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Interfacing Traditional Studio Painting with Digital Artistry

By

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DECLARATION

I hereby declare that this submission is my own work towards the MFA 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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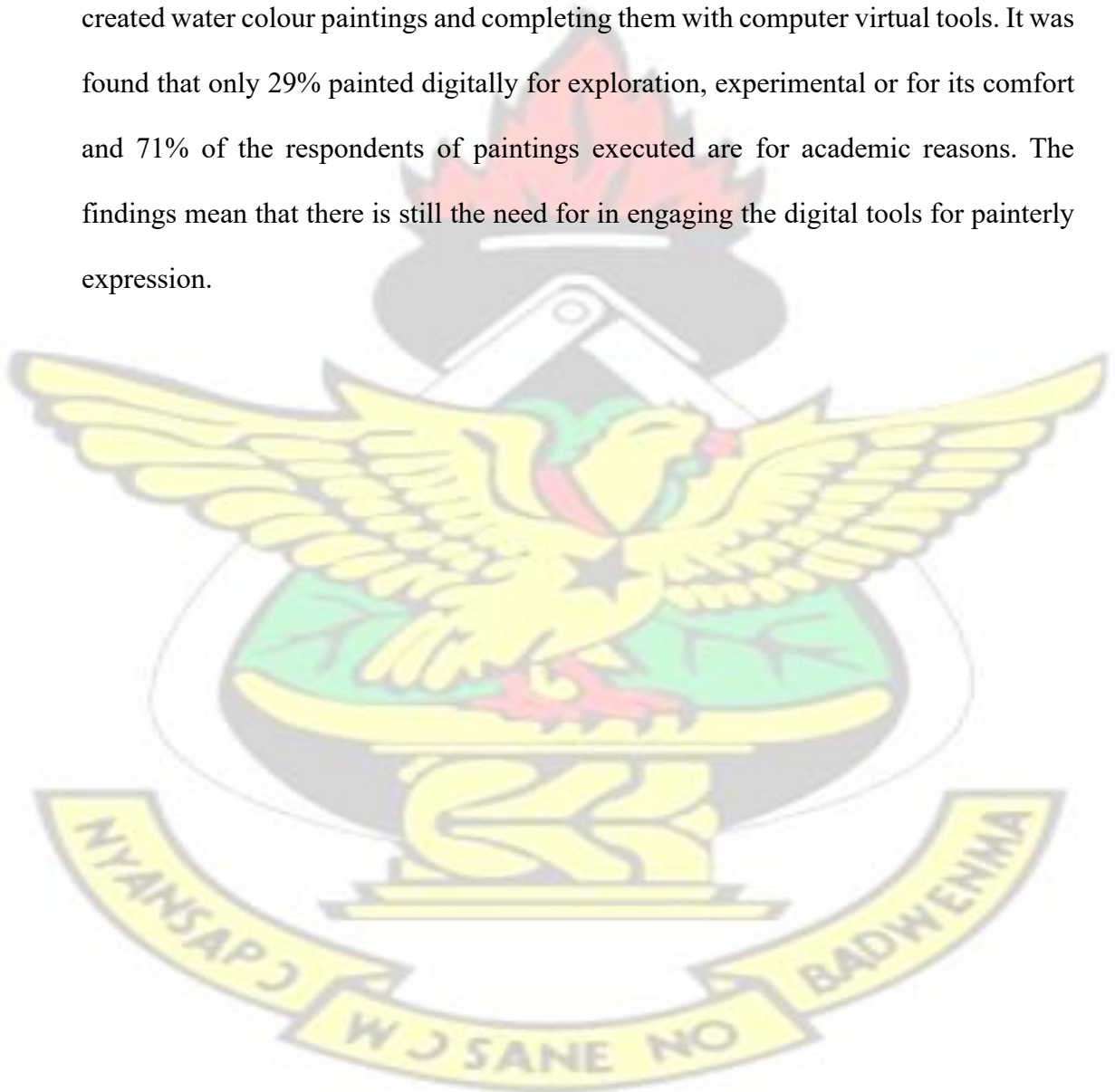
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ABSTRACT

Traditional painting has existed with mankind with the aid of hand held tools or brushes. Now, many creative artists are using the computer to create paintings which is giving room for more freedom for expression. The study is about producing digital landscape water colour paintings to whip up enthusiasm. By digitizing manually created water colour paintings and completing them with computer virtual tools. It was found that only 29% painted digitally for exploration, experimental or for its comfort and 71% of the respondents of paintings executed are for academic reasons. The findings mean that there is still the need for in engaging the digital tools for painterly expression.



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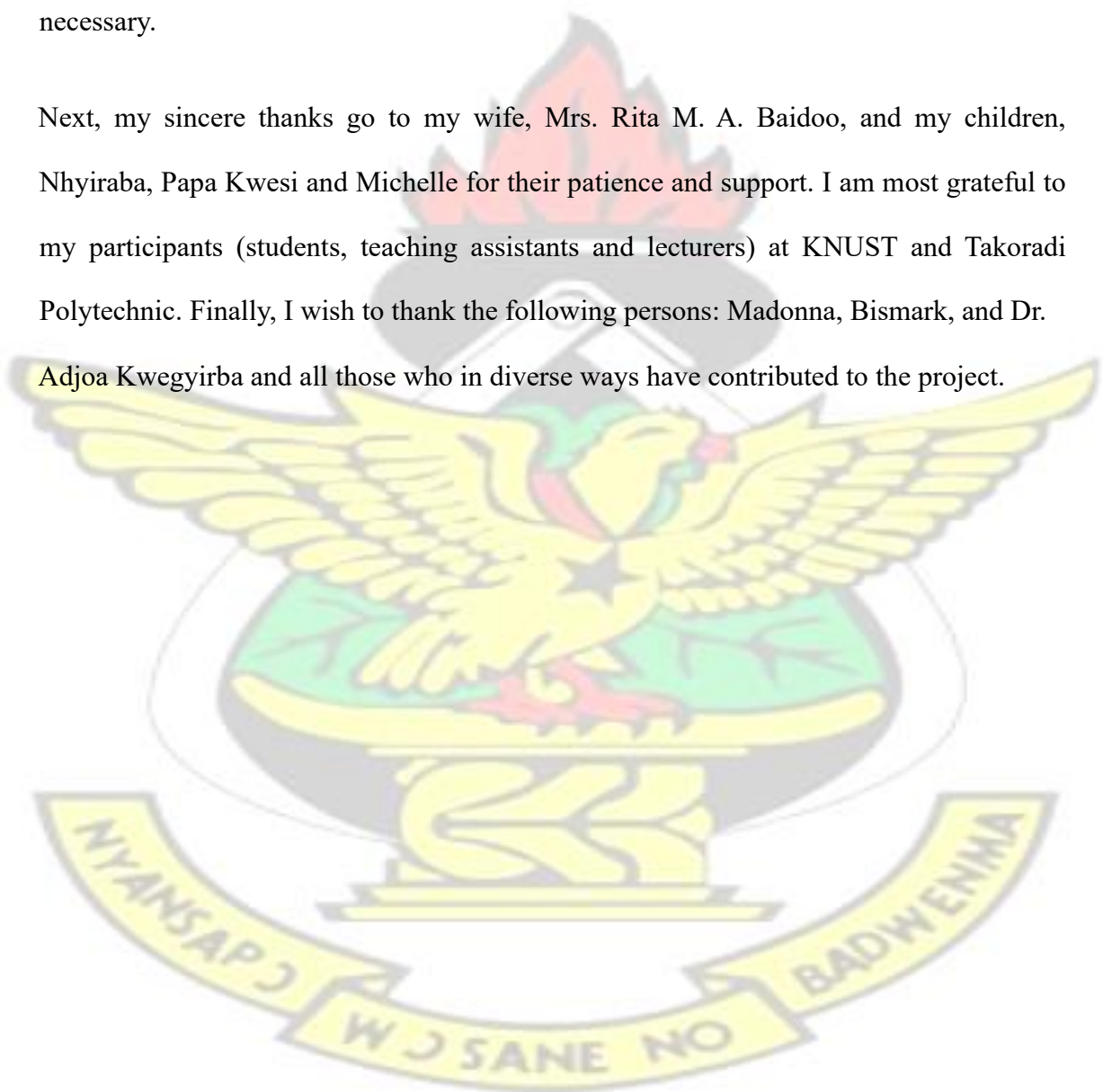


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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

A lot of Ghanaian artists have made remarkable advances in their fields of practice. From a general perspective, one may be tempted to list Ghanaian visual artists into groups according to which generation, they belong to, or the aesthetic similarities or otherwise, within their works. The researcher was more interested in looking at the Ghanaian art scene, from a panoramic viewpoint of some artistic modes of expression in the area of creating imaginative water colour landscape paintings by merging it to at least one digital medium procedure to achieve a single artwork.

As an emerging art form of the twenty first century, digital painting has gained acceptance as a two-dimensional art form, paralleling major traditional forms of painting in the art world. However, this aspect of the visual arts, rather underexplored, has not received the same degree of global acceptance and recognition accorded to well-known fine art forms such as sculpture, painting and drawing. In spite of the proliferation of graphic application of graphic application software for digital painting and the popularity of web art galleries displaying works of renowned digital painters, digital painting is yet to be explored as a visual art form in the traditional studio painting fraternity in many African countries especially

Ghana.(Annum,2014)

Some independent artists like Dr. Annum and Eugene Akoto Bamfo have created works that showed evidence of experimentation, of research, and an openness that sought to break through the barriers of cultural stagnation through the combination of emotional and intellectual acuity.

It was in that same light that the urge to explore the possibility of the amalgamation of two different processes to achieve one piece of painting was conceived. Creatively, the process for traditional painting and computer aided painting are basically the same. There are the traditional painting processes which engage the use of handheld brushes and physical paint on a physically handheld support. In this case the support can range from a stretched canvas to paper of many types and densities. A digital work of painting, however, is formed using a computer graphics program as a tool and in this scenario the paint box, along with its associated colours and brushes, are simulated or virtual in nature and are not touched physically.

Whereas traditional painting can boast of actual texture that can both be visibly seen and felt, it is theoretically impossible to translate the strokes of the digital brush onto an external feel, even though it can be achieved visually.

In a bid to amalgamate these two processes, the traditional and the digital processes of painting, a thought on its feasibility was pursued which fuelled the motive to the undertaking of creating imaginative landscape paintings that would be started using the traditional hand held brush techniques but would be continued and completed digitally using the computer's virtual toolkit after scanning the incomplete landscape.

Many creative artists have used the computer to enhance their work rather than see it as an easy way out of creative work (Total 3D, 2009). Similarly, using the medium of water colour and employing the technique of alla prima (wet in wet technique) gives much delight as far as achieving freedom of expression is concerned. The unplanned accidentals of colour running into colour, of mergers and blends, all make paintings unique in themselves.

An artist's palette is his world. It is good to be ambidextrous and the merger of digitized imaginative landscapes is certainly another path for expression.

1.2 Statement of the problem

Anecdotally, the Ghanaian digital painting is not as exposed as compared to the popularity enjoyed by the traditional studio painters' fraternity, despite the seeming proliferation of graphics application software in digital painting. Against the backdrop of the ever growing popularity of digital painters in Europe and America, Ghanaian digital painters have not received the much needed attention to breakthrough to hit international recognition as the traditional form of painting has.

A preliminary survey among some painting students in Takoradi and Kumasi, indicate that traditional studio practice were much more popular and is used more often than the digital format. Therefore, for up-and-coming painters and the Ghanaian painting fraternity, there is the need to combine the use of both traditional and digital techniques to achieve maximum artistic impact. It has become necessary as a need of urgency to whip up their enthusiasm to use the computer for painterly artistic expressions so as not lag behind in that field; hence, this study.

1.3 Objective of the study

This study seeks to:

1. Produce six digital landscape paintings using *ArtRage* and *CorelDraw* computer software after digitizing studio water colour paintings, and to promote the amalgamation of the processes of digital painting with manually created water

colour paintings through experimentation to create digitized water colour landscape paintings.

2. Administer a questionnaire with the sole reason of gathering quantitative data for the research project. This questionnaire comprised of both open and closed ended questions, which is typical of questionnaire design for statistical purposes in quantitative research designs. Moreover, the researcher made this choice because of the opinions that could be expressed by the various respondents some of whom could be budding potential digital painters.

1.4 Research questions

1. What does digital painting have over traditional studio painting and how can their fusion be enhanced?
2. How can the amalgamation of the processes of digitized manually created paintings help to encourage prospective digital painters' enthusiasm?
3. How can digitized manually created water colour paintings be produced to promote painterly expressions and in what ways can this be achieved?

1.5 Justification of objectives

The rationale for promoting the amalgamation of digital painting techniques with manually created water colour painting processes using comparatively computer software will inspire budding painters to embrace the digital painting concept, thereby making it more popular so as to merit its vigorous adoption in the polytechnics and other art schools. A creative way to achieve this aim was to showcase six digitized imaginative paintings for exhibition. Moreover, this exhibition can help bridge the impasse between traditional studio painting and the new media computer related

painterly art forms.

1.6 Importance of Study

The research is intended to whip up the enthusiasm of students and Ghanaian digital painting fraternity to use the computer for painterly artistic expression and hopefully break down artificial barriers between computers aided landscape painting and traditional studio landscape painting.

1.7 Delimitation

The project was limited to a picture framed exhibition showcasing six digitized water colour landscape paintings with sizes ranging from A3 to A0. The total population for the study was 154 respondents. The population comprised of second and third year students, teaching assistants and lecturers from both the Departments of Painting and Sculpture, at Kwame Nkrumah University of Science and Technology, Kumasi and Department of Graphics Design, and Department of Painting at the Takoradi Polytechnic.

1.8 Research Methodology

Research Methods: The descriptive research method was used in this study. Specifically, the study considered the cross-sectional design under this research design chosen and more so due to its nature as a developmental design which was factored in the choice of the design. The research instruments included observation, questionnaire, and interview (structured). The population of the study comprised of 154 respondents and the sampling techniques employed was purposive sampling.

1.9 Organization of the Study

The project work was made up of six chapters. Chapter One covered the introduction which captured the background to the study, statement of the problem, aim of the study, objectives of the study, research questions, justification of objectives, delimitation, research methodology and the facilities for the study. Chapter Two of the thesis focused on the related literature review. Chapter Three discussed the research methods and instruments used for the execution of the project. This comprises the Research Methods, Research Instruments adapted for the data collection, Population of the Study and Method of Sampling. Chapter Four was allocated for the analysis and discussion of the results based on the designated objectives the study ordered. Chapter Five was apportioned for the project execution. Chapter Six dealt with the summary, conclusions, and then recommendations.



CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Overview

The transition from the traditional or old ways of doing creates varied approaches bringing about dynamism. Technologies have penetrated all aspects of art, including painting. The combinations of digital and traditional painting techniques have achieved maximum artistic impact (Trapcheva-Kwan, 2011). This change can enable creativity to flourish. This requires some acts of blending, weaving and sometimes perhaps using illusion to manipulate the creative processes of art (because our perception reality can be influenced by many factors, the senses provide complex pictures of the world around us and we use the creative tools to represent our environment). This chapter will review related literature regarding many aspects of the subject matter involving traditional studio painting and digital painting, their associated history and differences through to their hybridity.

2.2 Historical Evolution of Paintings

According to Honour and Fleming (2005), the history of art could be compared with the literature. Both were punctuated by works that seemed to transcend circumstantial limitation, with a timeless appeal of the intentions of their creators. History of art was dependent on the physical survival of objects which were also dependent on a number of factors, as was their destruction. Explaining this point, the writers asserted that religious images had been destroyed in order to subvert the beliefs of their devotees by early Christians in the Roman Empire, Muslims in India and Spaniards in Central America. By the 19th century, the missionaries in Africa and Polynesia and most recently by the Red Guards of the Cultural Revolution in China, whose appalling zeal is an indication of the importance still accorded to the visual arts. It was also for nonaesthetic reasons, yet

works of art had been preserved in private collections and later public museums for their artistic excellence. It was no coincidence that only where this has occurred have histories of art been written. They marginalized some works, and totally excluded many more in order to focus attention on the few which the authors held up as models for later generations of artists to emulate or even in some way to improve on, thereby establishing new canons of exemplars. Such canonical works provided the skeleton for a history of art with its continuities and changes, revivals of past styles and experiment with new techniques, though what is omitted or underplayed may sometimes seem today to be of equal if not, greater interest.

There was a further assertion by Honour and Fleming (2005) that the earliest extant history of art devoted to that of Greece and Rome was written by Pliny the elder, a Roman polymath, as part of a vast treatise or natural history completed before he died in the eruption of Vesuvius in AD 79. He had the benefit of some now lost Greek account of artists, including one from the 4th century BC, from which he derived the notion of progress towards a greater naturalism which, it was taught had reached perfection during the writer's lifetime. The earliest known treatise on Chinese painting was written in about AD 500 by Xie He: the classified record of the ancient painters which ranked artists according to the command of six essential principles without suggesting development towards a single end. For a millennium and a half, this provided purely aesthetic criteria for the discussions of paintings; but only those by the highly educated elite known as the literati.

In Europe Pliny's notion of progress was revived by Giorgio Vasari's book of lives of the most excellent Italian architects, painters and sculptors first published in Florence. This set out to describe what was later termed as the restoration or rather the renaissance of the arts that had been gradually achieved during the previous two and a half centuries- after

their rise to perfection in ancient Greece and Rome and subsequent decline like most historians study the past to know the present. Again, Honour and Fleming (2005), conceiving the history of art from the 14th century as a series of progressive improvement, said it described how Giotto had been able to suggest solidity and expressive movement, how Masaccio had mastered perspective and light and shade and how Leonardo DA Vinci and Raphael had added grace and beauty. The hero of his story was Michelangelo who was considered a genius universal in each art. Though his book was devoted to Italian artists, it provided a model for deep histories of a different art of other nations. Though it was contested later on by those who recognized that some artists had excelled him in various ways- Raphael in drawing and composition for instance and Titian in colour, none, however, had achieved that perfection in all branches of art that became the goal for further progress towards which artists were encouraged to strike. By the second half of the 18th century, it was widely felt that the artists were once again in a state of decay which could be cured according to the historian and theorists Johan Joachim Winckelmann, by a return to the true principle of Greek art. In his history and ancient art in 1764 he gave an account not so much of progress as an organic process of birth, maturity and decadence evident also in Italian art in the 19th century, when faith in the advance of western civilization was beginning to falter, new approaches were made in the history of art, mainly in Germany and Austria where it had first been accepted as a subject to be read in universities. Alois Riegl set out to provide a pure study of ornaments based on the notion that styles adopted in the different places and periods were manifestations of a general, though somewhat nebulous will –to-form: discussions of progress and decline were thus irrelevant and indeed meaningless. He opined that every style aimed at the faithful rendering of nature and nothing else but each had their own conception of nature. In 1899, Hierich Wölfflen, in a book on classic art, a study of Italian renaissance painting and sculpture, enunciated criteria for stylistic analysis more fully developed in his German book translated as the

principles of art history in 1932, in which he isolated tendencies of classical and baroque art according to contrary concept; linear and painterly, plain and recession, closed and opened, multiplicity and unity, absolute clarity and relative clarity of subject matter. His terminology came to be used for an almost exclusively formal analysis of paintings, whether devotional images, history paintings, still life, landscapes and genre. In this way the paintings were discussed and analyzed without regards to their subjects and contents as if they were all non- representational, a reaction first in Aby Warbeg's study of the survival and revival of classical antiquity in renaissance art, and then, in the study of iconography. Strictly speaking, iconography is the study and identification of subject matter for a broader approach to the analysis; meaning in the visual arts, the term iconology has been used by Erwin Panosky. He distinguished three layers of meaning in subject matter; its primary or obvious meaning (image of a woman), its conventional meaning (the Virgin Mary) and its intrinsic meaning or content embedded in and conveyed by the image (religious beliefs embedded in and conveyed by the image). The search for intrinsic meanings became the preoccupation of many subsequent art historians and had led to a much wider, more pluralistic and open- minded approach to the visual arts. It was taken up by Marxists for the social history of art and more recently fruitfully by feminists for the critics of male dominated art history. They have revealed and still perpetuate how many images whether intentionally or not- are the subjugation of women and also how gender influences the ways in which women create and interpret art because their experience of the world is different from that of men.

Histories of art inevitably reflected the minds and feelings of their authors who had been almost as diverse as the artistes about whom they wrote- as diverse and many sided as the works of art themselves, for works of art were more than aesthetically pleasing objects and more than feats of manual skill and ingenuity: they deepened our insight into

ourselves, they sharpened our awareness of our own and other modes of thoughts and religious creed, they enlarged our comprehension of alternative and often an alien piece of life – they helped us to explore and understand our own human nature. The creation of works of art was the activity that most clearly distinguished human beings from other animals. History of art was an essential of the history of the human species, Honour and Fleming (2005) opined. Since then traditional art or painting have through the ages evolved and metamorphosed into many forms, movements and styles. It is believed that most of the techniques of the artists were lost during the general disorder following the collapse of the Roman Empire before barbarian invasions. However the artists of the middle Ages developed techniques which best suited the needs of their era. These ranged from frescos, which is probably still the most permanent medium in painting, to tempera and from illuminated Manuscripts through to Mosaics, oil paintings and water colours Abrams & Ackerman (1984).

2.3 Painting

Painting is the oldest art form, of which there is any record in the history of mankind; however, architecture and sculpture was much more important than painting until comparatively recent times. It was in the renaissance from about 1350 to 1600, that artist discovered the unique power of pertaining to create illusion of reality. Painting has developed in various forms to answer specific needs. For instance, the cave paintings of Altamira probably grew out of a community need. The Greeks and Romans employed wall paintings to beautify their homes, a use of painting that was not revived again in the western world until the early renaissance.

Since most of the techniques of the artist were lost since the collapse of the Roman Empire before barbarian invasion, the artists of the middle ages developed techniques suitable to

the needs of their time. These were frescos (wall), tempera (on wood panels), illuminated manuscripts, and mosaics, towards the end of the middle Ages oil paint on woods or canvass. Oil painting the kind of painting that is familiar in modern times was first developed by Flemish artists. It probably was not discovered, but was certainly was highly developed by the Van Eyck, who worked during the 15th century. Essentially, it was the ground pigment mixed with linseed or other oil and sometimes turpentine in various combinations. At first, oil paints were used on wood panels in a painstaking technique similar to tempera paintings. Early in the 16th century in Italy oil painting began to be used on canvas in the modern manner, notably by certain Venetian's painters such as Gione. In these techniques oil paint is applied freely, with a brush to canvas stretched on a frame. The paints were set out in an oval board called a pallet which sometimes had small cans of oil and turpentine. Oil allows for corrections (Conant 1965).

2.4 Water colour

Water colour is another painting medium. It is transparent, matt, re-soluble and used thinly. According to Pearce (1992), when resuming a water colour, it cannot be to start again, but to add, the stains in the paper will show through all the subsequent layers. She compendiously stated that the paper should be white so that the maximum amount of light is reflected back and the painting appears and remains as bright as possible. She, however, added that there was no structural objection to painting on coloured paper if one wished for duller effects. Here the pigments are mixed with water and are applied to paper and brush. Oriental artists have been particularly successful with this medium. Water colour was once used for preliminary sketches, but today it is used for finished paintings by

artists. It requires rapid work and allows for almost no correction. Its clean light quality seems appropriate for certain subjects (Conant, 1965).

2.5 New markets, new methods

At the same time techniques in mediums changed, new markets arose. Easel painting that was a separate painting not on a wall or for a book or altar piece developed and has become the most popular form of painting today. Another radical change has been in the methods of reproducing paintings. Copper engraving first enabled wholesale reproductions of paintings. It was not until the development of photo engravings that there was a cheap, reasonably accurate wholesale of colour reproduction. Most people today have prints in books and many people buy single prints to study or to decorate their homes, thus it is difficult to realize that until the mid- nineteenth century, most of the great masterpieces had been known only to those people who were able to travel and see them or who were able to buy them (Abrams & Ackerman, 1984). Modern painters often used discarded materials. Pablo Picasso, for instance, made a painting or collage of cloth, strings and cut up newspaper. It is called guitar. Picasso defended this work by holding that individuality is the most important element in art. The difficulty in understanding much of this kind of art stems from the fact that people are looking for meaning. Art has been defined many years as that which brings order out of chaos- that is- something that points out a pattern. Modern painting, frequently, seems to be saying that there is no pattern or meaning, freeing artists to express themselves through a bewildering variety and original use of mediums and techniques. This implied there was no one pattern of painting method, hence the different technique like digital painting which the researcher used. Even with digital techniques in painting, one thing that held common was that all arts seemed to involve three unique elements; the artists who created the work of art, the creation he has

produced, and the experience and reaction of the person who comes in contact with the work, perhaps, the most vivid and intimate experience of a work of art may involve the shared enjoyment in participation on the part of the viewer and the artist (Murck and Wen, 1991).

In the relatively few years since the advent of a new millennium, contemporary painting had witnessed a surprising number of shifts and tendencies. From a brief flirtation with academic figuration to Modernist homage, renewed engagement with abstraction and, latterly, investigations of the painterly platform itself, these mutations are, in fact, eminently logical: essentially a whirlwind or a chronological trawl through key aspects of the discipline's own history, achievements and concerns. Conspicuous by their relative absence; however, particularly in today's painting arena - are clear-cut signs of the impact of computer technology; of the digital/analogue hybridity which once seemed likely to extend the discourse of painting and its vocabulary in ways as spectacular and pervasive as the onslaught of 'new' technology itself.

2.6 History of Digital Art – The Computer as a Tool

A critical study of human history reveals the quest for better means of doing work. These quests for improvement may not be teleological, but most people at a point do get the wish of getting means of doing work that they consider cumbersome and artists are no exception. In fact the word —Technology‖ stems from the Greek words *technē*, —art, craft,‖ with *logos*, —word, speech,‖ which in Greece meant in a discourse on the arts, both fine and applied. The English of the 17th century associated the word with only applied arts. It was only in the 20th century that the word embraced a growing range of means processes and ideas in addition to tools and machines. Today the generally accepted term for the word technology is the application of scientific knowledge to the practical aims of

human life or, as it is sometimes phrased, to the change and manipulation of the human environment Bungum (2003). Thus, the creative artist has since prehistory probably used the technology of their time best suited for his purpose. Renaissance artists have been known to have used pinhole cameras to aid them in drawing landscapes. Close (1995) is known to use projectors to aid in some of his paintings as shown in plate 2.1.

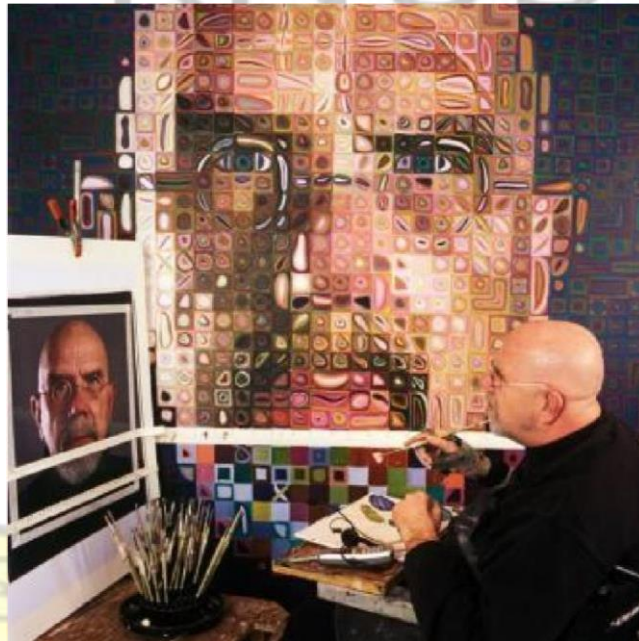


Plate 2.1: Projector Aided Painting by Close

(Source: <http://sayville.k12.ny.us/webpages/cnacional/artists.cfm?subpage=6073>)
Stelarc (2005), however, still uses a variety of robots and computers for his performances as shown in plate 2 below.

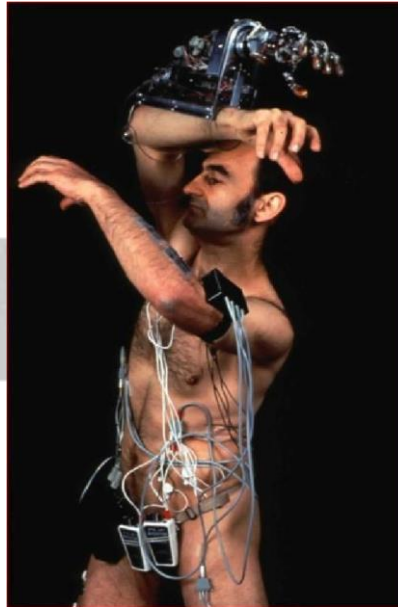


Plate 2.2: Stelarc's Performance

(Source: http://www.ctrl-z.net.au/wp-content/uploads/2012/12/stelarc_the_third_hand.jpg)

It was not surprising that artists adopted the computer as a tool for art immediately it was developed. Consequently, to trace the roots of digital art would be almost synonymous to tracing the roots of the computer itself, which is the major tool used for this art. A computer is generally a device for processing, storing, and displaying information. It also processes information with astonishing speed and accuracy. The most powerful computers can perform tens of billions of calculations per second. According to World Book Encyclopaedia (2001), computers may be grouped into four categories, namely Personal computers (PC), Mainframes, Dedicated computers and Embedded computers. Personal computers were used by one person at a time. Examples of such range of computers may include the PC through to laptops, notebook computers, palmtop or handheld computers. Mainframe computers are the fastest computers, which use the largest storage systems, thus possessing the ability to handle more information than any category of computer. Examples of these are the supercomputers and parallel computers. The first use of the word computer was recorded in 1613 and it referred to a person who

did computations or calculations, but now the term almost universally refers to automated electronic machinery. A much looser definition is a device that offers a human operator controls for making predictable and repeatable results. The latter definition, although a bit ambiguous, makes apparent a major characteristic of computers. The history of the modern computer began with two separate technologies— automated calculation (analogue) and programmability (digital) – but no single device could be identified as the earliest computer, partly because of the inconsistent application of that term. But according to the World Book Encyclopaedia (2001), the punched – card tabulating machine invented by Herman Hollerith was the first successful computer. It was used to compute the result of the 1890 United States census and by 1977, computer pioneers Stephen G. Wozniak and Steve P. Jobs introduced the Apple II computers, making computing economical for families, schools and small businesses. There are, however, inconsistencies stemming from the fact that the term applies to both analogue and digital computers. Analogue computers use continuous physical phenomena such as electrical, mechanical, or hydraulic quantities to model the problem being solved. The history of a computer in that sense, travels back to ancient Greece in the wreck off Antikythera, the Greek island of Antikythera, between Kythera and Crete. The Antikythera Mechanism, as it was named, was discovered in 1901 and it had been dated to *circa* 100 BC. It was believed to be the earliest known mechanical analogue computer. It was designed to calculate astronomical positions. Devices of a level of complexity comparable to that of the

Antikythera mechanism would not reappear until a thousand years later. Moreover Hero (c. 10–70 AD) built a mechanical theatre which performed a play lasting 10 minutes and was operated by a complex system of ropes and drums that might be considered to be a means of deciding which parts of the mechanism performed which actions and when. This is the essence of programmability. In 1801, Joseph Marie Jacquard made an improvement

to the textile loom by introducing a series of punched paper cards as a template which allowed his loom to weave intricate patterns automatically. The resulting Jacquard loom, as shown below in plate 2.3, was an important step in the development of computers because the use of punched cards to define woven patterns was later to be viewed as an early, albeit limited, form of programmability.



Plate 2.3: Textile Loom

The fusion of analogue technologies with programmability is what spawned the first recognizable computers. Charles Babbage's analytical engine in 1837 was the first conceptualization and design of a mechanical computer. It was never completed, however, due to the fact that Charles Babbage had limited finances and he was very experimental with his work. Alan Turing, however, is widely regarded to be the father of modern computer science because in 1936 he provided an influential formalization of the concept of the algorithm and computation with the Turing machine which was the technology behind spread sheet and word processing programmes. George Stibitz on the other hand was internationally recognized as a father of the modern digital computer. While working

at Bell Labs in November of 1937, Stibitz invented and built a relaybased calculator he dubbed the "Model K", which was the first to use binary circuits to perform an arithmetic operation. Later models added greater sophistication, including complex arithmetic and programmability. Chronological sequences of more powerful and flexible computing devices were constructed in the 1930s and 1940s, gradually adding the key features that are seen in modern computers. Notable ones include Zuse Z3 (Germany) in May 1941, Atanasoff–Berry Computer (US) in 1942, Colossus Mark 1 (UK) in February 1944, Harvard Mark I – IBM ASCC (US) in May 1944, Colossus Mark 2 (UK) in June 1944, ENIAC (US) in July 1946, Manchester Small-Scale Experimental Machine (UK) in June 1948, Modified ENIAC (US) in September 1948, EDSAC (UK) in May 1949, Manchester Mark 1 (UK) in October 1949 and CSIRAC (Australia) in November 1949. Several developers of ENIAC, recognizing its flaws, came up with a far more flexible and elegant design, which came to be known as the stored program architecture or Von Neumann architecture as shown in plate 2.4.

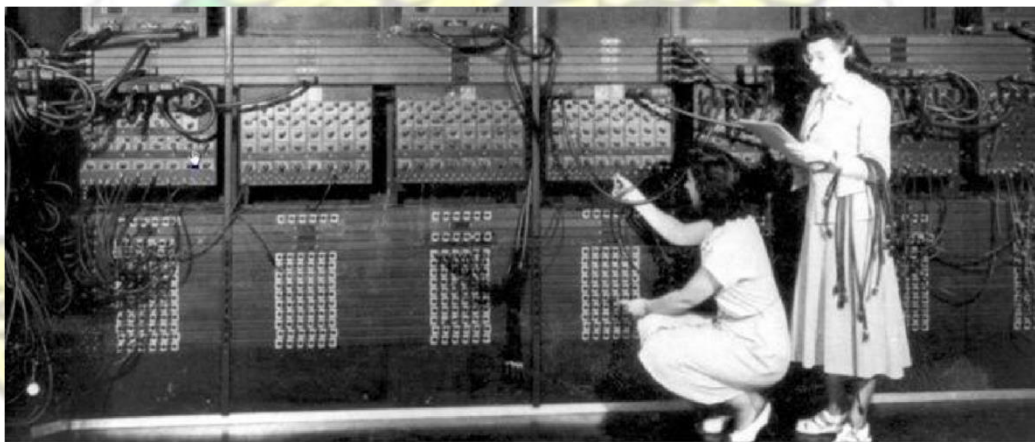


Plate 2.4: Von Neumann Architecture

(Source: http://www.boerner.net/jboerner/wpcontent/uploads/2011/02/ENIAC_wide.jpg)

Nearly all modern computers implemented some form of the stored-program architecture, making it the single trait by which the word computer is now defined.

While the technologies used in computers have changed dramatically since the first electronic, general-purpose computers of the 1940s, most still used the Von Neumann architecture. The development of micro-processors in that year would greatly reduce the size of computers, but even before then in 1935 digital art or computer art had already begun. The first transistorized computer was demonstrated at the University of Manchester in 1953. In the 1970s, integrated circuit (IC) technology and the subsequent creation of microprocessors, such as the Intel 4004, further decreased size and cost and further increased speed and reliability of computers. By the late 1970s, many products such as video recorders contained dedicated computers called microcontrollers, and they started to appear as a replacement to mechanical controls in domestic appliances such as washing machines. The 1980s witnessed home computers and the now ubiquitous personal computer. With the evolution of the Internet, personal computers are becoming as common as the television and the telephone in the household. Modern smart-phones are fully-programmable computers in their own right, and as of 2009 may well be the most common form of such computers in existence (Computer, 2008). The computer is simply not a medium, and it is subverting our customary identification of images in the media. In a medium, the image is produced by manipulating visible objects, and image information is inseparable from the physical material storing it (Binkley, 1990).

2.7 Digital Art

It is debatable when exactly the history of digital art began. Artists have been experimenting with computers at least since the 1970's. As the evolution of photography and video art, this new medium was often considered a threat to traditional art forms. Over the decades, art, making use of digital technologies has taken many forms, and even today, the question of how exactly digital or new media art can be defined is still being debated

(Paul, 2002). The beginnings of digital fine art are hard to pinpoint because they consist of many convergent threads, which wove together in different ways at different times. Thus, we have the development of the computer in the 1950s through the home PC in the _80s and the Internet in the _90s. Computer generated art was somewhat different from using a computer to render artistic vision. Fractal art opened up a whole new world of aesthetics, an unseen world of mathematical beauty. But fine artists also began using the computer as their medium. Then there was the thread of film and video, which converged in digital video effects (FX) or CGI.

2.7.1 Digital painting

Digital painting is a huge untapped area, especially in Ghana as compared to Europe and the Americas though it is gaining ground steadily. It is a modern, creative medium that is growing rapidly and is being used in so many industries and by so many individuals – hobbyists and professionals alike. Speaking of traditional media, it is important to remember that digital painting is becoming more widely accepted and highly regarded as the techniques and resulting imagery advance. Long gone is the time whereby the skeptic regarded painting with the aid of hardware and software as cheating; the artist still needs to be just as talented as ever before to produce the breathtaking work you can see throughout these pages. However, with the benefits that digital painting offers, such as increased speed, freedom to experiment, efficient workflows and ease of sharing work with online communities, more and more artists are discovering and embracing this incredible medium.

2.8 Digital painting and techniques - Organic custom brushes from ink

Digital artists can create custom brushes not only as a key step in creating the art, but also have a lot of fun experimenting. The default Photoshop brushes are quite interesting, and using them often, especially in the blocking phase, always made one end up integrating one or two custom brushes as well, for control and a personal touch. Digital artists created custom brushes from just about anything they could find, including pictures, textures, doodles and digital scribbles. The researcher experimented adding an organic feel to his brushes, with 90 percent of the custom brushes coming from high-resolution scans made up of crazy experiments with water colour splashes, ink, water and salt on drawing.

Recktenwald (2008), a credited artist of 3DTotal.com elaborated using a step by step account on how he went about creating his organic custom brushes. An example of an ink splash that inspired him is seen in plate 2.5 below. In his first step, he picked different selections of the scanned image and experimented with it using levels and filters in Photoshop and painted over them with other brushes until he got an ideal base image for his new custom brush.



Plate 2.5: Ink Splash

(Source: 3Dtotal.com (Firm), 2009)

In yet another development, he confessed about how patterns and close up images of objects formed a vital tool for inspiration. Samples of his images are shown in plate 6.

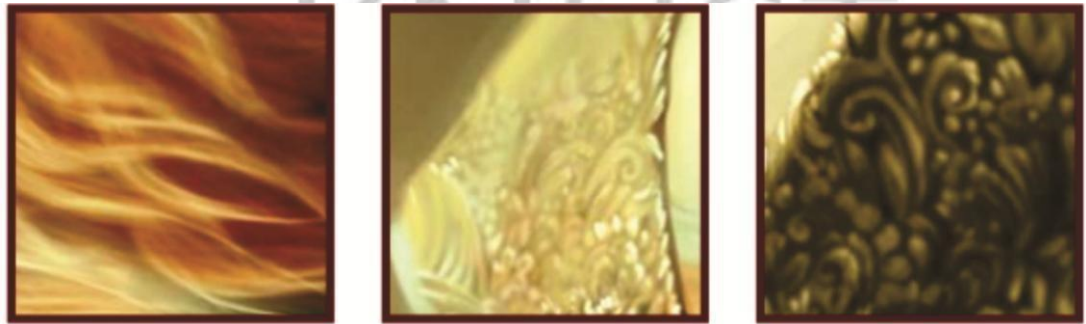


Plate 2.6: Close up images of objects

(Source: 3Dtotal.com (Firm), 2009)

Once again, he employed the Smudge tool in Photoshop whenever he sought for a more stippled pattern, like a dry brush to enable him to add up texture as he blended the images together. After bringing contrast in the image by clamping the Levels, he experimented with some filters to further pronounce the shapes as shown in Plate 2.7

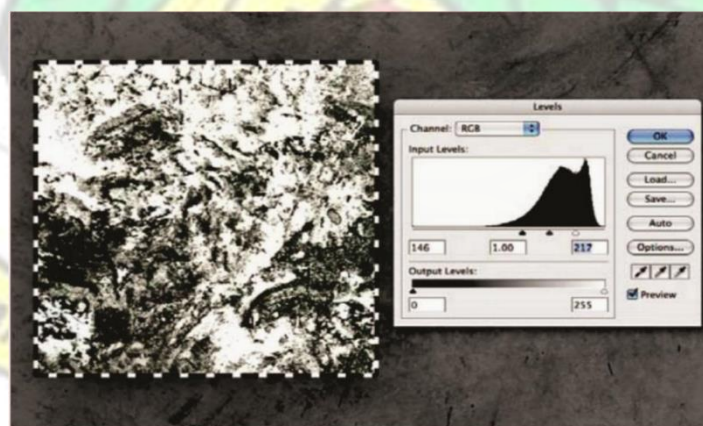


Plate 2.7: Creating a Stippled Pattern using Filters

(Source: 3Dtotal.com (Firm), 2009)

Recktenwald duplicated original textures a few more times and placed them on top of the filtered version. Finally, he experimented with different blending modes until there was a good texture/shape balance. With the base brush, layers were flattened and images resized. Experimentation revealed that saving the brush at the highest native resolution possible was best. However, the higher one went, the slower the drawing performance.

To save the image off as a brush, access Edit > Define Brush Preset, and ok after giving it an appropriate name.

Brush work is saved for future use as shown in plate 2.8.

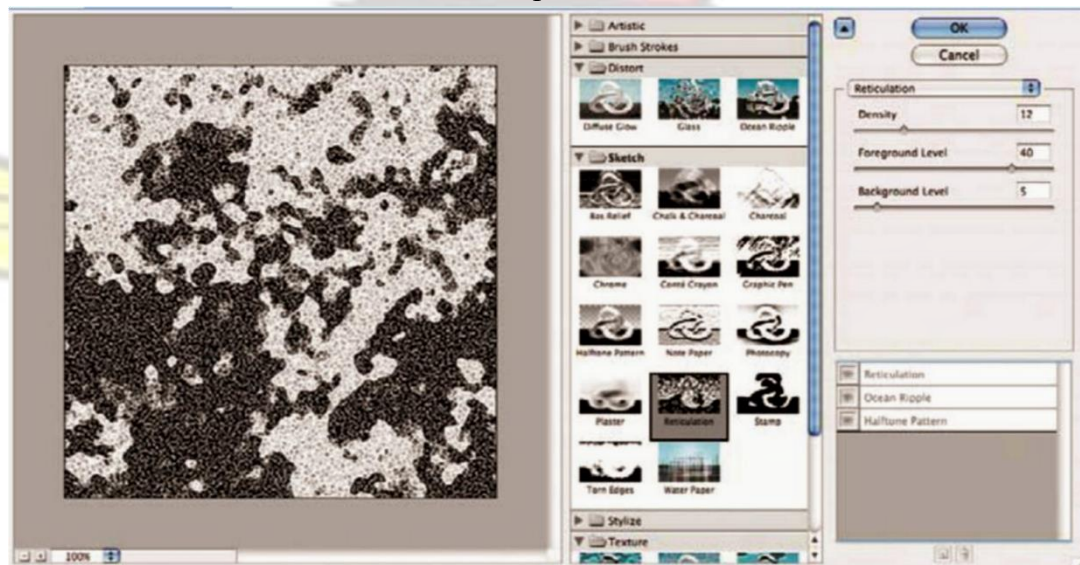


Plate 2.8: Creation of a Brush Preset

(Source: 3Dtotal.com (Firm), 2009)

He realized that using the smudge tool brush settings for use with his new brush he could get a lot of permutations from this brush simply by adjusting the Shape Dynamics, Scattering, and using other Dynamics settings, without having to swap out a new brush image. Another important value to adjust and experiment with was the Strength setting.

For an example of this brush in action he started with a canvas of broad brush strokes (a default round brush with Strength and Hardness of 100) and then a Cut out filter applied as shown in Plate 2.9.

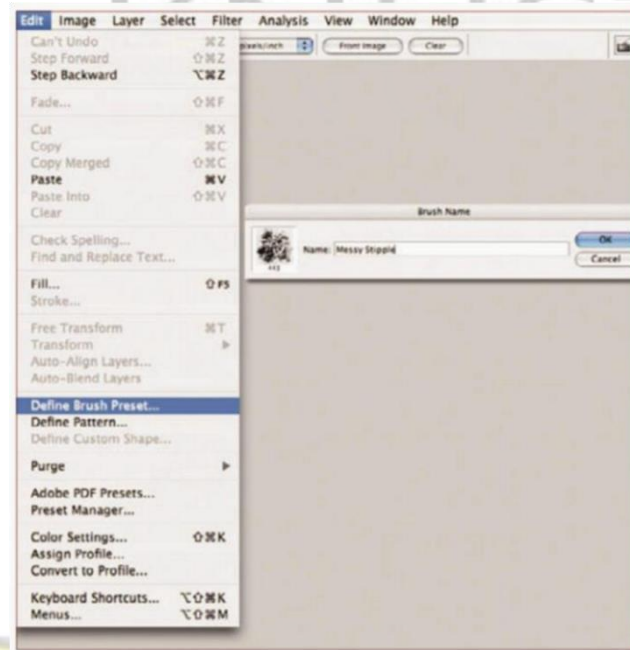


Plate 2.9: Defining Brush Preset using cut out filter

(Source: 3Dtotal.com (Firm), 2009)

He used an image as shown in plate 10 as a base module.



Plate 2.10: A Base Module Image

(Source: 3Dtotal.com (Firm), 2009)

In a further development he selected the Smudge tool to load his new brush image. For rapid, first pass blending he required speed and spread ability, so at this stage he used a smaller brush size with just the Shape Dynamics and Other Dynamics settings which he adjusted as shown in plate 11.

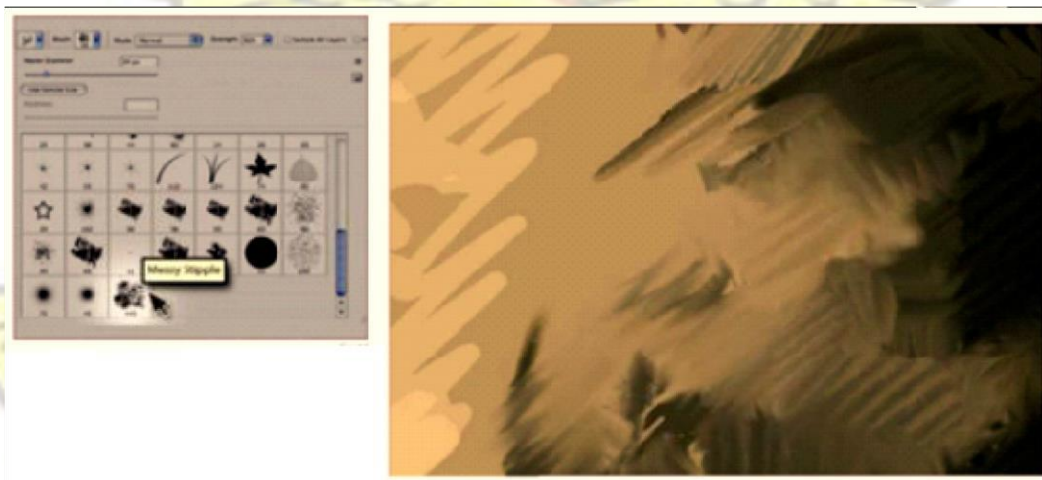


Plate 2.11: First Pass Blending of Image

(Source: 3Dtotal.com (Firm), 2009)

One thing he usually did was to constantly change the strength and sometimes turned off the other dynamics setting. After some cross-hatching to bring out some tonal gradation, he changed his brush settings to bring a softer, yet still textural, quality to the strokes by turning on the scattering. The rule of thumb here to him was that the higher the scatter, the softer the blending. Also, the higher the strength, the more the texture would come through. Adjusting the brush accordingly was also important at this stage as shown in plate 12.



Plate 2.12: Adjusting Brushes to Base Model Image

(Source: 3Dtotal.com (Firm), 2009)

2.9 The Difference between Digital and Traditional Paintings

Painting digitally is not all that much different technically than painting with traditional media. Painting with the newest generation of powerful software is virtually the same as painting in oil, or water colour, or gouache, or whatever one's favourite media was. The only difference is that it appears better.

2.10 Benefits of Digital Painting

Put simply, drawing by way of the computer instead of paper, expands creative liberty by allowing you to easily do things you cannot do on paper. For example, the graphics tablet allows you to both apply and revise your layers without risk of tearing, smearing or tarnishing your paper. If you want to redraw a certain feature of your drawing, like the grass or sky. Furthermore, several versions of the graphic drawings can be saved to encourage risk-free research. By drawing on paper, there is no way to replicate it to reduce risk of making a mistake. Since there is less risk, one would feel a much greater sense of creative freedom to see what works for your unique art piece and what does not.

Digital drawing and digital painting also allow for extensive artistic freedom in that an image can have many variations, such as black and white, negative, coloured, larger and smaller, while part of one image could be duplicated into another image to save time or create a surreal effect. By being able to change the size of the image, it is easier for the piece to adapt to the market place. The artist can also go back at a later time, when further inspiration hits him, to the image and alter it to make a new creation with unique surreal effects.

Touching on the benefits of digital painting, Carr (2012) outlined his as follows;

- Digital painting allows you to learn without the mess, bother and expense of traditional media. (That last part—the expense—is certainly offset somewhat by the cost of the equipment. But, in my experience, the busy artist would eventually spend more on traditional materials than in digital media, but the costs of digital painting all come up, in the form of equipment purchases, rather than a tube at a time, as in traditional media).

- Digital painting allows you to save your work a step at a time, and most painting programs include a handy history feature that allows one to undo the last several changes that one has made of a work. This allows one to experiment more, knowing that if one is unhappy with an experiment one can always go back to the point one was at before the experimentation started.
- The best new software programs, like Photoshop suite and ArtRage 4, very accurately reproduce the characteristics of the media and the feel of traditional painting. ArtRage 4 gives one real world painting tools on the computer in a stylish, easy to use environment that lets one get down to the process of creating without digital distractions. If one wanted a watercolour wash over a pen and ink layout, one could be created. If one wanted to apply a charcoal over a paper texture, it could be done. In fact, one can even create their own favourite virtual paper and brushes (a feature the researcher used very often).
- Digital painting produces electronic files rather than flat files, and this could be a major benefit. Producing digital files, remove at least two major steps in the reproduction of a work: scanning and colour separation. Digital files can be taken directly to a production house and murals made from them without any intervening time or expense.
- Digital files are better because with a digital file, one could create prints, canvas reproductions, and just about any other form of output one wanted—all without the expense of scanning and colour correction.
- There is no time wasted waiting for art pieces to dry.
- Furthermore, one could get different permutations or duplications of one particular work of art.

- The method of saving digital works on pen drives or external hard disks makes transporting of the art works more convenient and easier.

2.11 Limitations of Digital Painting

One needs high computer specifications to get a very good artwork done. The speed of a computer in loading artworks could be very frustrating if it is slow. One misconception digital painting suffers from is that there's a magic button one press to make finished art appear on the screen. There are already made digital brushes that could just be picked and used. There is not.

Digital painting is identical to the traditional in that the work one sees in the finished piece is created by a brushstroke (or palette knife stroke, or airbrush stroke etc.) at a time. For very large murals, this means lots and lots of painting. Carr's work on the Ancient Life Series for the Sam Noble Oklahoma Museum of Natural History represented about 2000 hours of painting and more than 6,000 square feet of finished murals. Here is another example, as shown in plate 6 below. It was painted for a final size of about 10 feet high and 25 feet wide. Here, the full image is shown as a width of 400 pixels:



Plate 2.13: Mural Painting (Carr, 2012)

Plate 2.13 is a detailed portion of the head of the smaller mammal from the artwork. Plate 2.14 shows a zoomed in portion of a mural that is 25 feet wide. Zooming into a digital image allows the artist more freedom to work on selected sections of the artwork.



Plate 14: A zoomed in portion of the mural

(Source: <https://shop.3dtotal.com/digital-painting-techniques-volume-1.html>)

Zooming in on a portion of an artwork to further work on it painstakingly can introduce a principle like emphasis into it which adds to its overall value. Moreover, digital painting is odour-free, chemical-free; there is no drying, and no need to stretch canvas, though one may still have to do in Art the painting.

2.12 Reality and Imagery in Art

Flood, Adele, Bamford, and Anne (2007), four authors sharing an opinion in one book, asserted succinctly that, we lagged behind the events. Reality had disappeared in the wake of the acceleration of things. Simulacra guaranteed the continuation of the real. Signs that used to represent things have become drained of their meaning and there is no absolute truth, merely different versions of events or things. We now live in a world without originals, and Baudrillard (1988) suggested we now must capture forms and make them

relate to each other rather than liberating them. If we were to accept his view of the world, we must first acknowledge that consumption has become the basis of social order. This article addressed how art educators must help those they teach to understand how imagery and text of the virtual world are manipulated. By informing and educating individuals to understand these processes and products one could provide a clearer view of the imagined and constructed world, thereby enabling one to articulate one's own visions through ever growing and changing technologies. An artist thus becomes the ultimate tool user, as described by Traub and Lipkin (1998).



CHAPTER THREE

METHODOLOGY

3.1 Overview

According to Lewis, Thornhill and Saunders (2007), the term research methods may have been used interchangeably in a number of books. Indeed, these authors claim that —methods refer to the techniques and procedures used to obtain and analyze data, whereas methodology is the theory of how research should be conducted. The reason for conducting this study is to whip up enthusiasm among up-and-coming digital painters by producing digital paintings through the amalgamating of traditional studio practice and digital artistry. The following sub-sections have been captured: Research Design, Population for the Study, Accessible Population, Sampling Technique, Convenience Sampling, Simple Random Sampling, Purposive Sampling, Data Collection Instruments, Data Type, Phase Two of the Study, Experimental Studies, Tools and materials used, Data Analysis and Presentation.

3.2 Research Design

The research design is the plan of how you answer the research question(s). It takes into consideration the objectives of the study as well as the sources for which the researcher plans to collect data, and then carefully consider the constraints and the ethical issues pertaining to the study (Lewis, Thornhill & Saunders, 2007). For this study, a qualitative descriptive survey was employed. The choice of this approach was appropriate in answering the research questions and objectives clearly set out in the first chapter of the study.

3.3 Population for the Study

Considering the term population from a theoretical point of view refers to the specific aggregate of a study's component. This involves the categories of people, situations, objects, and events that are used in a single study. Specifically, the population constituted Students, Teaching Assistants and Lecturers of Second and Third Year Painting and Communication Design classes of Kwame Nkrumah University of Science and Technology (KNUST), Kumasi and Takoradi Polytechnic. In all, a total of 1066 respondents constituted the population of the study.

3.5 Accessible Population

Accessible population is the population realized during the time of the conduct of the study. This study's accessible population comprised of 154 respondents and they constituted the cream of students, teaching assistants and lecturers who had some knowledge pertaining to the study. This involved 141 students, 6 teaching assistants and 7 lecturers.

3.6 Sampling Technique

According to Kumeckpor (2002), sampling is the use of definite procedures in the selection of a part of the population for the purpose of obtaining from its description or estimates certain properties and characteristics of the whole population. To obtain the accessible population, sampling was carried out to select part of the target population. Convenience sampling was used in selecting Kwame Nkrumah University of Science and Technology and Takoradi Polytechnic as the sites for the study. In addition, random sampling and

purposive sampling methods were employed to select the accessible population for the study.

3.6.1 Convenience Sampling

Convenience sampling is a kind of non-probability or non-random sampling in which members of the target population (Dörnyei, 2007 as cited in Farrokhi, 2012), are selected for the purpose of the study if they meet certain practical criteria, such as geographical proximity, availability at a certain time, easy accessibility, or the willingness to volunteer as in the case of this study. The reason for using convenience sampling to select the Kwame Nkrumah University of Science and Technology and Takoradi Polytechnic as the sites for the study is that generally, looking at the practice, artists are usually trained in these two institutions and testing it here will help the researcher to see how this particular scheme of art is practiced. This is the reason why most researchers rely on sampling techniques like convenience sampling, the most common of all sampling techniques. Many researchers prefer this sampling technique because it is fast, inexpensive, easy and the subjects are readily available (Explorable.com, 2015).

3.6.2 Simple Random Sampling

Opoku-Amankwa (2009) reveals that simple random sampling allows each element an equal chance of being selected. The students were randomly selected for the study. All the students had an equal chance of being selected for the study. Teddlie and Yu (2007) opine that simple random sample is one in which each unit person or case in the accessible population has an equal chance of being included in the sample, and the probability of a unit being selected is not affected by the selection of other units from the accessible population since the selections are made independently.

3.6.3 Purposive Sampling

In Trochim (2006), as cited in Korlety (2014), with regards to purposive sampling, a researcher samples with a purpose in mind. In this study, purposive sampling was employed to select some Lecturers and Teaching Assistants because they have some knowledge in digital technology and can render information useful for the study.

3.7 Data Collection Instruments

Due to the similarities of the population it did not require any different approach for collecting the data for the study. The instruments used for the data collection included questionnaire, interview, observation. It is important to note that in studio practice, studio artists usually gather from the environment through observation and use them as a basis for idea development and compositions.

3.7.1 Data Type

According to Barnet (1997), the materials of most research are conventionally divided into two sorts, primary and secondary. The primary materials or sources are the subject of study. The secondary materials are the critical and historical accounts already written about these primary materials. The researcher visited the Kwame Nkrumah University of Science and Technology, Library, MFA Painting studios and Takoradi Polytechnic Library and the internet to gather enough secondary data for the study. Both primary data were collected from the responses from questionnaire and interview.

The study was carried out in two phases. The first phase involved investigating into the problem to ensure harmony in amalgamating traditional studio practice with digital technology. The second phase, which is the project execution, being the experiment was

conducted to explore the applicability of digitizing traditional studio water colour painting, to ensure harmony in amalgamating traditional studio practice with digital technology.

3.8 Phase Two of the Study

a. Experimental Studies

Six different traditional studio water colour paintings were executed in the experiment. ArtRage and CorelDraw were used to experiment with integrating the six traditional studio water colour works with digital technology.

b. Tools and materials used

Tools and materials like hand held sable brushes ranging from 1 to 12, a putty eraser, watercolour paper (cold/hard pressed) and a watercolour pigment were used. The most important tool for the handmade sketches was the brush and Watercolour paper. The brush types usually used were in two types. Two brush types were used. The round brushes were mostly used in the handmade sketches. The brush tips used ranged from 2 to 12. The specifications of the brushes used were the Dalon Series D88 Wash and one stroke brush and the Royal Art Brushes (Handmade). Pure sable brushes were used. The round brush is a general purpose one; both a wash and a thin line can be obtained with this shape Crawshaw (2000). Water colour paper was also used. Crawshaw (2000) states that Water colour paper is available in a wide range of different textures and weights, but they all have two things in common: They are all finished with one of three kinds of surface texture; and they are all graded by their weight. The surfaces are: Rough, Not and Hot pressed. Paper with a rough surface has a very pronounced texture and is usually used for

large paintings where bold vigorous brush work is required. The Not surface has less texture, and this is the one most commonly used by artists. The hot pressed is extremely smooth with very little texture. This is because its unique surface texture is sympathetic to the brush and helps to create the unique water colour effect. The Bockingford watercolour paper was occasionally used for the sketches due to the fact that it was scarce and expensive. Mostly the Cartridge Drawing Paper was used. Hot/Cold pressed papers were also available for use. The weights of paper used for the sketches ranged between 90gms to 180 grams.

A flat bed A4 Cannon Scanner and Lenovo laptop computer were also employed for the digitization and further processing on a digital platform modification the water colour paintings. The laptop used was a Lenovo branded laptop running on a windows 7 professional operating system. Other specifications of the laptop are: Intel (R) Core (TM) i5 CPU M4802.67GHz@ 2.67GHz. Installed memory (RAM): 4.00 (3.80GB usable), system type: 64-bit Operating System.

Other materials used apart from the Watercolour paper included a Wacom tablet, a colour palette, a portable and foldable easel, and a selection of pencils ranging from 2B to 6B for the preliminary sketches. For the watercolour pigments, Winsor and Newton's Cotman Water colours were used. These colours come in tubes and are thick and fluid.

3.9 Data Analysis and Presentation

The data collected during the phase one using the questionnaire were processed using the Statistical Package for Social Sciences (SPSS) to make graphical representation and interpretation of both the frequency counts and percentages easy for assimilation,

comparison and description. The responses from the questionnaire were captured without compromising on the individual opinions of respondents. The data were analyzed and presented using the descriptive statistics, including percentages and frequency.

During the phase two, the descriptive method was used to describe the experimental processes and outcomes. Moreover, the descriptive method was used to describe the non-numerical data generated from the experiment.



CHAPTER FOUR

DATA ANALYSIS AND RESULTS

4.1 Overview

This chapter presents the analysis and discussion of the results of the study based on designated objectives and research questions. This chapter is categorized into two major headings which are:

1. The demographic characteristics (gender, age and the level of education) of the respondents.
2. The descriptive statistics: that has to do with the analysis of the data obtain from the questionnaires using graphs and charts.

4.2 Demographic Characteristics of Respondents

This section shows the demographic characteristics according to gender, age, and the level of education of the respondents. The data collected was analysed using the statistical package for social sciences (SPSS) in the form of a frequency table for easy interpretation and understanding.

Table 4.1: Summary of Response on Demographic Characteristics of Respondents

Attributes	Number	Frequency	Percentage (%)
Gender	154		
Male		123	80
Female		31	20
Age	154		
20-30		142	91
31-40		10	7
41-50		2	1
>50		1	1
Qualification	154		
Tertiary		152	99
Other		2	1

Table 4.1 represents the demographic characteristics of respondents in the study. From Table 4.1, it can be observed that out of 154 respondents, 123 representing approximately 80% of the respondents were males whilst 31 representing 20% were females. This indicated that the majority of the respondents questioned in the study were males. This disparity may mean that more males are able to access the painting and graphics courses than females. It could also mean that more males are interested in the courses than females.

In relation to the age range of respondents, it was found out that 141 representing 91% of the respondents were in the age bracket of 20-30, 10 respondents representing 7% were between the ages of 31-40, whilst 2 representing 1% of the respondents were in the age bracket of 41-50 with the least, 1 respondent, representing 1% also belonging to the age bracket of 50 years and above respectively. This indicated that the majority of the respondents were aged between 20-30 years; therefore if this analysis is favourable then

digital painting could have standing because the majority of the people taken into consideration are of the active working group.

With respect to the qualification of the respondents, Table 4.1 shows that 152 respondents representing 99% out of the total respondents of 154 questioned had attained tertiary education or were in tertiary institutions whilst only 2 respondents representing 1% had not reached the tertiary level but were computer literate.

4.3 Using Descriptive Statistics for Representing Data Collected

This section introduces the descriptive statistics and also put more emphasis on how the data collected was distributed. Descriptive statistics are numbers that are used to summarize and describe data. This component of the study represents how the data was obtained and how it was used to achieve the set objective and the necessary recommendations made.

Figure 4.1 shows data representative of some basic questions asked about Digital Prints and their relative responses. It can be observed that the majority of the respondents, 97% claim that they had heard about digital prints before while only 3% indicated in the negative. This showed that majority of the respondents had heard about digital prints and also admired them.

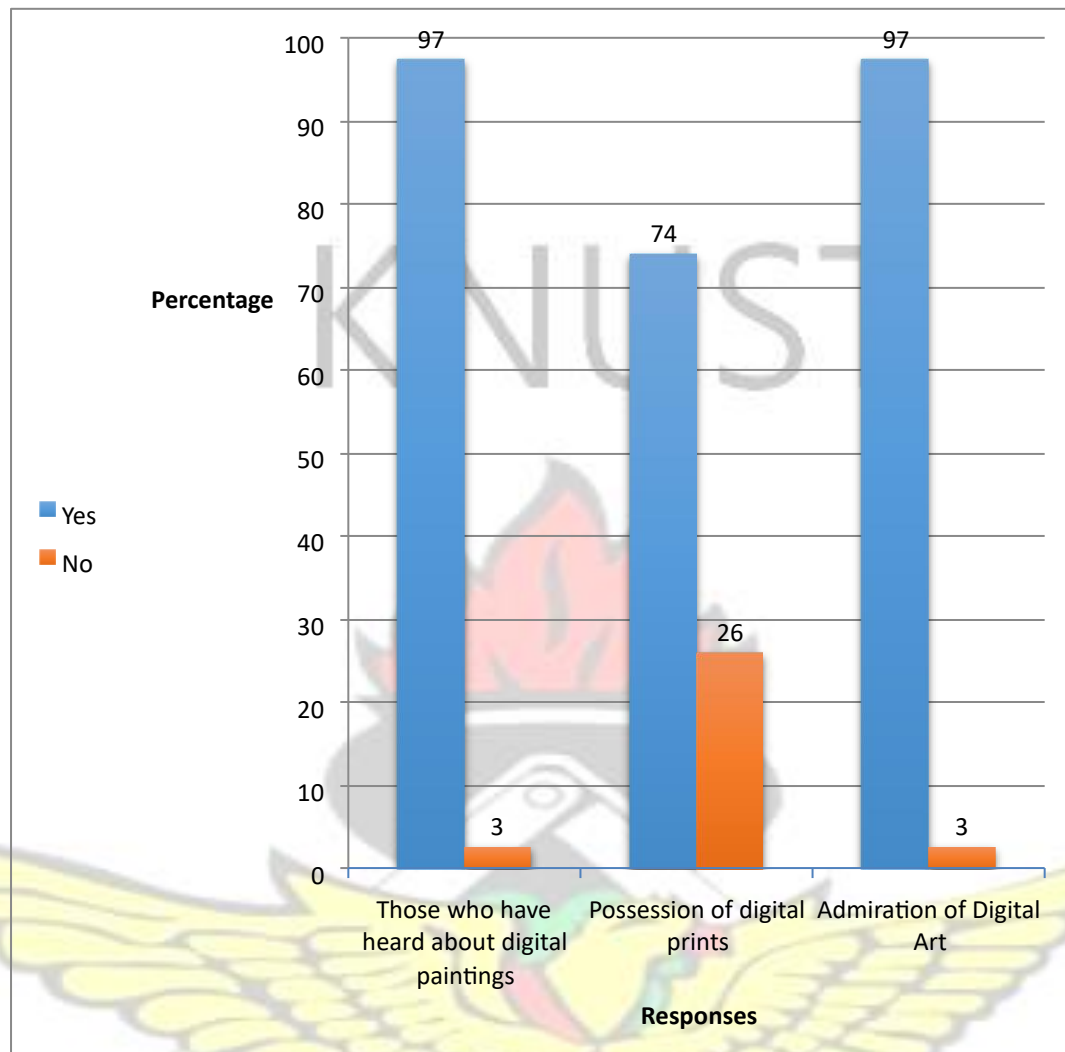


Figure 4.1: Chart Showing Knowledge, Possession and Admiration of Digital Paintings, Prints and Art
(Source: Digital Prints of Respondents)

With respect to the question as to whether respondents had heard about digital paintings, 150 respondents, representing 97% said yes they had heard about digital paintings before whilst 4 respondents, representing 3% said they had not heard about digital paintings before. When the respondents were questioned about whether they personally possessed digital prints, 114 respondents, representing 74%, ticked yes on the questionnaire that they possessed digital prints. Out of 154 respondents questioned, 150 respondents, representing 97% indicated that they admired digital art whilst 4 respondents, representing 3% said

they did not admire digital art. This shows that the same number of respondents who had heard about digital paintings also admired digital art.

Table 4.2 represents the summary of the questions posed to the respondents concerning where they have placed their digital prints. It can be seen that 90 representing 58% of the respondents indicated that their digital prints were placed at home, 48, representing 31% said at the gallery/art studio whilst 3 (representing 2%) and 13 (representing 8%) of the respondents indicated the church and school respectively.

Table 4.2: Physical Location of Digital Prints of Respondents

Attributes	Frequency	Percentage
Home	90	59
Gallery/Studio	48	31
Church	3	2
School	13	8
Total	154	100

This showed that majority of the respondents, 90 out of 154 respondents, had their digital prints placed in their homes while 3 out of 156 respondents were placed in the church. This shows that churches are yet to display more digital prints in their auditorium.

A look at Table 4.3 revealed that majority of the respondents had some knowledge in both digital painting and traditional studio painting respectively. It is observed that out of 154 respondents questioned, 150, representing 97%, indicated that they had heard about digital painting whilst 4 representing 3% have not heard about the digital painting.

However about 75% of the respondents indicated they do paint using traditional methods whilst 25% said they do not paint using traditional methods.

When questioned about the media they usually painted in, 37 respondents representing 24% responded that they used oil based media, 48 respondents representing 31% said they used water based media while 30, representing 19% said they painted using digital means. Thirty nine respondents, representing 25% said they used other media apart from the ones mentioned for painting.

When respondents were questioned about their knowledge of digital painting being done by any popular Ghanaian artists, 54 representing 35% of the respondents said yes whilst 100, representing 65% said no. This showed that respondents do not have much knowledge about digital painters in Ghana.

Respondents were questioned whether they had painted through any digital means. Out of the total of 154 respondents questioned, 105 representing 68% said yes, whilst 49 representing 32% respondents said no confirming that a majority of the respondents had knowledge about digital paintings.

However, respondents gave varied reasons with respect to the question as to why they painted through any digital means. The responses are shown in Figure 4.2, 30% of the respondents indicated that they have painted through digital means, 22% indicated it was part of their course work, 19% said project work, 16% said it was comfortable to use digital painting whilst 13% painted through digital means for experimentation and exploration.

3: A brief Representation of Respondents' Response Popularity and Medium for Painting

Attributes	Number	Frequency	Percentage
Have you heard about Digital Painting?	154		
Yes		150	97
No		4	3
Do you Paint using Traditional Methods?	154		
Yes		115	75
No		39	25
What Medium do you usually paint in?	154		
Oil based		37	24
Water based		48	31
Digital		30	19
Others		39	25
Have you heard about Digital Paintings being done by any Popular Ghanaian Artists?	154		
Yes		100	65
No		54	35
Have you painted through any Digital means?	154		
Yes		105	68
No		49	32

Chart 3 represents the respondents' reasons why they painted digitally. 13%, representing 20 respondents, painted digitally for exploration and experimental reasons. 29 respondents representing 19% painted digitally because it was a requirement for their project work whilst 25 respondents representing 16% said they painted digitally simply because they found it a comfortable medium to paint with.

Table 4.

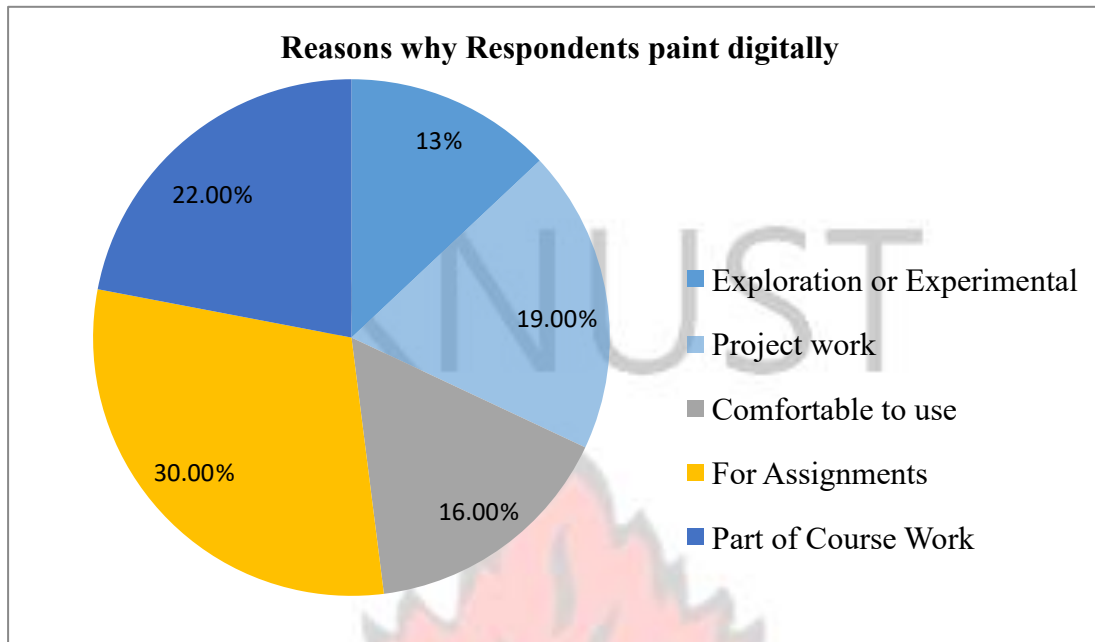


Figure 4.2: Summary of Reasons why Respondents Paint Digitally

46 respondents representing 30%, painted digitally because they were given assignments that required them to paint digitally and 22% of the respondents, numbering 34 said they painted digitally because it was part of their course work. This means that only a few respondents paint for exploratory or experimental purposes while majority paint digitally due to academic reasons. Of all the segments in Figure 4.2, those who paint digitally form the largest percentage, 30%, of respondents for the sake of assignments, while the next largest parentage being 22% of the respondents show those who paint digitally for the reason of it being part of their course work. This means that of the total number of respondents, 52% paint digitally due to academic reasons.

Table 4.4 shows that only 20% of the respondents have ever combined studio painting like a water colour painting with digital painting. The other 80% said they had never combined studio painting like a water colour painting with digital painting before.

4: Respondents Response to Mixed Media

Have you ever combined studio

A painting like water

colours with digital

painting before?

154

Yes

31

20

No

123

80

Attributes	Number	Frequency	Percentage
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majority of the respondents constituting 136, representing 88%, were of the view that Digital paintings were certainly not Traditional Studio Paintings, whilst 4% said that Oil on Canvas was not the same as digital painting. The percentage of respondents who said Acrylic Paintings was not digital paintings was 1%, whilst 10 respondents, representing 7%, said traditionally created water colour paintings were certainly not digital paintings.

Table 4.5: Respondents assessments on what does not constitute Traditional Studio Paintings

Attributes	Frequency	Percentage
Water Colour Paintings	10	7
Oil on Canvas Paintings	6	4
Digital Paintings	136	88
Acrylic Paintings	2	1
Total	154	100

However, 110 representing 71% constituting the majority indicated that they would prefer to do digital paintings by themselves whilst 44 representing 29% indicated they would

Table 4.

employ the services of someone for their Digital paintings, which indicate that digital painting could be lucrative in the long run.

A look at Table 4.6 shows that 115 respondents, representing 75%, indicated that they would prefer using Adobe Photoshop for their Digital Paintings, 10% said they use other computer software for painting digitally, 8% said that they would use Corel Photo paint for their digital paintings, 5% indicated they use CorelDraw for their digital paintings whilst 2% said Microsoft word was what they use for painting digitally. This showed that the majority of the respondents chose Photoshop as their preferred choice of software they would use for their digital paintings.

When questioned about their strength in terms of the mastery of the software they preferred using, 57 respondents representing 37% indicated 60-80% rating of their mastery strength in the software, 36, representing 23% of the respondents claimed 4160% mastery, 35, representing 23% of the respondents asserted to 10-40% of their mastery and skill in the software they used and 26, representing 17% of the respondents indicated between 80-100% mastery of the software. This means that a few respondents expressed confidence as far as mastery and skilfulness of painting digitally was concerned. With respect to the question as to which techniques respondents found easier or less challenging, the majority of the respondents constituting 109 representing 71% were of the view that Digital Painting was easier and less challenging whilst 45 representing 29% said that traditional studio painting was easier and less challenging.

6: Respondents Response to their strengths and Popularity of Computer

Software Used

Attributes	Number	Frequency	Percentage
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What Computer Software would you use for your Digital 154

Paintings

Adobe Photoshop	115	75
CorelDraw	8	5
Corel Photo paint	13	8
Microsoft word	3	2
Other	15	10

What is your Strength in terms of the mastery of the Software if you 154

have to paint Digitally

10-40%	35	23
41-60%	36	23
60-80%	57	37
80-100%	26	17

Which of these Techniques below do you find easier and less 154

challenging	45	29
Traditional Studio Painting	109	71
Digital Painting		

Respondents were further questioned to give their views with respect to the paintings they were very familiar with and would prefer when doing their digital or traditional studio paintings. The results are put in chart form as shown in Figure 4.3.

Table 4.

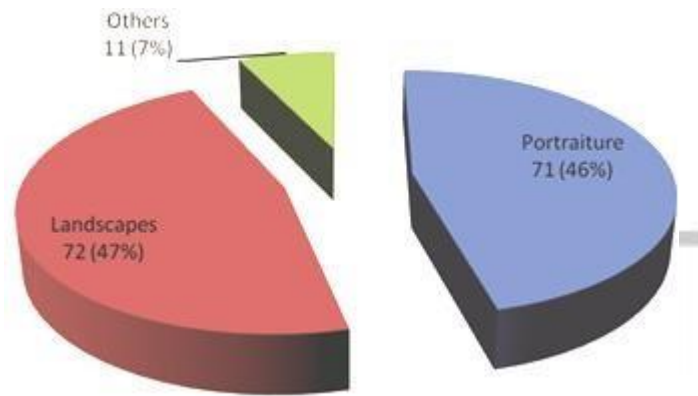


Figure 4.3: Summary of Respondents' Popular Themes in Digital Painting

Figure 4.3 shows respondents' views on painting themes that they are familiar with in digital painting. It could be seen that 72 respondents representing 47% of 154 were of the view that they are familiar with digital landscape paintings, 71 respondents, representing 46%, said portrait painting was popular whilst the least, 11 representing 7% said they were familiar with other themes in digital paintings. The conclusion, therefore, is that the majority of the respondents are familiar with landscape and portrait paintings.

A look at Fig.5 is a picture representation of respondents' views on the familiarity of digitizing studio water colour painting with digital artistry. The findings in fig 5 show that 60 representing 39% of the respondents said yes, they had ever witnessed water colour paintings interfaced with digital art before whilst 94 representing 61% said no to the same question. This indicated that the majority of the respondents have not witnessed, or experimented with or seen traditional water colour paintings interfaced with digital art techniques before.

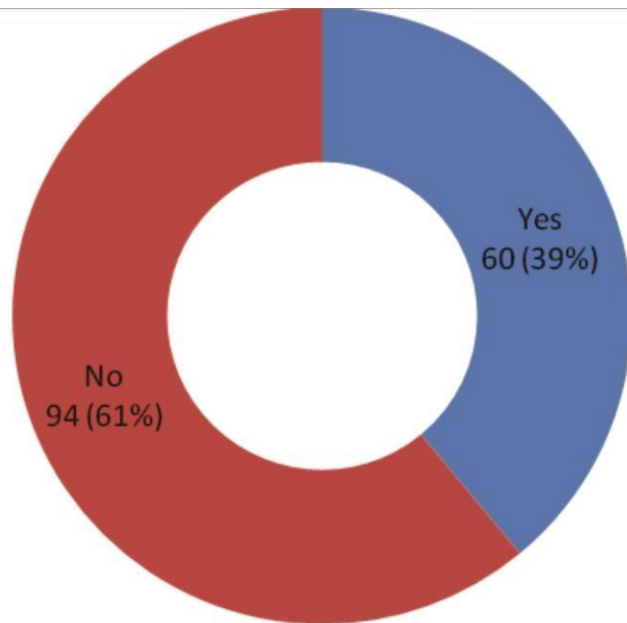


Figure 4.4: Summary of Respondents Response on Familiarity of digitizing Studio Water colour Paintings with Digital Paintings

The instrument of face to face interview was used to solicit answers for open ended questions. The population consisted of five lecturers from Takoradi Polytechnic, two lecturers from KNUST and six teaching assistants from Takoradi Polytechnic which was drawn from the accessible population (see section 3.5). The general thrust of their answers was captured as follows:

1. On the question of how digital painting could be used as a complimentary and enhancing tool for traditional studio practice, the majority agreed that it could be achieved through experimentation and exploring of possibilities till one achieves a particular style.
2. A teaching assistant in the Graphics department in KNUST remarked that it was better digital painting and traditional studio painting stayed apart. The reason,

simply put, was that it was too much work combining the two and that the outcome of the merger, if not carefully executed, may look _someway‘ (awkward).

3. On the question as to whether style and aesthetics of a handmade artwork could lose its _originality‘ if digitized and reproduced, the answers were varied and sharply divided into at least two schools of thought. One school of thought, reasoned that an original work can never be compared to its duplicate. The original was original. Another school of thought emphasised that originality should be placed on the one who claims ownership of an artwork. Digitization just becomes a medium through which the digital painting can be kept, displayed or transferred and that once one can trace an original work of art and its duplicate to the same owner then they are basically the same.
4. When asked to come out with possible ways digital and traditional studio practice can be fused together to produce digital paintings, responses received were as follows;
 1. A lot of experimentation should be encouraged in school curriculum
 2. There should be a lot of collaboration between painters and graphic artists to brainstorm on how best to fuse techniques together.
 3. Digital Painting is a new art form being perfected in this high-tech age of computer generated art of all sorts. It should be encouraged in Ghana.
5. When questioned regarding the way by which the outcome of the project could be made available to the public, respondents unanimously agreed that an exhibition was the best option.

4.4 SUMMARY OF FINDINGS FROM THE VARIOUS ANALYSIS

1. The majority of the respondents, 97% declared they had ever heard about digital painting.
2. Seventy four percent of the respondents had digital prints in one form or the other. It shows that digital prints are much more popular than digital painting.
3. In all, 24% of respondents painted in oil, 31% used water based media while 39 respondents representing 25% indicated they painted through digital other means. This means that only 20 respondents out of the 154 respondents painted using digital means.
4. Fifty-four respondents, representing 35% said they had a fair knowledge of popular Ghanaian digital painters; however 100 respondents, representing 65% said they had no knowledge about any popular Ghanaian digital painter.
5. Almost a third of the respondents, 31% indicated that they painted through digital means because of their course work
6. Only 13% of the respondents ever painted digitally for exploration or experimental purposes.
7. The majority of the respondents chose Photoshop as their preferred choice of software when making digital paintings. One relevant revelation the researcher observed was that although Ghanaian artists and amateurs do digital works, most are done using the Photoshop software. ArtRage, which is a digital painting software, was hardly used.
8. Only a few respondents, 26 out of 154 respondents expressed confidence as far as 80% to 100% mastery and skilfulness of painting digitally was concerned.

9. Only a few respondents, 13%, representing 20 respondents, painted digitally for exploration and experimental reasons. The majority of the respondents painted digitally due to academic reasons.

KNUST



CHAPTER FIVE

PROJECT EXECUTION

APPLICATION OF DIGITAL TECHNOLOGY ON DIGITIZED TRADITIONAL STUDIO WATER COLOUR PAINTING

5.1 Overview

Painting on the computer using the software ArtRage 4 proved to be different from painting on a real canvas with real paint and hand held brushes, so the researcher had to learn some ground rules. First, every time ArtRage 4 was launched, a blank canvas was created for painting to start instantly. Moreover, each time one lifted the brush up it was automatically replenished with paint thus getting rid of any need to dip it into anything to get more colour before painting a new stroke. This saved time and aided ease. Thirdly paint strokes made could be undone if one did not like how it looked. This eliminated inhibitions for experimentations.

This backdrop proved very helpful for the researcher's quest for exploration. ArtRage proved to be like a well stocked artist's toolkit. There was absolutely no need to use everything in the kit to get good results.

In this exercise, the creation of a landscape painting titled '_forest glade_', for ease of reference, a glade is a tract of land with few or no trees in the middle of a wooded area, the idea was to use both manual and digital water colour techniques without compromising style. The challenge was to maintain luminance in the water colour artwork after passing it through some selected digital software techniques. This experimentation sought to complement the purely different, yet similar stylistic approaches in creating landscape paintings by adding on a layer by layer with the various media techniques. The step by

step account of the processes adapted in the creation of a landscape painting titled ‘forest glade’ were then captured as follows;

Step 1: Hand Sketches

A Landscape sketch was drawn on a 6 x 11 inches cold pressed water colour paper. The sky was painted using a combination of ultramarine and cobalt blue. A sketch of a tree in the foreground was added and after waiting a while for the colour to dry, the sketched layout was scanned and saved in a JPEG format as indicated in Plate 5.1.

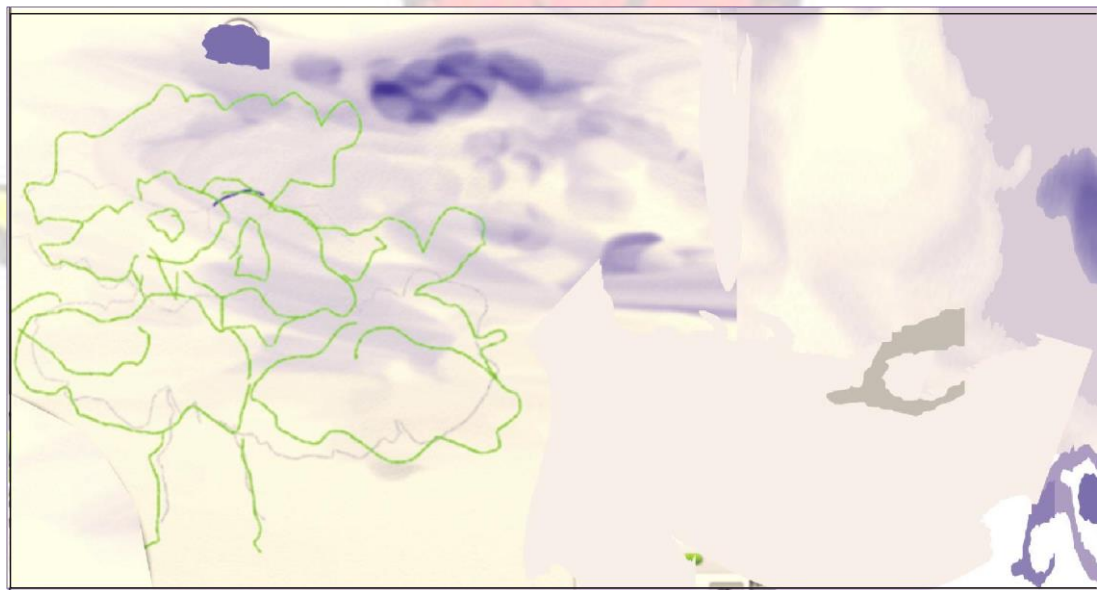


Plate 5.1: Preliminary Handmade Sketch

ArtRage4 programme was launched to open a new document. Once ArtRage was launched, an interface opened with a blank canvas on the screen as indicated in Plate 5.2.

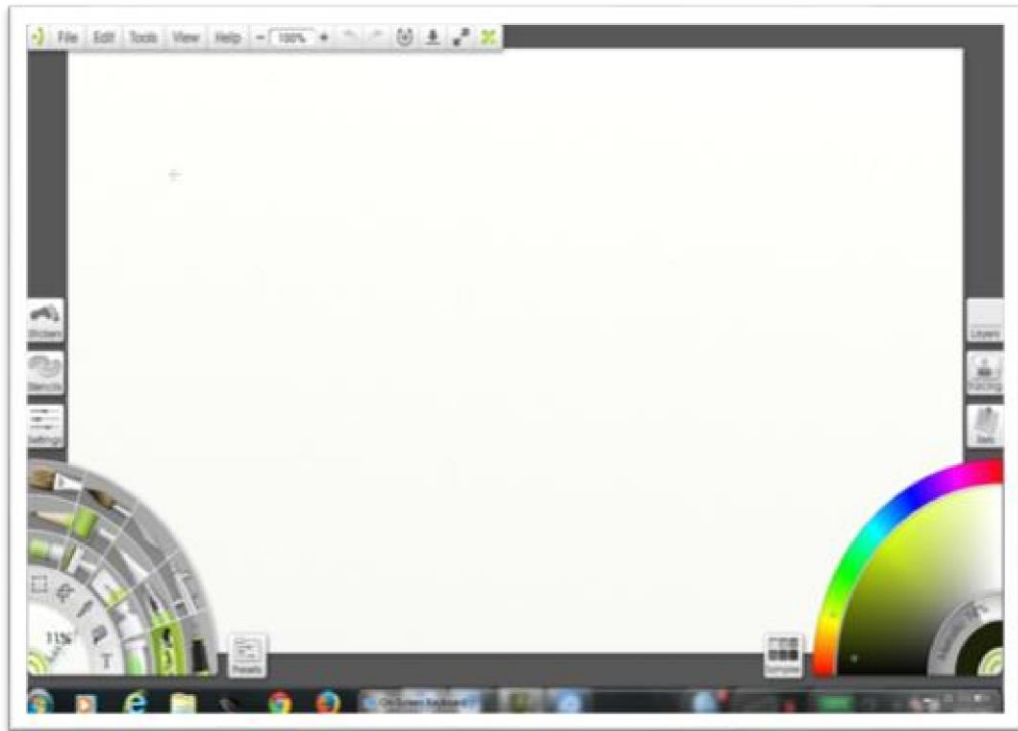


Plate 5.2: ArtRage software interface

'New Painting' is then accessed on the menu bar. ArtRage toolkit, which is docked on the lower left corner of the ArtRage screen, has an array of options that was engaged in digital painting. A labelled toolkit is shown on Plate 5.3.

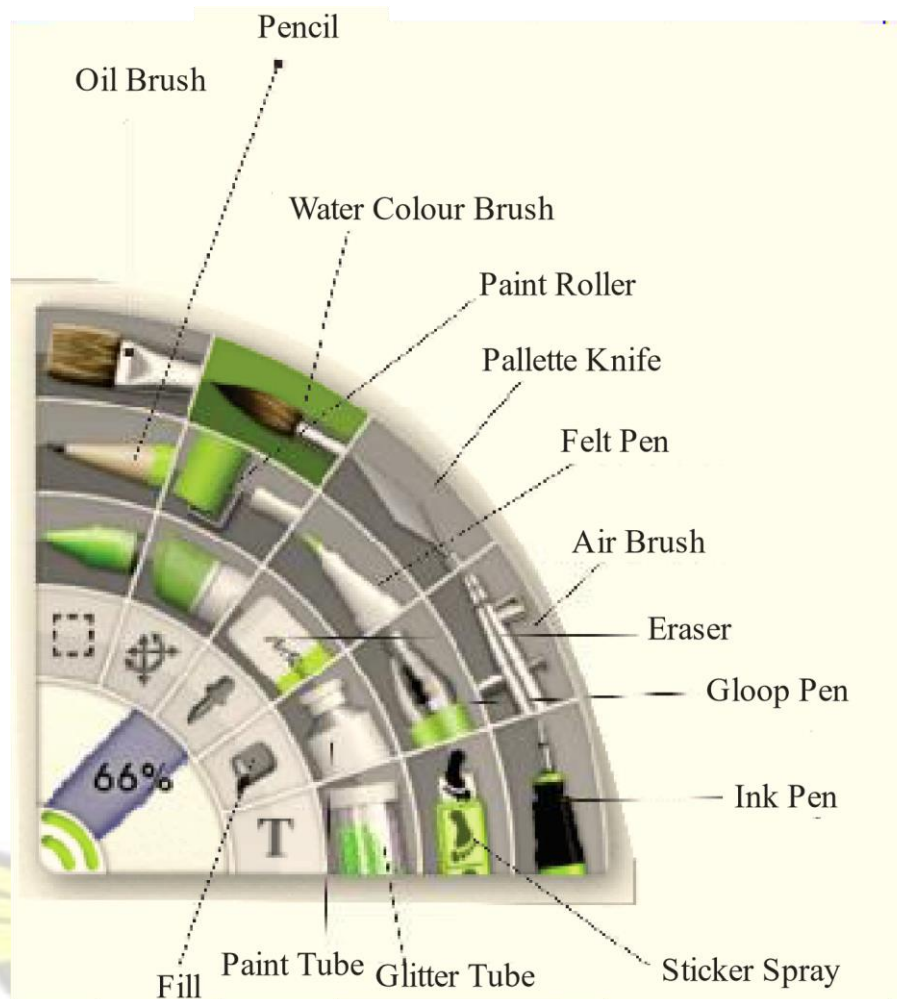


Plate 5.3: Labelled ArtRage Toolkit

The choice of canvas intended to be used is then selected from the options dialog box that appears once ArtRage is launched. For the canvas settings, water colour paper was selected. In selecting a tool, all the painting tools are stored in the tool picker on the left hand side of the ArtRage window. The Brush tool can create thick oil strokes, delicate thin washes, rough, dry brushed smudges, and many more effects. This means that each tool is actually a collection of hundreds of other potential specific tools, each defined by variable controls.

The digitized sketch was then imported to the ArtRage interface which is also called a canvas as shown in plate 5.4.

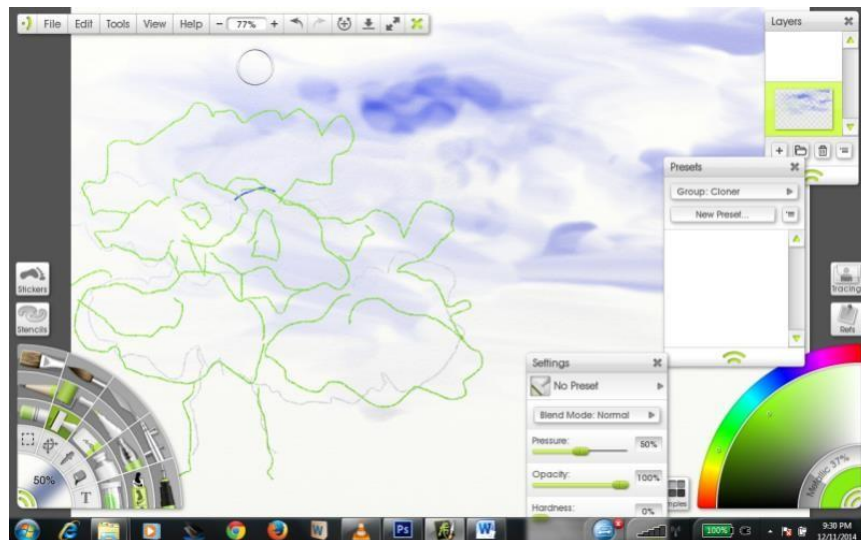


Plate 5.4: Digitized Landscape sketch in ArtRage interface

Additional brush work was added by employing the brush tool found in the ArtRage Toolkit located at the lower left corner of the digital canvas. Alternatively, from the menu bar, Tools was accessed and Water Colour picked. The Brush Tool was further used to add more blue washes to the sky. One can also set the size of the tool head by clicking on the percentage figure within the inner circle of the toolkit indicated as 50% in Plate 5.4. A dialog box would then appear on the ArtRage screen for changes of the brush size to be made.

Step 2: Digitized Sketching

The felt pen tool was employed for further developing sketches. Acting like a pencil, the Felt Pen was used to go over portions of the digitized landscape painting. The Felt Pen proved a great tool for applying colour while sketching, without applying texture such as the bristle strokes in the oil brush does. The felt tip outlines of the tree sketch in green is seen on the left portion of the screen as indicated in Plate 5.5.

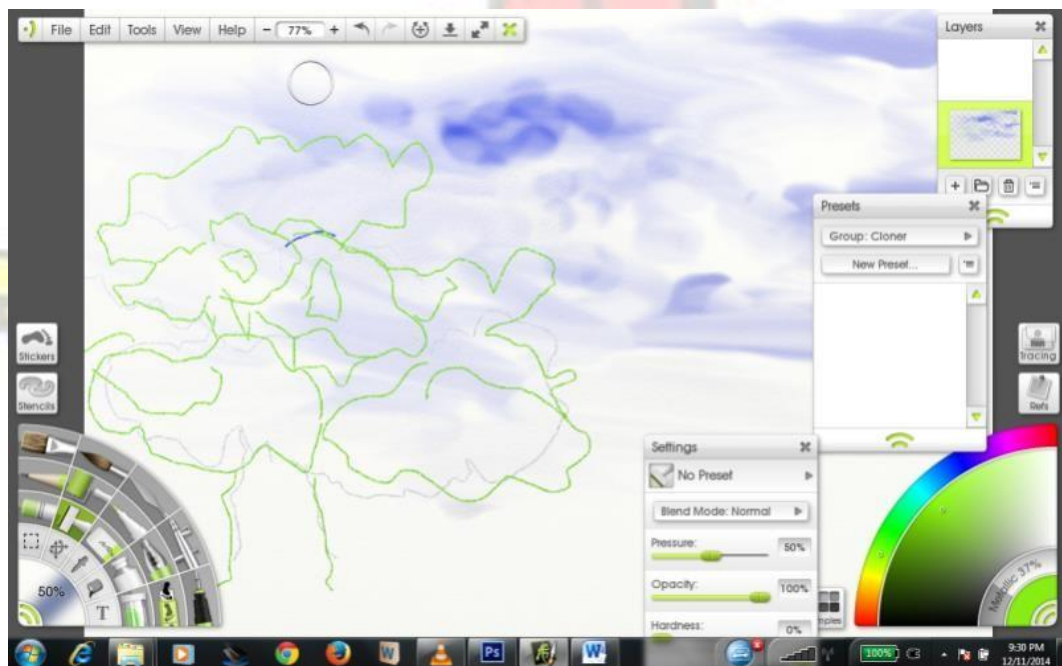


Plate 5.5: Use of Felt Pen tool on tree sketch

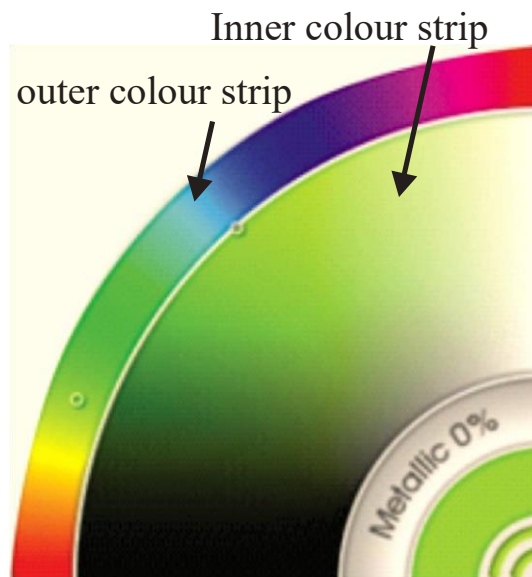


Plate 5.6: Colour picker

The ArtRage window features a colour wheel known as the Colour Picker (Plate 5.6), docked at the bottom right hand corner of the screen. The Colour Picker was used to pick colours for painting. In ArtRage, the Colour Picker is split into two sections, the outer colour strip and the inner colour strip. Within both colour strips are rainbow spectrums of colour. A basic colour is selected by just clicking with the mouse pointer on a desired colour in the outer colour strip. The inner colour strip also features a range of brightness's and intensities (Luminance' and Saturation').

Step 3: Application of Effects

A Stippled effect was then applied to the upper part of the tree as indicated in Plate 5.7.

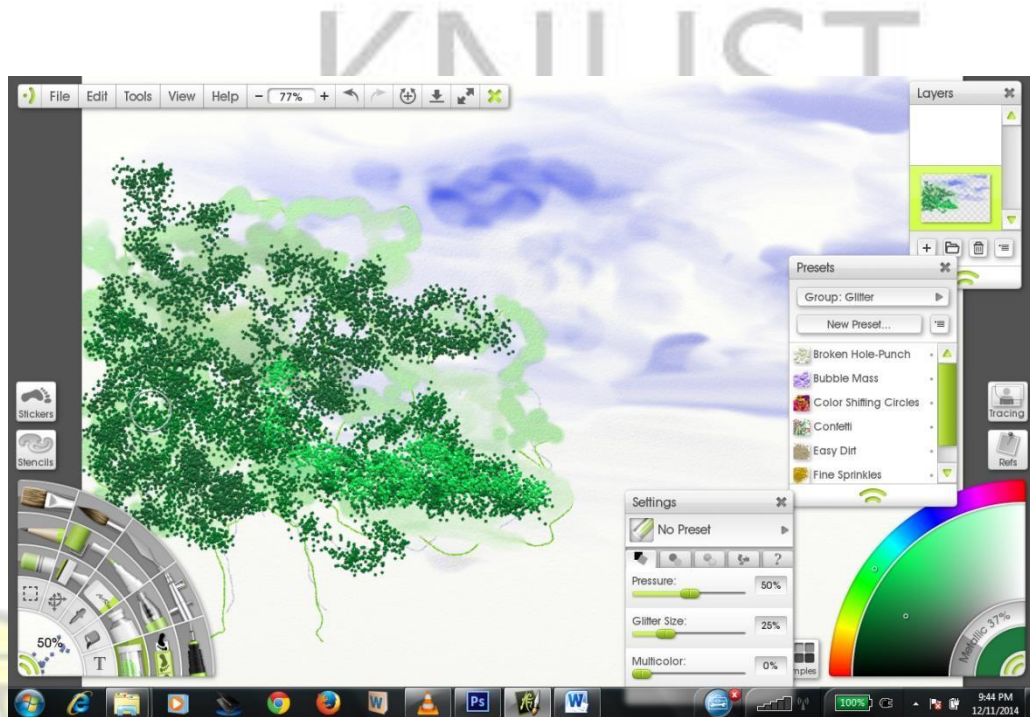


Plate 5.7: Application of stippled effect of green

The brush tool, loaded with a shade of green, was used for painting above the tree trunk. From the group dialog box, watercolour was selected from presets dialog box with heavy bleed option. In the settings menu, in the group dialog box, the glitter option tool was selected from preset settings with the following choices made: Pressure: 50%, Glitter size: 25%, Multi Colour: 0%, to further work on the left tree trunk and branches. The brush settings, heavy bleeding, were set at 50%, Pressure: 50%, Thinners: 50% with a loading capacity and colour bleed of 100% to create the impression of mid tones and dark shades. More shades of green were chosen with an occasional blue from the colour picker and sprayed on the canvas using the glitter tube to create a resemblance of the leaves. The

Glitter Tube made it possible to sprinkle coloured particles of various shades on the Canvas. This tool was used to build up texture for the tree by applying darker shades of green using the picker tool as seen in Plate 5.8.

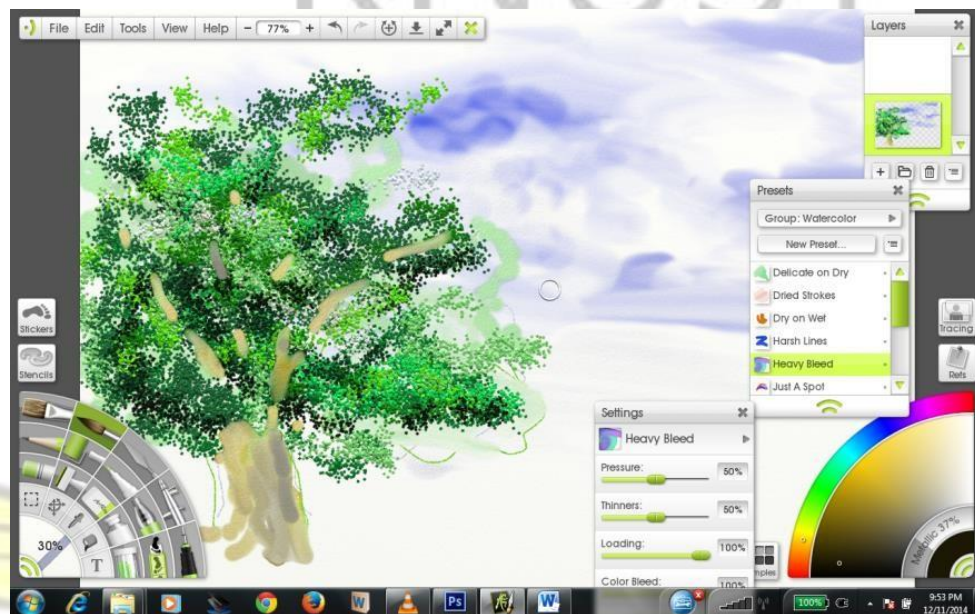


Plate 5.8: Application of Glitter tool

Step 4: Blocking

Some portions of the foreground and the tree trunk were blocked using the fill tool and the brush tool to intermittently apply shades of browns and greys. Portions of the background and foreground were filled in with more brush strokes and outlines as shown in Plate 5.9.



Plate 5.9: Blocking in a tree trunk

Step 5: Layering

The brush tool was used to work in the greens and other colours, and then the airbrush tool was picked and loaded with other shades of green and applied to the foreground. From the Group dialog box, glitter tube was selected and applied to the foliage areas. The bubble mass, another option in the dialog box, was then selected and applied to the lower left portion of the composition. The preset bubble mass tool brush was used to add mass and more speckling effects to the leaves whilst occasionally changing the hues and saturations to create more mass by clicking in the colour picker. The same process used to create the tree on the left side was duplicated to create the tree on the right side of the painting. More bold brush strokes were applied to the right sides of the painting. From the Group dialog box an option button called 'Fine sprinkles' on the dialog box, was selected and applied to the lower left portion of the painting. The felt pen tool was then used to work in some more detail of the tree in terms of defining the outlines of the tree and adding more colour to the painting as seen in Plate 5.10.

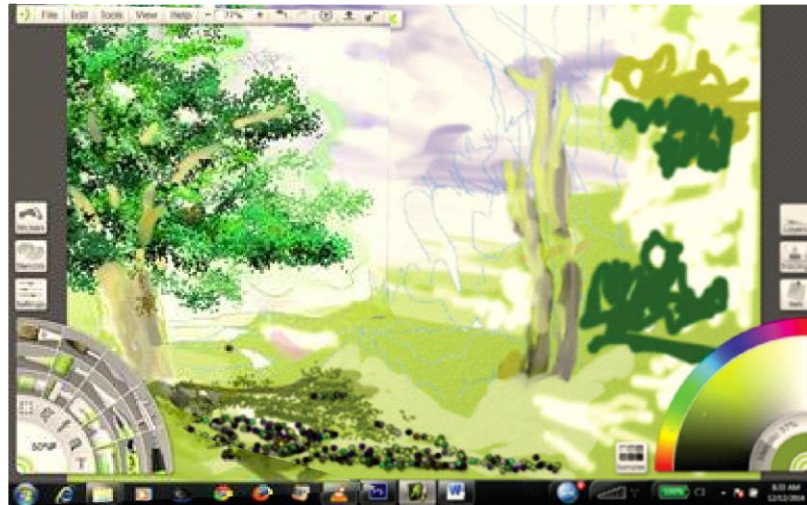


Plate 5.10: Building up more layers

Step 6: Filling

To thin out the midsection of the painting, ‘just water’ was selected from the group water colour dialog menu and applied. This digital effect simulated water being added to the water colour paint on the canvas just to thin it out or reduce its hue. Lemon yellows were toned down with dashes of raw sienna on the lower right side of the painting as indicated in Plate 5.11.



Plate 5.11: Filling Background Colours

Step 7: Bleeding

Heavy bleeding was selected from the dialogue box to bleed in the colours at the mid portion of the painting using Payne grey and crimson colours mixed with yellow and a touch of blue.

More details were added to the lower left portions of the painting, (Plate 5.12), using the ink pen tool and the Brush tool tip set at 30%.

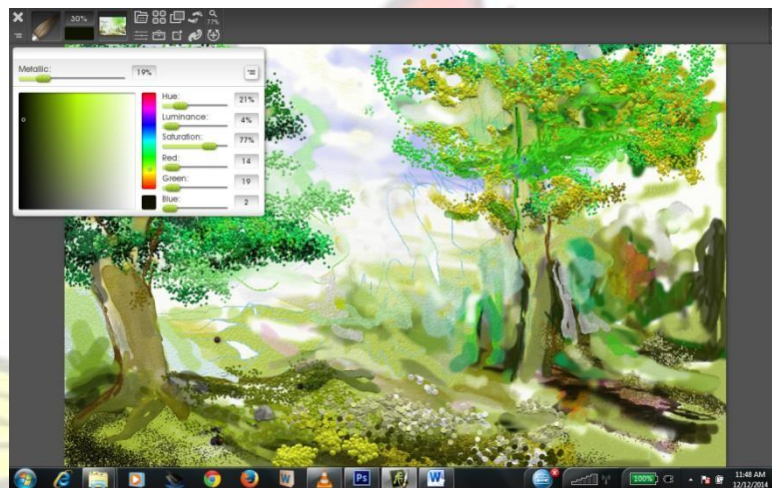


Plate 5.12: Adding More Detail and Colour to Painting

Step 8: Detailing

From ArtRage to CorelDraw

A screen shot of the painting in ArtRage was taken and opened in CorelDraw. The image was converted into bitmap with a resolution of 300dpi in CorelDraw and to further work on the colour, the image was auto adjusted.

CorelDraw allows for tracing of scanned sketches, artwork, images, digital photos, and logos to be easily integrated into a bitmap by conversion to fully editable and scalable vector graphics using power trace (Corel Corporation, 2005).

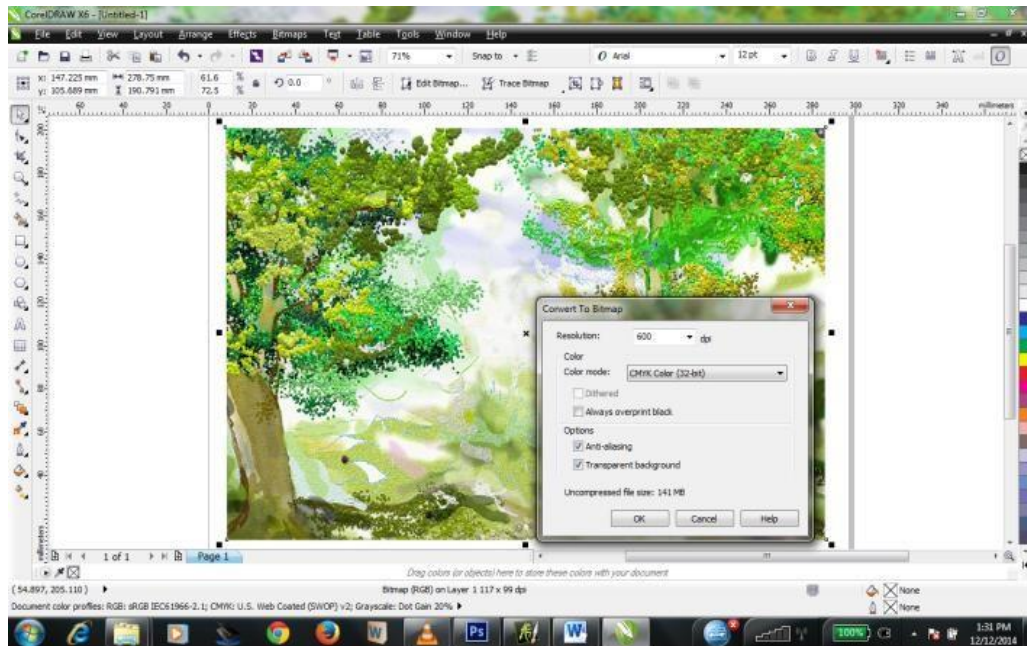


Plate 5.13: Tracing of ‘Forest Glade’ Bitmap

According to Corel Corporation (2005), in CorelDraw, an artwork can be altered in its appearance when part of it or its duplicate is combined with the original to make both appear as one unit. In this study, the vector copy of the artwork ‘Forest Glade’ was traced using the Power TRACE command accessed from the Property bar. This suitable tracing method duplicates a vector image on top of its original bitmap image. Plates 5.14 and 5.15 show the vector and bitmap images respectively.

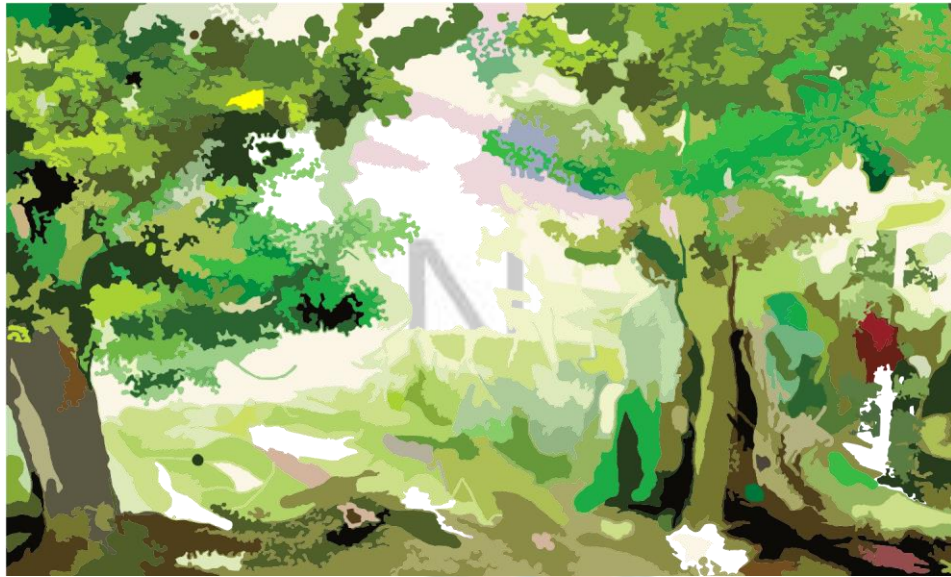


Plate 5.14: Vector image of ‘Forest Glade’



Plate 5.15: Bitmap Image of ‘Forest Glade’

Step 9: Vector Imaging

The vector version of the ‘_Forest Glade’ was imported directly on top of the bitmap image as shown in Plate 5.16 to visually blend the vector version into the bitmap background.

The difference between the vector version and the bitmap image is that the vector image can be ungrouped into parts and edited whilst the bitmap version cannot be ungrouped.

Though the vector image is made of lines and curves and is generated from mathematical descriptions that determine the position, length, and direction in which lines are drawn, bitmap (raster image), is composed of small squares called pixels; each of which is mapped to a location in an image with numeric colour values.

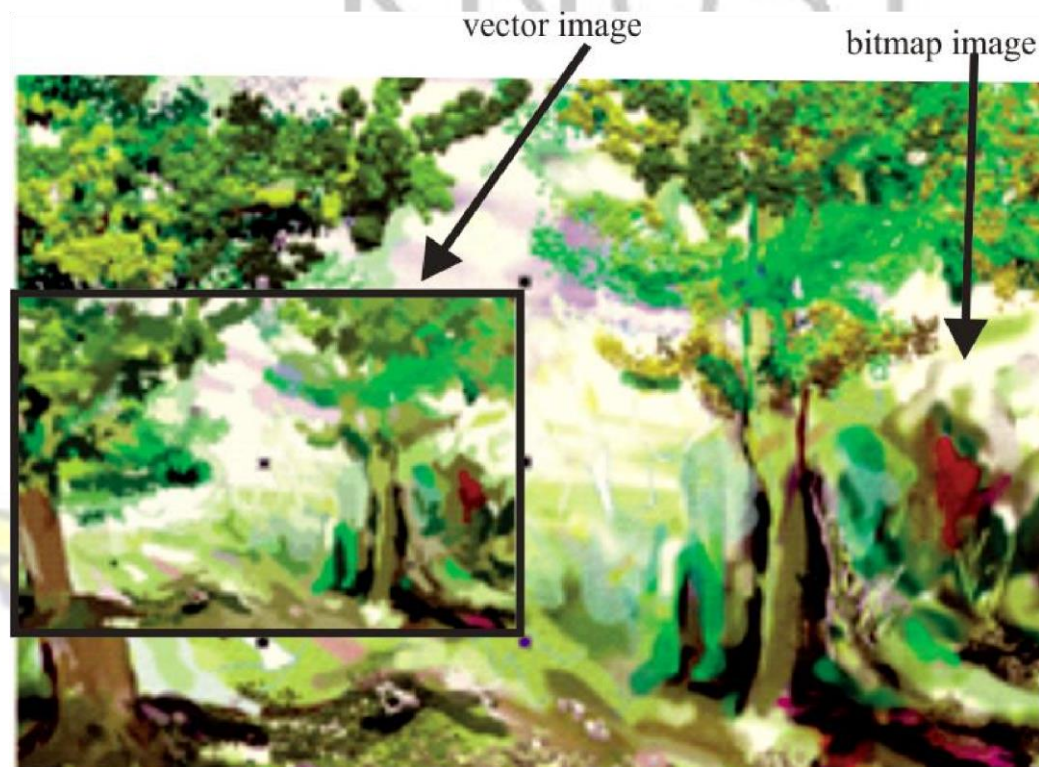


Plate 5.16: Superimposition of Vector Image on Bitmap Image

The vector image, superimposed on the lower left section of the painting, was resized to visually fit into the overall composition by ungrouping the image and artfully removing, copying and pasting and shifting portions of the leaves around to enable vector and bitmap blending in as finally done and shown in plate 31.

Vector graphics are idyllic for illustrations since they are resolution-independent and could be scaled to any size, or printed and displayed at any resolution, without losing detail and quality. The vector image was thus selected and ungrouped to aid further modification in

terms of blending in. The trees that were initially two are now duplicated, bringing the number of tree trunks in the painting to four as shown in Plate 5.17.



Before

After

Plate 5.17: Duplication of tree trunks

Some of the colours in the digital painting landscape were modified in hue which helped to reduce the visual effect of repetition.

Step 10: Elongating Images

The vector and the bitmap images were grouped together and stretched horizontally upwards to give the images of the trees an elongated look as seen in Plate 5.18.



Plate 5.18: Elongated version of ‘Forest Glade’

Adding Content to the painting ‘Forest Glade’

More content can be added to digital paintings. In this regard, another digital painting, Hen Coup, Plate 5.19, was purposely created in Photoshop, to be merged with the former painting, forest glades, shown in the plate 5.18

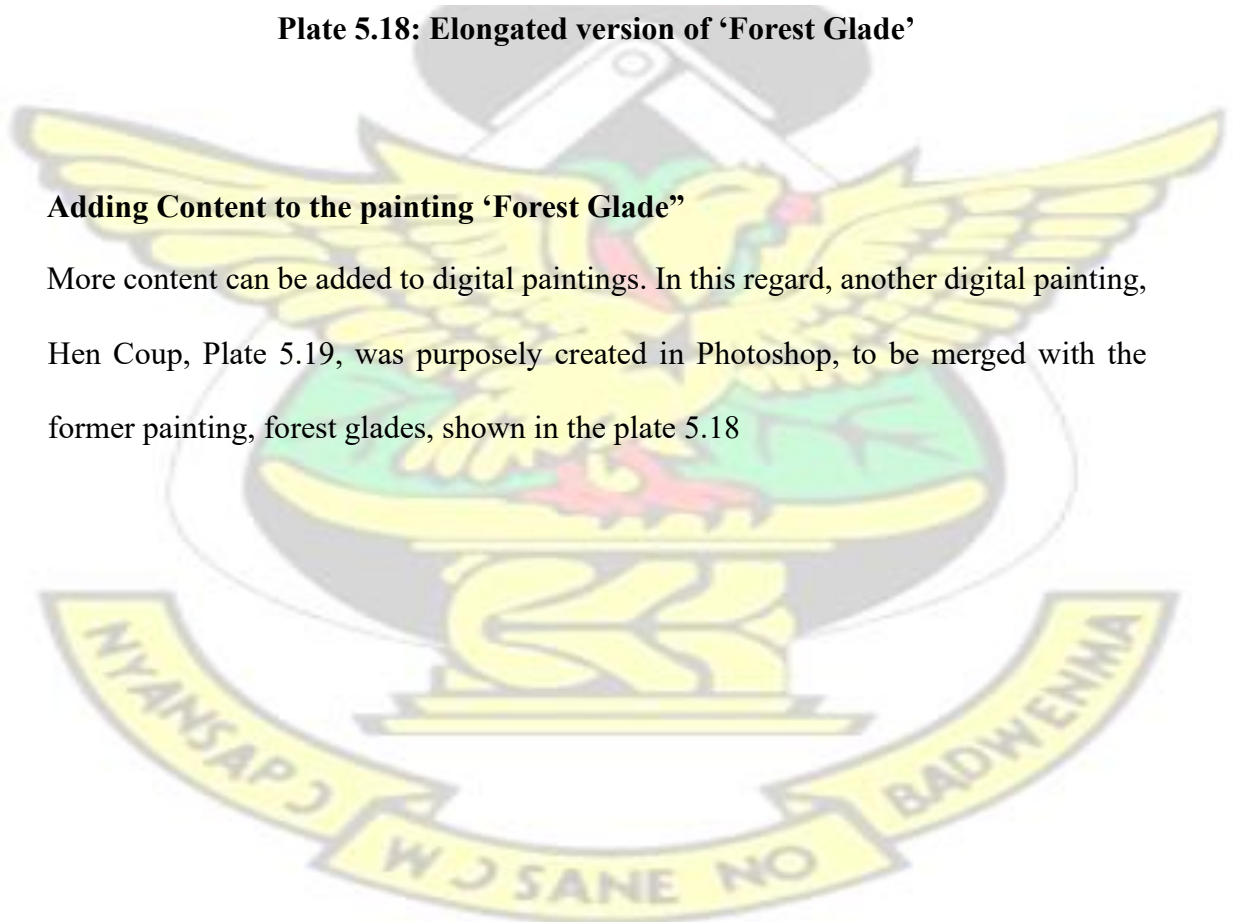




Plate 5.19: Hen Coop

To achieve this, a screen shot of Forest glade is taken and is imported from CorelDraw to the Photoshop interface. The background of the painting is then abstracted as shown in Plate 5.20. To abstract the background in Photoshop, the "Cutout" Filter tool was employed in these simple steps: Adobe CS6 Filter Gallery Cutout. In the cutout settings the following figures were used. Number of leaves 5. Edge Simplicity 5. Edge fidelity 1. These settings take out most of the extra details and 3d look from the landscape so that it will be easy to match the brushes of the two paintings.



Plate 5.20: Abstraction using the Cutout Tool

Copies of the some of the trees were made and duplicated on the same painting so as to create more trees as shown in Plate 5.21.

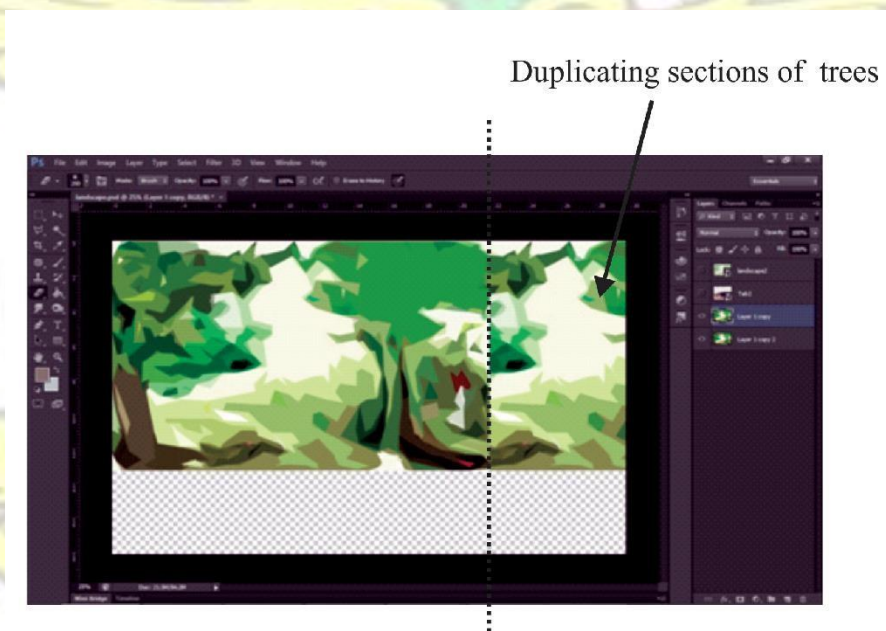


Plate 5.21: Duplicating sections of Trees

The polygon selection tool was accessed; tool polygon selection, to select the parts of the paper from the hen coup and copied onto a new layer. This was done before an attempt

was made to merge the two paintings.. The hen coop image is then placed beneath the forest glade painting as shown in Plate 5.22. A soft eraser tool is used to clean the edges of the landscape to reveal the hen coup image so that the two images can blend better.

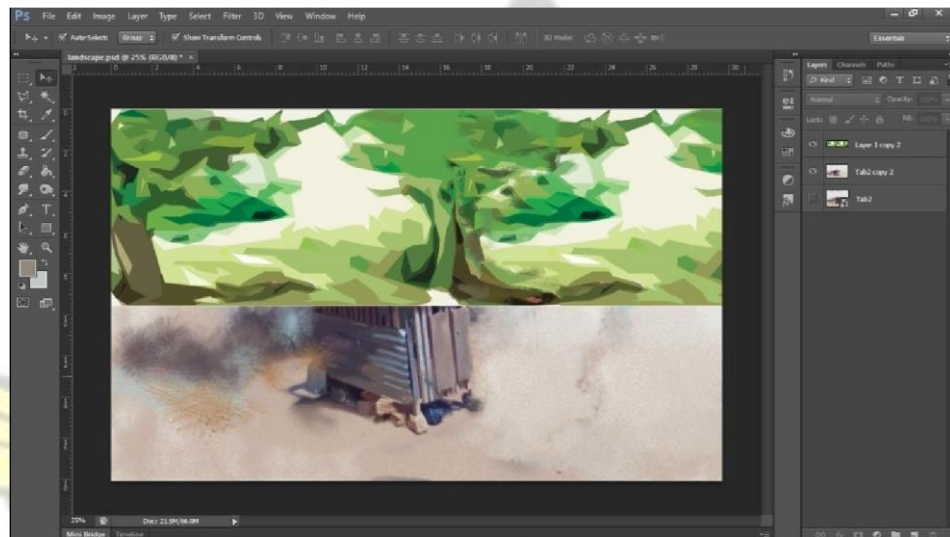


Plate 5.22: Superimposition of Digital Painting

The researcher then used his own custom water colour brushes and a Wacom tablet to paint back some wash and water drops back into the image, while blurring out the sharp lines of the abstracted trees and at the time making a conscious effort not to over blur the images. The final composition was exported in JPEG format as shown in Plate 5.23.



Plate 5.23: Forest Glade

Here the painter merges the detailed hen coop image and the stark background of the 'Forest Glade' as an expression of interfacing an engagement of a typical traditional image, the hen coop, within a contemporary setting of digital brushstrokes.

In a similar manner, five more digital paintings were executed for exhibition as shown in Plates 5.24, 5.25, 5.26, 5.27 and 5.28.

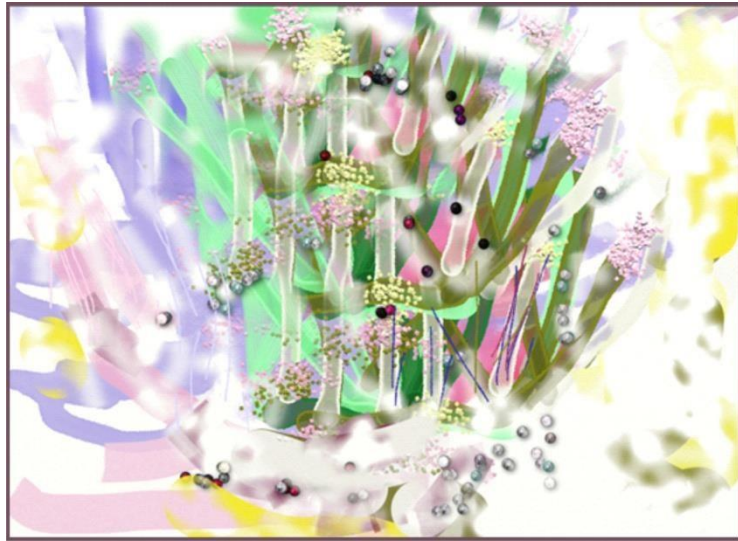


Plate 5.24: Stalks (Digital Print on manila art card)

This painting features a mass of stalk like sticks in an atmosphere that can range from a kind of growth from the celestial to the telluric. The presence of subdued colours of yellowish white with pale mauves helps to maintain focus on the central portions of the painting.



Plate 5.25: Ancestors (Digital Print on manila art card)

The painting features blurred images that have the semblance of seated images. The lower portion of the painting shows smoke like transparent whites running across the bottom, but moving upwards towards the right hand side of the painting to turn into a spew of yellow ochres mixed with traces of whites and dark browns. The general swirls found in the painting indicate an upward movement and it is presented as a textural feel in the painting. The dark earth colours of burnt sienna on the lower left portions of the painting are asymmetrically balanced by the yellow ochres on the northeastern section of the painting. Inspiration was taken from the bark of a tree.



Plate 5.26: Synergy 1 (Digital Print on manila art card)

This painting appears as a cacophony of lines each begging for attention. However, the most prominent ones that catch the eye are the red lines that feature a splash of red. The

thicker line of yellow slicing from the upper right hand corner cutting into the lower central portion of the painting adds variety as far as the thickness of lines in the paintings are concerned. There are other lines of white too, all coming together to create a feeling of frenzied movement. The artist seeks to depict an agitation for change.



Plate 5.27: Synergy 2 (Digital Print on manila art card)

This painting features an array of blue to simulate togetherness. The speckles of white break the monotony of the colour scheme and at the same time doubles as a unifier for the painting.



Plate 5.28: Untitled

The use of cool colours employed suggests a feeling of pensive contemplation. The painting does not seem to offer clues to what it depicts leaving the viewer with the choice of using the imagination to figure or read meaning into the painting.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Overview

The study looked at digitizing traditional studio landscape painting through the combination of digital and traditional painting techniques to achieve landscape paintings. Six digitized paintings were made using the painting software, Artrage4 and Adobe Photoshop in a bid to popularize digital painting as a platform for painterly expression and also promote its adoption in educational institutions in especially in the polytechnics in Ghana. The study on —Interfacing studio and digital artistryl became necessary so as to help erase the negative perceptions about digital art being a cheap form of painterly expression and encourage students to develop interest in same.

Summary

The study aimed at producing 6 digital landscape paintings by predominantly engaging the use of the painting software, ArtRage, as a tool for painterly expression alongside other common software application such as CorelDRAW and Adobe Photoshop. This study was executed in a bid to encourage up and coming artists to use digital means of expressing creativity. Initially, watercolour washes were created using traditional painting practices and then digitized. The digitized paintings were then imported into the ArtRage software interface and completed using computer software virtual tools.

Conclusion

The study attests to the fact that although education is ongoing much needs to be done in terms of whipping up enthusiasm among the Ghanaian painting fraternity. This is achievable by tapping into students' talents and interests in digital painting and to also produce periodic exhibitions that can be used to beautify the community and also gradually motivate other painter students to study digital art as a form of expression. The computer is undoubtedly the most prolific working tool for analysing and solving problems in all fields of endeavour. Notwithstanding the numerous opportunities, that computer offers to expand the platform for expressivity in fine art painting; very few painters in Ghana have attempted exploration of the virtual tools of computer graphic application software for addressing compositional tasks in painting. The professional painter is, therefore, being inspired by these exhibits, not to ignore the potentialities of the computer for enhancing technoaesthetic values in painting both in academia and in professional practice. It is time to remove all artificial barriers that hinder its recognition and adopt it as a multimedia painting tool. Studio painters who are uncomfortable with acrylics or suffer allergic reactions to turpentine, a major solvent for oils, can now heave a sigh of relief since the computer multi-medium apparatus offers a positive alternative for artistic exploration. Those who still finds the physical canvas as the only carrier for limitless colour schemes on the computer screen as models for replication on the physical canvas. In this respect, digital painting will become a means to a successful studio practice. Another setback is the lack of computers with good specifications for effective teaching and learning of digital painting in the school labs.

The painting project has been very educative, all because most people questioned after the exhibition expressed satisfaction and added that they will propagate in their own small way the virtues of digital painting. The paintings are made more impact on the consciences of the researchers' target group of both teachers and students to explore more into digital painting.

Recommendations

It is recommended that active participation should spearhead the progress of digital painting for painterly expression in the polytechnics now that some are migrating into technical universities, its advance must play a key role for painterly expressions.

More digital painting exhibitions should be organized on a wider platform to encourage up and coming digital artists. Qualified and competent teachers who teach digital painting must be encouraged.

Self-teaching manuals on digital painting should be made readily available at the libraries so as to feed the enthusiasm of interested painters.

More scholarships should be made available for promising students, technicians and lecturers to periodically upgrade their skills in computer technology for the benefit of the Ghanaian painting fraternity.

REFERENCES

- Abbot, E. A. (1992). *Flatland, A Romance of Many Dimensions*. New York: Dover Publications.
- Annum, G. Y (2014). *Digital Painting Evolution: A Multimedia Technological Platform for Expressivity in Fine Art Painting*. pp 1-8 Published by Journal of Fine and Studio Art URL: <http://www.academicjournals.org/JFSA> Accessed: 19/10/2016
- Baltus, K. Rita. (1994) *Personal Psychology for life and work (fourth edition)*. pp.138, 139 Macmillan / McGraw-Hill School Publishing Company.
- Binkley, T. (1990). *Digital Dilemma. Leonardo. Supplemental Issue, Vol. 3*, Digital Image, Digital Cinema: SIGGRAPH '90 Art Show Catalog. pp. 13-19 Published by: The MIT Press Stable URL: <http://www.jstor.org/stable/1557889> .Accessed: 04/07/2008 08:33
- Christiane Paul. (2002). *Renderings of Digital Art. Leonardo, Vol. 35*, No. 5, Tenth Anniversary New York Digital Salon, (2002), p.472. Retrieved, July 4 2008, from <http://www.jstor.org/stable/1577254>.
- Teddle, C. and Yu, F. (2007). Mixed Methods Sampling: A Typology With Examples. *Journal of Mixed Methods Research*.
- Dietrich, F. (1986). *Visual Intelligence: The First Decade of Computer Art (1965-1975)*. *Leonardo, Vol. 19*, No. 2, pp. 159-169 Published by: The MIT Press Stable URL: <http://www.jstor.org/stable/1578284> Accessed: 04/07/2008 10:26
- Explorable.com*. (2015). Retrieved February 19, 2015, from Convenience Sampling: <https://explorable.com/convenience-sampling>
- Farrokhi, F. (2012). Rethinking Convenience Sampling: Defining Quality Criteria. *Theory and Practice in Language Studies*, 2 (4), 784-792.
- Franke H. W. (Autumn, 1971). *Computers and Visual Art .Leonardo, Vol. 4*, No. 4, pp. 331-338. Published by: The MIT Press Stable URL: <http://www.jstor.org/stable/1572504> Accessed: 04/07/2008 10:41
- Garoian R. C. & Gaudelius Y. M. (2001). *Cyborg Pedagogy: Performing Resistance in the Digital Age Studies in Art Education, Vol. 42*, No. 4. p.340.
- Hanhardt John. (July 7) Retrieved from (<http://www.paikstudios.com/essay.html>)

- Lewis, P., Thornhill, A., & Saunders, M. (2007). *Research methods for business students*. Pearson Education UK.
- Krauss Rosalind. (Autumn, 1996). *"Informe" without Conclusion*, October, Vol. 78, The MIT Press. Stable URL: <http://www.jstor.org/stable/778907>
- Marchese Suzanne M. and Marchese Francis T. (1995) *.Digital Media and Ephemeralness: Art, Artist, and Viewer .Leonardo*, Vol. 28, No. 5, Third Annual New York Digital Salon, , pp. 433-435 Published by: The MIT Press
Stable URL: <http://www.jstor.org/stable/1576230> Accessed: 04/07/2008 09:26
- Nalven, J. & Jarvis, JD. (2005). *Going Digital: The Practice and Vision of Digital Artists*. Promey Sally M. and Stewart Miriam .(Summer, 1997).*Digital Art History: A New Field for Collaboration American Art*, Vol. 11, No. 2, , pp. 36-41 Published by: The University of Chicago Press on behalf of the Smithsonian American Art Museum
Stable URL: <http://www.jstor.org/stable/3109247> Accessed: 04/07/2008 09:17
- Search Patricia. (1995). *The Semiotics of the Digital Image. Leonardo*, Vol. 28, No. 4,. The MIT Press Stable URL: <http://www.jstor.org/stable/1576196>
Accessed: 04/07/2008 09:32
- Technology. (2009). in the New Encyclopedia Britannica (Vol. 2,) (Technology, 2007). Chicago: Encyclopedia Britannica.
- Traub, C .H. & Lipkin ,J.(1998). *If We Are Digital: Crossing the Boundaries. Leonardo*, Vol. 31, No. 5, Sixth Annual New York Digital Salon, (1998), pp. 363-366
- Wright Richard. (1989). *The Image in Art and 'Computer Art'. Leonardo. Supplemental Issue*, Vol. 2, Computer Art in Context: SIGGRAPH '89 Art Show Catalog, pp. 52. The MIT Press Stable URL: <http://www.jstor.org/stable/1557944> Accessed: 04/07/2008 09:03
- Weil Benjamin. (2002). *Art in Digital Times: From Technology to Instrument. Leonardo*, Vol. 35, No. 5, Tenth Anniversary New York Digital Salon, pp. 523. The MIT Press Stable URL: <http://www.jstor.org/stable/1577258> Accessed: 04/07/2008 10:41
- Wikipedia: The free encyclopedia*. (2004, July 22). FL: Wikimedia Foundation, Inc. Retrieved August 10, 2009, from <http://www.wikipedia.org>

APPENDIX A: QUESTIONNAIRE ON INTERFACING STUDIO AND DIGITAL ARTISTRY

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI
COLLEGE OF ART AND SOCIAL SCIENCES,
DEPARTMENT OF COMMUNICATION DESIGN

This study is about the production of digitized manually created studio water colour paintings which seeks to promote the amalgamation of the two processes, namely the digital and the traditional studio practices. The responses to these questions would be treated as confidential and the principle of anonymity would be adhered to strictly. All responses from this study is solely for academic purposes and there are no financial incentives attached to answering the questions.

1. Gender: Male ☐ Female ☐
2. Age: 20-30 ☐ 31-40 ☐ 41-50 ☐ Above 50 ☐
3. Qualification: Tertiary ☐ Other ☐
4. 4. Physical Location of Digital Paintings of Respondents
Home ☐ Gallery/Studio ☐ Church ☐ School ☐
5. Have you heard about Digital Painting? Yes ☐ No ☐
6. Do you Paint using Traditional Methods? Yes ☐ No ☐
7. What medium do you usually paint in?
Oil based ☐ Water based ☐ Digital ☐ Other ☐
8. Have you heard about digital painting being done by any popular Ghanaian artist? Yes ☐ No ☐
9. Have you painted through any digital means? Yes ☐ No ☐
10. Have you ever combined studio painting like water colours with digital painting before?
Yes ☐ No ☐
11. Respondents assessments on what does not constitute traditional studio paintings: Water Colour Paintings ☐ Oil on Canvas Paintings ☐ Digital Paintings ☐ Acrylic Paintings ☐
12. What Computer Software would you use for your Digital Paintings?
Adobe Photoshop ☐ CorelDraw ☐ Corel Photo paint ☐
Microsoft word ☐ Other ☐
13. What is your Strength in terms of the mastery of the Software if you have to paint digitally? 10-40% ☐ 41-60% ☐ 60-80% ☐ 80-100% ☐
14. Which of these Techniques below do you find easier and less challenging?

APPENDIX B: STRUCTURED INTERVIEW GUIDE

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI
COLLEGE OF ART AND SOCIAL SCIENCES,
DEPARTMENT OF COMMUNICATION DESIGN

STRUCTURED INTERVIEW GUIDE FOR INTERFACING STUDIO PRACTICE AND DIGITAL ARTISTRY

This study is about the production of digitized manually created studio water colour paintings which seeks to promote the amalgamation of the two processes, namely the digital and the traditional studio practices. The responses to these questions would be treated as confidential and the principle of anonymity would be adhered to strictly. All responses from this study is solely for academic purposes and there are no financial incentives attached to answering the questions.

The following questions consisted of the interview protocol for this study:

1. How can digital art techniques be used as a complementary tool in traditional studio practice?
2. How can digital paintings be used as a complementary and enhancing tool for digital studio practice?
3. Can style and aesthetics of a handmade artwork loose its originality if digitized and reproduced?
4. How can digital and traditional studio practice be fused together to produce digital paintings?
5. By which means can a project be made available to the public?

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