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METAVERSE AS A SOCIAL MEDIA ENVIRONMENT IN ARCHITECTURE

MİMARLIKTA BİR SOSYAL MEDYA ORTAMI OLARAK METAVERSE

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Abstract
The research examines the considerable possibilities of Metaverse as a social media platform for architecture. In the study using qualitative analysis method, projects designed for the metaverse universe are evaluated within the scope of social media opportunities. Within this framework, evaluations are made under the criteria of transferring the architectural memory to the Future, the experience and interaction of physical space, brand image and portfolio creation, professional development, and education. In the light of these evaluations, questions were prepared and in-depth interviews were conducted with 10 architectural professionals who have experience in the metaverse. Architectural interactions in the Metaverse allow professionals to visualize and share their projects. In particular, 3D designs produced in the Metaverse help architects collaborate more effectively on virtual projects. In addition, virtual architectural exhibitions and events held within this environment create significant opportunities within the industry by reaching a broad audience. While architects interactively explore the buildings they design in the Metaverse, they also have the opportunity to interact with clients and receive feedback. Metaverse encourages architects to be innovative and creative and guides them to work on projects that push the boundaries. As a result, the new digital age offered by the Metaverse is leading architecture to evolve towards a more open, interactive, and global architecture by combining architecture with social media and virtual reality.

Keywords: Architecture, In-Depth Interview, Metaverse, Social Media, 3d Design.

Öz
Araştırma, Metaverse'in mimarlık için bir sosyal medya platformu olarak sunduğu önemli imkânları incelemektedir. Doküman analiz yönteminin kullanıldığı çalışmada metaverse evreni için tasarlanmış projeler, sosyal medya olanakları kapsamında değerlendirilmektedir. Bu çerçevede mimari belleğin geleceğe aktarılması, fiziksel mekân deneyimi ve etkileşimi, marka imajı ve portfolyo oluşturma, mesleki gelişim ve eğitim kriterleri altında değerlendirmeler yapılmaktadır. Bu değerlendirmeler ışığında sorular hazırlanmış ve metaverse deneyimi olan 10 mimarlık profesyoneli ile derinlemesine görüşmeler gerçekleştirilmiştir. Metaverse'deki mimari etkileşimler, profesyonellerin projelerini görselleştirmelerine ve paylaşmalarına olanak sağlamaktadır. Özellikle Metaverse'de üretilen 3D tasarımlar, mimarların sanal projeler üzerinde daha etkili bir şekilde işbirliği yapmalarına yardımcı olur. Ayrıca bu ortamda düzenlenen sanal mimari sergiler ve etkinlikler de geniş bir kitleye ulaşarak sektörde önemli fırsatlar yaratır. Mimarlar Metaverse'te tasarladıkları binaları interaktif bir şekilde keşfederken, müşterilerle etkileşime geçme ve geri bildirim alma fırsatı da bulurlar. Metaverse, mimarları yenilikçi ve yaratıcı olmaya teşvik eder ve sınırları zorlayan projeler üzerinde çalışmaya yönlendirir. Sonuç olarak Metaverse'in sunduğu yeni dijital çağ, küresel bir mimariye doğru öncülük eder.

Anahtar Kelimeler: Mimarlık, Derin Görüşme, Meta, Sosyal Medya, 3D Tasarım.

INTRODUCTION

In 2020, due to the prolonged COVID-19 pandemic worldwide, all communication, collaboration, and social activities were transferred to online digital interaction spaces. As the pandemic has increased, the need for remote working and digital interaction, virtual reality, augmented reality, and the digital world has become widespread (De'R et al, 2020; Taylor & Soneji, 2022). Accordingly, people have turned to virtual platforms for social interaction, education, work, and entertainment. The Metaverse has become a digital environment with technological advances such as virtual reality (VR), augmented reality (AR), blockchain, and artificial intelligence. The increased accessibility and user-friendliness of these technologies have contributed significantly to the growth of the Metaverse.

Additionally, the Metaverse has sparked considerable interest among industries and academics (Sparks, 2021). Moreover, the recent investments made by major technology companies such as Facebook, Samsung, Google, and Microsoft in the Metaverse have further increased the interest in the Metaverse. Combining all these factors has rapidly increased the popularity of the Metaverse, enabling this digital space to appeal to a broader audience. All these developments indicate that the Metaverse will grow and develop further (Schumacher, 2023).

The concept of Metaverse was first introduced by Neal Stephenson in 1992. Stephenson defined the Metaverse as *"the concept of a fully immersive virtual world where people gather to socialize, play, and work."* (Laeeq, 2022). With virtual and augmented reality (VR and AR) integration, new layers are emerging in experiencing everyday life. As a virtual world, Metaverse creates spaces where people can meet and share experiences regardless of geographical constraints, fosters information exchange and professional collaboration, enhances and democratizes the arts, education, and culture, and even enables political participation. In this context, drawing a framework for what can be done with the Metaverse seems complicated. In addition, sensory experiences and interaction are being developed more and more effectively in this universe (Florian, 2022). The information gathered shows that the Metaverse is a platform where users engage in social interactions through virtual environments. However, this platform combines various social media elements such as voice communication, chat, and multimedia sharing in a three-dimensional virtual space. In this environment, individuals can communicate, collaborate, and share experiences in real time through their avatars or digital representations of themselves. Through the opportunities provided by this universe, users can socialize, participate in events and virtual communities, and establish connections within a digital context that reflects the social dynamics of real-world interactions.

On 24.04.2024, the keywords *"metaverse"* and *"social media"* were searched in the Scopus database in *"Article title, Abstract, Keywords"* without year limitation. As a result of this search, 206 documents were accessed. According to the graph in Figure 1, the first study on metaverse and social media was produced in 2011. No research was conducted on this topic between 2012-2017, and the most studies appeared in 2023 (N=114). As can be understood from this research, it is understood that the use of metaverse and social media concepts together has attracted great interest in recent years.

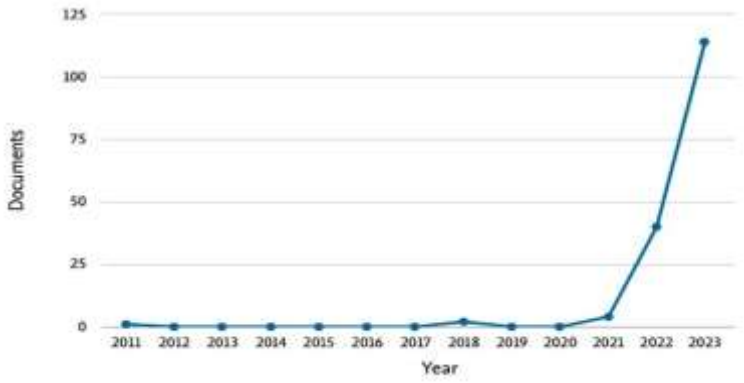

Figure 1. Studies conducted by years.

From this point of view, the study aims to reveal the architectural possibilities of the Metaverse as a comprehensive social media environment and to provide a guiding framework for designers, architects, and other stakeholders. When examining architectural studies related to the Metaverse in the literature, Xia & Pan (2022) focused on the design and nature of virtual spaces; Dozio et al. (2022) explored sensory interactions; Sra (2023) concentrated on enhancing virtual space perception; Chung et al. (2024) examined the spatial experiences of augmented reality; Yu (2021) investigated cognitive abilities in virtual spaces; Wu et al. (2022) discussed virtual cultural heritage; Franco et al. (2022) emphasized universal accessibility of cultural heritage in virtual environments; Lyu et al. (2023) examined the relationship between augmented reality and design; Avinç & Yıldız (2023) studied sysstematic review of scienfitic publications on metaverse; while Bardzell & Shankar (2007) studied applications of virtual collaborative design practices. In this context, no existing study in the literature examines the relationship of the Metaverse with architecture as a social media space and communication medium. Therefore, this research aims to bring a new perspective to the literature by evaluating the possibilities of the Metaverse in terms of social media and architecture.

In this study, architectural projects produced in the Metaverse were obtained from well-known architectural platforms Archdaily and Dezeen. The projects analyzed are current examples and cover the year 2021 and above. This scope was chosen considering that the historical development of the subject covers a very short period. The metaverse projects examined within the scope of the study are as follows:

1) Nakagin Capsule Tower was built in Tokyo in 1970 by Kisho Kurokawa. The project was revived by Gluon in 2022 in the metaverse.
2) Metajuku Shopping Center was designed by Republic Realm in 2021 in metaverse.
3) Virtual Gallery was designed by Zaha Hadid Architects at Art Basel Miami in 2021.
4) Nested Spheres was designed by ZHVR Group in 2021.
5) Student projects were realized in spring 2022 under the direction of Sevince Bayrak within the scope of Arch 402 course of MEF University Department of Architecture.

The projects were assessed within the context of the opportunities the Metaverse provides to architecture as a social media platform. They are grouped under five (5) themes: transferring architectural memory to the Future, experience and interaction of physical space, brand image and portfolio creation, professional development-networking, and education. Based on the data obtained, it is discussed how and in what way the Metaverse affects the discipline of architecture in the virtual and physical world. First, the relationship between media, social media, architecture, and Metaverse concepts is presented in a general framework. Then, the projects are analyzed according to the themes obtained within the scope of these evaluations. The five possibilities offered by the Metaverse were evaluated through in-depth interviews with architecture professionals who are knowledgeable in this field.

Media and Social Media

Media is defined as a mass communication tool that disseminates any message to a specific audience in a one-way way within its policy context (Mora, 2008). This communication tool, which includes all kinds of verbal, written, printed, and digital images, has a wide range today. According to Hocaoğlu (2011), the media encompasses all forms of communication tools, including written, visual texts and images, as well as auditory and even tactile (texts created with the Braille alphabet) means of communication (Hocaoğlu, 2011). The media is concerned with transmitting all kinds of data and information in line with society's expectations (Gani, 1996). While the media provides information to society on the one hand, it also reconstructs information on the other. It significantly influences individuals' tendencies, attitudes, and behaviors in gender, profession, society, and political values (Arslan, 2004). Hence, the media plays a central role in an individual's daily life. As a significant component of the capitalist system, the media is a highly influential tool in managing an individual's consciousness and perception (Jeanneney, 2009).

According to Katz (1994), there are five (5) main functions of the media: socialization, informing, cultural continuity, shaping public opinion, and entertainment. In terms of informing, the media provides information about the world and keeps us informed about current events. Regarding cultural continuity,

the media ensures the transmission of cultural values between past and present generations. Concerning socialization, the media contributes to the interaction among individuals, while in terms of shaping public opinion, it informs and raises awareness about issues that affect society.

Meanwhile, social media is a digital communication network where individuals, communities, businesses, and other organizations can produce and share their content, interact, and connect with other users through the internet. Today, various social media platforms with different functions are widely used by the masses. On these platforms, users can communicate with other users, establish business and trade networks, and share content such as photos and videos with each other. It can also provide interaction for education, entertainment, and shopping. Thanks to these features, social media has a broad impact by enabling individuals to communicate and exchange information. In this context, it has become a powerful tool allowing users to express themselves, build community, and interact with other users globally (Wolf et al. 2018).

Communication and information technologies are undergoing rapid change and transformation day by day. Computer technologies, which first became widespread in the 1990s, are now evolving towards virtual universes such as the Metaverse (Lee, 2021). The concept of the Metaverse, initially used in Neal Stephenson's Snow Crash novel in 1992, began to attract worldwide attention following Mark Zuckerberg's renaming of the Facebook application to ‘Meta’ in 2021 (Ağırman & Barakalı, 2022). ‘Metaverse’ is derived from combining the prefix ‘meta’ and the suffix ‘verse’, referring to a fictional universe, dream universe, or virtual universe (Terzi, 2022). Metaverse represents a universe where users experience a virtual realm through their avatars, independent of spatial and temporal limitations. In this universe, users can interact with each other and perform many activities, such as art, commerce, entertainment, and education (Díaz et al., 2020).

Given its multifaceted nature that enables interaction and communication among users, the Metaverse also functions as a robust social media environment. Despite its limited global usage due to costly accessibility and the need for technical infrastructure services, the Metaverse continues to develop rapidly. Moreover, its significance as a social media environment is growing daily. The social media opportunities provided by the Metaverse are pretty extensive. It enables interaction and sharing among individuals with similar interests through virtual communities. It allows users from different parts of the world to come together, collaborate, and interact socially through virtual meetings, events, and activities. Within the Metaverse, users can share their events, activities, and experiences in the virtual world through virtual media galleries and sharing platforms. All these features bring users together in the Metaverse, creating a powerful social media environment.

Thus, Marr (2022) believes that social media's Future is directly linked to the Metaverse. The Metaverse is the next step for online gaming, telecommuting, and e-commerce. As the digital world evolves towards the Metaverse, social media is also influenced by this evolution. At the same time, the potential of the Metaverse to unify the digital world under one roof, thereby creating an alternative universe to the physical world, further enhances its significance. The Metaverse goes beyond navigating on a flat screen and allows one to enter the screen and experience virtual reality increasingly effectively. In this context, the Metaverse will enable individuals to experience new and different virtual social environments through augmented reality technologies (Allam et al., 2022). Moreover, the emergence of the metaverse transforms today's traditional social networks into immersive and interactive 3D virtual social worlds (Ning et al., 2023).

Architecture, Social Media and Metaverse

The relationship between architecture and media has evolved with the increasing visibility of the architectural profession and architectural works in the media (Lootsma & Rijken, 1998). In the 19th and 20th centuries, architectural magazines, newspapers, and books spread, architectural projects, designs, news, articles, and criticisms about the profession began to be shared through media channels. In this context, architectural products in the media facilitated the dissemination of information to a broad audience interested in architecture.

As a social production field, architecture has always had a strong connection with the media (McQuire, 2010; Wouters et al, 2016). The media, which actively transmit architectural theory and practice, mediates the transfer of architectural meaning to the recipient. Karatani (2017) defines architecture as a form of communication, and this communication is conditioned to take place without standard rules because it takes place with others who do not follow a commensurable set of rules. On the other hand, the media plays an active role in the meaning of architecture. Architectural meaning can only be conveyed through media. According to Fischer (2015), architectural meaning, which can be created differently, is embodied in the object and takes place in the receiver's mind accordingly. Therefore, communication-based values play an active role in producing architectural meaning. The architect conveys his theoretical or practical productions to people within the framework of the possibilities of the media. Thus, the media creates an area of interaction between the architectural product and society.

The interaction between architecture and media is getting stronger depending on the development of communication technologies. In the digital world of the 21st century, architecture has become intertwined with communication technologies. The representation of modern architecture in the media has evolved into a domain that surpasses the forefront of architectural practice. The architectural image circulated through the media takes precedence over the real object and becomes the new form of expression of architecture (Colomina, 2011). The further interaction between the act of architecture and society has transformed the architectural product into a communication tool that enables the expression of the ideologies the designer wants to convey to the community. This expression's reflection occurs in the receiver's perceptual behavior. The architect's word reaches the receiver as a message.

On the other hand, the receiver may understand this message as it is, or different meanings may be formed with the influence of the media. However, regardless of the intended message, the transmission and production of the intended purpose are achieved through visual media. As a result, the positioning of the field of architecture within the developing communication network can only be possible with the effect of its close ties with the media (Fiske, 2003; Cross, 2011).

The relationship between architecture and social media has evolved in parallel with the development of social media. The beginning of social media emerged when the internet became accessible to the masses. Since the early 2000s, platforms such as blogs and forums have enabled people to communicate with each other on various topics. The sharing within the field of architecture began during this period through multiple blogs and forums and then evolved into photo-sharing platforms and social networks. Today, social media is used by architects for communication and content sharing, visual interaction, following design trends, exploring new design ideas, professional networking and collaboration, job opportunities, and professional and social awareness (Kronhagel, 2010).

To analyze the relationship between architecture and the Metaverse, it is first essential to comprehend its workings and nature. In this framework, access to the platform must preferably be provided to realize an architectural production in the Metaverse. For this purpose, various platforms such as Sandbox, Cryptovoxels and Decentraland have been developed. Users can create and use artifacts on these platforms for multiple events and activities (Ghisleni, 2023). Architects and designers also play a significant role in developing various structures and spaces within the lands of these platforms. From renowned architects to recent graduates, the Metaverse offers opportunities for architects and designers to engage in architectural production within these platforms and promote their brands.

Furthermore, architects can create innovative designs supported by NFTs (Non-Fungible Tokens) within the metaverse environment. They can build digital assets such as cities, buildings, furniture, sculptures, point clouds, and textures and sell them to virtual worlds, games, and films. In addition to static designs, architects can develop design content where users can produce various results by adjusting parameters. For instance, the Grasshopper script or Houdini digital assets are some examples that stand out in this context. As a result, while architecture is a local profession, the opportunities offered by the Metaverse enable architectural products and services to become accessible to everyone worldwide (Chloe, 2023).

According to Patrick Schumacher from Zaha Hadid Architects, the Metaverse will be where a significant

portion of architectural action and innovation will take place soon. This virtual universe, supported by the client-architect relationship, is perceived as an essential market for investors regarding real estate development. Large amounts of cryptocurrency are being invested in digital lands, leading to the development of various properties on these lands. Companies are engaged in a competition to attract users to their commercial zones (Cutieru, 2022). Architectural productions are realized like the physical world within this competitive retail environment. According to Schumacher, the Metaverse is currently being constructed.

Moreover, not only architects but also video game developers, artists, and software developers are part of this production (Kolata, 2022). Weronika Marciniak from the 'Future is Meta' office, focusing on metaverse-oriented designs, also notes that digital game developers and individuals interested in 3D design currently dominate the Metaverse. However, she also adds that this has led to spatial organization and user-centered design challenges. Spaces are difficult to navigate, confusing regarding wayfinding and references, and not user-friendly. Therefore, Marciniak emphasizes the significance of architects' knowledge and experience in constructing spaces within the Metaverse (Camilla, 2022).

Metaverse is an online virtual world that includes augmented reality, virtual reality, 3D holographic avatars, video, and other forms of communication. In this context, unlike other social media platforms, it allows users to interact with each other within the body of avatars using virtual reality technologies (Ball, 2020). Designing in the Metaverse is a very different experience from the physical world. In this environment, one can create freely, free from all the constraints of the physical world, such as material supply, plot sizes, budget, height limits, and terrain. Therefore, projects realized in the Metaverse offer an experience beyond the real world for designers and users. This transformation can profoundly impact architectural practice. Static buildings in the physical world are in a state of change and motion in the Metaverse depending on experience (Marx, 2023).

According to Marx (2023), it is difficult to grasp the scale and potential of the Metaverse at this stage of its development. Potentially, the Metaverse is a universe accessible to everyone without cultural, physical, and economic limitations. While architecture is limited to a restricted audience in the physical world, the Metaverse offers access to architecture for everyone. Furthermore, as technologists, architects, and users continue to develop new tools for augmented and virtual spaces within the Metaverse, new projects are progressively becoming more democratic and open-source (Baldwin, 2022).

In conclusion, the Metaverse is a comprehensive universe that offers excellent opportunities for the change and transformation of the architecture discipline. In addition, as a space of social interaction, it brings the relationship between architecture and society to a new ground. Architects and designers increasingly use the metaverse universe as a social media tool in this context. Within this scope, the opportunities that the Metaverse brings to architecture as a social media environment can be listed as follows:

● **Transferring Architectural Memory to the Future:** The Metaverse offers significant opportunities in architecture to transmit and experience architectural structures or creations of substantial value, or those at risk of disappearing or destruction, to future generations. In this way, architects and users can experience architectural works and interact with them spatially.

● **The Experience and Interaction of Physical Space:** Unlike other social media environments and the physical world, the metaverse universe offers the privilege of experiencing and interacting with space through the body. It also allows the sharing of space in different dimensions beyond the physical world.

● **Brand Image and Portfolio Creation:** Architects can share their designs and productions in virtual environments within the Metaverse. This is important for interacting with other professionals and presenting design ideas to a broad audience. Architects can create their virtual portfolios in the Metaverse. Thus, the Metaverse provides an interactive platform for architects to show their design skills to potential clients and employers.

● **Professional Development and Networking:** Metaverse allows architects to showcase their work, organize virtual events and conferences, and interact with various participants. Thus, it creates opportunities for professional collaborations and makes it easier for architects to follow the developments in the sector. In addition, this platform's virtual office environments and project meetings improve remote working environments, and it becomes easier for team members to come together.

● **Education:** Metaverse proposes interactive virtual environments for architectural education. Thus, architecture students, educators, and professionals can explore virtually designed buildings and experience architectural concepts in practice.

METHODOLOGY

This study investigates the use of the Metaverse as a social media environment for architecture. The study evaluates the architectural projects produced for Metaverse in terms of social media opportunities. These analyses are addressed within the criteria of transferring architectural memory to the future, physical space experience and interaction, brand image and portfolio creation, professional development, and education. The study dataset is obtained from Archdaily (URL-1) and Dezeen (URL-2) architecture websites. The study limits its scope by searching the websites' search engines using the keyword 'metaverse' to identify projects deemed relevant to the subject. Finally, the projects obtained are analyzed within the framework of the evaluation criteria in the study.

The study employs a qualitative research method. Qualitative research is used to understand, explain, and describe events, situations, or phenomena (Guba & Lincoln, 1994). The qualitative research method is utilized in visualizing architectural projects, identifying specific architectural style characteristics, presenting design elements, and explaining spatial relationships. This method analyzes the external attributes of architectural elements and their internal meanings and user experiences. The qualitative research method involves describing, classifying, and interpreting visual data using qualitative data collection techniques. These techniques include interview, observation, document/text analysis, data analysis, content analysis, and descriptive analysis (Baltacı, 2019). Within the scope of this study, project reports on architecture websites were analyzed through descriptive analysis. The projects were evaluated in the context of transferring architectural memory to the future, physical space experience and interaction, brand image and portfolio creation, professional development-networking, and education criteria (Figure 2).

Figure 2. Opportunities of the metaverse as a social media in architecture (created by the authors).

In-deep interviews were conducted with architecture professionals related to the subject. In-deep interviewing is defined as a qualitative social data collection technique that can be applied in different ways such as by phone, online, via e-mail or face-to-face (Uslu & Demir, 2023). In-deep interviewing technique is frequently used in qualitative research method. In this method, a series of questions prepared

before the interview are asked to the interviewee by the researcher (Allmark et al., 2009: 49). Active interaction with the metaverse and the use of the metaverse in architectural productions were decisive in determining the professionals interviewed. In the deep interview with 10 professionals; questions were asked based on the criteria that shaped the first stage of the study. Interviews with experts were conducted via email between March 10 and April 19, 2024. Experts were asked 5 (five) different questions on the relationship between metaverse and social media. The scope of the questions is as follows: transferring architectural memory to the future, experience and interaction of the physical space, brand image and portfolio creation, professional development and interaction networking, and education (Table 1). Experts' answers to the questions are summarized in section *3.6. Results obtained through in-deep interviews.*

Table 1. Questions asked to the experts during the in-depth interview

Judgments About the Criteria				
Transferring architectural memory to the future	**Experience and interaction of physical space**	**Brand image and portfolio creation**	**Professional development and interaction networking**	**Education**
How would you evaluate metaverse as a social media tool in terms of transferring architectural memory and social values to the future?	How would you evaluate the metaverse as a social media tool in terms of the experience of physical space and social interaction?	How would you evaluate metaverse as a social media tool in terms of building a brand image or portfolio?	How would you evaluate metaverse as a social media tool in terms of professional development and creating an interaction network?	How would you evaluate metaverse as a social media tool in terms of architectural education?

RESULTS

In this part of the study, first, in the context of the relationship between architectural media and the metaverse, sample projects are evaluated according to the criteria of transferring architectural memory to the future, experience and interaction of physical space, brand image and portfolio building, professional development and interaction networking, and education. In the second part of the study, in-depth interviews were conducted with architecture professionals based on the same criteria.

Transferring Architectural Memory to the Future

The Japan-based digital consultancy firm Gluon has initiated a project to preserve Tokyo's symbolically significant Nakagin Capsule Tower. The tower is at risk of demolition due to non-compliance with current earthquake regulations and lack of maintenance. This project recreates the tower in 3D in the Metaverse. By including detailed measurement data of the structure, it aims to transform the tower into a place where people can come together again in the Metaverse. In this way, the Nakagin Capsule Tower is digitally preserved and accessible for future generations. In addition, this project significantly contributes to preserving historical and cultural heritage through technology, virtualization, and spatial interaction of people (Florian, 2022) (Figure 3).

Figure 3. Nakagin Capsule Design (Crook, 2022).

Experience and Interaction of Physical Space

Developed by Republic Realm, Metajuku Shopping Center emulates Tokyo's famous Harajuku shopping district. The project area is shaped around a 16,000 square meter atrium. The stores surrounding the atrium sell wearable products designed explicitly for avatars. The shopping district is on a virtual social platform called Decentraland, supported by the Ethereum blockchain. Created by Martin Guerra, this project was brought to life by Republic Realm's 3D real estate and game developers. This virtual shopping experience has been entirely conceptualized independently of gravity. Thus, this project is an example of an important initiative in experiencing a real-life physical space in the Metaverse and establishing new interactions. With mediatic building facades, various messages and content are conveyed to users (Florian, 2022) (Figure 4).

Figure 4. Metajuku Shopping Center (Florian, 2022).

Brand Image and Portfolio Creation

For experienced and inexperienced architects and designers who want to be recognized in the architecture media and present their designs to a broad audience, Metaverse provides an opportunity to create a portfolio and share their brand image. The Metaverse provides significant interaction opportunities for renowned architecture firms such as Zaha Hadid Architects, Grimshaw Architects, HWKN Architecture, and Farshid Moussavi Architecture and for newly graduated and inexperienced architects and designers.

Zaha Hadid Architects' virtual art gallery “NFTism” at Art Basel Miami is an exhibition of the office's work. With this project, ZHA provides a platform for exploring architectural and social interaction in the Metaverse. The focus is on spatial designs, user experiences, social interactions, and “dramaturgical” compositions. These designs are developed with parametric design technologies and are created to offer significant experiences to a broad online audience. Therefore, the Metaverse provides essential opportunities for architects and designers to build and develop their brand image and portfolio (Stouhi, 2021) (Figure 5).

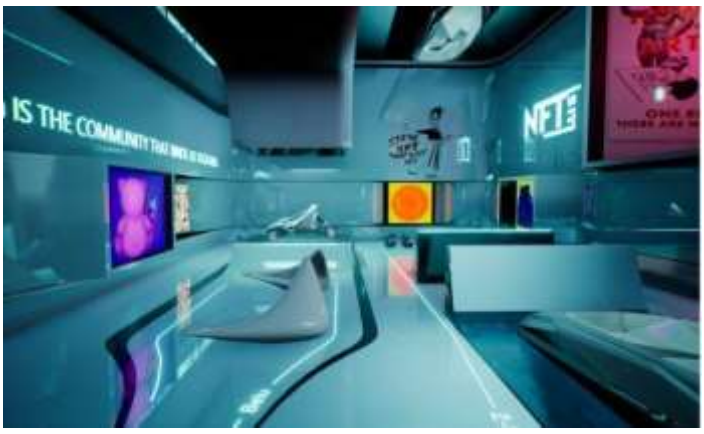

Figure 5. Virtual Gallery of ZHA (Stouhi, 2021).

Professional Development-Networking

The Metaverse allows architects to collaborate remotely, collaborate on projects, share virtual workspaces, and exhibit their projects interactively by creating virtual exhibitions and events. The Metaverse enables architects and designers to present and explain their projects more closely to potential clients, business partners, and other designers. Architects make their projects more attractive and engaging using virtual tours, interactive 3D models, and virtual reality elements. Also, Metaverse allows architects to test design concepts in a virtual environment and develop innovative ideas. Designers and architects evaluate their designs more rapidly and interactively by creating virtual prototypes. The metaverse universe enhances team interaction and allows teams to work more efficiently on projects (Saleem, 2023). The project called Sphereing, developed for the Metaverse by the Zaha Hadid Virtual Reality Group, is designed to create a network for professional development and interaction. The proposal developed by the office offers a collaborative workspace for all disciplines, allowing for the preparation, review, management, and accurate assessment of new design decisions (Figure 6) (Kinzler et al., 2021).

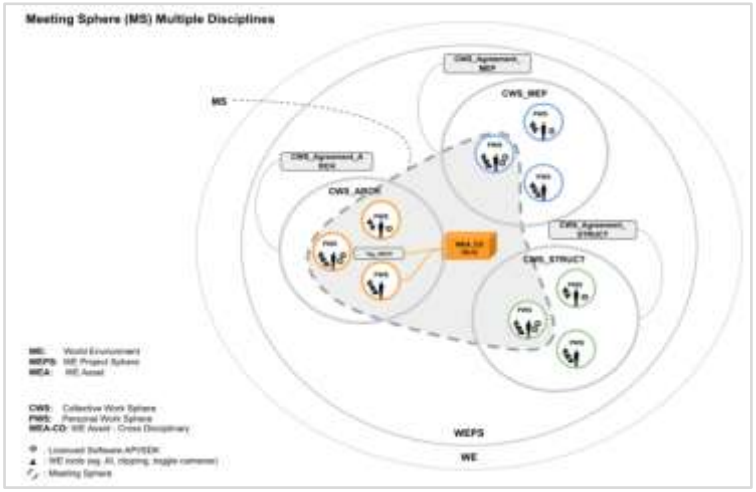

Figure 6. The meeting sphere was created by the ZHVR Group (Kinzler et al., 2021).

Education

The Metaverse can make architects' learning, training, and knowledge sharing more interactive. The Metaverse enables professional development for architects through virtual conferences, educational seminars, and interactive learning materials. Additionally, it offers innovative approaches to digital, hybrid, and interdisciplinary learning for architectural education. While an increasing number of studies utilize the Metaverse as an architectural learning environment, the diploma project of the Faculty of Art, Design, and Architecture at MEF University in Istanbul is one of them. In the Spring 2022 semester, projects developed by students discuss the possibilities and potentials of the metaverse universe. The final products are also shared on an architectural social media platform and announced to a broad audience (Figure 7) (Bayrak, 2022).

Figure 7. An example from student projects (Bayrak, 2022).

Results Obtained Through In-Deep Interviews

Within the scope of in-depth interviews, the views of architecture professionals on the relationship between architecture and social media on the criteria that form the framework of the study were presented.

● How would you evaluate metaverse as a social media tool in terms of transferring architectural memory and social values to the future?

Architecture professionals generally gave the following opinions in their evaluations: Metaverse functions as an important social media tool in transferring architectural memory and social values to the future. Even if projects are destroyed or demolished in the physical environment, metaverse has potentials in promoting, sustaining and transferring projects to future generations in the virtual environment. At the same time, by creating interactive environments, it enables users to explore and experience the artifacts. It facilitates the social accessibility and dissemination of social values. According to experts, users gain awareness of historical and cultural heritage through the metaverse. Thus, the metaverse contributes to supporting the collective memory of society and the sustainability of cultural heritage.

● How would you evaluate the metaverse as a social media tool in terms of the experience of physical space and social interaction?

Architecture professionals have noted that the metaverse offers significant opportunities to recreate and experience physical space in a virtual environment. Metaverse allows projects that cannot be experienced in the physical environment to be examined in detail in a virtual environment. According to architecture professionals, another advantage of the metaverse is that it enables social interaction between architects and users. With virtual events and organizations, users, architects and designers can come together and interact. Another point emphasized by architecture professionals is that metaverse enables architects to share their productions as a visual sharing platform. Architects can both share their own visual productions and see, comment and criticize other architects' posts. Thus, metaverse is an effective environment for architects to express themselves and share their projects with people in different geographies of the world. In addition, the metaverse offers important opportunities for communities with common interests to share information and follow developments in the sector. As a result, according to architecture professionals, metaverse is an effective communication and collaboration platform for users to experience spaces in a virtual environment, interact with each other, announce their individual productions to large audiences and follow current developments.

● How would you evaluate metaverse as a social media tool in terms of building a brand image or portfolio?

According to architecture professionals, metaverse is an important social media tool for creating a brand image or portfolio. It offers architects opportunities to reach potential customers and users. According to experts, metaverse is an effective technological innovation with the potential to reach a wide audience in creating a brand image, especially for inexperienced and newly graduated architects. With virtual events, workshops, conferences and workshops in the metaverse environment, architects can develop close relationships with customers and industry representatives. In this way, metaverse creates a community and feedback platform for architects. With its features such as visual representation, interactive experience, organizing events and communities, metaverse is an effective tool for strengthening the brand image and reaching architectural works to a wide audience.

● How would you evaluate metaverse as a social media tool in terms of professional development and creating an interaction network?

According to architecture professionals, the metaverse is considered to have significant potential for professional development. The metaverse, which can be considered as a virtual office environment,

provides collaboration, idea sharing, collaboration and new business opportunities among colleagues. It is an important opportunity not only for experienced architects but also for young architects to share their projects, ideas and gain experience. According to experts, events and consultancy services in the virtual environment serve as mentoring among architects. As a result, architects can interact, share information and develop collaborations in the metaverse through virtual office environments, educational services, conferences, communities and communication opportunities. In this respect, the metaverse supports professional development and expands the network of architects in the sector.

● How would you evaluate metaverse as a social media tool in terms of architectural education?

According to professionals, the metaverse is also an important virtual environment for architectural education. Metaverse offers architecture students the opportunity to create virtual spaces and gain design practice. Students can experience architectural concepts and improve their creativity by designing representative spaces in a virtual environment. Metaverse allows users to host interactive courses and workshops. Students can come together in a virtual environment to discuss project ideas, work in groups, and learn architectural topics interactively. Metaverse is a suitable platform for organizing architecture conferences and seminars. Students can meet with industry experts virtually to discuss current issues, gain new perspectives, and follow developments in the industry. Additionally, metaverse allows students to improve their ability to visually present and express their projects. Metaverse also offers distance learning opportunities and can reach students in different parts of the world beyond geographical boundaries. This makes architectural education more accessible and increases the participation of students from different geographical regions. According to experts, metaverse is an effective social communication environment in architectural education. It is expressed as an effective tool for increasing the quality of architectural education and enriching the learning experience.

CONCLUSION

At a time when more and more architects and designers are trying to move from the physical world to the virtual world, the Metaverse offers an environment where architectural production and sharing are rapidly gaining importance. As ZHA's Patrick Schumacher points out, the Metaverse is where much of the architectural action and innovation will occur soon. In this context, many themes related to the discipline of architecture, such as physical space production, experimental studies, new design ideas, sharing knowledge, 3D design and modeling, architectural education, building management processes, and customer and market creation, will now take shape in the metaverse universe.

The Metaverse stands out from other social media environments by emphasizing spatial interaction and realistic experiential possibilities. Traditional social media platforms are generally used for content sharing, communication, and specific purposes. The Metaverse, however, is a virtual universe that enables users to have more profound and more interactive digital experiences. It offers a virtual experience that can compete with real-world interactions. Based on the increasing importance of the Metaverse, this study evaluates various architectural projects produced in the Metaverse as a social media environment. Architecturally, the opportunities provided by the social media aspect of the Metaverse have been explored within various themes. These themes include transferring architectural memory into the future, experience, and interaction within physical space, brand image and portfolio creation, professional development, networking, and education.

● In transferring architectural memory to the Future, the Nakagin Capsule Building, built in 1972 by architect Kisho Kurokawa and planned to be demolished today, was examined. The digital consulting firm Gluon brought the project back to life in the Metaverse. In this way, future generations and those who do not have physical access to the building are allowed to experience and interact with the building. In this example, the Metaverse serves a significant function in transmitting architectural memory and heritage, acting as a social media platform in creating the structure and sharing various events and contents related to the building.

● Within the scope of the experience and interaction of the physical space, the Metajuku Shopping Center, which emulates Tokyo's Harajuku shopping district, is examined as an example. This study

involves reproducing an existing physical space in the Metaverse with a different content and concept, thus establishing a social interaction space. This center, primarily focused on commercial functions, features a media facade where corporate firms and stores showcase their images and identities.

● Within the context of brand image and portfolio creation, the study examines the Virtual Gallery, an art gallery produced by Zaha Hadid Architects. This gallery contains spatial designs created by ZHA, and the Metaverse is used as an effective social media to promote and advertise the office.

● Regarding professional development and interaction networking, the study examines the Sphereing project, a real-time collaboration and working environment designed by Zaha Hadid Architects. The project aims to find comprehensive and permanent use in cybernetic commercial and public spaces by offering a new conceptual framework for simultaneous coexistence and collaboration in VR.

● Within the educational scope, the diploma projects produced by the architecture department of MEF University in 2022 in the metaverse environment were examined as an example. This analysis determined that the Metaverse environment makes architects' learning, education, and knowledge sharing more interactive and offers a compelling social communication environment.

In conclusion, the Metaverse is a comprehensive social interaction platform offering architects many opportunities. It enables them to produce and visualize projects, share content, conduct commercial activities and promotions, engage with other users, and enhance their professional development. Especially 3D designs support architectural interactions in this environment, enabling architects to collaborate effectively on virtual projects. Virtual architecture exhibitions and events significantly impact the sector and provide the opportunity to reach global audiences. This digital platform enables architects to work on projects that push boundaries by fostering innovation and creativity. As a result, it can be observed that the Metaverse, within this new digital era, brings the architectural world with social media and virtual reality, presenting a more open, interactive, and global architectural environment.

Architectural professionals also emphasized the importance of the metaverse as a social media tool in their evaluations. They stated that metaverse has an important potential in transferring architectural memory and social values to future generations, increasing social interaction, creating a brand image, professional development and education.

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