Effective Use of 3D Technology in 3d movies to Development the Visual content of child

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Abstract:

Childhood is the first stage which a person goes through and the basic stone in building his personality, so the kindergarten stage is considered the basic educational stage for a person, through which he acquires many beliefs, experiences and concepts, and the child of this stage has specific cognitive and mental characteristics, so the cognitive development represents the most important aspect of growth which corresponds to mental functions such as problem-solving, inference and knowledge. It is also divided into thinking skills, conceptual development and perception.

With the advancement of technology there are many educational methods that work to develop the cognitive development of the child, as well as new technologies in the field of image. Three-dimensional imaging appeared with its various techniques to give a sense of depth and is represented in virtual reality, holographic and stereoscopic cinema.

In addition to the emergence of the latest cameras in every technology, for example cameras used in stereoscopic cinema.

Z CAM K1 Pro, Vuze XR 3D VR180 °, insta360 EVO 3D / 2D Convertible 360/180 ° VR Camera.

And also cameras used in virtual reality "Z CAM V1 Pro Cinematic VR Camera, YI Technology HAL, 360 Precision LTD Facebook 360 Surround Camera Bundle with PC Hardware".

And cameras used in the holography “RED and Lucid Unveil 8K 3D Camera for 4V Holographic Photos”.

When employing 3D technology to display the educational content for a child, this works to attract his/her attention, which leads to increase the process of perception, increases cognitive skills, and develops his visual content.

Key words:

Child –Holography – Virtual Reality– Stereoscopic cinema

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Introduction:

The man is the center of life in this world and through it the adoption of societies and civilizations, so that man passes through his life through different stages that start from birth until the end of his life, the first stage that a person goes through in his life is childhood, as it is considered one of the most important life stages that a person goes through, as it affects his life, it is considered the main stone in building his personality. The pre-school stage is considered one of the most important educational stages that a person goes through, as it works to develop his skills and give him a lot of experiences, concepts, beliefs and trends.

Therefore, childhood is of great importance in determining the extent of a person's success from his failure, so attention must be paid to all the cognitive characteristics of the child to build his personality properly.

The recent exposure of the world to many changes in the world of technology has led to the multiplicity of educational means of communication that help the child to develop his concepts, abilities and experiences, and from this technology the emergence of stereoscopic cinema, virtual reality and holograms, so that we can feel the depth about special tools and methods in photography and holographic display, as the image technology has been developing since the image was drawn by hand and viewed with a primitive wooden binoculars to give the feeling of anthropomorphism until it reaches the present time to the holographic machines, holographic displays, and stereoscopic vision glasses. In giving a sense of depth, all of these technologies combine to produce a three-dimensional image that works to develop the visual content of the child. Each of these three techniques has a method of imaging, different display methods and vision glasses for each technique.

Statement of the problem:

Research problem centers on the following question:

What are the modern stereoscopic techniques used in designing the moving image prepared for 3D optical displays to develop the visual content of the child?

Significance:

1- Development of teaching methods for the kindergarten stage to keep pace with the times.

2- Increasing student interaction with the teaching method.

3- Increasing the carrying capacity of students.

Objectives:

1- Studying modern stereoscopic techniques for designing motion pictures to develop the child's visual content.

2- Setting considerations for designing the educational 3D image.

Methodology:

The study depends on the descriptive approach.

Hypothesis:

The use of 3D technology in the animated films provided to the child, working on developing his visual content.

Delimitations:

The research is limited to kindergarten stage of 4-6 years.

Theoretical Framework:

Kindergarten:

1- According to the World Health Organization of the United Nations in 1999, a child is defined as "any person under the age of eighteen".

Characteristics of cognitive mental development:

Cognitive mental development is realized under perception, intellectual skills and content development.

1- Perception: It is the means by which a person communicates with his surrounding environment and is divided into:

- Perception of the image: The child of this stage is not aware of all the information in the image, from a design point of view, it must be taken into account to focus on the desired goal by enlarging the size and separating it from the background.
- Perception of shape: The child perceives shapes and can distinguish among them in terms of design
- Perception of color: Warm colors attract the child's attention rather than cold colors, and the perception of color in the image must be considered that the object used in the image must be the same color as that found in nature.

2- Intellectual skills: Pre-intellectual operations from two years to seven and are divided into:

- Pre-concepts from 2-4: It depends on the child going from all to the part in terms of design, expresses the fruit as a whole and then define its elements as apples and sense of movement.
- Intuition from 4-7: The child is interested in one side and neglects the rest of the aspects, from the design point of view and focus on the most important aspect of the image by separating it from the background.

3- Development of concepts: One of the tools that works to develop the concepts of the child.

- 3D movies: Studies have confirmed that children who view educational content in 3D have more knowledge of concepts than others.

3d technology:

1- stereoscopic cinema technology:

There are two methods of technology:

- One compact system contains a number of cameras and lenses installed in a way that covers the 180 °, so an assembly of the existing contents is obtained to get a stereoscopic image.

Cameras used in stereoscopic cinema is,
(Z CAM K1 Pro, Vuze XR 3D VR180 °, insta360 EVO 3D / 2D Convertible 360/180 ° VR Camera).

- This system is done through separate cameras and is installed with a metal frame to obtain a stereoscopic image.

Vision broker: You need medium visuals, which are glasses such as:
(anaglyphs, polarized, active shutter glasses).

2- Holography technology:

Depends on Laser device - lenses - holographic film - mirrors - light particles
and does not depend on medium vision.

3- Virtual reality:

There are two methods of technology:

- The use of a single compact system that contains a number of cameras and lenses installed in a manner that covers 360 degrees, so an assembly of the existing contents is obtained to get a virtual image.
- This system is done through separate cameras and is installed with the AXA system for virtual reality**.**

It depends on medium vision such as:

(Samsung Gear VR, HTC Vive, Oculus Rift)

Results:

1- The three-dimensional educational film achieves more attraction for children than the traditional film.

2- The three-dimensional educational film increases the child's perception and works to increase his mental and cognitive skills.

3- That the more three-dimensional educational film colors are closer to reality, the more the perception process increases for it.

4- The three-dimensional educational film can bring the desired goal closer to the child and isolate the child from the background, as this works to attract his attention.

5- The natural lighting on the elements gives the child a feeling of the element as he sees it in nature which increases his cognitive skills.

Recommendations:

1- To present the educational content to the child in a three-dimensional way in order to attract his attention and increase his understanding of the educational content presented to him.

2- The designer of the educational picture for the child must be in line with the technology in the field of photography in order to enhance the intellectual skills of the child.

3- The educational image designer must realize when designing the provided educational content that he is dealing with a three-dimensional image.

4- Educational institutions should use 3D imaging technology to provide educational content to the child.

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