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The role of digital technology in visual display methods in natural history museums around the world

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***Abstract*---**The current research, entitled (The Role of Digital Technology in Display Methods in Natural History Museums around the world), presents the discovery and knowledge of the importance of employing this in showing different aesthetics and techniques.Thus, the researcher presented the goal of the research in chapter one in identifying the role of technology in perceiving the variables that occur in the visual display methods of natural history museums.As for chapter two , the researcher divided it into two topics , the first one titled: Transformers of Digital Technology in Museum Display Methods, in which the researcher tracks the methods presented by digitals in contrast to the methods of museum presentation, whether in form, presenting information, or stimulating the senses of the recipient, while topic two bears the title: The Museum of Natural History between Digital technology and visual display methods, and the researcher tracks natural history museums and their investment in technology transformations in building a different display space from the above, while chapter presented models for natural history museums in which the role of digital technology in visual presentations was made, while chapter four reached the results and conclusions, including (there are two results, after which recommendations and suggestions are presented.

***Keywords*---**digital technology, natural history, museum.

Introduction

The digital technology and the diversity of media produced by the technical world due to this huge amount of transformation in the use of computers in the virtual world in order to enhance the mechanisms of understanding and the participation of the recipient in responding in interaction with the images transmitted by the senses or the diversity of methods of museum presentation and the introduction

of the virtual digital world in its policy and system, whether in the electronic museum or even in the body of the physical exhibition hall in order to excite the recipient's senses and make him an active element in connection and communication. Thus, the current research assumes a tool for these transformations and variables in the visual texts assumed by the natural history museums in the world, corresponding to transformations in reception and the form of response that occurs with images, whether are fixed or moving.

Research Goal

Recognize the role of technology in the variables that occur in the methods of visual presentation of natural history museums in the world.

Search Limits

Spatial Limit: Natural History Museums of the World.
Time Limit: 2012, 2022
Objective limit: visual presentation methods, digital technology

Topic One

Transformers of digital technology in the methods of museum presentation

Digital technology has provided a variety of images and videos, and manifestations of the use of computers, touch screens, and virtual reality tools, enhanced in order to influence more in the form of receiving and interaction with the senses of the visitor to museums, with different museums of antiquities, channels and natural history, being virtual museums today that depend on (digital collections published via the Internet and to provide an integrated electronic environment, lively and interactive with the audience, who (received it through computer screens or mobile phone devices, and because it is data that is organized and designed within the museum environment in fact with different implementation mechanisms)[1] it is a group of digital objects that are taken from image quantity, texts and videos in a coherent atmosphere and characterized by harmony and in a way that enhances from building imaginations and a virtual world to the recipient (Fig. 1, 2, 3). Thus, the digital technology transformers created a three-dimensional environment within the museum space and entrusted to transfer it to the computer memory and communicate with it using various data devices such as head coverings or data gloves, and it gives and advances the feeling of communication and touching things and materials, and thus (digital technology has entered all fields and has been able to impose its dominance and form and appear through different environments as mechanisms and methods of implementation that enable the designer to produce entities or shapes and ultra-accurate tools.[2] Digital technology began its effects in the visual displays of museums, whether in Europe, America and even Japan. These

[1]Waad Adnan Mahmoud, Virtual Museums, Features and Characteristics in the World: An Analytical Study, published research, p. 3
[2]Don Tapscott, The Digital Economy, translated by Mohammad Raouf Hamed, Academic Library Publications in the World and the Future, Cairo, 2011, p. 53.

technologies (Fig. 4) invested and contributed to their development in order to increase the momentum of effective communication with the museum, achieve profits, and maximize the museum's role in social and cultural upbringing. Therefore, museums, with their diversity of natural history museums and antiquities , have achieved a state of promoting and investing in interactive activity, because (modern man is a main image, being in a digital activity and controlled by the trends of the virtual world, and the increase in the transmission of images, whether at home, museum, means of transportation, and the public street)[3], and because the visual shows of the natural history museums of world today witness the investment and enhancement of the aesthetics of the imagined space in order to present information, data and tangible objects in the presentations of stores, videos, and models in an elegant and distinguished manner, as digital technology has been entrusted with achieving continuous communication with the world around it and subjected it to its context and system through the large presence of communication technologies and devices are accessible to everyone, and they began to take different places, from virtual schools, museums, and lesson lectures, whether scientific or humanitarian. ,All this contributed to the widening of the civilizational contribution to changing the shape of the world today[4], and therefore digital technology has become in varied and different state in the form of visual presentation and use of sound and spatial influence, and even museums in places have presented their shows via the Internet (Fig. 5).

Visual presentations in natural history museums present a state of twinning and profits between the traditional presentation based on the sensuality of the thing and the objectivity of the model and its physical presence towards an openness to digital technology that contributes to communication with proposed environments inside computers in order to expand knowledge and speed information transfer and rely more on audiovisual technology and attract the audience with different environments and references (Fig. 6), the importance of museums that depend on digital technology is distinguished in (Enabling audiences from all over the world to visit the museum's place and exhibition halls virtually via the global Internet, as they are areas that include collectibles from different times and places.[5]

The digital technology in the visual display of natural history museums Fig. (7) contributed to the formation and construction of a display space within the museum's structure, corridors of ways and wall spaces.The phenomenon of visual communication is fed through computer screens and smart devices to become a means of finding a closely related element between the visitor to the museum (virtual and spatial) and the things in the environment that the display methods contributed to manufacturing and producing, since the world today is a cultural and technical world subject to technology and controls the stimulation of activity (mental and physical)[6]

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[3]Stefan Vial, Being and Screen: How Digital Changes Perception, translated by Idris Katheer, Bahrain Authority for Culture and Antiquities, Bahrain, 2018, p. 249

[4]Don Tapscott, op. cit., p. 59

[5]Waad Adnan, Virtual Museums: Features and Characteristics in the World, previous source, p. 2

[6]256Stefan Vial, previous source, p

The role of digital technology in contrasting visual display methods was clear and eloquent in the working mechanisms and the diversity of display techniques in the digital image to conform and differ with the model or stereotypes and the effectiveness of moving or making the object as a statue or the body of an animal or a spatial environment progressing towards simulation or presenting a mental image to the visitor of the museum , but with the intent of studying the foundations of transformation in a variable that mainly occurs in reception and social life (Fig. 8,9)

Digital technology works, while producing and shaping visual displays in natural history museums, subject them to a state of mediation in the supposed environment to influence reception and make the opinion see things as if they were a tangible reality and even brought to life.Thus, the goal of the increasing use of digital technology in establishing a different and varied visual display, but affects in reshaping the imagination and concepts about the thing before us, and this follows the sense of the importance of these displays and technologies such as computers, the use of lasers, moving images, or touch screens andfreedom from simultaneous standards with traditional presentation[7] , and for the visual presentations of natural history museums to be a microcosm of the effective transformation in its hegemony and the impact of modern technologies and industries that contributed to the contrast of material reality and the boom in the transmission of data, images, documents and repeated copies of them that seem identical to the original[8] but with the intention of subjecting it to the drive of beauty and enhancing the role of astonishment in the visual display of the museum today (Fig. 10), if there are many visual broadcasting tools in the walls of the museum today and to become different methods, representation and digital generation of them in order to present a different aesthetic display that raises surprise and fun, ease of learning and recognition of models, but rather disclosing information and transmitting it to digital entities.[9]

Topic Two: The Natural History Museum between digital technology and visual display methods

The Natural History Museum in all places, whether in Europe or America, has undergone changes in the ways of visual presentation in order to keep pace with what is produced by the environments of computers and smart devices, and the interactive media has become allowing the user to communicate with the body of the museum, its architectural structure and its internal space, and as a result (the cultural and technical act is a state of fun and visual amazement).[10], and so that the models and digital entities innatural history museums are visually tangible and have an organized arrangement that is subject to an ideal formed image in the mind and conforms to the model.

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[7]Kate Orton and Nick Pryor, Digital Sociology, translated by Hani Khamis Ahmed Abdo, Knowledge World, National Council for Culture, Arts and Letters, Kuwait, 2021, p. 245

[8]Hal Abelson and Ken Layden, The Digital Flood: How It Affects Our Lives, Freedom, and Happiness, translated by Ashraf Amer, Hendawy Foundation for Studies, Publishing and Culture, Egypt, 2014, p. 27

[9]Waad Adnan, Virtual Museums: Features and Characteristics in the World, previous source, p. 6

[10]Hal Abelson and Ken Layden, previous source, p. 138

The world of digital technology is characterized by being flexible and constantly changing from computers, advanced communication links, a vast space of protocols and the proposed computing momentum[11], and for visual presentations to be subject to the state of visual perception of the viewer through the digital spaces that are retrieved, deleted, or perhaps modified if necessary.[12] The visual presentations in natural history museums used Holography andSitography techniques based on the environment of computers and software to be inserted into the context of the show by clarifying the stereotypes and the surrounding environment and to present a moving digital image that stands out strongly the phenomenon of using digital technologies in everything from visual presentations to marketing and education in virtual classrooms achieved by digital technology, and this organized expansion of technology imposes its presence and establishes its standards. It is the core of the world today and is emerging everywhere of it.[13]

It is not surprising that museums in Europe and America call for digital and technological techniques in building and establishing a visual show that borrows the computer environment and introduces the recipient into its different system.Thus, every time and place has a pattern of communication imposed by circumstances and the way of transformations, and it is compatible with the data of reality and is designed to achieve its purposes according to the desires that it seeks to impose its construction and sending [14], and so that the visual display in the museum today is a state of kinetic communication that affects and is affected by the components of digital technology that extends its impact on individual and group behavior for the totality of visitors, and as Jean Bud Riad asserts that (the state of interaction with things, goods and social relations represents an important stage in the consumption that is rising and growing in the world today[15] , and all this is due to digital technologies that have changed all fields and knowledge and even the ways of knowledge and obtaining it and thus ,the visual presentations of the natural history museum necessarily interact with the shape of these variables.[16]

Chapter Three: Digital Environment and Visual Presentation of Natural History Museums

Digital technology has contributed to the formation and construction of display spaces that give the recipient the efficacy of imagination and assumption and enable him to perceive different visions of things through the sense of sight (Fig. 11), and display screens are an effective, influential and compressive actor in contrast to the visual display as it allowed (technical transformations from video, digital, holographic images, and screenson which the colored pictures are formed

[11]Waad Adnan, Diversity in Sculpture Art: Natural History Museums as a Model, p. 11
[12]Hal Abelson and Ken Layden, previous source, p. 157
[13]Jani Faitmo, The End of Modernity, Translated by Najm Abu Fadel, The Arab Organization for Translation, Beirut, Lebanon, 2014, p. 112
[14]Ghada Abdul Wahab, Traditional and Alternative Media, Horus International Foundation, Egypt, 2020, p. 8
[15]Shaker Abdul Hamid, The Age of Image: Negatives and Positives, The World of Knowledge,National Council for Culture, Arts and Literature, 2005, p. 118
[16]Waad Adnan, Virtual Museums: features s and Characteristics in the World, previous source, p.10

electronically, whether correspondence via the computer or that is projected on the walls and theuse of video capabilities and technical development within the context of the visual artistic presentation,[17] and to be for the visual museum presentation (Fig. 12)With the intent of presenting pleasure and knowledge and acquiring a storehouse of images, since the human mind is (by nature capable of perceiving what things are and realizing achieved molecules)[18] and for the museums to introduce in the diversity of visual display and the exploitation of the space between the model and the viewer (Fig. 13) to create an environment through light or digital images that are dropping it and enhancing its role in building representative images, since the creator in implementing visual display methods for museums grows towards the embodiment of a new world of ideas and concepts and the creation of a different spatial environment.[19]

Museums that are interested in natural history use the characteristics and featureof wandering and revealing corridors, reservoirs and visual display spaces in order to enhance the imaginative space for individuals and groups that visit the museum, whether (spatial or virtual) (Fig. 14) because the visual actor works with a symbolic system that achieves enjoyment and pleasure and constitutes a special subjective reality)[20], the fact that the difference of recipient for visual display is a necessity to establish an aesthetic and technical structure that assumes the different and suggests the difference as a project. Rather, many museums have provided inaccessible environments such as the environment of ancient civilizations or the social life of primitive tribes or building a geospatial from the first life of humanity and creatures which became extinct (Fig. 15) and to be the performance act of visual display within the spaces of natural history museums that works with the formation of the mental image as a product of imagination and visually perceived reality, as the image proposed by the display space within the structure and corridors of natural history museums today aims to (excite the senses and present the beauty of the functional work In this way, the aesthetic continues with the horizon of wonder and magic within a vast field of construction and space.[21] Its purpose is the cultural influence on the awareness of individuals and groups visiting the museum, as we belong to (the culture of sign and express ourselves through it within set of marks and signs that draw our physical world.

[17]Mukhtar Al-Attar, The Horizons of Plastic Art: On the Approach of the Twenty-First Century, Dar Al-Shorouk, Egypt, 2002, p. 47.
[18]Samir Ahmed Maalouf, Mental Image, A Study in the Evolution of Meaning, Damascus University Journal, Volume (26), Issue (1), 2010, p. 123
[19]Shaker Abdul Hamid, Imagination from the Cave to Virtual Reality, Knowledge World, The National Council for Culture, Arts and Literature, 2009, p. 17
[20]Regis Dupree, The Life and Death of the Image, translated by Farid Zahi, Dar Africa Al Sharq, Morocco, p. 241
[21]Jacques Aumon, photo, translated by Rita El Khoury, The Arab Organization for Translation, Beirut, Lebanon, 2013, p. 221.

Chapter Four: Results and Conclusions

1. Digital technology has played a clear role in the contrast and difference in the visual display methods of natural history museums over a vast geographical area of the world, especially in Europe, America and Japan.
2. The role of digital technology in establishing virtual display environments based on the environment of computers that create objects or models and are printed in 3D or even used in optical form.
3. Digital technology has contributed to the openness of the visual presentation of museums of all kinds, including natural history museums, where virtual and augmented reality techniques were used to urge the recipient and visiting and frequenting museums.
4. As for the acceleration in the management of international museums using the digital world, it was motivated by more openness to a different audience in awareness and culture. It seemed that technologies, computers, smart devices and mobile phones constitute a lot of their visual perceptions and imagination, and even contribute to shaping their perceptions of the world.
5. Digital technology has provided a clear motive for the establishment of virtual museums that adopt an effective and easy way to access them via computers and phones, participation is through the recipient and even suggests ways to display or present his own perceptions of models.
6. Digital technology has provided different aesthetics of display and allowed to build bridges between different cultures and groups, and even allowed communication through screens and smart devices.
7. Natural history museums in the world have produced a state of adaptation to digital data and their skills, assimilation of their visual outputs, and the use of computers and phones in presenting surprising visual presentations and communication.

Recommendations and Suggestions

The researcher recommends increasing interest in digital technology and including it in the visual presentations of museums of different specializations, whether artistic, archaeological or scientific, in order to increase awareness and knowledge of the museum visitor.

References

1. Jack Aumon, photo, translated by Rita El Khoury, The Arab Organization for Translation, Beirut, Lebanon, 2013
2. Jani Faitmo, The End of Modernity, translated by Najm Abu Fadel, The Arab Organization for Translation, Beirut, Lebanon, 2014.
3. Don Tapscott, The Digital Economy, translated by Mohammad Raouf Hamed, Academic Library Publications in the World and the Future, Cairo, 2011,
4. Regis Dupree, The Life and Death of the Image, translated by Farid Zahi, Dar Africa Al Sharq, Morocco
5. Stefan Vial, Being and the Screen: How Digital Changes Perception, translated by Idris Katheer, Bahrain Authority for Culture and Antiquities, Bahrain, 2018,

6. Samir Ahmed Maalouf, The Mental Image, A Study in the Evolution of Meaning, Damascus University Journal, Volume (26), Number (1), 2010,
7. Shaker Abdul Hamid, Imagination from the Cave to Virtual Reality, Knowledge World, The National Council for Culture, Arts and Literature, 2009
8. Shaker Abdul Hamid, The Age of the Image: Negatives and Positives, The World of Knowledge, The National Council for Culture, Arts and Letters, 2005.
9. Ghada Abdul Wahab, Traditional and Alternative Media, Horus International Foundation, Egypt, 2020,
10. Kate Orton and Nick Pryor, Digital Sociology, translated by Hani Khamis Ahmed Abdo, Knowledge World, National Council for Culture, Arts and Literature, Kuwait, 2021,
11. Mukhtar Al-Attar, The Horizons of Fine Art: On the Approach of the Twenty-First Century, Dar Al-Shorouk, Egypt, 2002.
12. Hal Abelson and Ken Layden, The Digital Flood: How It Affects Our Lives, Freedom, and Happiness, translated by Ashraf Amer, Hendawy Foundation for Studies, Publishing and Culture, Egypt, 2014
13. Waad Adnan Mahmoud, Virtual Museums, Features and Characteristics in the World: An Analytical Study, published research,
14. Waad Adnan, Diversity in Sculpture Art: Natural History Museums as a Model, 22.23 .-https://www.flightcentre.co.uk/uk-travel-blog/virtual-tours16
15. Rinartha, K., & Suryasa, W. (2017). Comparative study for better result on query suggestion of article searching with MySQL pattern matching and Jaccard similarity. In *2017 5th International Conference on Cyber and IT Service Management (CITSM)* (pp. 1-4). IEEE.

Figures

Fig.1

Fig.2

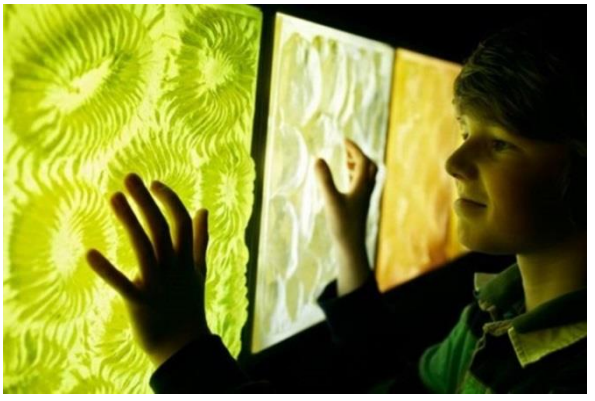

Fig.3

Fig.4

Fig.5

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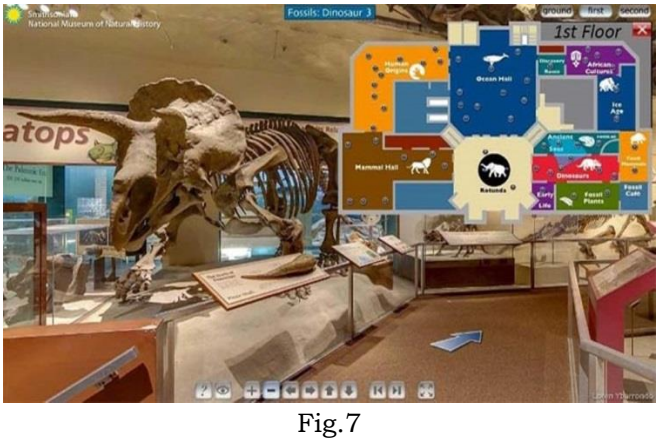

Fig.7

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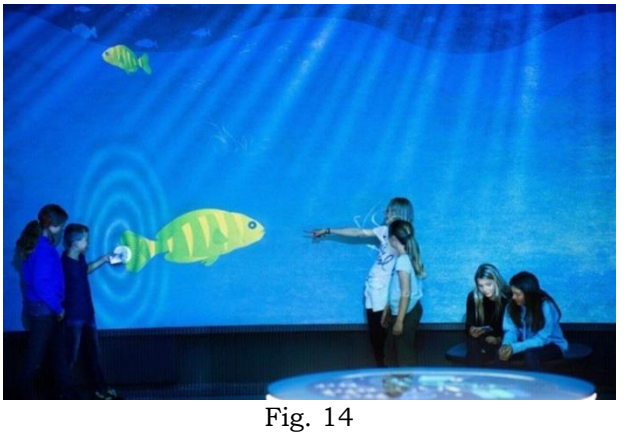

Fig. 14

Fig. 15