

DIGITAL ART FOR THE PROMOTION OF THE CREATIVE ASPECT IN THE PLASTIC ART

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ABSTRACT: *The present study sheds lights on the digital art in terms of its concept, history, types and technical styles. It presents the works of some artists who have turned their work into digital creative achievements and become leaders of digital art, depending on the emergence of computer softwares that helped enrich the output of this type of art, on their reflection on the aesthetic side in the plastic art, and on the distinctive presence of digital achievements in the global plastic scene. The present study is an attempt to identify the role of the digital art and its techniques in the promotion of the creative aspect in the plastic art. It adopts the descriptive analytical approach. It also presents the methodological framework which includes the study's problem, significance, limitations, methodology, terms, and review of literature. The theoretical framework includes two sections: the first of which is the digital art, its concept, history of its development, its types, and methods. The second one is the digital art in the works of the leading digital artists and its role in the promotion of the plastic art. The study concluded that the digital art has enriched and upgraded the aesthetic value in the plastic art. It recommended further studies on the digital art, and suggested "The technical features of the creative digital achievement generated by the employment of digital art's types and styles".*

KEYWORDS: Digital, Technical, Digital Technology, Creativity, styles

INTRODUCTION

Art is an aesthetic human condition that developed and varied through the stages of history, beginning from the art of primitive man, through the arts of various civilizations such as Pharaonic, Phoenician and Greek, to modern and postmodern arts. (Miller, et al, 2009)

According to Alatbani (1995), the world today is witnessing rapid developments in all areas of life. Technology has been able to influence the means of creativity by providing new and varied materials and tools. It has also added tremendous developments by introducing the time space to the works of art as well as changes in composition and color. Electronic sensors, lasers, computers and technological applications, which were a revolution in the form of art, have also been introduced enabling artists to enter a new stage in which technology often replaced manual skills and the imagination of many Contemporary artists was attracted.

As a result of the technological contributions in the field of creativity, the artistic vision has been reproduced in a contemporary manner. Such contributions have also presented innovative and distinctive aesthetic experiments, which can only be implemented by computers or technological media. Such tools have become a source to satisfy the artistic creative desire, where the artist was able to invest the capabilities of the machine leading to the development of the form of creativity. (Taman, 2004, p.4)

Today, the concept of art has changed from what it used to be. It used modern programs and media, producing digital art in all its forms, which gave the art a new spirit and vast plastic possibilities that express the spirit and vocabulary of this era.

Digital technologies have become the language of the age, where the digital systems are inserted into computer unit to be processed and transformed into artistic designs, thus digital arts emerged. Digital technology is: "the technical media with unlimited possibilities that are characterized by the possibility for the artist to effortlessly collect forms, images and colors and media in the memory of the computer stripped of gravity and friction. It gives him extraordinary freedom to create digital graphic forms". (Hamid and Alshamari, 2016)

The digital art is the artistic production based on the use of the computer in the formation and formulation of the works of plastic art. It takes its sources from other elements such as the scanner through which many information and data can be inserted into the computer and then modified such as photographs and written drawings (Al-Ayed, 2010).

Other titles of this type of art include: Digital Art, Digital Painting, Digital Pa, Web Art, Photoshop (Alharkan, 2014).

The present study sheds lights on the digital art in terms of its concept, history, types and technical methods, and presents the works of some artists who have turned their work into digital creative achievements and become leaders of digital art.

Problem:

The digital art in the field of plastic art occupies an aesthetic and artistic space that is different from previously produced plastic works of art, which necessitates tracing this technical and aesthetic art at the scientific and academic level. The problem of the study revolves around the aesthetic transformations of digital works using digital technology. In view of the researcher's work in the field of plastic art, particularly the color expression field, the researcher sheds the light on the possibility of employing and investing digital technology in plastic art to keep pace with the technological development, keeping in mind that art is one of the disciplines that significantly cope with technology in all fields. This stimulates the artist's creative imagination and, accordingly, helps develop new formulations reflecting the various artistic and aesthetic values to scale up the intellectual side in the plastic art.

The study deals with the digital art and its digital techniques as a descriptive theoretical study by addressing the concept of digital art, the history of its development, its types and styles. It also presents the works of some of the pioneer artists who were creative in their digital works which showed the potential of digital technology in achieving technical quantum leaps that were not to be realized without the availability of this technology, thereby upgrading the creative aspect in the plastic art.

Objectives:

1. Highlighting the role of digital art and its techniques in upgrading the creative aspect in the plastic art.
2. Shedding light on the possibility of creating innovative digital plastic works through investing in innovative digital technology by presenting the works of pioneer artists.

Significance:

1. Keeping pace with the current development, given that the study addresses an important area of contemporary art which is the digital art.
2. The present study seeks to identify and adopt the digital technology developed in the field of digital art as well as the contributions of digital art in the advancement of artistic plastic work.
3. The study provides a new scientific addition in an attempt to determine the nature of digital art and identify its aesthetics and types, besides highlighting its role in the enrichment of plastic art.

Limitations:

Thematic limitations:

1. Digital art, its concept, history of its development, and its types and styles.
2. Presenting some digital works carried out by the pioneers of digital art which had a role in upgrading the creative aspect in plastic art.

Time Limitations:

Highlighting some of the digital works produced by the plastic artists from the 1950s to the present since this period of time represents the beginning of the technological scientific development in the digital achievement until it reached the creative diversity at the present time.

Methodology:

The research follows the descriptive approach, which is: "a way to describe the subject to be studied through a valid scientific methodology and to portray the results reached on expressive digital forms that can be interpreted" (Obaidat, et al., 1999).

Terms:

Digital Art:

The meaning of the number in Mokhtar al-Sahih is as follows: numbering is writing. In digital systems, it is defined as: "data represented in the form of a series of numbers (1.0), not in the form of values or waves (sound)" (Herbert, 1971).

Terminologically: It is a term that involves technical practices using digital technology. Since 1970, many titles have been used to describe it, including computer art and multimedia art, where digital technology has influenced various branches of visual arts. (Mohammed, n.d.)

Procedurally: It is the art where the artist dispenses with the traditional painting, and traditional tools such as pen, brush and colors of all kinds, and replaces them with electronic tools such as screen, drawing tools and digital colors provided by the artistic programs. The final form is provided by digital printers.

Innovative Side:

Innovation: "the ability to innovate" (Merriam, 1991)

"It is the ability to make or produce new objects using skill or imagination in particular" (Oxford, 1999, 1977)

"The innovative person has the capacity of innovation or creativity instead of imitation or simulation" (Merriam, 1991)

Procedurally: it is the ability of the artist to create and produce new digital works using digital skill rather than imitation or simulation.

Plastic Art:

Linguistically: (It is attributed to the word 'formation'). (Mu'jam Almaany)

Terminologically: Art of painting or sculpture, based on landscape or social painting in certain sizes and forms as they are drawn. (Mu'jam Almaany)

Formally: it is the practical application of scientific theories by the means that achieve them. It is acquired by study and creating things that delight the mind through feelings. (Al-Dakhil, 2008)

Procedurally: it is a language transmitted by the artist through his expression and description of art with a new idea that makes him distinct from others. It is the formation of contemporary digital art using digital technology.

REVIEW OF LITERATURE:

Among the studies that tackled digital art is Qadi's (2015) study titled "the employment of computer in the production of contemporary plastic works for students of the Department of Art Education at Umm al-Qura University". The study attempted to employ the computer in the production of contemporary plastic works. The researcher reached the production of digital contemporary works using computer. The present study benefits from Qadi's one in terms of clarifying the role of digital art in upgrading the plastic works of art. While Qadi's study employed the computer in the production of plastic works as an applied aspect, the present study contributes to highlighting the possibility of creating innovative digital works by investing in contemporary digital technology.

Al-Gamouei (2008) addressed the effectiveness of using the computer in the development of plastic artistic capacity of students of the Department of Art Education at King Saud University. The study aimed at identifying the effectiveness of using the computer in developing the plastic artistic capacity of the students of the Department of Art Education at King Saud University. The researcher concluded that the use of the computer in the drawing had an effect on the growth of the artistic ability of students in general. The present study benefits from the relevant study in demonstrating the importance of using software techniques in the production of plastic works. While the relevant study was applied to the students of art education to develop the technical capacity in the computer, the present study sheds the light on the work of the pioneers of digital art who used digital technology in the production of their plastic works.

Moreover, Mahdi's (1996) study titled "the use of the potential of computer as an educational tool for the development of artistic creation" attempted to employ graphic programs in the computer to develop artistic creation in the field of plastic art based on the study and analysis of natural elements. The researcher reached new dimensions of how to deal with and analyze elements of nature using graphics programs. This study benefits from the relevant study in identifying the potential of computer programs in the field of plastic art. While the relevant study benefited from the potential of computer programs in analyzing natural elements in particular as an applied aspect, the current study highlighted the work of the creative digital artists which showed the capabilities of the computer and its programs as well as its high technical ability in upgrading the creative aspect of the plastic work of art.

Theoretical Framework:

First section: digital art, its concept, history of its development, and its types and styles:

Concept:

Digital art is now considered one of the most important plastic arts, where technology (computer) in the world of art is introduced and specialized programs that help the designer produce his designs are provided. The designer replaced the blades with the mouse and the keyboard and used digital colors instead of traditional ones. All of which changed various concepts, namely the production of designs and plastic works of art became more distinguished than is traditional drawing in terms of simple capabilities, time and effort, the possibility of making trials and modification and the possibility of printing copies as the original version.

Taman (2004) defines digital art as "a kind of art that is entirely composed by computer programs. It is a translation of the term digital art which means that the image shown on the computer screen consists of an infinite set of numbers, computer equations and an infinite number of color grades that exceed 16 million colors".

According to Ateya (2001), "The shift to digital art is the key to the multimedia revolution, which means transforming all kinds of expressions from words, sounds and images into numbers or digital techniques, where the image, from the computer's perspective, is no longer a standard image but a digital one".

History of its Development:

As mentioned by Al-Metani (2013), with the development of all historical ages, the computer became the instrument of this age, which led artists to use it to create horizons in art. It became a mental intermediary and a new medium that combines art, technology and creation, providing various plastic solutions in the artistic field with different styles.

1- 1950:

In 1950, many artists worked on mechanical devices and computers in digital works. In the same year, Ben Laposky was able to use a cathode ray oscilloscope, manipulating the electronic waves that appeared on the screen and were moving in a wavy and variable manner. At that time, there was no way to record those movements other than photography to record his work, and this method is what made us see their beginning since that time. The first images were white and black, but the artist in subsequent years used filters to produce images of amazing colors.

2- 1960:

In the early 1960's, computers were only available in research labs, universities and large companies. As for the output devices, they were very limited, where the plotting device was one of the most important devices. It was a device that holds a pen or brush connected to a computer to control the movement, and such movement was on the surface of the drawing. The paper could move instead of the pen in accordance with instructions issued by the program used. However, artists and computer scientists were able to conduct different creative experiments. During this period, there was also a type of printers working by the ink's pressure on paper such as the typewriting method.

3 - 1970:

In early 1970, Slade School in London attempted to use computers in art and in school curricula. Paul Brown was a student there. He learned how to use computers and use his individual elements, and developed his work through a system that generates images in the form of pieces as brick boxes. In spite of using simple rules, such a program takes a long time to produce artworks.

4- 1980:

Technology has developed considerably and the computer has become widely used in everyday life. Computer graphics and their effects began to be used in television programs, movies, videos and games. In the late 1970's, Apple and Microsoft were established, and personal computers came up with affordable and ideal prices for home use, in addition to the development of inkjet printers that were within reach. Kenneth Snelson used a computer animation 3D program to achieve the imaginary dimension through repetition.

5- From 1990 till now:

Several artists and designers who use the computer are working on integrating technology into their practices as a tool. Figure 5 shows the plastic and digital artist Faure Walker who worked on integrating the computer in his practices, and sometimes was moving between drawing tools, coloring and photography, and others between computer programs. Therefore, it became difficult to distinguish between his plastic and digital works.

<http://www.vam.ac.uk/content/articles/a/com-art-puter>

Types:

Such as plastic art has its schools, digital art also has special types; however they have no basic division. Sometimes they are divided according to usage, others they are divided according to the tools used. Alatbani (1995) divided them according to form as follows:

1. Graphics: characterized by flattening and using only two dimensions.
2. Compound forms: characterized by being three – dimensional.
3. Old works of art: a repetition of previous works of art with a vision and formulation from the point of view of the artist.

4. New works of art: either by coincidence, or may be linked to mathematical or relative relations, and characterized by its increasing movement.

Artists divide it according to style as follows:

Abstract art:

Abstract art occupies its place in modern digital art. The drawing may not be fathomable, but it may contain an expressive message of what is inside the artist, appearing through shapes and colors.

2- Digital drawing:

It is a development of traditional painting, where traditional hand tools have been replaced by more innovative and modern tools and devices such as mouse and light pen. Drawing is among the wonderful arts where the painting is entirely from the work of the painter without quoting any other elements such as pictures and materials.

www.joesdaily.com

3- Three-dimensional art:

It is known as 3D, and is one of the most modern and professional developed digital arts. It depends on drawing in three dimensions such as the length, width and depth, and is characterized by realistic accuracy.

4- Digital Photography:

It depends on the artist's sense and taste in the selection of scenes from the appropriate angles, where the photographer converts the image to more creative one through manipulation of the effects and digital tools.

5- Photo Manipulation:

It is one of the most famous, beautiful and creative digital arts. It is produced by choosing different images that are integrated and manipulated through adding effects and modifications to them, producing a fantastic painting that reflects the imagination of the designer. This art may be the most popular arts that win approval of digital art lover and most novice designers.

www.pinterest.com

6- Vector Art:

It is a kind of art that depends on directions and mathematical axes. It is one of the famous digital arts, especially for decorations and logos. It uses the light pen as a basic tool for drawing, and is characterized by accuracy and high-quality, no matter how large the picture is.

www.freepik.com

7- Fractal Art:

It is a kind of geometrical arts based on calculations. However, with the development of digital programs, this type of art is no longer difficult since it depends on the repetition, coordination

and accuracy in the formation of shapes, which increases its creativity and beauty. "They are mathematical forms with distinctive characteristics such as the self-similarity and the distance between the molecules. These characteristics give it the unique structure resulting from the repetition of nonlinear equations". (Al-Sayed; Hussein; Ebrahim; & Abdelsalam)

8- Typography Art:

It depends on the formation of decorations, combinations and drawings using letters, and the formation of beautiful text boards with specific meanings and messages. www.waelh.com

9- Pixel Art:

Pixel is the smallest unit to measure the image which is modified or painted at a very accurate level. It is a set of points colored and accurately arranged to form a picture in the form of squares. www.artisticacademy.com.

The pixel art can be divided into two groups: (a) Isometric, which is a three-dimensional pixel graphic drawn with 3D (asymmetric) programs and (b) Non-Isometric, which is a non-three-dimensional pixel graphic such as drawing a shape from a the front, back or side. nafl.tumblr.com

Styles of digital art:

1- Zero Style:

"It is the style which a new file is opened and the elements are created without being copied or cut from another place using geometric and organic shapes, colors, brushes, filters and other artistic creation tools in one of the design programs". (Alharkan, 2014)



Figure (1) Desmond Paul Henry
- Digital Art in Zero Style -
1960
(<http://prgrms.net/desmond->).

2- Collective style:

"It is based on the collection of a group of images and on the establishment of relationships between them. It is closer to the collage without making a radical modification in the collected images." (Alharkan, 2014)



Figure (2)

3- Zero-collective style:

"It means collecting, coordinating and modifying images according to intuitu personae. The first and third styles are considered better than the second one." (Alharkan, 2014)



Figure (3) Digital art in a zero-collective style

Second section:

Digital art in the works of the leading digital artists and its role in the promotion of innovation in plastic art:

The scientific movement has undergone many developments and changes as a continuous and renewable process, until we reached today the development of computer industry and its software, where many of the traditional artists went from their traditional style in their works to digital art, because they found endless forms of paintings that showed the creativity of the computer and its unlimited technical ability to achieve artistic creations that are difficult to be achieved without the availability of technology.

1- Ben Laposky (United States of America):

He was a mathematician and an artist. In 1950, Laposky produced the first graphic image using an analog electronic device. This was the beginning of this form of art with the path of electronic and computer technologies which were not yet digital (Hamid & Alshamari). His work was based on the production of electronic oscilloscope images (Figure 4-5), and by his death in 2000, the world lost one of the first creators of digital art.

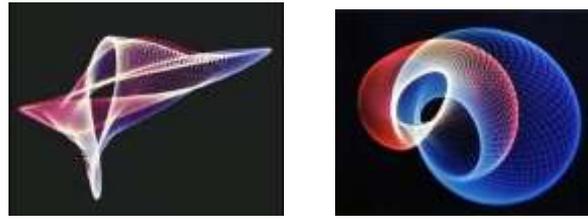


Figure (4-5)

<http://digitalartmuseum.org/lapost//index.htm>

2- James Faure Walker (United Kingdom):

Walker studied aesthetics at the Royal College of Art in London, and since 1988, he has been incorporated computer graphics into his paintings. He exhibited his paintings in various countries around the world. In 2002, he received a fellowship from the Arts and Humanities Research Council (AHRC) for his researches in the field of graphics and digital studios. Figure (6)



Figure (6)

James faure walker, 1952

<http://digitalartmuseum.org/faure-walker/2002.html>

3- Frieder Nake (Germany)

He is a mathematician and professor of computer graphics at the University of Bremen, Germany. His name was associated with digital art for a long time. He and his colleagues, like Georg Nees and Michael Noll, were the first to present computer graphics at various exhibitions in 1965. His works were characterized by the creative relation that brought together Mathematics (Fractal) and aesthetics, and had a high technical sense. Figure (7)

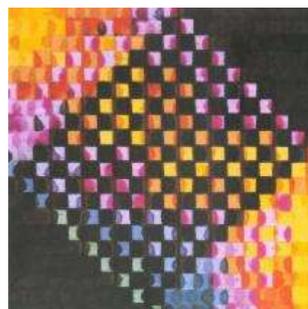


Figure (7)

frieder nake,1965 <http://digitalartmuseum.org/nake/index.html>

4- Mark Wilson (United States of America):

During the 1970s, Wilson was active and exhibited his paintings and drawings in New York. His work was closely related to geometric shapes that had a distinctive technological flavor. In 1980, Wilson bought a small computer and began to learn programming for the purpose of producing works of art. He has participated in a number of important computer art exhibitions including SIGGRAPH, Art and Computer at the IBM Gallery in New York City, Artware in Hanover, and (Nokia Atelier Gallery) at Zurich in Switzerland. Figure (8)

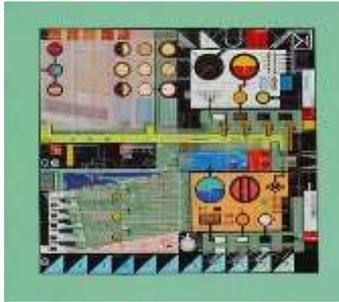


Figure (8)

Mark Wilson, 1977 <http://mgwilson.com/hpage1a.htm>

5- Vera Molnar (Hungary):

Molnar was born in Budapest, Hungary, but lived and worked in Paris for many years. She began painting at the age of 12 and her first themes were nymphs and trees. After that, she turned to geometrical themes. In 1968, she started working on computers. During this period, she focused on the separation of the duplicate units and expressed it with a series of images gradually broken. Figure (9)

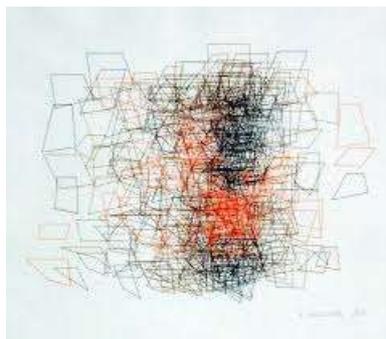


Figure (9)

Vera molnar, 1986 <http://algorists.org/algorists/molnar/1988-quad.jpg>

6- Manfred Mohr (Germany):

Mohr began as an artist and painter of abstraction, and also worked as a musician before he cared about arts through the computer. His first computer works were a natural transition from his paintings, where he retained his influence on rhythms, harmonies and duplicates in music. This discovery gradually turned into a coherent series of works characterized by the existence

of fractured and overlapping multidimensional cubes. Mohr's works were exhibited in many exhibitions, and were found in public collections and special paintings. Figure (10)

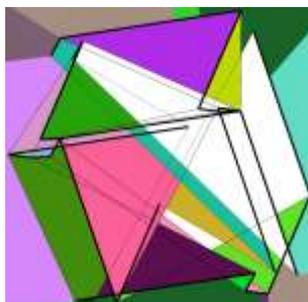


Figure (10)

Manfred Mohr, 2000 <http://digitalartmuseum.org/mohr/1999.html>

7- Michael Noll (United States of America):

Dr. Noll is one of the pioneers in the use of digital computers in the visual arts, and has produced many 3D works that have been shown worldwide. His gallery at Howard Wise in New York in 1965 was the first gallery of its kind in the United States. At the time, at the end of the 1960s and the early 1970s; he was also one of the first researchers to present the potential of copied drawings of computer graphics. Figure (11)

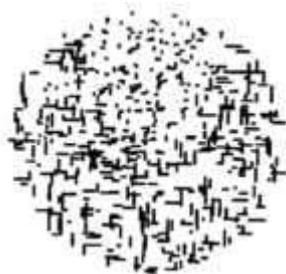


Figure (11)

Maichael Noll, 1960 <http://digitalartmuseum.org/noll/artworks.html>

Results:

The research reached the following results:

- 1 - Digital art led to enrich the aesthetic value in the work of plastic art and thus upgrade it.
- 2 - The use of digital technology in the plastic art made radical changes. It established an integrated system that contributed to the displacement of the traditional values of plastic arts and its tools due to its various tools including brushes, colors and virtual influences. This resulted in the production of various morphologies, and contributed effectively to enriching its Performance, and in turn enriched the digital art work to promote the culture of innovation that the research found in the works of the leading artists.

3 - The digital artist benefited from the technical treatments brought by the software to achieve aesthetic characteristics that support the digital work and show it with technical aesthetic features, as in the works of the leading digital artists.

Recommendations:

- 1- Conducting more studies dealing with digital art.
- 2 - Keep pace with the development of digital technologies and its tools through knowledge and training at the level of private and public educational institutions.

Further studies:

- 1- The technical features of the innovative digital product produced by employing the types and styles of digital art.
- 2 - Conducting more similar researches that advance the field of plastic art.

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