

Dynamic Hologram shows as a Digital Advertising Entry for Commercial Centers

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Abstract:

The civilizational and socio-economic development resulted in a great jump in the availability of malls and commercial markets, due to its role in stimulating the economic growth and increasing the volume of investments and the effectiveness of these centers in the promotion of sales. As the malls and centers often hold a large variety of targeted buyers, which are exposed to various visual media outputs to lure shoppers, this necessitates the use of modern technology to attract and possess the buyer's attention. Therefore, the research faces the problem of studying the dynamic holograms capability as a digital entry for advertisement in commercial centers and its ability to attract the attention of the Ad consumers. That is due to the power it possesses in charming consumers due to its three-dimensional dynamic which is different from other visual effects, as it is considered one of the state-of-the-art three-dimensional visual displays. In addition to the probability of putting them to use in different areas within the commercial center. Hence, this study is concerned with demonstrating the capability of Holograms in creating effective advertising messages in malls as one of the cutting edge technological means. Which in turn carries the dimensional physical dynamic movement capable of capturing the attention of the advertisement consumer. The research follows the experimental approach to present two hologram shows as a digital advertising entry in commercial centers to reach an outcome. One of the most important results is that the effective employment of the dynamic holograms as a digital advertisement within malls, and commercial centers have the power to hold the attention of the receivers.

Keywords:

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3D Hologram
Commercial Centers
Malls
Digital Advertising
Dynamic Hologram

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1. Introduction:

Breaking tradition in advertising patterns within the commercial centers became an urgent necessity to create new and sophisticated advertising contexts to match the preferences of the consumer. Since the commercial centers are essential for the gathering of a large number of brands, companies and sales organizations that include a variety of goods, including the consumer goods such as the durable ones. Hence, the importance of three-dimensional hologram shows comes as a digital advertising entry for broadcasting the advertising messages.

Ascribed to the great advancements in technology, holograms have become one of the technologies that capture consumers' attention, as it provides three-dimensional images resulting from digital projection. Ads have benefited from these inevitable developments that allow the advertising designer to easily formulate dynamic advertising

messages through digital media, dynamic three-dimensional shows; using high-resolution modern hologram show devices where these elements are shown with high efficiency. Employing the commercial centers as sales and promotional centers by the using dynamic three-dimensional hologram ads breaks the limits of the consumer's expectations. Thus, achieving the elements of attraction and influence necessary to promote the product or service. The use of design's dynamic elements to display any logo, product or person as 3D images using the advanced hologram shows a leap in the world of advanced advertising design. Due to its ability and effectiveness in showing the full illusion of the hologram stereoscopic elements in a high resolution to occupy the show space determined by the commercial designer inside the commercial center. Whether it is on a stand or equipped specifically for the dynamic hologram show to be put inside an area compatible with the

traffic of passers-by inside the center, or on a wall, on a digital projection screen, on the shop front, on the display windows of those stores, or other areas in which hologram ads can technically be applied. The hologram optical technology enables the visualization of three-dimensional shapes on different display areas. This technology significantly improved and developed the advertising field, allowing the flow of communication of information to reach large and specific masses in a more attractive, modern and relatively cost-effective manner. This does not mean overlooking the traditional method, but the urgent need for the global technological development to use the hologram technology in the advertising field will result in achieving remarkable success compared to it (Irfan 2016, 1). According to the scientist Schaefer, new and modern media means to appear in the current digital age by reshaping the traditional advertising industry, which the marketers use to achieve higher profits, and thus the world of advertisement needs a mediator to keep pace with the spread of technology pursuant to the evolution of the consumer who has immunity against the effects of traditional advertising (Ramlie et al.2016, 2). In one of BBC's report, Dr. Frank Shaw said that the consumer will find a remarkable development in 3D dynamic advertising. This report shows that we are studying the production of video ads using 3D hologram technology (Ramlie et al.2016, 1).

With the growth of global economic forces, the new economic policies and unique marketing strategies, the retailers tend to attract the consumers (clients) in the commercial centers because they represent a fast-paced and organized retail sector, as the consumer is being influenced by the available competitive products and alternatives and the increasingly modern trends in the unique supply of goods (Narahari and D. Kuvad 2017, 211). Hence, there is a need for the emergence of modern advertising technologies within the commercial centers, where each product should be distinguished from its competitors. So, we conclude that this technology represents one of the future technologies of the world of advertising, and it is expected that will expand all over the world to raise the competitive expectations to keep pace with the modern technological events.

2. Statement of the Problem

Existing study mainly tried to answer these questions:

RQ1: How can the dynamic hologram shows be beneficial as a digital advertising entry to the commercial centers?

RQ2: How effective are the visual effects of dynamic hologram shows in capturing the attention of advertisement's consumer?

3. Objectives:

This study aims to highlight the hologram technology as one of the modern and effective digital channels in broadcasting the advertising messages inside the commercial centers, the matter which has a great impact on attracting the attention of the advertisement's consumer, how to take advantage of the mechanisms of this technology in promoting many different products and services, providing solutions of dynamic hologram shows that are designed to demonstrate the ability of this technology to create impressive and attractive advertising messages within the commercial centers.

4. Importance:

This study pays attention to the manifestation of the ability of hologram shows to create effective advertising messages in the commercial centers as one of the advanced technological means, which in turn have dynamic, physical and kinetic dimensions capable of capturing the attention of the advertisement consumer and focusing on the possibility of taking advantage of its properties effectively within the various commercial centers.

5. Hypotheses:

In the following, three potential underlying Hypothesis will be discussed:

H1: Employing the dynamic hologram shows as a digital advertising entry to commercial centers has a great impact on attracting the consumer.

H2: The feature of realistic display for the moving elements in the 3D hologram shows adds an excitement and dazzling to ads inside the commercial centers.

H3: The right choice for effective dynamic advertising elements in the hologram display *inside the commercial centers constitutes an effective visual stimulus in designing the advertising message.*

6. Theoretical background

6.1. Synopsis about hologram (stereoscopic photography) technology

Hungarian physicist Denis Gabor, who conducted several researches in the field of microelectronics, was able to discover the frontal technology of holographic imaging in 1947, but this technology considerably developed when laser technology was improved in 1962 by the scientists of the United States and the Soviet Union. With the low cost of the laser in 1980, this technology has progressed remarkably as it is easily accessible by creating the illusion of three-dimensional images. The hologram technology is the way to change our way of seeing things in the contemporary time. To understand the holographic photography, we need to know what hologram is, as it is the way used to record a pattern of light, then these patterns are

reproduced to be depicted in a three-dimensional way, so it is a modern technology with impressive advantages that can be used in presentation of exciting dynamic advertising shows that have an effective impact on the behavior of the consumer (Elmorshidy 2010, 1).

Since the discovery of hologram technology, the expectations for photography systems and 3D presentations have increased. The traditional stereoscopic photography was based on sensitive films and surfaces have many determinants in its chemical processing. However, the emergence of sensors and solid sensors in 1970 opened the horizons for a new era of stereographic hologram photography. This technology has received considerable economic and industrial attention to realize the artificial 3D world (Paturzo et al. 2010, 2). The hologram technology was derived from a technique used at the ancient times in the theatres of London in 1960 called Pepper's Ghost, which allows viewers to see the reflection of the targeted object on a piece of glass taking a particular angle, but the modern and sophisticated hologram technology allows displaying a widespread of holographic image of high resolution on the surfaces of different focal areas with the help of a relatively small projector to display fixed or moving 3D images that can be seen without the use of special glasses or hats, and this style of presentation is called autostereoscopy as it is used effectively in advertising and promotion (Chaudhari, Lakhani, and Deulkar 2015,1).

The current research complements these streams of research by focusing on the ability of 3-D hologram technology to provide attractive advertising ideas within the commercial centers and to clarify their impact on attracting the consumer.

6.2. Definition of hologram technology

The word of hologram consists of the Greek term "Holos" that means "universal vision" and "gram" that means "written", thus it is a three-dimensional recording of the positive interference of optical laser waves, as the hologram technique is based on the creation of the third delusional dimension (Ghuloum 2010, 695). It can also be defined as the production of three-dimensional stereoscopic images resulting from the overlapping of two types of laser light to show and project the targeted elements to produce the final three-dimensional stereoscopic image with high efficiency (Chaudhari, Lakhani, and Deulkar 2015,1). Thus, hologram represents the interference of light waves (lasers) to monitor the movement of designed elements in the 3D dynamic ads, taking into account the intensity of the light beam as well as the holographic display environment and the

appropriate illumination intensity.

6.3. Mechanism of work of hologram technology (stereographic photography)

The laser beam is divided by a beam splitter into two separate beams i.e. the reference beam and the objective beam which is made to reflect the image of the object wanted to be projected on the desired surface, then it is reflected on the hologram film. The reference beam is reflected on the mirrors to the distracted lens and then to the same film of the hologram causing the overlap of the two beams. When the two beams meet, a film containing the interference of the two beams is produced and the laser light is transmitted the same length taken from the process of photocopying on the hologram forming a virtual actual object or element that represents the three-dimensional 3D hologram in the space (Chaudhari, Lakhani, and Deulkar 2015,2).

To crack this code and show the three-dimensional image, we pass the laser light on the hologram (that is used in the photography process), and this light cracks the code and creates the image at the same distance as the body away from the hologram. The mechanism of image appearance *varies* depending on the type of hologram used, as there are two types of holograms:

<http://modernphys.com/%D8%A7%D9%84%D8%AA%D8%B5%D9%88%D9%8A%D8%B1-%D8%A7%D9%84%D9%87%D9%88%D9%84%D9%88%D8%AC%D8%B1%D8%A7%D9%81%D9%8A/>.

6.3.1. Reflection Hologram

In this type, a white light installed at a specific angle and distance is used to be reflected out of the hologram. The hologram is produced in a three-dimensional colored image exactly identical to the real elements, and that is the hologram which is used on the credit cards with an aluminum layer on the back.

<https://spie.org/Documents/Publications/00%20STEP%20Module%2010.pdf>.

6.3.2. Transmission Hologram

A laser light of the same type that is used in photography is passed on the hologram itself, which in turn contains the interference fringes. When the laser light passes, it produces a diffraction grating that reconstructs the original beam of the body (beam of the body before making interferences with the beam). This transmitted beam launching out of the hologram will move in the space forming a three-dimensional image located behind the hologram at a distance equal to the body's distance away from the hologram. The image is produced with the color used in the photograph (e.g., the red).

<http://modernphys.com/%D8%A7%D9%84%D8%AA%D8%B5%D9%88%D9%8A%D8%B1->

<https://spie.org/Documents/Publications/00%20STEP%20Module%2010.pdf>. The hologram show is characterized by sharpness and depth. If the hologram unit is of small dimensions, it allows displaying on a large area that may cover a whole three-dimensional room. If a break occurs in this type of hologram, the consumer can see the whole scene through each piece separately, and according to the location of each piece, the difference in perspective is noted.

6.4. Tools required for the industry of hologram

- *Laser beam*: where red laser light is used as it is a type of He-Ne laser, which can interact with the components of the hologram film to show a clear image of hologram, and the laser beam is used precisely because it differs from the ordinary light (sunlight) with several characteristics, the most important of which is that it is considered monochromatic and coherent to be suitable for activate the constructive and destructive interference processes to form the interference fringes (Code).
- *Beam splitter*: is a diffuser that separates the laser beam into two parts, one is called the reference beam and the other is called the object beam.
- *Mirrors*: are used to direct the two laser beam to their specific path and mirrors must be clean to prevent emergence of any image noise.
- *Lenses*: are used in holographic show for the purpose of dispersing light and not assembling it as in the photography, so that light falls on the largest possible area.
- *Hologram film*: is a special one with high analytical ability, consisting of a very thin layer of materials sensitive to the light which are placed on a surface transmitting light. It is capable of recording the tiny changes of light at microscopic distances. This film is characterized by its sensitivity to the red light, so the beam of Helium neon laser is used.
- *Object desired to be depicted*: is the object that we want to show it with three-dimensional image.

<http://modernphys.com/%D8%A7%D9%84%D8%AA%D8%B5%D9%88%D9%8A%D8%B1-%D8%A7%D9%84%D9%87%D9%88%D9%84%D9%88%D8%AC%D8%B1%D8%A7%D9%81%D9%8A/>

6.5. The advantages of using hologram technology in advertising

- This technology is fast growing as it allows the presentation of a large image of high resolution

on large areas and the enthusiasm associated with this applied science arose from the spread of the 3D films' wave. Despite the success of 3D glasses and hats, but the consumers are getting bored with using the equipment for displaying the stereoscopic images. Hence, there is need to take advantage of the hologram to make the virtual world more realistic and interactive.

- It allows the recording of multiple stereoscopic images and displaying them in the same place through using light or laser at different angles (Chaudhari, Lakhani, and Deulkar 2015,1).
- This three-dimensional hologram technology creates a positive impact in advertising depending on its ability to adapt with showing places of different of space and size.
- Its effective ability to create a strong long lasting impression in the consumers' minds.
- The strong relationship that hologram emphasizes with the interaction of virtual three-dimensional holographic elements with the real entities in the consumer's physical environment pushes the consumer towards advertising and raises his/her curiosity.
- Creating a positive correlation, as the observation of these three-dimensional and dynamic forms of hologram leads to the feeling of pleasure by the consumer once viewing the show, which creates a deep connection between the consumer, the holographic show, and the product.
- It is difficult not to see the hologram show, as it is attractive, incredible and it raises the product to a new level of attention (Tanvir, Latif, and Sumbel. 2017, 6).
- The hologram show appears in a real and actual way at several angles in the form of Electroluminescence (luminous sparks) (Suresh and Rushi 2014, 2).
- Its ability to reproduce the details of very small and microscopic depicted elements in the holographic image.
- Its ability to produce a realistic image used as an alternative to the elements provided (Chaudhari, Lakhani, and Deulkar 2015,1).
- The possibility of using hologram technology mixed with other modern technologies such as augmented reality or virtual reality.
- The dynamic and stereoscopic characteristics in the hologram ads provide efficacious and inductive dimensions towards the consumers' responses.
- The *emergence* of advertisement in the form of dynamic light beam adds aesthetic values to the designed dimensions of hologram ads.

- It is *characterized* by high storage capacity and large data storage capacity.

6.6. **Determinants of hologram technology**

- *The higher cost of installing the 3D hologram equipment.*
- *The high speed of internet connection required.*
- *Inability of hologram to show in the fluorescent light.*
- *The necessity of constant supply of energy (Tanvir, Latif, and Sumbel. 2017, 8).*
- *Data transfer itself may be a hindrance, as it is not like regular image and video files, it needs formats and extensions of their own so that it can be easy to register and display through them.*

<http://bjackson85.blogspot.com/2010/02/holograms-advantages-and-disadvantages.html>

- Additionally, there is the need for periodic *maintenance* of equipment.
- The *designer* faces a challenge in designing the elements of ads appropriate that depends on the simplicity of the elements and the clarification of the product or the essence of service.

6.7. **The commercial center as a modern means of advertising**

The commercial center (Mall) is a huge building that contains a wide range of products, shops, and brands in the retail mode as they are connected through the corridors that allow the consumer to walk in an organized way to pass to the various shops. These centers may either be built in an indoor or outdoor form. They include many types of goods under one roof, starting from durable goods up to consumer goods. So, it is designed as a community center for the consumers' shopping, as well as the cultural, recreational and community interactive activities (Narahari1 and Kuvad. 2017, 2112). They play a dominant role in the consumers' patterns, resulting in drastic changes in customer marketing patterns. The emergence of shopping malls as a destination for shopping, entertainment, and community promotion has transformed the promotion template and sales services, as it is able to offer a wide range of points of tourist and sales attractions of high-quality through the existence of places of restaurants, entertainment, cafes and others (Kire 2014, 1). The study of Kekhrietshunuo Kire (2014) conducted about the interpretation of consumer's behavior in the commercial malls; found several results, the most important of which is that the commercial centers constitute one of the most important promotional means, as the consumer benefits from all possible facilities under one roof. According to the advantages of commercial centers, as they provide social, recreational and

communicative dimensions at the same time, this is raising the ceiling of expectations of consumer towards the commercial centers to represent the attraction of sales to the consumer (Kire 2014, 3).

Bloch et al. (1994), in his study about the effect of the physical environment of commercial centers and their impact on the consumers' emotional state, confirmed the importance of commercial centers as one of the promotional means as the consumers consider the commercial center as a multi-service place not only restricted to shopping (El-Adly 2007, 2). Thus these merits can be employed and converted into sales attraction points by using the modern technologies that attract the consumers.

As a result of the civilizational development, many commercial centers that offer a variety of services and products got built. The commercial centers' productive characteristics could be taken advantage of and by pressuring the marketing attractions to motivate the consumer towards the product by employing the hologram technology to produce dynamic advertising content; as that would create emotional and economic aspects that would drive the consumer to acquire the product.

6.8. **Advantages of commercial centers as sales and promotional places**

- *They provide the consumer with physical vision and a sense of the product and its features.*
- *Provide after-sales services that represent an advantage that cannot be obtained through e-marketing for example (Narahari1 and Kuvad 2017, 212).*
- *Shopping within an environment specially equipped for the convenience and enjoyment of the consumer.*
- *The focus within these commercial centers is increasingly upon the offers and sale advantages for the commercial companies.*
- *Availability of restaurants and cafes, which helps to save time and thus allows extra time for families.*
- *Allow free recreation and social entertainment along with shopping.*

6.9. **Key features that attract consumers towards the mall**

- *Relaxation:* it represents one of the characteristics of a successful commercial center as it leads to the increase of the quantity of consumers, as the strategic location and availability of long working hours *increases* the possibility of the consumer paying visits to the mall, Therefore, the center should provide an effective marketing trip to increase the consumer's satisfaction.
- *Commercial center environment:* it is a feature

that enhances the marketing experience through the emotional benefit, which includes the advantages of surroundings, the height of center's roof, and the architectural design of the center and the nature of lighting, which distinguishes the center from its competitors.

- *Availability of many brands inside the mall:* it is one of the key points for the success of a commercial center as it is the basis of the existence of the whole center, thus the center to *meet* the consumer's expectations in the sales features, offers various, remarkable brands.
- *Quality:* as the quality of services within the center becomes a factor affecting the level of the consumer's satisfaction; thus it includes the customer service, the sales personnel, the security guards, the administrative staff and others who add *considerable* value to the total service and encourage the consumer on successive visits.
- *Marketing:* it includes the distinctive *advertising* show inside the mall and represents a means to satisfy the promotional purposes as well as the social purposes. Here, the role of using sophisticated modern advertising techniques becomes necessity to increase the likelihood of the consumer's satisfaction to stimulate the purchasing motivations towards a certain brand (Astono 2014, 100-101).

6.10. Applications of hologram shows

With the emergence of the latest high-definition projectors, CGI animation technologies, the high-definition films and visual effects the presentation techniques related to the post-production phase. Instead of a real reflection of an object or person on a glass panel, a high-definition video with CGI technology is broadcasted directly on a special design of transparent film chemically processed through a high resolution (HD) projector. Although this method is of high priced and more expensive, it produces a clearer and more realistic hologram projection.

According to Sadim, it is expected that the hologram



market to reaches up to 3.57 billion US dollar by 2020, on a higher annual compound use rate of 30.23% from 2014 to 2020.

<https://www.cbn.co.za/news/take-advertising-to-another-level-with-3rd-eye-media>. All the companies are trying to raise the level of expectation of the advertised product or service. Therefore, the hologram technology has achieved a lot of profit in the market. In 2008, the US Patent and Trademark Office announced that "Apple" company is working on a three-dimensional hologram system that automatically works to assure the user's health. The cars' computers will automatically adjust the seat and direct the car to its driver (Tanvir, Latif, and Sumbel 2017, 7). *There are many advertising models which the companies executed using the hologram technology as a way to promote their products and service as follows:*

- *Nike Co. has used the hologram technology in its 2013 announcement to promote their new shoes*

Where it launched an advertising campaign using the hologram technology in Amsterdam to sell the new shoes called (Nike free 5.0, Fig. 1). According to the PSFK report, this was the first time this type of technology was used on the streets and on a large scale. In 2013, Holocube European Co. developed a three-dimensional imaging device for Nike's advertising campaign using the three-dimensional projections for a new type of shoes.

<https://rampages.us/wbasej/2015/04/09/technology-and-new-media-in-advertising-and-marketing>.

The company presented a distinctive 3D hologram ad as it allowed the pedestrians to see the shape of the shoes, its flexibility, elasticity and its softness as well as displaying it from different angles to the pedestrians. So, displaying the shape of the shoes in three-dimensional format gave the consumers a virtual experience, as if they were carrying the shoes in their hands, so they were able to grasp all its advantages, thus giving the consumer full indulgence in the experience and enjoy the product under promotion.



Fig (1) Nike Co advertising

<https://www.jcdecaux.com/3-d-hologram-promote-nikes-new-running-shoe>

• **Coca-Cola used the hologram in its advertising campaign in Prague**

In January 2009, Coca-Cola presented a show to the Prague Sales Conference for more than 800 people to show its advertising campaign using the hologram. The light was directed to the senior managers on the stage as three-dimensional images before presenting a presentation on how the trademark and bottle shape of the company evolved over the years. The main element of the hologram presentation was shaped of a huge clock, indicating the evolution of time (Elmorshidy 2010, 3).



• **Nokia's advertising using the hologram technology inside the mall**

Nokia has employed the hologram technology in advertising its new cellar phone. Allowing the shoppers in the mall to have a realistic show of the product as well as allowing them to interact with the advertisement freely making the product available to the passers-by (Fig. 2). Thus, they enhanced the hologram experience giving it a dynamic dimension to encourage the consumers to explore the merits of the new smart phone.



Fig (2) Nokia's advertising

https://www.youtube.com/watch?v=cd0agi_zNII

• **The use of hologram technology in Mercedes advertising**

This advertisement is one of the forms of external advertising development and the use of the Succette method to break the limits of the consumers'

expectations, as Mercedes used the prism glass hologram in its road advertisement to announce the new class car (E-class, Fig. 3) in a way that dazzles the passers-by and meets their expectations.

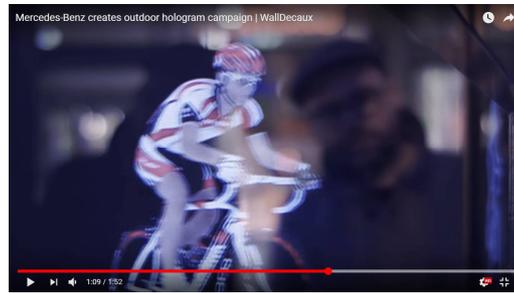


Fig (3) Mercedes advertising

<https://www.youtube.com/watch?v=JP5hHzCCmt4&t=10s>

• **Advertising of Sprite soft drink inside the mall**

The Sprite Soft drink advertisement (Fig.4) contained a hologram show mounted on a stand inside the mall. This hologram show included several visual effects as the zoom in and out, and moving the trademark design on the bottle in a stereoscopic and dynamic manner as well as the

moving elements around the bottle of the soft drink from light rays and scattered water drops on the bottle, as well as other visual effects that indicate the quality of product and raise the sense of thirst of the passing consumer, thus this will provoke him/her to buy and use the product.



Fig (4) Sprite Soft drink advertisement

<https://www.youtube.com/watch?v=fkmxzFZgL28>

- ***Polo's advertising to sell sport products using the hologram technology on one of the mall windows cases***

The company used effective hologram advertisement on their storefront and their windows. Its show provided models wearing their sportswear while doing sports in order to attract the attention of the



consumers and promote their products (Fig. 5). So, it displayed famous athletes wearing and using their products in a visual and dynamic way to encourage the consumers to buy the goods that enable the consumer to show him/her in a sportive appearance.



Fig (5) Polo's advertising to sell sport products
<https://www.youtube.com/watch?v=1rQh01BUfcs>

- ***Coca-Cola Advertisement using the hologram technology inside a commercial center***

The bottle of Coca-Cola (Fig. 6) appeared inside a holographic glass, as the stereoscopic show began with the emergence of several virtual and stereoscopic elements around this bottle, starting

from the brand to the advertising message, and some visual dynamic elements that show the bottle individually and distinctly inside the center, which draws the attention of the consumers towards the advertisement.



Fig (6) coca cola advertising
<https://www.youtube.com/watch?v=p0DqIPxpCAU>

- ***Advertising for garments shop using the hologram technology inside a commercial center***

The dynamic hologram technology was used to advertise a garment selling store the Nano Universe store inside a commercial center (Fig. 7) by using a display panel, which showed an attractive dynamic stereotype that is large enough to attract the

consumers' attention. Also, the nature of the illumination inside the mall allowed the advertisement to appear in a dazzling manner. The dynamic advertisement included the emergence of trademark, a man and woman as models to show the new clothes promoted by the company.



Fig (7) garments shop advertising
<https://www.youtube.com/watch?v=YStGDKZ8wbM>

- ***Empreinte's advertisement of women's clothing***
- The Empreinte chain store used the hologram

technology in designing a display window for a women's clothing store and introduced a model

wearing these products in three-dimensional and dynamic way (Fig. 8), the matter which sparked curiously was the fact that the model emerged and disappearance, and her re-appearance wearing

another type of clothes promoted by the store coupled with using the name of the store on the window of the hologram.



Fig (8) Empreinte's advertisement of women's clothing
<https://www.youtube.com/watch?v=OQjmFamSFjg>

Therefore we conclude that, there is poverty in the studies related to interpreting the effects of 3D hologram on the behavior of the advertisement consumers inside the commercial centers and their responses.

advertisement, advertising department, faculty of applied arts under supervision of the researcher.

7. Methodology

7.1. Study 1

Rolex watch advertising using the hologram technology inside a commercial center.

7.1.1. Method

7.1.2. Experimental design

This research used the experimental method in presenting a hologram experience as dynamic advertising model in one of the commercial centers using a sample of fourth year students' rolex

7.1.3. Recruitment of the participants and sample size

The sample was selected (150 students) who were subjected to this experiment and the questionnaire was distributed to them in order to identify their opinions regarding the impact of using the hologram technology on designing the advertising message and the possibility of employing it in the commercial centers. 18 questionnaires were excluded for their incomplete answers and 132 samples were left valid for analysis as shown in the following table:

Table 1. Sample percentage for study 1.

Ser.	The distributed questionnaires	The returned questionnaires	The excluded questionnaires	The questionnaires related to analysis
Number	150	150	18	132
Percentage	%100	%100	%12	%88 of total distributed questionnaires

7.1.4. Stimulus materials and tools

- **Designing a Rolex Watch advertisement using the hologram inside a commercial center**

The advertisement begins with the emergence of the watch highlighted as to appear as the hero of the advertisement (Fig. 9), then a background appears as a theatre and the light shows around the watch to show the luster of the watch (Fig. 19), indicating its

quality and showing a theatrical performance of the person wearing the watch and moving in a manner consistent with the meaning of wearing the watch, which reflects the degree of confidence by which the person is characterized who acquires this precious watch, then the show ends with the re-emergence of the watch.

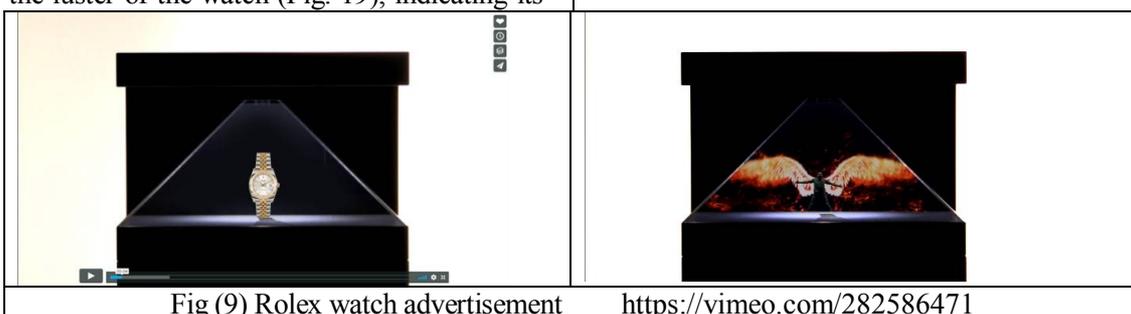


Fig (9) Rolex watch advertisement
<https://vimeo.com/282586471>



- **Designing the questionnaire form to measure the response of the consumer to the hologram experience in the commercial centers and determining its validity and consistency**

The consistency of the questionnaire was calculated and found that its constant coefficient was 84, so the questionnaire is valid to be applied.

- **Broadcast the message on the hologram system**

Hologram device was prepared and implemented under the supervision of the researcher.

7.1.5. Measures

Result of questionnaire related to statistical analysis:

Table 1. Result of questionnaire related to statistical analysis percentage for study 1.

Ser.	Elements of designing the questionnaire	T. agree (%)	Agree (%)	Disagree (%)
1	The way of presenting the hologram show has positively captured your attention.	96.9	3.03	0
2	You prefer the show ads inside the commercial centers through the hologram technology.	98.4	1.05	0
3	Suitability of the visual elements in the advertisement for the hologram show.	91.66	5.3	3
4	You prefer watching the hologram shows in advertising than the traditional advertising methods.	94.69	5.3	0
5	The advertisement appeared in a stereoscopic and realistic manner.	93.93	4.54	1.5
6	The way of the show was characterized by enjoyment and novelty.	96.96	.75	1.5
7	The way of presentation through the hologram technique attracted your attention.	96.96	1.5	0
8	The dynamic elements and visual effects helped in attracting your attention towards the ad.	91.66	5.3	3
9	The stereoscopic and dynamic advertising message was characterized by glare.	96.21	3.7	0
10	The advertising message was characterized by clarity and effectiveness.	94.69	5.3	0
11	I watched the entire advertisement.	100	0	0
12	Appropriateness of using the sound in the hologram advertisement.	90.90	7.57	1.5

7.1.6. Result

In total, 96.9% out of 88% of the sample that has been surveyed has agreed upon the technological ability of the hologramic technology as a method of advertising that is capable of capturing the attention of the receiver positively. On the other hand, the other 12% of the sample collected has been disqualified as the surveys received from this sample were not completed. And as a result, the analysis sample preferred displaying the ads inside the commercial centers by using the hologram technology in the display at 98.9%.

7.1.7. Conclusion and discussion

The results of the study (1) showed a statistically significant increase in the number of consumers who liked the animated ads presented by the method of hologram technology and applied inside the commercial centers. The study also revealed that the advantages of hologram technology are many. For example, it adds to the ad a sense of realistic and entertaining dimension that positively pulls the attention of the consumers towards the ads. The

study also showed the importance of employing the visual elements that are suitable for the nature of the hologram performances during the presentation. It stressed on the necessity of having suitable sound or music compatible with the nature of the mobile advertisement Viewed through the hologram device Result.

7.2. Study 2

An advertisement to urge the donation to children cancer hospital using the hologram technology inside the commercial center.

7.2.1. Method

7.2.2. Experimental design

This research used the experimental method in presenting a hologram experience as dynamic advertising model in one of the commercial centers using a sample of fourth year students advertisement to urge the donation to children cancer hospital, advertising department, faculty of applied arts under supervision of the researcher.

7.2.3. Recruitment of the participants and sample size

The sample was selected (150 students) who were subjected to this experiment and the questionnaire was distributed to them in order to identify their opinions regarding the impact of using the hologram technology on designing the advertising message and Table 4. Sample percentage for study 2.

the possibility of employing it in the commercial centers. 21 questionnaires were excluded for their incomplete answers and 129 samples were left valid for analysis as shown in the following table:

Ser.	The distributed questionnaires	The returned questionnaires	The excluded questionnaires	The questionnaires related to analysis
Number	150	150	21	129
Percentage	%100	%100	%14	%86 total distributed questionnaires

7.2.4. Stimulus materials and tools

- **An advertisement to urge the donation to children cancer hospital using the hologram technology**

The advertisement begins gradually with the emergence of a portal form signifying that it is a gateway to fight cancer, then a simple abstract shape of a person appears to move in a dancing

performance to fight the disease, which shows several elements of rays and balls expressing the malignant tumor that the person fights and finally a brief shape of a woman appears as she makes a call to give donation to the hospital to resist the disease, (Fig. 10) then the emergence of the trademark of the hospital.

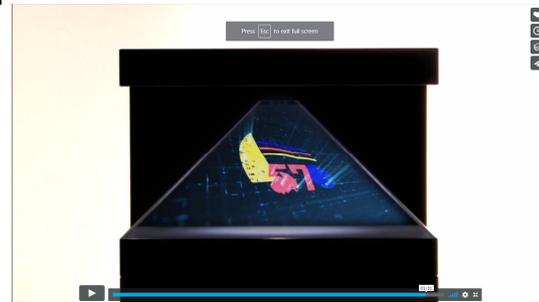


Fig (10) the donation to children cancer hospital advertising <https://vimeo.com/278825076>

- **Design of the questionnaire form to measure the response of the consumer to the hologram experience in the commercial centers and determining its validity and consistency**

The consistency of the questionnaire was calculated and found that its constant coefficient was 84, so the questionnaire is valid to be applied.

- **Broadcast the message on the hologram system**

Hologram device was prepared and implemented under the supervision of the researcher.

7.2.5. Measures

Result of questionnaire related to statistical analysis:

Table 1. Result of questionnaire related to statistical analysis percentage for study 2.

Ser.	Elements of designing the questionnaire	T. agree (%)	Agree (%)	Disagree (%)
1	The way of presenting the hologram show has positively captured your attention.	93	3.1	3.87
2	You prefer to show ads inside the commercial centers through the hologram technology.	94.57	5.42	0
3	Suitability of the visual elements in the advertisement for the hologram show.	89.1	8.5	1.5
4	You prefer watching the hologram shows to advertise than the traditional advertising methods.	92.2	7.7	0
5	The advertisement appeared in a stereoscopic and realistic manner.	86	10	3.8
6	The way of the show was characterized by enjoyment and novelty.	87.5	8.5	3.8
7	The way of presentation through the hologram	94.5	5.42	0



	technique has attracted your attention.			
8	The dynamic elements and visual effects helped in attracting your attention towards the ad.	91.4	6.9	1.5
9	The stereoscopic and dynamic advertising message was characterized by glare.	92.2	7.75	0
10	The advertising message was characterized by clarity and effectiveness.	95	5	0
11	I watched the entire advertisement.	97.67	0	2.32
	Appropriateness of using the sound in the hologram advertisement.	93	3.87	3.1
12				

7.2.6.Result

The percentage of satisfactory sample of the analysis on the effectiveness of hologram technology to capture the attention of the receivers in the display of advertisements has reached 93%, and the percentage of their desire to display advertisements for this technology within the commercial centers to 94.57% of the total 86% of the sample size, while excluding 14% of the sample size for incomplete answers to the questionnaire.

7.2.7. Conclusion and discussion

As a result of this study 2 we can conclude the rate of the success of hologram technology as one of the advanced technological means of advertising within commercial centers and malls. The study also proved that the visual elements of advertising displayed through the hologram inside the commercial centers recorded a high dazzling effect on the minds of the consumers according to the realism of shapes, which proves the effectiveness of this technology in the acquisition of the attention of the consumer and thus the formation of positive desires towards the product or service.

8. General conclusion and discussion

This is the first study to discover the ability of hologram technology displays as a commercial portal to commercial centers, which dealt with the richness of this technology with many characteristics that can benefit the advertisement. Where the Hologram was prepared and implemented under the supervision of the researcher and then the processing of the ads presented to it, taking into consideration the Visual elements and catalysts to be consistent with the nature of the 3D hologram display which allows the motion factor to be effective and efficient. And then Broadcasting these advertising messages using the Hologram system on the selected sample for research, and by studying and analysing the results statistically, we conclude that Hologram technology is the future of advertising within commercial centers and the results showed a significant increase in the response of the consumers to the use of this technology for ads displays within the commercial centers. The results indicated that the selection and display of the visual stimuli in the ads

increased the consumers' attention to the advertisements, as well as the dynamic, featuring hologram technology, it adds dramatic, entertaining and influential dimensions to advertising within the hearts of consumers. According to the previous results, the study monitored the preference of the selected sample to display ads inside the commercial centers, and as a result, the study found out that the selected sample prefers the ads to be shown using the hologram technology than traditional advertising methods.

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