On the Innovative Design of Digital Media Under the Background of the Metaverse

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ABSTRACT

Recently, Zuckerberg announced the renaming of Facebook to Meta, focusing on metaverse ecological construction. Over the next ten years, Facebook will focus on building a new digital virtual world connecting social, gaming, education, and other areas [1]. Roblox, Bytedance, and other competitive scientific and technical corporations are also laying out related businesses and undergoing a strategic transformation. In this case, the new media industry closely connected with the Internet and advanced technology will also change the existing communication forms under the influence of the metaverse. The digital media design in the new media industry not only ushers in new innovative directions on the digital terminal but also adds new design dimensions to the virtual user interface.

Keywords: Metaverse, New media industry, Digital media, Innovative design.

1. INTRODUCTION

With the development of the Internet and the advent of the digital era, the rise of new media has become an important driving force for the rapid development of the media industry. Digitalization has brought new market opportunities, innovative business forms, and various working modes to the media industry [2]. In recent years, with the popularization of intelligent terminals, the development of artificial intelligence, blockchain, 5G, and other digital technologies, as well as the rise of extended reality and applications, the concept of the metaverse has gradually come into reality. Therefore, the new media industry is likely to be revolutionized by the impact of these digital technologies [3]. Innovative designs for digital media in this industry will also take on new forms.

1.1. What is the metaverse?

The idea of 'metaverse' originated in Vernor Vinge's 1981 novel True Names, in which the author creatively conceived of a virtual world that was accessed and experienced through a brain-computer interface. The concept of metaverse was formally introduced in Neal Stephenson's 1992 novel named Snow Crash. The book describes a generation of people interacting through avatars in an online world that parallels reality. This virtual space is called the metaverse world.

At present, there is no exact definition of the metaverse. Some researchers believe that the metaverse is to construct a three-dimensional digital society that allows people to participate in the virtual and real-world with a digital identity [4]. Or a future fusion of all the elements of the Internet, including industrial virtual reality, immersive experience, blockchain, cloud computing, and digital twin [5]. The metaverse will gradually become an advanced form of digital society.

1.2. The developing situation of the new media industry

The new media industry refers to the market including news, entertainment, social, advertising, creative, games, and other media products or digital services provided or distributed to users under the background of electronic platforms and digitization [2]. The emergence of digital technology has brought new development opportunities to the industry [6]. Many media enterprises combine digital technology to complete digital media convergence or enterprise digital transformation, realizing the integration of content, technology, industry, and other aspects [7]. Kranenburg and Ziggers [8] believe that the new media industry will develop and integrate into the business model centered on digital media innovation in the future to meet the new development needs. This is not only conducive to the real innovation of media enterprises but also helps

them enhance their competitiveness by improving their development space and tapping new digital resources. Macnamara [9] and Vukanović [10] point out that the new media industry should increase the demand for technological innovation to promote the dynamic change of the digital media business model. However, in this new digital environment, how do new media companies develop their media mix and digital media innovation [11] and how to better use digital media and channels and attract users are the challenges that media companies face [2, 12].

1.3. The developing situation of the innovative design of digital media in the new media industry

Digital media refers to the medium through which digital information is transmitted to the user through a screen or speaker [13]. It takes the form of social media, web pages and websites, applications, video games, and more. The goal of digital media design is to provide users with smooth, free interaction and navigation that is enjoyable and satisfying [14].

As a highly integrated form of industry, the innovation of digital media in the new media industry will be an organic integration of various aspects such as technology, content, and art [12]. According to Krumsvik et al., digital products and services, the role of users, the process of production and dissemination, and the company's business model are all key areas of innovation in digital media [15]. For example, digital products and services should have a high level of usability while meeting the aesthetic characteristics of the design [16].

In addition, digital media should be suitable for different life scenarios and consumers' lifestyles. In the development process, the most prominent feature is that the interaction form tends to be an immersive experience [17, 18, 19]. Using the example of innovative design for digital media in journalism, Vasudevan [20] believes that the future of design innovation will continue to be user-centered while creating personalized, interactive design practices that provide an immersive experience for users. This will also encourage users to create content and increase engagement.

1.4. Gaps in this research field

From the ultimate form of Internet development, metaverse defines the future's technological iteration and the development direction of the new media industry. However, at present, few researchers have explored the design of digital media innovation in the new media industry from the perspective of the metaverse. Based on the development of new technologies, this paper will utilize digital media design

as a method to have a foresighted grasp of the future digital media in the new media industry. Combined with the concept and characteristics of the metaverse, this paper will discuss the development trend of the new media industry under the background of the metaverse, and analyze the future design direction from the perspective of digital media innovation design. I hope this paper could provide beneficial insights for the industrial upgrading of new media by exploring the influence of metaverse on the development direction of digital media design in the future.

2. THE CONTENT AND FORM OF THE METAVERSE

This section will focus on the content and form of the metaverse. It provides a reference for the development of digital design in the new media industry under the influence of metaverse.

2.1. The core properties of the metaverse

At present, the Internet industry and researchers do not have a precise definition or complete description of the final form of the metaverse, but most researchers agree that the metaverse has the following core properties:

(1) Synchronization and high fidelity with the real world. The virtual space keeps high synchronization and intercommunication with the real world. At the same time, users can get nearly authentic feedback information when interacting in the virtual metaverse.

(2) Open and independent creation. It means that any user can freely create content and participate in the metaverse. At the same time, they jointly build the original virtual world and constantly expand the boundaries of the metaverse.

(3) Sustainable development. The construction and development of the metaverse platform will operate in an open-source manner and continue to grow indefinitely.

(4) An independent and closed-loop economic system. In the metaverse, the value of user production and work activities will be recognized by a form of a unified currency. Users can use the virtual currency to spend or exchange virtual property within the metaverse and also use this currency to buy items in real life.

(5) Virtual civilization. As the virtual community grows in size, it will form unique rules and systems lining with this community, plus the logic of the virtual world's operation, gradually forming a set of virtual civilizations within the metaverse world.

2.2. The nature of the metaverse

In essence, the world of the metaverse concept is a

world made up of a large number of closely connected virtual communities. People can socialize, work, learn and play in virtual worlds through devices or components connected to the virtual world [21]. The metaverse provides both content and tools for creating content. It allows users to self-output content, engage in real-time, and has a strong social nature.

2.3. The influence of the metaverse on the new media industry

The future metaverse will be a carrier for people to move into the digital age, meaning that we will live in a ubiquitous and constantly inter-digital network that contributes most to changing the existing way of socializing. In the new media industry, the metaverse will continue to reconstruct social life scenes such as human interaction, entertainment, and transactions. In this case, both the form of digital products and services provided by new media enterprises and the way of user acquisition will change. For example, people will not be hindered by time and space and can listen to a virtual concert at home or experience climbing Mount Everest online.

3. DIGITAL MEDIA DESIGN IN THE NEW MEDIA INDUSTRY

This section will focus on the content and composition of the current development of digital media design in the new media industry, providing a foundation for the later discussion of digital media design under the background of the metaverse.

3.1. Specific content of digital media design

Digital media design refers to the design and creation of digital media-related content through the fusion of technology and art. It includes but is not limited to visual design, user experience design, interaction, and other dynamic aspects related to digital design. Its core feature is interactivity with users. Media that carry motion graphics and technology involves intelligent devices, wearable devices, game systems, etc.

3.2. Characteristics of digital media design

Digital media design is a concrete presentation of media categories, visual language, icon system, and other contents, integrating culture, technology, aesthetics, psychology, and other perspectives and disciplines. Therefore, digital media in the form of design performance has the distinctive characteristics of digital technology and cultural content integration and unique cultural characteristics and aesthetic characteristics of the digital age.

3.3. Developments and trends in digital media design

Digital media design uses a very cutting-edge technological medium. Due to the characteristics, diversity, and iteration of media, digital media design should be at the forefront, combined with the latest scientific and technological means, break through the traditional way of communication, and bring new visual experiences. The visual design of digital media needs to cater to the growing public aesthetic [22]. It requires designers and experts to help users identify the possibilities of digital innovation from the perspective of digital interfaces, such as color, availability, feedback, and other design elements [23]. For example, the ability to group application icons in Apple's desktop operating system is the embodiment of innovative digital media design in digital interfaces [24]. Through design, digital media can also provide a more dynamic, personalized, and diversified visual experience in the visual field, such as multi-dimensional and hybrid three-dimensional visual effects. In addition, the terminal of digital media will become more convenient and personalized with the development of various digital technologies such as the Internet of Things, artificial intelligence, and wearable technology [25]. For example, from Google Glass to Samsung Gear s2, the appearance and size of the device will become increasingly diverse with the applicable scenarios.

With the change of media and social culture and the rapid development of new media technology, digital media design has become the most important innovative way to promote human information interaction and communication. In the future, digital media are designed to take into account more elements and functions, such as aesthetics, efficiency, convenience, and interactivity, thus towards a multi-integration of the new direction.

4. THE FUTURE DEVELOPMENT OF THE NEW MEDIA INDUSTRY UNDER THE BACKGROUND OF THE METAVERSE

At present, the metaverse has a realistic foundation in terms of the conceptual and technological reserve. Driven by the long-term development of technology, the metaverse will become a breakthrough in the relatively stagnant development of the current new media industry. According to the content and characteristics of the metaverse described above, the core businesses that are closely related to the layout of the metaverse in the new media industry include games, social media, news, cultural and creative industries, and others. This section will explore the future trends of the new media industry in the context of the metaverse, providing an addition to the specific discussion of digital media design.

4.1. Changes in communication patterns

The development of the metaverse will cause a change in the mode of digital information dissemination in the new media industry. The specific performance is from the most basic digital twin to the higher stage of the fusion of virtual and reality. Communication activities will also transfer from the realistic information transmission between entities to the "surreal" information transmission between entities. The industry's future model for disseminating information and delivering digital products and services will be extended reality content that vividly recreates the real world with ultra-high fidelity. The extended reality technology helps bring human society into the era of immersive communication with high intelligence and real-time interaction.

4.2. Changes in communication media and modes

The metaverse will bring new carriers and ways of information transmission, drive the reform of the content industry with new ideas, and form a new structure and form of content organization. Under the influence of the metaverse, new media will inevitably emerge, and digital media will enter a new scene era. The deep combination of extended reality technology and wearable devices will change the existing form of digital media and transition to a situation where everything can be a digital terminal.

5. IN THE CONTEXT OF THE DEVELOPMENT OF THE METAVERSE, THE DEVELOPMENT TREND OF DIGITAL MEDIA INNOVATIVE DESIGN IN THE NEW MEDIA INDUSTRY

Roblox noted in its prospectus that the metaverse world is immersive, low latency, diverse, and anytime, anywhere. As our sense of experience in the metaverse increases, in a general sense, our ability to use abstract symbols decreases. Then sound, touch, gesture, and temperature can all become components or elements of media interaction design. In the design, on the one hand, digital media need to adapt to the development trend of the metaverse, timely adjustment of form and function. On the other hand, the interface design of digital media needs to be based on the characteristics of the metaverse and designed for users from the perspective of a virtual environment. This section will discuss the future of digital media innovation design based on the current development of digital media design in the new media industry against the background of the development of the new media industry under the concept of the metaverse.

5.1. Design direction and development trend of the digital media terminal

5.1.1. Diversified wearing forms

When the new media industry provides users with digital products and services, interactive devices allow users to travel between the real and virtual spaces, and information can also flow and exchange between the real and virtual spaces. To achieve immersive entry and experience of the metaverse at anytime and anywhere, while the mobile network is powerful enough, the terminal should be portable and easy to wear. As a result, every part of the human body could become a starting point for designing wearable devices, and there could even be tiny sensing devices that could be implanted inside the body, such as skin and teeth. With the continuous improvement of technologies and functions such as body capture and eye-tracking devices, future interactive behaviors might be able to be completed through non-contact methods, and digital terminals will gradually develop from tangible to 'intangible'.

5.1.2. Immersive experience combining multiple senses

Virtual reality technology, represented by immersive experience, will provide users with a more comprehensive three-dimensional interaction, a more immersive interaction experience, and a comprehensive and seamless connection from the physical to the mental world, from the real space to the virtual space for the world of the metaverse. In the future development of the metaverse, a key dimensional breakthrough is the commitment to realize the online sensory effects of the human sense of smell, taste, and touch. For example, in video games, in addition to near-realistic visual scenes and auditory effects, players can also perceive pain, fatigue, and scene atmosphere. Simulating game scenes for players from different senses increase their gaming experience. The same applies to social media. For example, when a photo of a restaurant posted by a friend is clicked, we can feel the atmosphere of the restaurant and the taste of the dishes through a wearable device and intelligent application that puts us in the image posted by our friend.

5.2. Design direction and development trend of interface design

5.2.1. User-centered design

In addition to the digital products themselves and their carriers, the new media industry needs to utilize visual images for information transmission. However, the interactive interface in the metaverse world is not a manifest screen independent of the real-life scene. It has the function of displaying reception and feedback

information, helping users to better connect and transition from virtual and real space. In the virtual reality environment, users are in a three-dimensional space, and the interaction environment and methods are more complex and diverse. Therefore, it is more important to follow the user-centered design principle in the design. For example, the user-centered design needs to consider the physiological and psychological characteristics, behavioral habits, visual perception, and other factors of users in the virtual environment in all design processes, thereby building an orderly and reasonable interface and interaction flow framework. A pleasant user experience, ensuring the continuity and efficiency of interactive behaviors in the interaction, should be the source power of digital media innovation development.

5.2.2. Visual element consistency

A reasonable interface structure and aesthetic principles in line with the aesthetic of the public also help enhance the user experience [26]. Since adding the third dimension in the virtual interactive interface extends the depth of space, more attention should be paid to the relationship between space and interface when designing. Color, text, icon, layout, and other various elements in plane vision and space design should be viewed as an organic whole to achieve the consistency of design style under the same design goal. For example, the Google Daydream team looked at how well a user could read in a virtual environment in addition to color selection, information ratio, and layout when designing a virtual interface layout. They helped select the best angle height of text by investigating the relationship between text size and viewpoint as users read messages. The final interface considers two aspects of plane visual elements and a three-dimensional virtual environment, which not only ensures the aesthetic of the interface but also enhances the smoothness and comfort of user interaction.

6. CONCLUSION

The new media industry in the context of the metaverse is no longer simply a medium for disseminating digital information to users or providing digital products and services, but a possibility for infinite expansion of virtual space and time utilizing technology. Digital media will serve as a tangible or intangible medium to help human beings realize the all-around connection of the senses in the virtual world. It also adds new value to the users in terms of emotion, experience, and usage scenarios. In the actual operation of the design, on the one hand, the digital media terminal should adapt to different usage scenarios with the development and support of digital technology; on the other hand, the interactive interface should provide visual information effectively and aesthetically. Under

the combined action of these two aspects, digital media design will improve the user experience when obtaining information and giving feedback.

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