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The Roles of Library in the Metaverse

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Abstract

The library is an important institution throughout society. Library roles change over time, from the custodian of records to addressing information needs of the society in the digital age of the Internet. Tech companies around the world are start investing in the next version of the Internet called the Metaverse. The key elements of Metaverse are Virtual Reality, Augmented Reality, Real-Time, and Immersive experience in the common cyberspace. The Metaverse is not fully existed yet. It is predicted that it will change business disruptively. This paper discusses the roles of the library may play in the Metaverse.

Keywords: Metaverse, Virtual Reality, Augmented Reality, Roles of the library, Information Science, Information Management

1.0 Introduction

The Internet is evolving to the next phase called the Metaverse. The Metaverse is an extension of cyberspace focusing on a more immersive online experience using Virtual Reality and Augmented Reality technology. The Metaverse is still a concept shaping by tech players around the globe. It could be fully immersive or mixed reality, or both. The technology enables connections between different parts of the networked information society in a deeper, immersive way. The library has played important roles in society throughout history. Library adapts accordingly to society's information needs. Library roles changed from ancient civilisation until modern industrial society. The modern library has become a service provider of vast information and knowledge in the form of digital content to society via the Internet. The Metaverse, the next version of the Internet, is evolving and receiving overwhelming reception due to the human pursuit of knowledge and experience in a more immersive and connected manner. The library has to participate and play vital roles in shaping the society, given the opportunity and promises offered by the Metaverse.

2.0 The Metaverse

The Metaverse can be defined as a virtual world where we can live, work, travel, shop and play. The Metaverse is the post-reality universe, a perpetual and persistent multiuser environment merging physical reality with digital virtuality. It is based on the convergence of technologies that enable multisensory interactions with virtual environments, digital objects and people, such as virtual reality (VR) and augmented reality (AR). Hence, the Metaverse is an interconnected web of social, networked immersive environments in persistent

multiuser platforms. It enables seamless embodied user communication in real-time and dynamic interactions with digital artefacts (Mystakidis, 2022). It is an extension of cyberspace with a focus on a more immersive online experience using Virtual Reality and Augmented Reality technology. The main intention is to give the user the power of enhanced emotional expression online in shared sense of cyberspace as compared to the current method using screen, camera and microphone which cannot convey full range of human expression, emotion and lack of deep feeling presence. Imagine an alternate digital world in 3D that immerses you the moment you enter. In this world, the digital you, moves from place to place unbounded by the law of physics. It is the promise of the Metaverse. The Metaverse was first described in the 1992 science fiction novel Snow Crash by Neal Stephenson, who coined the term 'Metaverse' where humans interact with each other in a parallel digital world in avatar form (Stephenson , 1992). The Metaverse is forecasted to be the successor of the mobile Internet. The Metaverse is expected to be the next version of the Internet. Although it does not fully exist yet, tech companies are competing with each other in an effort to secure their shares in shaping the future of the Metaverse.

The Metaverse is expected to change how people do business dramatically and affects the economy emphasizing on creative economy, including digital assets. It is predicted that the Metaverse will present companies with a new way to generate a lot of money—a ton of it. According to a report by McKinsey, the metaverse economy would be worth between 8 to 13 trillion dollars by 2030 (McKinsey, 2022). J.P. Morgan estimates USD 54 billion is spent on virtual goods yearly, 60 billion messages are exchanged in Roblox, USD 650 million GDP for Second Life with nearly USD 80 million paid to creators in 2021, while in game-ad spending is estimated to reach USD 18.41 billion in the next five years (J.P Morgan, 2022). Billions of dollars have been invested by Tech companies in creating immersive digital content. Previously, Facebook acquired Instagram in 2012, followed by Whatsapp for USD 19 billion and Oculus VR in 2014 at USD 2 billion (Wikipedia, 2022b). Marc Zuckerberg recently rebranded Facebook to Meta Platforms (Meta), reflecting the Metaverse ambition for the company. In 2021 Meta bought Unity 2 Games, a United Kingdom company that made a user-generated content tool dubbed 'Crayta'. Crayta provides thousands of user-created games and virtual worlds for people to play and engage with while offering an easy-to-use toolkit that enables anyone to collaboratively create their games and build their own virtual experiences (Matney, 2019). In 2022, Meta announced that it had allocated 150 million dollars for training purposes, including training the next generation of digital content creators (Meta, 2022). These contents include learning materials and other digital items and assets.

Meanwhile, Microsoft, a multinational tech company well known for its Operating System, Windows, may have the advantage in the Metaverse. Microsoft realised that the gaming industry would be an entrance point for people to the Metaverse. In 2014, Microsoft acquired Mojang, which owns Minecraft, at USD 2.5 billion, followed by ZeniMax Media, an online games company, for USD 8.1 billion. Minecraft sold 238 million copies with nearly 140 million active users as of 2021, while ZeniMax Media owns rights to Doom, Fallout, Elder Scrolls and Rage through its subsidiaries, Bathesda Softworks. In January 2022, Microsoft acquired a gaming company, Activision Blizzard, at a staggering amount of USD 68.7 billion (Microsoft, 2022). Activision Blizzard owns games such as Overwatch, Diablo, Call of Duty, WarCraft, Candy Crush and StarCraft, with 400 million active players monthly (Wikipedia, 2022a). The acquisition is said to be strategic as Microsoft moves towards securing its shares in the Metaverse. J.P.Morgan, HSBC, GUCCI, Coca Cola to name a few companies already on board with Metaverse. Without special devices such as VR headsets and AR lenses, the Metaverse is not distinguished enough from the current version of the Internet. One cannot fully experience the Metaverse without these devices.

Meta, the owner of the Oculus VR headset, has developed a platform named Horizon with elements such as Home Space, and Work Space where people can live and work virtually. Meta promises to bring down Oculus VR Headset selling price close to cost price as an effort to promote more people into its Horizon platform in the Metaverse. Microsoft with its AR lense, HoloLens enables users to experience upgraded XBOX games in VR and enables users to work in an Augemented Reality environment using productivity software such as Microsoft Team, Office365 and other Microsoft software. HTC also has its own VR platform with its latest HTC VIVE Pro 2. SK Telecom offers 4D Metaverse Ride, Qualcomm offers AR glasses, Infinity develops VR Sports games, and Magical Fantasy World where people can ride Unicorn and other mythical creatures, to quote a few examples. Fortnite, a cross-platform online video game created by Epic Games, has become a cultural phenomenon. People across the world can compete or work together in an online game. The revenue for Fortnite reached more than USD 9 billion by the end of 2019 (Wikipedia, 2020). Roblox and Minecraft are online social platforms that enable users to interact with each other and create, buy and trade digital items and assets.

Another VR platform, for example, Decentraland by Accenture, takes further interaction where users can own, buy and sell virtual lands and other digital staffs such as avatars and skins. It brings us to the concept of digital ownership. Developers are offering users methods of owning these digital assets and items using non-fungible token (NFT), a blockchain-based technology to verify the ownership of digital items. Corner Hillmann, an extended Reality Designer, reveals the ideal concept of digital items where users can take these digital items such as avatars and skin, use them in AR filter on Instagram, and take it to Roblox or to Fortnite. A game company, Epic Games, recently came out with a new technology called MetaHuman aimed to produce a realistic avatar generated from several pictures of that person. It allows realism in human interactions, one of the Metaverse elements (CNA Insider, 2021). The avatar will bring us to another concept of digital identity in the Metaverse, where a person's identity is unique and can be verified. However, the digital presence of an avatar is not the only thing that entices people to enter the Metaverse. They might want to experience the Metaverse physically. Sandbox VR, a tech company, provides a more immersive experience in Virtual Reality using VR headset, haptic feedback vest, headphones, computers, motion trackers and cameras in a studio-like environment. However, the technology is still not economically feasible for a home environment. The pursuit of immersive experience does not stop only at visual, auditory and motions. It is also being extended to taste and smell. Vocktail is an example of a device which can trick our smell and taste buds thinking tasteless soda water into different drinks such as tequila and lemonade (Berboucha, 2017). This immerse experience in Virtual Worlds has pros and cons as it also raises social experts' concerns around the globe.

Dr Ayesha Khanna, a tech futurist and author, outlined several issues in Virtual Reality: i) privacy – actions are logged by someone and somewhere who own the platforms, ii) behaviour – the feeling of no boundaries in the virtual world, where people feel they can act

violently in contrast to the physical world. The violent may inflict digital harm to others, bringing to another digital justice concept. She stresses that the Metaverse needs activism, education, governance and security that looks into human behaviour and cyber criminal in virtual reality (CNA Insider, 2021). Another issue is the interchange of life between the physical and cyber world, where the physical and virtual boundaries become more and more blurred.

There are people who start living in the Virtual World as a second world. Second life is a virtual world that has existed since 2003. The relationship has been made by its residents. In Second Life, people claim some of their essences have been transferred to the avatar. They meet people, socialise, get to know each other, and there has been a marriage in second life. Some residents get to know each other in reality, while others remain anonymous and live with double identities. An 83-year-old granny gets married to an anonymous person in Second Life while staying single in reality. They can live together, buy property, own digital pets, animals and farms, riding horses in virtual reality. This is a glimpse of what has happened in the Metaverse, where the library might play important roles in shaping the society in the Metaverse.

3.0 The Society

Society works through institutions formed for all human activities. Children go to schools and colleges and further work in organisations such as governments, banking etc. The society we are living in today is characterised as a highly ambitious, motivated, and developing society, not only individuals but also institutions. Nowadays, it is a globalised society. In a global society, the connections really matter. Technology has enabled connections between different parts of society, called a networked information society. Information is an essential commodity in today's world which drive information society to achieve its individual and institutional goals.

4.0 The Library

The library has ancient origins. The history of libraries runs parallel to the history of civilisation, where the library serves society's information needs. Mesopotamia had three different types of libraries: private, religious/temple, and palace libraries. It is tough to determine the first origin of the library. The library of Ashurbanipal is the first known library built in the 7th century by the Assyrian King. The first great library opened to the public was the library of Alexandria, built after the death of Alexander the Great in 323 B.C Ashurbanipal (Vaughan, n.d.). The library has served as a repository of culture and civilisation. Traditionally libraries have been seen as storage institutions responsible for storing recorded knowledge of society. Before the 18th and 19th centuries, libraries did not operate like today's libraries. Medieval archives often chain books to the desk to prevent theft. Most of the libraries did not allow books to be circulated because the cost of making books and maintaining them was high. Many of the volumes were challenging and impossible to replace.

Benjamin Franklin and a group of citizens decided to form a library company in Philadelphia (Sturgis Library, n.d.). In the early 18th century, they began operating the library like joint-stock companies whose members agreed to pool resources for mutual benefit. They work together to purchase books. Subscribed members could check out, bring home, read and return books. In the early 19th century, mass printing enabled mass-printed books. Public libraries were starting to purchase and lend books to their members. The 19th century saw the library play its role as a social space and democratisation space which have access, storage and circulation of books regardless of patron's gender, class, ethnicity and race. Everybody can use a library to enjoy access to knowledge and understanding of the world around them.

In time library has changed itself from a custodian of books and printed materials to a service-oriented information provider due to the advent of the Internet and the rise of the digital age. The modern library can be characterised as: managing multiple media, library without walls, just-in-time services, outsourcing, global reach and the library is accessible anywhere via the Internet regardless of the type of user, from children to researchers. Although the library has changed, one notable role of the library is to provide a suitable and safe environment for study and knowledge acquisition. These roles are vital for society in the coming Meta Universe.

5.0 Roles of Library in the Metaverse

The library couldn't afford to be left behind in the Metaverse economy. The library's role is vital for society to adopt new technology such as virtual learning. A study suggested the involvement of librarians as the assessor of the virtual learning environment practice is highly recommended (Md Ajis et al., 2017). Implementation of new technology is challenging. In the previous study, adopting technology such as social media and augmented reality (Hashim et al., 2017) may require the library to adapt to ongoing changes and updates. The library must use the latest and greatest features without starting over or making considerable changes to policies and processes (Hussin & Mazlan, 2021). The Metaverse economy is closely related to Industrial Revolution 4.0. To deal with Industry 4.0 transformation challenges, an organisation must have a successful strategy. The development of technologies such as big data and AI will replace most of the processes. The next generation is more attracted to the use of the latest device (Shahroom & Hussin, 2018). Library personnel must develop excellent critical and creative thinking skills and necessary soft skills to overcome the barriers faced in the 21st-century librarianship and maintain the library's relevance (Lee et al., 2020).

Modern Library has played an essential role in bridging the digital gap by providing services such as computers and Internet connection to those who cannot afford them. Once again, a library can bridge the Metaverse gap by providing devices such as VR headsets, VR studios, software and the Metaverse grade infrastructures that enable society to experience the Metaverse. The exposure may cultivate their interest in participating in the Metaverse version of the digital economy, which involves immersive content creation and digital commodities, which is crucial for National income per capita. VR headsets may be selected from the latest Oculus Quest 2, HTV VIVE Pro

2, Sony VR Headset and the most expensive Microsoft HoloLens 2, which supports mixed reality. VR Studios currently offered by Sandbox enables a user to experience a collaborative experience using VR headsets, headphones, trackers and cameras. At the same time, the Metaverse requires an exceptional ultra-high-speed Internet connection for a real-time immersive experience.

The Metaverse will be an excellent opportunity for libraries to demonstrate their roles in creating safer and better versions of the Metaverse. A library might as well make its presence in virtual worlds such as Second Life, Roblox and Minecraft. The library can take the initiative by building a library in this cyberspace and have librarians present virtually, offering information services and consultation. The library can commission building a digital version of its presence in Second Life. The library can conduct activities in its digital version. The librarian can hold activities such as book reading, book club, book recommendations, puppetry, and helping students with homework. The virtual version of the library can offer a safer space for children and adults to hang out. The library can have visitors from around the globe, which brings us to what the library can offer to virtual residents.

The library can offer a digital representation of library materials and an immersing experience in the culture and heritage of its society. Culture and heritage are essential to our next generation's identity and for other societies to understand each other. Take an example, the history of the Malacca Sultanate during its peak in the 15th century can be represented and experienced virtually by local and foreign visitors. Our children can experience living in Rome under the Roman empire from 27 BC to 476 AD. Other cultures and heritage can be created as digital items, such as Malay traditional garments. *Songket, Batik, Kebaya, Baju Melayu,* and *Tengkolok*, to name a few, could be digitally created and offered as skins for an avatar for our society to express their identity in a virtual environment. Traditional games such as *Congkak, Wau* and *Gasing* can be introduced to be played in Virtual and Augmented Reality. These items, including books, can be loaned and sold as digital commodities. Imagine loaning books from the library and reading it at the virtual beach, under the digital sun, all from home using Virtual Reality. Books themselves can be in the form of immersive digital content. Whether a text-only or it can be mixed media with images, audio, videos and 3-dimensional objects. The content can be presented in new ways. All it needs is demand and supply. Publishers creating immersive digital books and users demanding immersive content that requires immersive content creators will grow the local digital creative industry.

The next generation who will work in the Metaverse environment needs to be exposed to digital creative technology and industry. Library collection needs to be curated to serve the knowledge gap of our society in understanding the elements of the Metaverse. Subjects ranging from technical creation of virtual and augmented reality to the aspects of digital society, laws and justice of the virtual cyberspace will give better insight into our society if curated carefully and disseminated effectively. Other than using technology such as virtual reality, awareness and education programs from time to time are significant to ensure better and safer use of the Metaverse. Series of the seminar, talks, and forums can be initiated by the library while demonstrating what the Metaverse could be for patrons to consider. The library can play an essential role in institutions that bring people together in addressing issues and challenges in the Metaverse.

6.0 Conclusion

In the Metaverse, the library can play an essential role in society. The library can help society be aware, understand and utilise the Metaverse in a beneficial, healthy and safer manner. Furthermore, the library could use immersive content experience technology to enhance patrons' quest for knowledge inquisition. In the future, the library may exist not only physically but a digital version in virtual cyberspace. Once again, libraries have to adapt while preparing society for the Metaverse.

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Paper Contribution to Related Field of Study

This research paper contributes to the field of Library and Information Management.

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