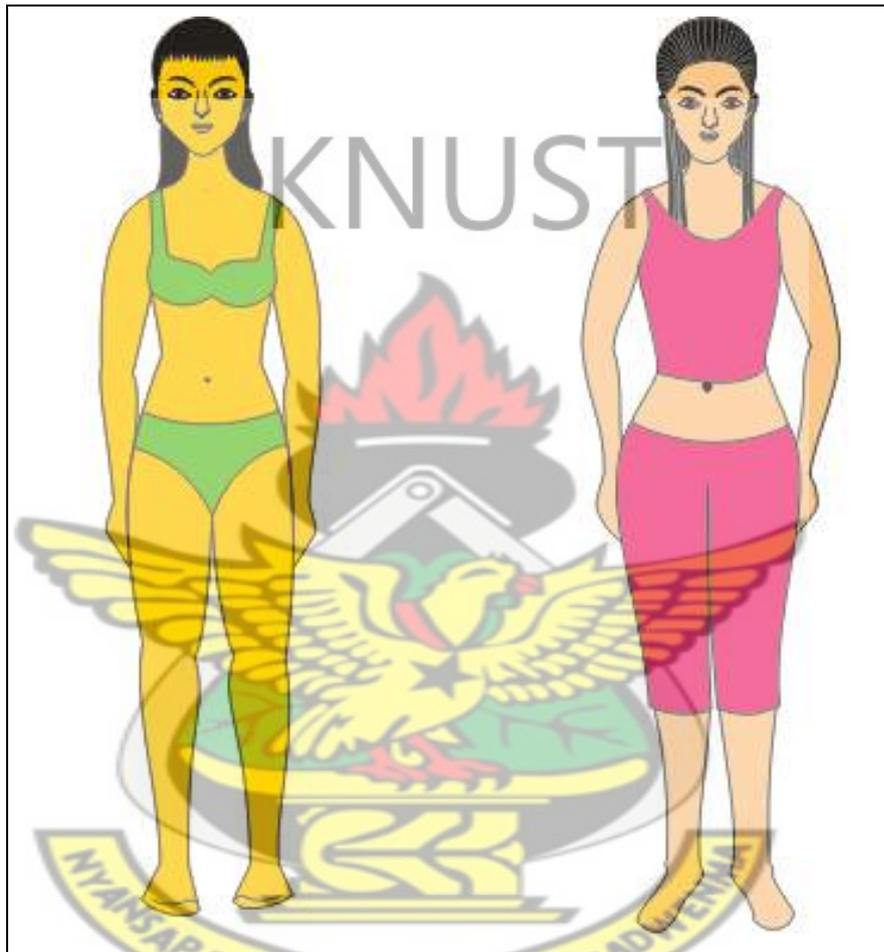
Figure 4.25: Beach wears

4.4.4 Sports wear (Direct Drawing Technique)

The set of designs in this sample focuses on sportswear with long and short pants (Fig. 4.26). The design comes with yellow and blue combination with a black head gear. With direct drawing technique, the designer skillfully illustrated this work with

the 'bezier tool' and the 'shape tool'. The design is characterized with fine vector lines and accurate proportions from the head to toe.

By way of grading, the work could be rated as advanced because the works were given the necessary technical attention and creativity.

The designs can be used for any sporting activity and can also be very useful in warm seasons.

Figure 4.26: Sports wear

4.4.5 Colour Combination

The colours of this design was taken from the inspiration of a parrot; brightly coloured tropical bird with short hooked beaks and the ability to mimic sounds. The main colours in this set of designs are shades of orange, yellow, brown and army green. By nature, parrots are birds with many colourful features, yet, the designer

was able to reduce them to a simple design. The illustrator made use of the 'tracing command', the 'eye dropper' and the paint bucket tool through this technique to achieve the design.

By grading, this work could be graded as advance. The illustrator was able to select and apply the colours well to bring out harmony in the designs.

The designs can be used for any youthful gathering where formal apparel is not a requirement.
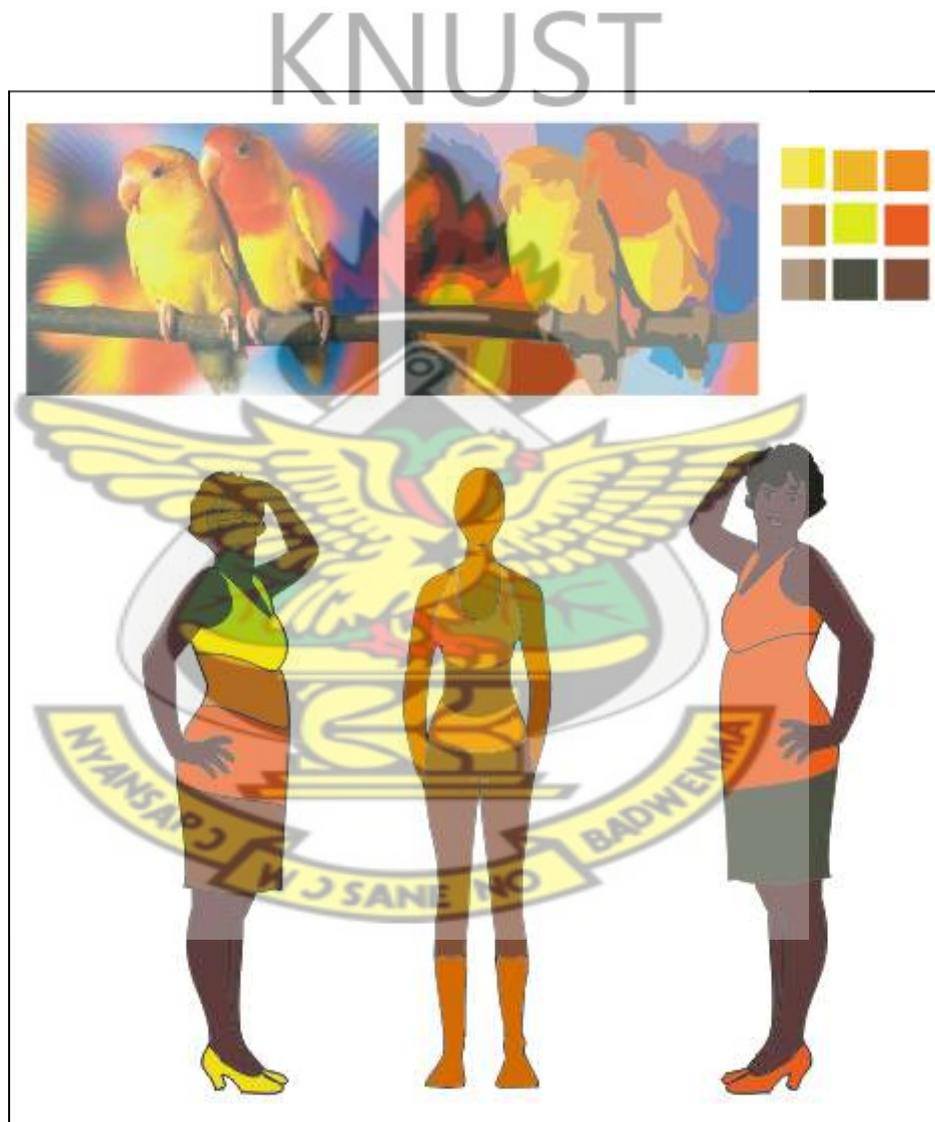
Figure 4.27: Colour combination

4.4.6 Breaking colours

Fig. 4.27 which is illustrated under this technique is a set of designs popularly known as breaking colours in a casual wear. The design focuses on the colours of the bird. The natural colour combination of the bird was converted and selected individually to form the colour swatches. Some of the colours generated were then applied to the designs in this figure. The designer also considered the colour of the skin in order to create harmony in the total design.

The illustrator made use of the 'tracing command', the 'eye dropper' and the paint bucket tool to achieve this technique.

By grading, according to the expected result of this technique, the design can be rated as intermediate because, with the vast colours provided in the swatches the designer could have made a better fascinating colour combinations with these designs. The design could be used for any youthful gathering, most especially during the day.
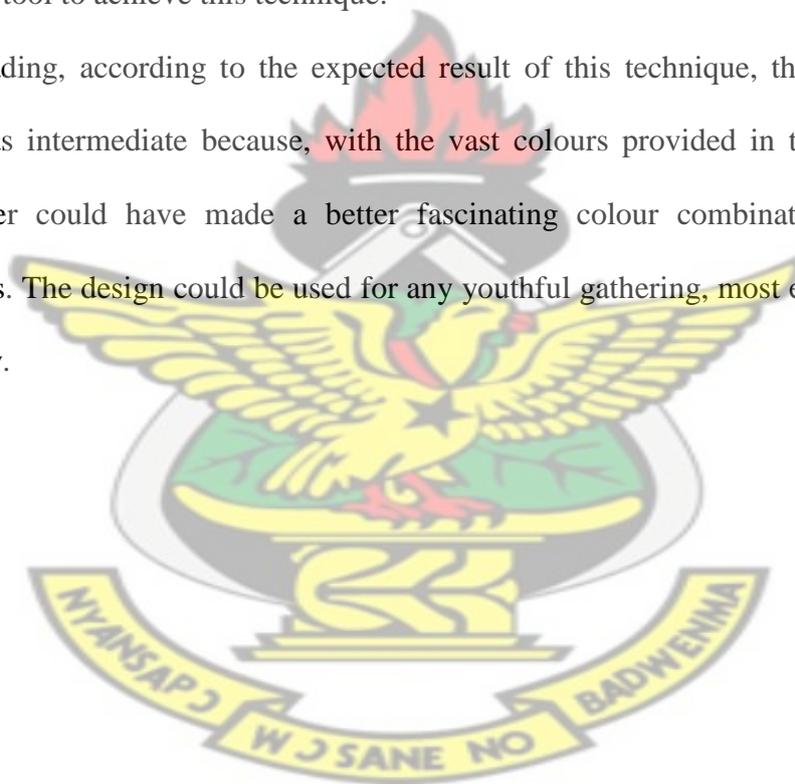
Figure 4.28: Breaking Colours

4.4.7 Working Gear (Fabric selection)

The works in Fig. (4.28) were purposely made to present African print in active working gear. The pose in this illustration is classical one leg stand which is a characteristic of active pose. The colours in the garment are combination of blue, yellow, red and black. It has a variation of long and short sleeves with a low foot which complements an action suit. The digital illustrator used a fabric loading command under 'fill tool' and further manipulated the orientation of the fabric with the 'interactive fill tool'. The technique makes it possible to test different forms of orientation of texture according to the figure type of a client.

The work could be rated as intermediate because it conforms to digital and fashion rules. It could be used for any professional work or as a Friday wear.

Figure 14.29: Working gear with African print

4.4.8 Casual Wear (Fabric selection)

The designs in Fig. 4.29 focuses on African print with a plain colour combination. The designer used a well known Ghanaian print to create this digital fashion collection. The designer worked with the digital tools to illustrate a fitting sleeveless top and trouser, 'kaba' and slit with ropes around the sleeves and a current trend popularly known as 'accident' which has one side off around the shoulder. The design is a combination of red, green and orange. It also comes with a three-quarter view which demonstrate the skill of the digital illustrator.

Here again, the digital illustrator used a fabric loading command under 'fill tool' and further manipulated the orientation of the fabric with the 'interactive fill tool'.

This design could be rated as advance because of the effective use of the digital techniques to express the idea of the illustrator. The 'kaba' and slit design could be used for any social and traditional gathering while the other two can be used for most youthful gathering.
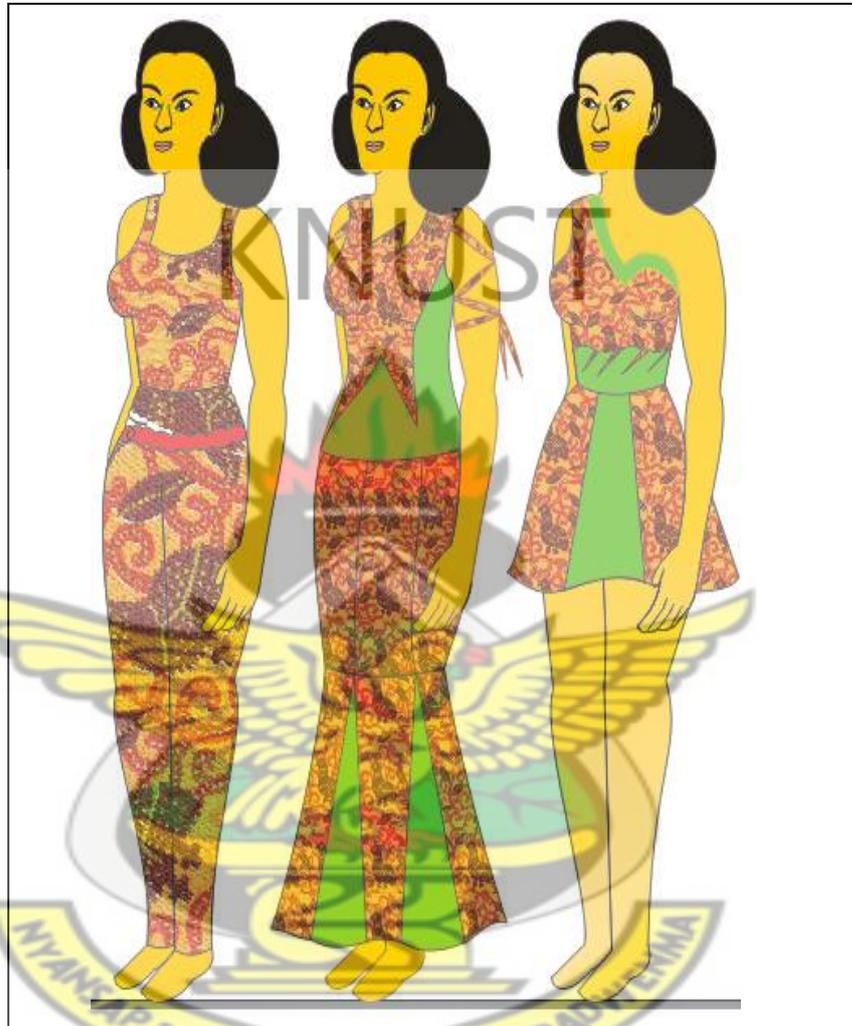
**Figure 4.30: African prints designs in casual wear**

After these exercises, the selected students together with other national service personnel in the department expressed interest through the challenges and experience they went through. The results exhibited in these collections are just a few of the sample works produced by the researcher and the students. Most of the samples of works can be found in the appendix.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

This project has dealt with some digital techniques for fashion illustration using CorelDraw. Computer Aided Design is one of the contemporary technologies that has the ability to combine traditional method with modern methods to create desired results in most sections of the art industry.

The researcher introduced Computer Aided Design techniques to HND students of Kumasi Polytechnic at the Fashion and Textiles Department, with the intention of working together to solve fashion illustration problems in the Department. After Ten weeks of training in digital illustration, the researcher together with selected students embarked on a series of design tasks and exercises. The manual method of designing was enhanced greatly by the introduction of the computer and the CorelDraw designing software. This made the process of manipulation and experimentation a lot easier because with the click of a button or the issuance of a single command a lot of interesting intricate designs which otherwise would have been so difficult to create through the manual means was created.

The results generated showed levels of skills and techniques exhibited by the students and the researcher in the project.

Finally, because of the alternative forms of renditions that digital technology offers it is easy for the fashion designer who has acquainted himself or herself with the appropriate software to strategically fit within the line of production in industrial fashion design.

5.2 Conclusions

Fashion Designing and illustration is a very important component in the fashion and textile industry. Producing any fashion product in a professional way begins with designing and illustration. One of the difficult aspects of illustration and designing is the processes of idea development but with the use of computer, idea development becomes very easy for the designer.

In the fashion and textiles industry there are a lot of CAD programmes, therefore one needs to study the essential tools to appropriate these software to his/her advantage in the line of any fashion and Textile design processes. This can be most effective when the user considers the types of computer graphics, either, vector based or bitmaps based graphics (or raster).

The researcher, in the attempt to create interest in CAD systems, used the simplest techniques in digital illustration in order to capture the attention of all the target groups within the fashion community. By so doing, the manual process of fashion illustration were combined with modern technology to create a little more complex works. Therefore, it is justifying statement that this project did not undermine the manual processes of fashion illustration and all the technical knowledge that it provides.

Local fashion designers and students can turn attention to natural African objects as design sources and make illustrations with CorelDraw software to come out with creative fashion and textile designs.

To conclude, the introduction of computer into the designing industry is not a total replacement of the manual process but rather a combination of the two to enhance creativity in all aspect of the fashion industry.

5.3 Recommendations

For the fashion design industry to benefit from projects such as this, the researcher recommends that fashion students in our institutions should be encouraged to explore their immediate local environment and surroundings for sourcing of inspiration.

Secondly, a lot more emphasis ought to be placed on the significance of the CAD system in our curriculum focusing on how to take advantage of the computer age to explore the numerous designing software available so as to improve fashion designing in our institutions

Again, the researcher recommends that, theories relating to new and innovative technological ways of solving problems should be emphasized to lift the Educational standard of the fashion community. This is evident in the number of fashion institutions in higher levels of education as compared to other institutions like Businesses and Sciences.

Whereas there is the need to intensify Computer aided Design in the educational system, the researcher recommends that it should not be a total neglect of the manual system but rather a combination of the two systems.

There is the need to organize periodic or annual Computer Aided Design skills competition to create more interest in the area of fashion and textiles design in connection with technology.

It is also recommended that seminars on CAD and other new technological ways of fashion and textiles design processes be organized to expose students and young fashion graduates to the current state of the fashion industry.

Finally, it is recommended that this project report be published and made available in libraries and fashion institutes throughout the country to serve as an educational research material.

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APPENDICES

SAMPLES OF STUDENTS' WORKS

APPENDIX A

A1: Idea development process with digital tools

A2: Idea development process with digital tools
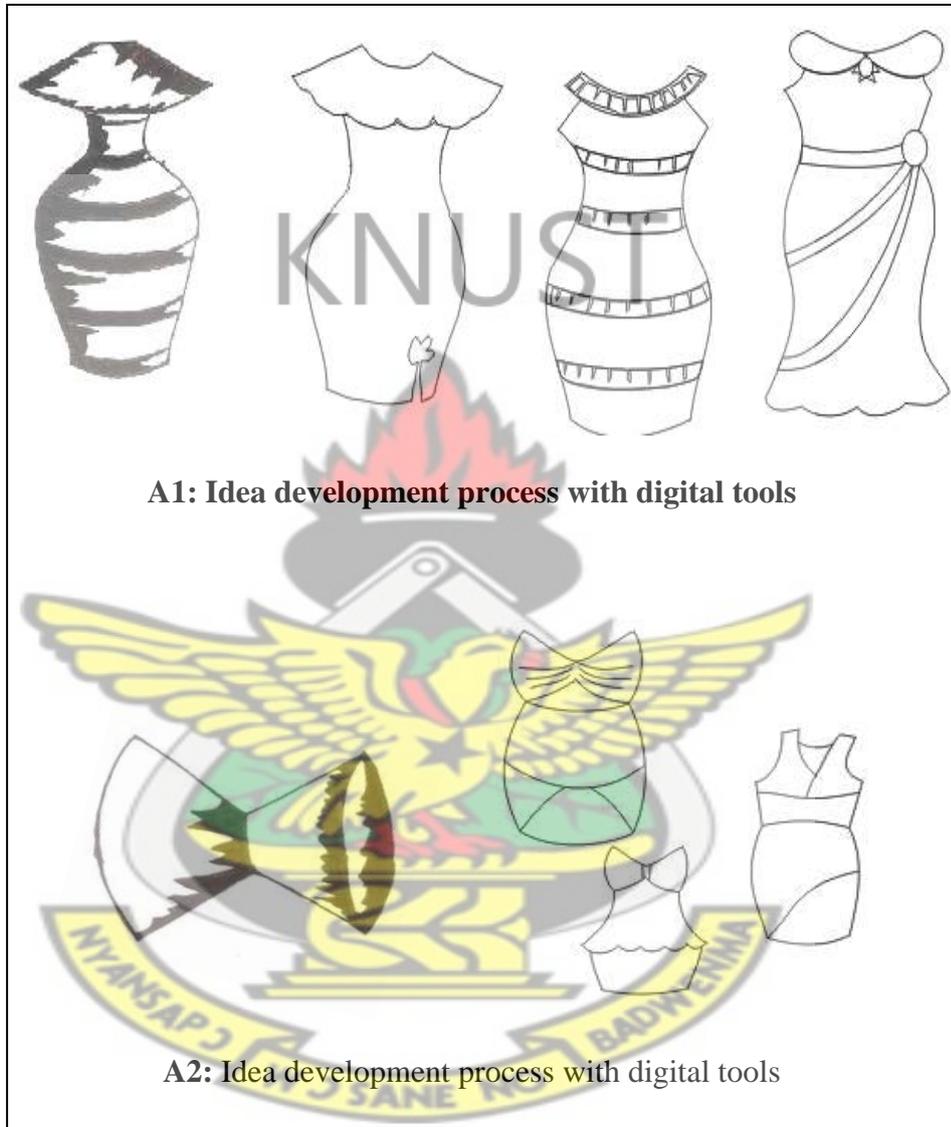
Sample A; 1&2: Sourcing for inspiration Technique

A3: Idea development process with digital tools

A4: Idea development process with digital Tools

Sample A; 3&4: Sourcing for inspiration Technique

B1: Sports wear

Sample B; 1: Drawing Technique

B2: Sports wear

Sample B; 2: Drawing Technique

C1: 'Breaking Colours' in Casual wear
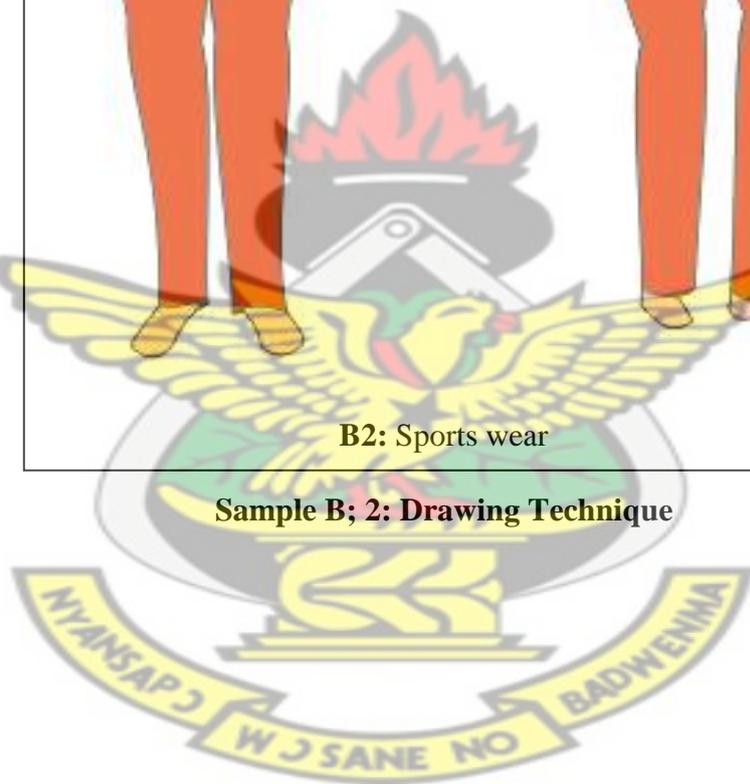
Sample C1: Colour combination Technique

C2: Generating colour combination from a bird

Sample C2: Colour Combination Technique

C3: Generating colour combination from a bird

Sample C3: Colour Combination Technique

D1: 'Coat of many Colours'

Sample D1: Fabric selection Technique

D2: Jeans Fabric in Children's dress
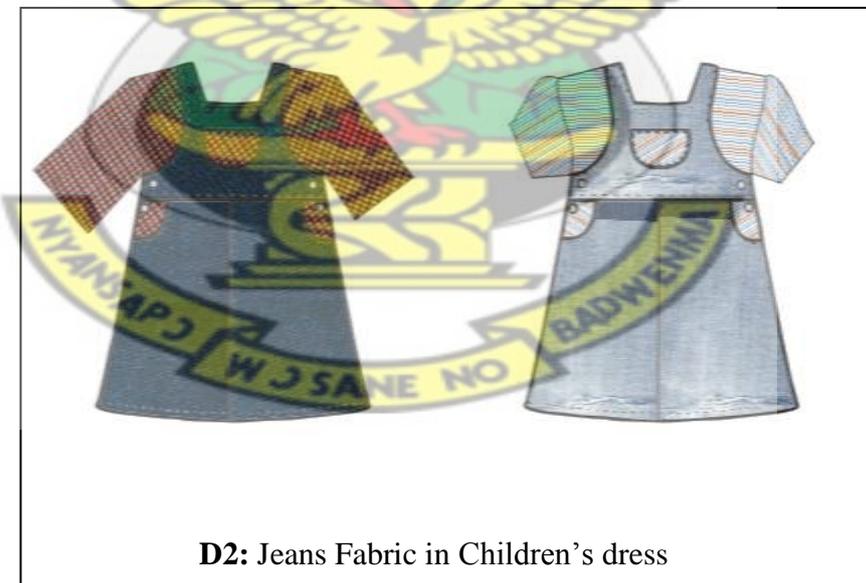
Sample D2: Fabric selection Technique