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An Inspiration Analysis of Digital Illustration Used in Augmented Reality

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ABSTRACT

The study investigates the use of digital illustrations in augmented reality (AR) experiences. Augmented reality merges digital content with the actual environment, creating new interaction opportunities. With its visual appeal and engaging properties, digital illustration has the ability to enrich AR experiences and create immersive narratives. By conducting an inspiration analysis, the study examines the applications ofdigital illustration in augmented reality, with a special emphasis on encouraging its use in Malaysia. The research identifies distinct goals and types of digital illustration in AR through a thorough literature review, inspiration analysis, and qualitative data collecting through research on nine samples of digital illustration in augmented reality. The findings emphasize the usefulness and potential of digital illustration in transmitting engaging visual communication and stimulating new augmented reality paths of inquiry. This research is a helpful resource for firms and practitioners particularly in Malaysia looking for ideas for incorporating artwork into their augmented reality projects in a variety of sectors.

Keywords: *Inspiration Analysis, Digital Illustration, Augmented Reality.*

1 INTRODUCTION

Inspiration analysis is the process of studying and understanding the sources, elements, and effects of inspiration. It involves examining what motivates and influences individuals or groups to create and achieve remarkable things. The analyses help identify the factors that trigger inspiration and discover patterns that can enhance creativity and productivity. For this study, inspiration analysis is done through qualitative analysis where samples of digital illustration in augmented reality are collected. Hence, the findings from the analysis can be used to develop frameworks, models, or techniques to cultivate inspiration, enhance creative thinking, and foster innovation in the use of digital illustration in augmented reality in Malaysia. Augmented Reality (AR) is one of the most modern technologies in this era. Augmented reality functions by putting digital content over the current surroundings, which according to Georgiou and Kyza (2017, p. 24), "allows users to explore the surrounding environment by using mobile technologies." The digital data (text, multimedia, images, GPS data, etc.) are superimposed on the real-world view as captured by an image capture device, such as a camera, in this visualization technique (Flavián et al., 2019). Although the idea of augmented reality has been around since the 1960s, technological advancements over the past two decades have turned it into a unique research field that explicitly holds in the context of consumer behaviour (Kounavis et al., 2012). However, in Malaysia, according to Lazim and Rahman (2015),

only about 40% ofMalaysians, who are a rapidly developing nation, have reported or acknowledged awareness of augmented reality technology. Because of that, there is still limited knowledge on how toeffectively apply digital illustration in augmented reality across various fields.

Additionally, digital illustration can enhance augmented reality experiences by incorporating a visually appealing and engaging element that can provide a sense of surprise and excitement. Itopens new possibilities for the AR field by enabling the production of inventive and engrossing visual narratives. Hence, this paper seeks to identify various purposes of digital illustration in augmented reality through a thorough analysis of inspiration analysis and the collection of data that could be used as inspiration for Malaysia to be more engaging in the development of augmented reality.

2 LITERATURE REVIEW

In recent years, there has been a lot of interest in the integration of digital illustration into augmented reality (AR) experiences. Researchers and practitioners have looked into a variety of topics related to this junction, including storytelling methods, visual effects, and artistic styles. This review of the literature seeks to offer an overview of recent findings and insights into the study of various sources of inspiration for digital illustrations used in augmented reality.

This study intends to investigate the relationship between digital illustration and augmented reality in a variety of sectors, taking into consideration augmented reality uses. The author aspires to codify this information and inspire others, particularly in Malaysia, to utilize these insights as a source of inspiration across various fields in the realm of augmented reality.

2.1 Digital Illustration

Digital illustration could be defined as having the characteristics of digital media display and interaction and digital creativity (Yang, L. 2022). Digital indicates unprecedented discoveries are being brought about in the creation of concept and illustration art techniques by using digital computer illustration. (Liu, Y. 2019). Furthermore, digital illustration encompasses a vast range of styles and genres, each influenced by various types of art and artistic movements which are composition, colour, typography, and visual storytelling are all used in these styles to successfully express messages. According to Dudhal, S. 2022, illustration art blends emotion andaesthetics, giving the viewer a sense of image attractiveness and making them less fatigued whengetting information. Hence, the application of digital illustration in augmented reality is crucial by harnessing the capabilities of digital illustration within the AR context, new avenues for creativity and engagement can be explored.

2.2 Augmented Reality

Augmented Reality (AR) is a phrase used to describe the practice of overlapping people's perceptions of physical world space, people, and items with digital information displays (Widita et al 2021). With the advancements in augmented reality technology, marketers now have the opportunity to create immersive brand experiences, interactive advertising campaigns, and unique customer interactions with products and environments. Meanwhile, according to Haidi, N. S. B. et al 2022, the real environment has been enhanced in augmented reality (AR) with the presence of digital images, sounds, or other sensory stimuli. Among the technical tools deployed are multimedia, 3D modelling, real-time tracking and registration, intelligent interaction, sensing, and more realism in the actual world following simulation.

The application of augmented reality differs in terms of utilization and impact in many areas, such as military, medical, education, urban planning, etc (Mekni & Lemieux, 2014). Augmented reality has made a big improvement in numerous industries, including that inmarketing. It will alter

how the consumer views the brand and optimize the customer experience by permitting them to decide what to purchase (Javornik, 2016) with the capability to supplement the consumer's actual surroundings, with new pictures, movies, or information.

3 RESEARCH METHODOLOGY

The qualitative method was used to collect the data for this research which is through content analysis. To pursue this research, inspiration analysis was done to examine the style of digital illustration used in augmented reality internationally or in Malaysia itself. The collection of data is made by obtaining the sources through websites like YouTube and Vimeo and nine samples ofartwork that implement digital illustration towards their augmented reality are taken into consideration for the data. To regain the findings, the inspiration analysis concentrated on evaluating the elements of design, the principle of motion design, the inclusion of audio, the types of augmented reality employed, and also exploring the applications of augmented reality ineach type of augmented reality. The inspiration analysis process enabled a thorough evaluation and comprehension of the various digital illustration styles and approaches used in augmented reality for various fields.

4 FINDINGS

Through the finding of the research, it showed the effectiveness of digital illustration in augmented reality for portraying visual communication in their own expertise of fields such as ingaming, tourism, products and others. As pointed out from the finding, many different kinds of digital illustration are used such as raster, vector, and 3D illustrations alongside motion graphics to comprehend the outcome of augmented reality. In terms of colours used, most of the results show that 60% of bright, warm, and vibrant colours are used such as red, yellow, and orange colours. Moreover, by adopting motion graphics principles and audio in augmented reality such as anticipation, secondary animation, eases and etc., it can catch the attention of the audience. Other than that, these findings particularly show the significance and potency of digital illustration in augmented reality as a discovery for Malaysia to take this information as reference or inspiration because a lot of brands started to have awareness about the potential of augmented reality to boost their brand.

Table 1 Inspiration Analysis of Digital Illustration in Augmented Reality in Various Fields

Criteria	Video		
Artwork			
	Sample 1	Sample 2	Sample 3
Years	2023	2023	2020
Product	Sparkling Water	Comic Book	Nike Air Max Shoe
Illustration Style	Vector Illustration (2D)	Cartoon Illustration	3D Illustration
Elements of Design	**Colour** Vibrant Colour **Shape** Geometric Shape, Natural Shape	**Colour** Warm Colour **Shape** NaturalShape	**Colour** Cold Colour **Shape** Natural Shape, Geometric Shape
Principle of Motion Design	Follow Through / Secondary Animation / Anticipation / Arcs /	Mass & Weight / Eases / Arcs / Anticipation /	Mass & Weight / Anticipation / Secondary Animation / Eases /
Types of Augmented Reality	AR Mural	AR Comic Book	Web-Based AR
How Augmented Reality being used	The augmented reality is done on the mural as an advertisement for the sparkling water.	By scanning the comic books, the animation of the AR is looping like a GIF to enhance the reader's reading.	By scanning the QR code given, the AR would appear when scanning on certain images like on the shoe.
Audio	/		

Table 2 Inspiration Analysis of Digital Illustration in Augmented Reality in Various Fields

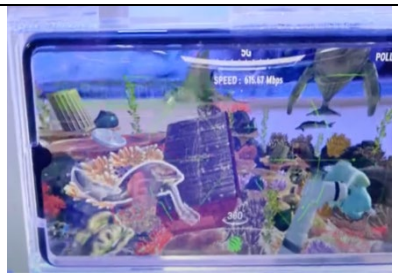
Criteria	**Video**		
Artwork			 
	Sample 4	Sample 5	Sample 6
Years	2021	2022	2023
Product	Interactive WallDecoration	Fake Aquarium	Houses & Certain McDonald's Cafe.
Illustration Style	Raster Illustration	3D Illustration	3D Illustration
Elements of Design	**Colour** Bright Colour **Shape** Organic Shape Natural Shape	**Colour** Cold Colour **Shape** Natural Shape	**Colour** Warm Colour **Shape** Organic Shape Geometric Shape
Principle of Motion Design	Follow Through / Secondary Animation / AnticipationArcs / /	Timing, Rhythm, Spacing / Eases Anticipation / /	Mass & Weight / Anticipation / Secondary Animation / Eases /
Types of Augmented Reality	AR Mural	AR Education	Web-Based AR
How Augmented Reality being used	Requires the use of tablets and by scanning the Butterfly Bonanza murals, the people can search for butterflies hidden within the mural, seen and detected only through thelens of the tablet's camera.	The launch of Malaysia's first 5G Augmented Realityexperience with marine lifefeatures education and fun-filled immersive experiences created by FrameMotion Studio showvisitors the superfast response time.	Let the users decorate their localrestaurant with virtual lights, reindeer, tree and snowmen and they can also dress their own homes with the festive DecoARations too and then capture a photo in the Christmas scene.
Audio	/	/	/

Table 3 Inspiration Analysis of Digital Illustration in Augmented Reality in Various Fields

Criteria	**Video**		
Artwork			
	Sample 7	Sample 8	Sample 9
Years	2023	2019	2020
Product	Immersive Tourism	Alcohol (Gin)	AR Mario Kart
Illustration Style	3D Illustration	Raster Illustration	3D Illustration
Elementsof Design	**Colour** BrightColour **Shape** Geometric Shape Natural Shape	**Colour** Cold Colour **Shape** Organic Shape	**Colour** BrightColour **Shape** GeometricShape
Principle of MotionDesign	Follow Through / Anticipation / Eases /	Timing, Rhythm, / Spacing / Eases / Anticipation /	Mass & Weight / Anticipation / Secondary Animation / Eases /
Types of Augmented Reality	AR Tourism	AR Packaging	AR Gaming
How Augmented Reality being used	Visitors around the world can explore citiesin Singapore in new ways, discovering landmarks and hidden gems of the cities through an immersive augmented reality guided tour.	By using the bottleneck label as the activation point,the users are able to scanthe label to reveal an immersive animation, representing the essence and characterof Bombay Sapphire in augmented reality.	By using Nintendo Switch,the user can play Mario Kart in real world
Audio			/

5 CONCLUSION

From this research paper, it can be concluded that the advancement of digital technologies opened a new era where augmented reality is being used widely in various sectors such as in tourism, gaming, and advertising for products are now utilized in innovative ways, such as interactive walls and packaging, providing unique experiences to users. The findings from this research showed that most of the digital illustrations that are being used in augmented reality in recent years are 3D illustrations instead of 2D illustrations such as raster illustrations, vector illustrations, and etc. In terms of design elements, the research establishes that warm and vibrant colours (such as red, yellow, and orange) are more effective in capturing users' attention and generating excitement than cool colours. This realization emphasizes the significance of employing visually stimulating color schemes in augmented reality experiences. Besides that, to enhance the engagement of augmented reality, the application of principles of motion design such as anticipation, mass, and weight, eases, secondary animation and others play a crucial role in simplifying complex information and enhancing user engagement. These principles facilitate effective visual communication and aid in the comprehension and consumption of augmented reality content. Furthermore, the input of audio in augmented reality is also important because audio can also be used to generate environment noises or soundscapes, which convey information about the surrounding virtual environment (Serafin et al.2018) and play an importantpart in the construction of perceived virtual worlds. In conclusion, this research serves as an inspiration resource for Malaysian companies in various fields that are interested in exploring augmented reality. The findings of this research highlight the immense potential of digitalillustration in conveying engaging outcomes within augmented reality applications.

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AUTHOR CONTRIBUTIONS

Syed Rizakri participates in most of the details of writing and is also responsible for collecting data for the analysis of the findings for this paper. Mohamed Ghazali, Mohd Lazim, and Sharkawi Che Din contributed an overview for this paper.

CONFLICT OF INTEREST

There are no conflicts of interest that occurred during the process of writing this paper.

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