

The role of design in rooting mental images through digital portraiture and augmented reality technology Art exhibition entitled "I am Egyptian"

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Abstract:

Due to the global digital transformation in all fields, and the spread of the Internet as an interactive means of communication. Art has benefited from this medium, and the art paintings are no longer defined in the form that we have been accustomed to over the past years. It is possible for a fixed art painting on the wall at one moment to turn into a moving screen that tells the story of the graphics it contains, before returning again to fixed colors and lines.

Therefore, the graphic designer has to keep pace with his time and create modern art. Where traditional art exhibitions lack the element of direct interaction with the artwork, which is an essential element in the digital communication process. Hence, the researcher presented a group of paintings, through which she presented digital portraits for some pioneering Egyptian women from the ancient Egyptian era to the present era, and made visitors interact with these artworks through augmented reality technology, which transforms the static artwork into a moving interactive artwork using smart devices. As one of the means that support the educational role of plastic art exhibitions in general and the field of design in particular, and provide young girls with successful models to follow, serving as a role model for them and an incentive to build their future and the future of the nation.

This study presents the art of digital portraiture and graphic art and their role in rooting the mental images of the idea of the ideal among young girls using augmented reality technology, and evaluating the use of exhibition visitors of this technology in order to improve the effectiveness and communicative efficiency of digital artwork. The research emphasizes the importance and role of interactive design in presenting innovative artworks that suit many categories of visitors of the Fine Art Exhibition.

The study aims at emphasizing the role of interactive design in opening new approaches to fine art, and employing modern technology in designing interactive plastic artworks. One of the most important results of the study is to emphasize the importance and role of interactive design in presenting innovative artworks that suit many groups visiting the Fine Art Exhibition. The use of augmented reality technology increases the artistic value and aesthetic pleasure of digital art paintings (digital portraits), which achieves a great interaction with the exhibition visitor.

Keywords:

Digital Art portraiture, graphic design, mental images, augmented reality, Portrait of women.

Research problem:

The research problem came through presenting successful models of Egyptian women, to let young girls imitate and serve as a role model for them and an incentive to build their future and the future of the country. This prompted the researcher to present interactive artworks through digital portrait art that supports the educational role of society by integrating augmented reality

technology with printed digital portraits, as a means of communication between visitors, artwork and the artist.

The research problem is to answer the following questions:

- What is the possibility of benefiting from graphic design techniques in designing interactive educational artistic content for digital portrait paintings?
- To what extent is it possible to design and display interactive visual content using augmented reality technology?

Research aims:

- Emphasis on the role of interactive design in opening new approaches to fine art.
- Use of modern technology in designing interactive artworks.
- Building positive mental images for young girls through digital portraits and augmented reality technology.

Research importance:

- Take advantage of the capabilities of augmented reality in creating an added value for digital portrait art in plastic art exhibitions, which provides a different experience for the exhibition visitor, by providing a set of information about the paintings in an innovative way.
- Raising the cultural and artistic level of youth and instilling positive attitudes and skills, which is one of the most important societal roles of art.
- Enhancing the desire for knowledge through the interactive feature of augmented reality technology.
- Emphasizing the effective role of Egyptian women in the local and international community by presenting successful models in the form of digital design portraits supported by augmented reality technology.

Practical experience (Art Exhibition):

The researcher presented the art exhibition at "Salah Taher Hall", Egyptian Opera House, Cairo, from 16 to 22 November 2020. During which 23 artworks of the portraits of the Egyptian pioneers were shown, and they are: Pioneers in the field of medicine: (Merrit Petah, Dina Moussa, and Prof. Rachiq El-Reedy), in the field of science: (Dr. Samira Moussa, Prof. Fayza Hammouda, Prof. Mona Mustafa, and Prof. Dr. Mona Saleh), in the field of engineering: (M / Nadia Abdo, Prof. Hoda Al-Maraghi, and Dr. Nevin Abdel-Khaleq), in the field of technology: (Dr. Eman Ghoneim), and in the field of education: (Princess Fatima Ismail, and Dr. Nawal Al-Dajwi). Among them were those who excelled in the field of finance and business: (Dr. Neamat Shafiq), among them are activists who formed the women's movement in Egypt: (Malik Hefni Nassef, Nabawiya Moussa, Hoda Shaarawy, and Safia Zaghoul), among them is an Islamic preacher: (Prof. Abla Al-Kahlawi), among them are those who gave a lot to support the war effort: The singer (Umm Kulthum), among them were those who excelled in the military field: (Captain/ Mona Shendi), and among them, she rose to the throne of Egypt and had a leading and prominent political role: (Queen / Hatshepsut, and Queen / Nefertiti).

Practical steps:

1. Drawing exhibition portraits:

- When drawing the exhibition portraits, the researcher was not keen to record only the personal features of each of the pioneers, but she drew each portrait through her sense of each pioneer separately and represented the moral qualities of each of them.
- The researcher drew all the portraits of the pioneering women in confrontation because she believes that drawing a face in a confrontation is better for capturing the entire face to express the personality traits of the individual, and she considers that it is the ideal situation to highlight the challenge in achieving the goals of each of these pioneers.

2. Digital media used in drawing exhibition portraits:

The researcher used modern techniques to approach the art of portrait with a different perspective from the traditional visual reality, to reach different and aesthetic formulations, as she used the Adobe Illustrator cc 2015 program, which is just a drawing and design tool supported by imagination and creativity. Each designer has his own way of using the software's tools. One of the advantages of Adobe Illustrator is its clean vector lines, and the ability to work with details as large as possible.

3. The relationship between the figure and the background:

The shape and the background are the basis of all the relationships of installation and construction in the design. The shape represents the main element to be expressed, and the background represents the appropriate surroundings that fit and confirm the shape. The form and the background together complement each other and represent an integrated whole in the design (Shawki 2000, p. 186). In this research, the researcher has linked each drawn character through the subject and colors, as each background expresses what is behind the drawn character (that is, expresses the achievements of the woman and her role in society).

4. The color combinations used in the exhibition:

- The researcher used the most preferred color groups among women based on a set of studies. Although men and women differ sometimes in terms of color preferences, they often agree on a balanced color scheme. Female colors are often described as sweet, beautiful and romantic. (Kross 2018)
- Based on the study of "Joe Hallok" 2003, which compares the preferences of colors in different demographics, in which he surveyed 232 people from 22 cities around the world. Joe Hallock said that 35% of women like blue, and 33% don't like orange, and that the biggest difference between the sexes can be seen in choosing the color violet, as 23% of women chose it as their favorite color, and no man chose it at all.
- Based on his study, he said that both men and women prefer the color blue, as 35% of women chose it as previously mentioned, and 50% of men chose it as their favorite color. Blue is the favorite for both sexes because it universally expresses clean water and clear sky, as well as power, truth and tranquility, making it the preferred color for many women and men of all ages. (Male Vs Female Color Perceptions and Preferences n.d.)
- Based on the study of Dr. Anya Hurlbert and Dr. Yazhu Ling in 2007, who created an experiment to explore the difference between men and women in their preferences for colors. Experience has shown that both women and men prefer the color blue, and women prefer reddish colors, which tend to light red (pink).

- Regarding the choice of bright colors and light colors, both women and men all have the same preferences in general, but women are attracted to light colors, and men are attracted to bright colors.
- As for choosing light colors and dark colors, the experience showed that women prefer light colors more than dark colors, and this is due to their keen awareness of choosing certain color grades, which distinguishes women from men when choosing colors.
- As a general rule, men prefer white, black and shades of gray more than women. (Male Vs Female Color Perceptions and Preferences n.d.)

Through the previous presentation of studies on color preferences, the researcher used the color groups that are most preferred by women, as most women prefer reddish colors (pink degrees, violet degrees) and light colors.

5. Interactive design:

- The researcher made an interactive design through Augmented Reality technology to achieve the goal of the exhibition. Where the digital content through augmented reality technology provides an added value to the artwork, as that content is rich with new information and characteristics, so that it can only be obtained through the application of augmented reality, which is displayed through the smartphone, as a device characterized by interaction between it and the one who uses it. It is an audiovisual communication medium that takes advantage of technological progress and the digital revolution. Smartphones also contain the infrastructure needed by augmented reality applications such as the camera and GPS.
- Therefore, the researcher chose to apply the experiment to smart phones because of its prominent role in the future of augmented reality, as it was found that most people download applications on their smart phones, whether they are experts in this field or not. The download volume of augmented reality applications in 2014 amounted to about 138.89 billion applications, which is an evidence that the future of augmented reality will be through smart phone applications. (Augmented Reality 2020)
- Therefore, the researcher made a series of videos using Final Cut Pro program that narrates the history of each of the pioneers, so that a visitor to the exhibition, by downloading the Artivive application on his smartphone, can enjoy interacting with the exhibition portraits by watching the video accompanying the exhibition portraits to get acquainted with the history of each pioneer and the services she provided to the country, to be a role model for young girls as they grow up.

Through the reports of the Artivive application on 20 and 22 November 2020 for all the exhibition's paintings, the following can be extracted:

1. The total number of interactions with the exhibition boards is 720, and the total number of smart phones (the display tool) interacting with the boards is 194 smart phones, and this difference was due to the lack of an internet network in the hall for visitors to download the application on their smart phones on the pretext that they do not have enough internet balance to download the application. Therefore, they interacted with the panels through two phones of the researcher, one is IOS and the other is Android. Some were also afraid of downloading the application because they believed that it was not free or that it would ask for money after a

period of time, and this problem was previously discussed by the researcher in the section on the difficulties of augmented reality.

2. The discrepancy in the number of interactions with the exhibition boards may come from the visitors' desire and interest in interacting with certain paintings rather than other paintings, and this interest may be due to their admiration for the plastic treatment of some paintings, or perhaps the visitors' desire to get to know certain characters from the paintings.

Results:

1. Digital portrait can make an effective contribution in rooting the mental image of a group of pioneering Egyptian women, by employing design elements to convey the message clearly and without confusion.
2. The mental image presented through digital portrait and augmented reality technology affects the opinions and goals of young girls.
3. The research emphasizes the importance and role of interactive design in presenting innovative artworks that suit many categories of visitors to the Fine Art Exhibition.
4. The use of augmented reality technology increases the artistic value and aesthetic pleasure of digital art paintings (digital portraits), which achieves a great interaction with the exhibition visitor.
5. The plastic art exhibitions displayed with augmented reality technology are characterized by the ability of more than one visitor to interact with the same painting at the same time.
6. The application of augmented reality technology in the design of digital portraits works to attract the attention of visitors to the exhibition among all age categories.
7. Augmented reality technology helps in presenting a lot of information in an innovative form, in the least time and with the least effort from the visitor.

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