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# Entering the Metaverse: Considering the Implications of a Journey into a Virtual World for NYSCA at 80 years

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Introduction
When the New York State Communication Association (NYSCA) was founded, the world was at

war in Europe and beyond. Eighty years later, with Russia's 2022 invasion of Ukraine, it seems that

in the 21st century the world hasn't changed all that much, at least in terms of international conflict.

But in another sense, that of communication and media, the world is an extraordinarily changed

place, and the pace and scope of change even seems to be accelerating. One area of change in the

media and communication landscape that is particularly germane in the 80th year of NYSCA is the

rise of the online realm, including in the form of virtual worlds. In 21st century parlance, the

Metaverse resonates loudly in this regard (Ball, 2022). A term coined in 1992 by science fiction

writer Neal Stephenson, the Metaverse (capitalized by him and therefore capitalized in this paper)

has begun to emerge as the next generation of the Internet. It is described in a variety of ways, and

much of it may be corporate hype. Defined as online virtual worlds that are immersive, interactive

and may be interconnected, the Metaverse nevertheless is poised to play an expanding role in

society.

**Background**

About the time NYSCA was being created, a young Jewish refugee from Germany named Ralph

Baruch was one evening walking along a street in mid-town Manhattan, his new home in America.

Going to a restaurant for dinner, Baruch noticed a crowd outside a store front, looking intently into

the display window. Returning along the same route after dinner, Baruch saw the crowd was still

gathered and out of curiosity he approached the store front to see for himself what was so

mesmerizing. He was impressed to see that what so enthralled them was a test pattern displayed on

the video screen of a new electronic invention called television. Baruch quickly realized that the medium of television would no doubt profoundly impact life in the 20th century, and he became a pioneer in its development. Baruch would found the TV behemoth Viacom (Baruch, 2007).

The Metaverse of 2022 is at least somewhat analogous to what television was at the time Baruch observed the crowd of onlookers watching a television test pattern some eight decades ago. The medium of television was then in its infancy. Few people owned a TV set. In fact, in 1950 only 9% of US households owned a TV set, although the percentage grew rapidly to 80% by 1960 (TV History, 1978). Available programming was scarce in 1950, and what people could watch was only in black & white low-resolution video with few frames per second, and the accompanying sound was of low quality, monophonic and of limited fidelity. But the basic affordances of the medium were in place. And time proved Baruch right about the powerful role television would play in modern life, for better or worse.

Like TV of the 1940s, the Metaverse in 2022 is similarly in a very early, embryonic stage of development. There are relatively few people with the requisite VR headsets, and for those who can don a Meta Quest or a Vive head-mounted display (HMD), the available experiences are somewhat rudimentary. The animated virtual worlds of the Metaverse are in limited visual resolution, the avatars have no legs, and the quality of the sound is relatively poor. But there is immersion and interactivity in this new media space and there is the potential for users from around the world to simultaneously engage individuals who physically might be located thousands of miles away. And the types of experiences can in principle take just about any form, from attending a concert to watching immersive cinema to joining a dance party to climbing a mountain, and may even be supported by haptic or tactile feedback. But the trajectory of these platforms and the broadband Internet suggest

the experiences will likely soon improve substantially (at least technically speaking) and offer the users a much more life-like and multi-sensory virtual world.

Further, when Vinton Cerf and Robert Kahn envisioned the Internet three decades after the founding of NYSCA, few could have imagined how profoundly impactful the Internet would one day be for nearly every aspect of human existence, especially in the realm of communication and media (Cerf, 2022). In 2022, the Metaverse may signal the same type of profound impact in 21st century communication, media and beyond. In this paper the author asserts that scholarly inquiry that engages notions related to the Metaverse could prove pivotal in the research and programming agenda of NYSCA as it moves toward its second century of academic, professional and social relevance. Engaging in matters surrounding the Metaverse can be a powerful platform to fulfill what the NYSCA 2022 call for papers describes is a core part of the organization's mission, the "reflection, examination, celebration and reimagination of the communication discipline's pivotal and transformative role in solving today's complex issues" (NYSCA call for papers, 2022). This paper provides an analysis of evidence drawn from a critical deep dive into experiences in a contemporary Metaverse platform.

**Literature Review**

Decades of digital development have laid the foundation for the Metaverse of 2022. Augmented reality (AR), virtual reality (VR) and video games are at the foundation of the Metaverse (Lanier, 2022). But also fueling the development of the Metaverse is the rise of a spectrum of other digital advances, including crypto currency, non-fungible tokens (NFTs), and what is generally known as Web3.0. Combined, industry forecasts are that the Metaverse will become a major part of 21st century life within a decade or less (Evans, 2022). Gartner, for instance, predicts that by 2026 a quarter (25%) of the public will spend at least an hour each day inside the Metaverse. Similarly,

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JPMorgan Chase forecasts that within a few years the Metaverse will generate more than $1 trillion in annual revenues and that it will impact virtually every sector of the world's economy (2022). Some of these forecasts may prove unreliable and overhyped, but there is little doubt something significant is underway. There are already numerous Metaverse platforms, including AltspaceVR, a socially oriented Metaverse platform owned by Microsoft. Terra Virtua is a Canadian-based Metaverse platform featuring digital collectibles. Having launched as a game in 2010, Sandbox is a community-driven Metaverse platform where multi-million dollar virtual property sales and NFT transactions are flourishing on the Ethereum blockchain (XR Today, 2022). NFT sales are also active on Roblox (Ochanji, 2022). In Nov. 2021 a piece of virtual property in Sandbox sold for $4.3 million in (Mozée, 2021). Metaverse platforms generally support transactions via crypto currency and feature a variety of qualities or dimensions that parallel the real world, including commercial transactions, making them and their occupants digital twins to the physical world.

Research suggests that the media platforms that comprise the Metaverse are potentially powerful and influential communication and cultural environments. In fact, the Metaverse is essentially a constellation of media forms including a spectrum of eXtended Reality (XR) formats (such as AR, VR and Mixed Reality, MR) and video games. The population of users of these media forms in the U.S. and around the world is growing rapidly. Industry data show that AR and VR already have reached mainstream status in the U.S. Adrian and Wurmser (2022) report that more than a quarter of the U.S. population will use AR and VR in 2022. Specifically, by year end 2022 there will be 89.4 million users of AR and 66.8 million users of VR in the U.S. It is forecast these numbers will more than double over the next 5-10 years. Globally, the number of users could be at least an order of magnitude greater, especially in Korea and China where much of AR and VR production is based and consumer usage is already substantial (Statista, 2022). Consumer awareness of the Metaverse is

still limited. A Piper Sandler survey shows that about half (48%) of U.S. teens are unsure of their interest in the Metaverse, and often even unaware of what it is (Milano, 2022). Yet, a quarter (26%) of those teens own a VR device. About a fifth (17%) use it weekly and one in 20 (5%) use it daily.

Studies show that immersive media experiences such as AR and VR can generate a strong sense of "presence" for users, and that this presence can facilitate empathy, including perspective-taking (De la Pena, 2010; Herrera, Bailenson, Weisz, Ogle, & Zaki, 2018). Presence, or tele-presence, refers to the user's sense that they have been transported to a place where they are not physically located. In other words, they can strongly feel they are inside a virtual world as a participant in or witness to events. Biocca and Delaney (1995), Bailenson (2018), Archer and Finger (2018), and Sundar, Kang and Oprean (2017) all have conducted experimental studies of immersive media environments including VR and have tested and demonstrated the ability of such platforms to generate user presence as well as outcomes from that presence, such as empathy and understanding. Ahn, Bailenson, and Park (2014) and others (Kilteni, Groten, & Slater, 2012) have demonstrated the role that embodiment plays in facilitating presence and other outcomes of immersive experiences. Embodiment refers to the extent to which the user can see or otherwise perceive their own body, hands, and the like, as represented in their virtual being or digital twin such as an avatar. Banakou, Hanumanthu and Slater (2016: 1) describe embodiment as a "perceptual illusion of body ownership over the virtual body." Increased embodiment, sensory envelopment and engagement, including touch, can lead to enhanced presence in virtual environments (Biocca, Kim & Choi, 2001).

Video games are another important part of the emerging Metaverse platforms. With three billion video game players worldwide, the potential for a Metaverse that features game play is substantial. Video game platforms featuring virtual worlds such as Roblox, Fortnite, Activision Blizzard

(acquired by Microsoft in 2022 for $69 billion) and Nintendo's Animal Crossing have generated strong and substantial numbers of players (hundreds of millions of users) and revenues (billions in annual revenues worldwide) (Microsoft News Center, 2022). Moreover, they feature many of the qualities of emerging Metaverse platforms, including user-customized avatars, user-controlled or constructed virtual worlds and immersive player interaction in media-rich environments (e.g., realistic animated settings). Research indicates that such immersive video game environments can generate high user engagement and other outcomes (Huang, Jasin, & Manchanda, 2019).

Research also shows there is a spectrum of harmful or potentially harmful consequences of immersive, virtual worlds as well as video game play. Mergerson (2020) has investigated sexual assault that has occurred in virtual reality environments. Others have studied adverse health effects of VR experiences, both physical (VR sickness) and mental health, although when designed well, VR experiences have demonstrated positive health effects, including as therapy for post-traumatic stress syndrome (Bailenson, 2018). Data exploitation and privacy invasion also are potential significant problems in the Metaverse, particularly given some of the large corporate organizations (e.g., Meta) likely to dominate the virtual space and their flawed records of protecting user privacy (Solon & Finn, 2021). Research on video games has shown the potential development of addiction to game play (as well as to video platforms generally), and as games are likely to be a substantial part of the Metaverse, concerns about player or user addiction are significant (Kubey & Csikszentmihalyi, 2002). Criminals of various sorts also may be lurking in the Metaverse. Media reports (Werner, 2022) provide anecdotal evidence of adults preying upon children and others in the Metaverse, attempting to commit a variety of crimes from hacking into a headset to be able to see and control the user's experience to engaging in schemes to defraud users financially.

In terms of user base, one of the world's leading Metaverse platforms is *Horizon Worlds*. Launched in late 2021, *Horizon Worlds* attracted 300,000 users in its first three months of existence (Heath, 2022). *Horizon Worlds* is owned and operated by one of the largest digital companies to design, manufacture and distribute a wearable VR system, which is used to enter *Horizon Worlds*. U.S.-based Meta Platforms, Inc., the recently renamed Facebook, manufactures and sells the Quest, a VR system that features a head-set or head-mounted display (HMD) with hand-held touch controllers. Meta's first Metaverse platform, *Horizon Worlds* is an online, animated, computer-generated simulation, essentially an alternative artificial reality that mimics the physical world. It features user-customized avatars that represent the user within the virtual world. Users access the immersive experience after donning the Quest HMD, a VR optimized wireless digital device. The user perspective is first person. This means users see and experience the virtual world from the point of view of their avatar, through its virtual "eyes," ears and hands. In the future, this may be the user's entire virtual body. Through their avatar, the user meets and interacts with other avatars via voice (headsets have a microphone and speakers) and gesture, and can hear ambient acoustical effects such as birds chirping in virtual outdoor settings.

The content of *Horizon Worlds* is mostly user-generated within the affordances of the platform. Users enter *Horizon Worlds* by donning an Oculus Quest 2 headset and navigating in the virtual world. Users can build objects, play games, create virtual worlds, attend a variety of events including meetings, as well as go on virtual adventures and share experiences with others. It is anticipated that in the future users will also be able to shop, buy and sell virtual objects and property including NFTs. Meta reports that as of February 2022 users have created at least 10,000 worlds and more than 20,000 *Horizon Worlds* users have joined a private Facebook group for creators (Tracy, 2022). In early 2022 Taiwan-based HTC launched *Viverse,* a competing Metaverse platform. It's similar in

design to *Horizon Worlds,* but requires the company's own VR headset, the Vive, to enter it. HTC co-founder and Chairwoman Cher Wang announced in early 2022 the company is developing a smart phone optimized for the Metaverse. This means it will be designed for the affordances of AR, VR and XR. Metaverse platforms such as these officially restrict usage to those age 13+, but this is a rule that users can easily circumvent if so motivated since proof of age is not required. Also, although rules on the platforms generally prohibit or restrict explicit content, media reports (Werner, 2022) reveal at least anecdotally that users can sometimes navigate around these rules and create content or experiences that some, especially younger users, might find traumatizing (e.g., implied sexual acts or use of profane or abusive language, or firing a virtual weapon at another user). As a form of user controlled protection, *Horizon Worlds* features a personal boundary space that can shield the user from unwanted avatar contact. The Quest platform on which *Horizon Worlds* operates also features a digital "guardian" (a virtual circle with a six foot diameter) which is overlaid and synchronized with the user's actual physical space as a form of mixed reality (MR) that helps to prevent the user from making physical contact with real-world objects and thereby avoid physical injury.

Current Metaverse platforms largely derive from the design of *Second Life,* an earlier virtual world developed by Linden Lab in 2003 but still in operation with about 200,000 users in 2022 (Virgilio, 2022). Entry into *Second Life* quickly makes clear that it is essentially a direct precursor to Meta's concept of the Metaverse, with its colorful and customizable 3D space and interactive user avatars all traveling about in an animated simulated world (Au, 2008). *Second Life* itself derives from earlier visually based virtual worlds such as *The Sims*, launched in 2000 (Virgilio, 2022). Scholars studying *Second Life* have examined a variety of dimensions of the virtual world, including the role of journalists who have produced news reports within and about *Second Life* (Brennan and Cerna, 2010). Such journalism is developing in the Metaverse (Decentraland, 2022).

Important to understanding the nature and potential impact of the Metaverse is affordance theory. Affordance refers to what agency the environment or an object (e.g., media, the Metaverse) provides the individual. Gibson coined the term affordance in his book, *The Senses Considered as Perceptual Systems* (1966), which he later elaborated upon (1977). Flyverbom, Leonardi, Stohl, & Stohl (2016) describe the notion of *root* affordances (basic, core or foundational), which can lead to branch affordances (derivative). There are also perceptible (visible and functional), hidden (functional but invisible) and false (visible but non-functional) affordances. A car's door handle enabling it to be opened illustrates a root affordance, and it enables branch affordances such as being able to enter and then operate the vehicle.

Charmers (2022) argues that virtual worlds have the potential to be not just economically significant but also culturally meaningful. The meaning in the physical world comes from us, Charmers explains. Humans invest the physical world of atoms with meaning. Humans can do the same in a virtual world made of digital bits. A vital concern, however, is who owns and controls the virtual world. In 2022, ownership is dominated by mega corporations with strong financial motives that often have tended to place profit over the welfare and data security of their users. Arising from this commercial structure is the question of whether the Metaverse will be entirely private or will it have room for a no-cost publicly available virtual space where user data are not monitored or recorded.

This paper conceptualizes the Metaverse as a constellation of communication media comprised mainly of AR, VR, video games and other interactive and immersive broadband networked environments presented to the user as a virtual world or set of interconnected artificial realities. The

central research question posed here is what perceptible root and branch affordances does the

Metaverse provide its users.


**Methodology**

In an attempt to answer this research question, the author conducted a five-day exploratory

participant-observation journey into the Metaverse platform *Horizon Worlds. Horizon Worlds* is the

Metaverse platform studied here for four main reasons. First, it is among the first developed and

most-populated Metaverse platforms available for inquiry in early 2022. Second, the author had

available the requisite technology needed to enter into *Horizon Worlds*, namely a Quest 2 system (the

latest available version of the Meta Quest), as well as secure and reliable broadband wireless (WiFi)

Internet access. Third, the author had available for research purposes a physical space that satisfied

the requirements to operate and enter into *Horizon Worlds* safely. Fourth, this method provides a

basis for looking at *Horizon Worlds* as a case study in the Metaverse.


Participant-observation is a form of ethnographic research and a variety of researchers have

developed and employed ethnographic approaches to studying virtual worlds. Boellstorff (2012)

described ethnography and virtual worlds in a method handbook. Shriram and Schwartz (2012) used

VR ethnography to study harassment behavior in immersive social VR. Uzun and Aydin (2012)

utilized virtual ethnography in distance education research.  Ljiljana has studied the ethnography of

virtual reality (2004).


The method employed in this study is an adaptation of these approaches. It is virtual participant

observation focused primarily on the platform features and only incidentally  the users within it. All

observations are from the perspective of the investigator as represented by an avatar in the

Metaverse *Horizon Worlds*. Given the study's focus on delineating the affordances of the *Horizon Worlds* platform, the data being collected are not artifacts of the users (or their avatars) that populate the virtual world. Rather, the data reflect the root and branch affordances available in *Horizon Worlds* as obtained via first-hand observation. These data are largely qualitative and limited in terms of their generalizability but are intended to provide an exploratory glimpse of life inside the Metaverse.

More specifically, the author compiled a first-person journal or diary of a five-day journey into the Metaverse platform *Horizons World* from 26-30 March 2022. The reasons for selecting this five-day frame are three-fold. First, entering a new Metaverse platform is somewhat analogous to a human visiting the moon or another planet and the initial entry requires a learning curve. More than that, entering the Metaverse is almost like being reborn into a body which may resemble the old one but requires a variety of new skills to master such as using a virtual hand to pick up and manipulate an object. For the user, it's almost like being a new born baby who doesn't know how to walk, grasp an object, or interact. Consequently, the first day, day one of the selected week, is occupied with training and adjustment to the parameters of that different "world." This is somewhat akin to adjusting to the different gravitational pull, atmosphere and temperature an Earthling might encounter when arriving on the Moon or planet Mars. Day two is occupied with exploration of the Metaverse to get a sense of the general options available in the virtual world. Days three, four and five are devoted to specific tasks which are the primary options available in *Horizon Worlds*, including "games," "create" (each user can create a new world), and "events." Second, being inside a virtual world and wearing a VR headset is a powerful physical and psychological experience and takes getting used to. It's something like a would-be sailor for the first time stepping aboard a ship heading out to sea. Until that sailor gets their sea-legs, they might feel a bit rubbery and be limited in their ability to function and they may become seasick. For the author, entry into the Metaverse

required a similar gradual adjustment; he could stay inside the Metaverse for a limited time (about 30 consecutive minutes) each day. And even after exiting the Metaverse the effects of being inside a virtual world lingered. By entering each day relatively fresh, the author brought a sharper viewpoint to the experience. Third, by selecting a five-day week, the experience inside the virtual world could better reflect the variation of life inside.

There are significant limitations to the use of a selected week. Perhaps most important is the possibility that the selected week and the contiguous days within it could be affected by internal or external events limiting its representativeness. But an overarching goal was to complete the participant observation experience while the virtual world was stable, and to avoid the possibility of an unexpected software update that could be implemented in *Horizon Worlds*. A software update could alter the immersive experience in a way that could make observations later in the week substantially different than earlier in the week due to changes in the affordances available. As such, the approach used in this study is essentially a snapshot in time within a single Metaverse platform, *Horizon Worlds* and is limited in generalizability both to the platform and to other Metaverse platforms. It's worth noting that as of the time of this study *Horizon Worlds* had not yet implemented its crypto currency transaction model. But by mid-April Meta had announced its initial plans for enabling crypto-based sales of Non-Fungible Tokens (NFTs) and that Meta would collect nearly half of revenues from any such transactions (Shead, 2022).

**Results/Data**

The following discussion provides a summary of the experiences of the author during his five (partial) days inside *Horizon Worlds*. Included are the actions taken by the author's digital twin, or avatar, what he saw, heard or interacted with (including via voice or handheld touch controller), and

his responses and choices. The daily summaries are written in first-person voice to reflect the nature

of the author's experiences in the virtual world.

**Day 1, Saturday, March 26, 2022 (4pm): Orientation**

At 4pm eastern time on March 26, 2022 I unplugged my fully charged Quest 2 head set, a wireless

wearable third-generation VR device, from the electrical outlet where I had been charging it since

that morning, and placed the device on my head. I also picked up the touch controllers, with fully

charged batteries, making sure the "right" controller was in my right hand, and the left controller

was in my left hand. I had previously used the headset and controllers to enter the Oculus VR

platform, so I had already set up my account, selected my user name (my real name) and connected

it to WiFi, and had a basic familiarity with the VR system and its operation. As the Quest awoke, I

saw displayed in panoramic form the Oculus environment, a colorful and soaring panoramic desert-

type landscape, and saw overlaid various apps, one of which was *Horizon Worlds*, Meta's first

Metaverse platform launched in beta form in late 2021. It was still in beta when I began my virtual

foray, and it continues to be in beta, or test stage, as of this writing in April-June, 2022. Using my

touch controller, I pointed and clicked on the *Horizon Worlds* app, and it began its initial download

and installation.

Entering *Horizon Worlds*, I saw displayed on my immersive headset text descriptors of the multiple

stages of installation the virtual world software requires, such as "preparing polygons," "painting

scene," "preparing for visitors," and "assembling world." Piano music played softly in the

background. Once the virtual world was fully displayed, I entered the Metaverse for the first time

and was greeted by an automated guided tour that provided a basic orientation to *Horizon Worlds*.

Among the steps in this guided tour were interactive exercises intended to teach some basic skills

which would enable me to function. A critical element of this is becoming familiar with the left and

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right touch controllers which provide basic haptic feedback (they can vibrate, known as rumble) and also have multiple buttons the user presses to carry out actions inside the Metaverse (Nunneley, 2010). These controllers simulate fingers of the hand and enable the user to pick up virtual objects, take photos with a virtual camera and the like. Instructions I received in the guided orientation helped me learn how to:

- use my virtual hands, including how to grasp or grip an object and manipulate it or to make a fist or other gesture,

- move about (by pushing a thumbstick to navigate the virtual environment my avatar glided from one virtual place to another, climbing or descending steps), including "teleporting" to different "worlds" within *Horizon Worlds* (Meta Quest, 2022),

- take photos, including selfies by positioning myself relative to the background I wanted in my selfie, and pulling the "trigger" on the touch controller to snap the photo,

- share my photos on *Horizon Worlds* or Facebook, and,

- enter and exit a safe zone.

Another step in this orientation was to create or design my digital twin, my avatar, which others would see within *Horizon Worlds*. In my case, I selected from pre-set options available in a template the facial and body characteristics that I thought roughly approximated my real-world appearance.

In observing *Horizon Worlds*, one of the most compelling aspects was the three-dimensional nature of the virtual space. The terrain varied in apparent elevation with steps or ramps to ascend or descend, and I felt a strong sense of presence and sense of movement in all three dimensions as I traveled forward, backward, up, down or to the side from one area to another. A sense of touch also

emerged from the embodiment of my hands as enabled by the controllers and the system's tracking of my location and hand gestures. It took some adjustment to feel comfortable with having only a torso, arms, hands and head but no body below the waist. This is a limitation of the affordances of the current state of the technology. As improvements in body tracking are made, full body tracking and the projection of the entire body virtually in the avatar is expected. It's also notable that the experience is synchronous and any other avatars one sees or interacts with represent real people, though they may be located thousands of miles away in the physical world. In a report CBS News broadcast the day after I concluded my virtual journey, Tony D'koupil (31 March 2022) entered Microsoft's Metaverse platform from a physical location in the U.S. His avatar met and interacted with another avatar whose physical location was in Oaxaca, Mexico. They discussed their realization that while their physical beings were thousands of miles apart, their consciousnesses shared the same virtual space. D'koupil said it felt to him that consequently real connections are possible. It's also been forecast that future versions of the Metaverse also may allow users to engage in asynchronous experiences, such as a recorded concert, as well as teleport across time, though its unclear whether virtual interactions that span time could generate the same sense of meaningful connection.

**Day 2, Sunday, March 27 (5pm): Exploration**

I spent my second day exploring *Horizon Worlds*. Looking and moving about I saw a variety of places labeled with signage. I visited the Creators Space, where users create their own worlds, and the Competition Hub, where another sign indicated potential cash prize awards for those who entered their worlds in a competition, with prizes totaling $100,000. And I visited The Plaza, the first user-generated space I encountered. I took my first selfie in the Metaverse and posted it to Facebook and *Horizon Worlds* (see Figure 1). I met the first "person," or avatar, in the Metaverse and accepted my first friend request, a youthful looking Rashid. Rashid said hello and asked me if I was "grandpa John" and I laughed at my new nickname. I could hear other voices speaking and see gestures by

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other avatars and I conversed in real time via voice with other avatars. I experienced something analogous to the "Uncanny Valley" (Mori, 2012). Although the avatars I engaged were not robots, they somewhat eerily conveyed the fact they were the digital twins of real people. At first I was intrigued. Then considering the fact that in real life I was alone, yet as long as I wore the Quest 2 headset I could interact with a real person via their avatar, I grew somewhat uncomfortable with the idea. Yet, after conversing with Rashid for a few minutes, I relaxed and felt more comfortable with the affordances that enabled such virtual interaction. Seeing the diversity of the environment and its range of possibilities, it seemed clear that meaning could exist within the Metaverse. Synchronized facial movements and expressions while talking, including smiling, enriched my sense of presence.

**Day 3, Monday, March 28 (10am): Play**

I played games on my third day inside the Metaverse. At the World Hop I encountered a space featuring three worlds of user created games. It had 3,617 likes, and I spent about 12 minutes playing mainly mini games such as ball bouncing. The games were played socially. I chose only the games rated "comfortable." I met another avatar, Tyree, and we briefly conversed, explored a bit, and bounced balls. Tyree showed me how to grip and throw or move an object like a ball. We bounced some colorful beach balls and I embarrassed myself with how bad I was. I clumsily picked up and dropped one of the virtual balls while Tyree bounced one so high it almost vanished in the virtual sky.

**Day 4, Tuesday, March 29 (3pm): Creation**

On Day 4 I entered the creators space in *Horizon Worlds* and made a feeble attempt to create my own world. After a virtual guide trained me interactively I attempted to follow the instructions to move some pieces of what appeared to be ancient ruins into a new structure. I didn't get far. I wasn't very ambitious in my vision of a new world, but even so I had trouble picking up and maneuvering various blocks to create my own "public square," which is what I named my virtual space. My vision

was it could be a type of journalistic space where any avatar could share and discuss the local news,

or observations about developments in the Metaverse. I can keep tweaking my world, though if I

want it to be eligible for a prize I would need to finish soon since the deadline for the competition is

April 26.

**Day 5, Wednesday, March 30 (8:30pm): Attendance**

On the fifth day I attended my first event inside the Metaverse. Events are occasions organized by

*Horizon Worlds* users. I could see a list of upcoming events by accessing the universal menu, which

displayed by a turn of the wrist. Some of the events were: "Babes, Bi\*ches and Boss Ladies in Art

History" with 144 interested, 25 likes, and commencing at 9:30pm; another was "Road to recovery,"

a support group at 3pm, with 83 interested and 35 likes. They all looked interesting, but I opted for

the "Worlds" tour at 8:30pm, with 353 interested and 552 likes. The event didn't reveal the number

of attendees (though I imagine Meta captures these and other data) but I observed dozens between

8:30-8:40pm ET.  Like other avatars, I could "Emote" by raising my hand or making a thumbs up

gesture. Avatars could spontaneously "Party" by putting their hands together with others. A big

personalized sign (displaying the avatar's name) welcomes each avatar upon arriving at an

event. Some events are "closed groups" and are for only those invited and their guests and continue

till the last person leaves. The event I chose was open to anyone.


**Findings and Analysis**

For this exploratory study, the author spent parts of five consecutive days in March 2022 inside the

Metaverse platform called *Horizon Worlds*. This virtual journey sought to help answer a research

question asking what perceptible root and branch affordances the Metaverse provides its users. The

lessons from the author's journey suggests four main perceptible root affordances and several

branch affordances within each. The four root affordances are to act, sense, interact and create

(summarized in Figure 2). To act is most fundamental, and is essential to the other affordances. Action is enabled in a variety of ways, beginning with the user's headset and controllers, and intersecting with the platforms' functions that allow the user to move about, grasp and manipulate objects. Branch affordances include a range of abilities, from taking a photo to playing a game or attending an event. To sense enables the user to perceive including via sight, sound and touch. To interact is a core part of life inside *Horizon Worlds*, and it is the key to the viability of the platform as a social experience. Interaction includes being able to speak and listen as well as share one's experiences on social media and play or party together. As experienced by the author inside *Horizon Worlds*, people are friendly and welcoming. You see someone and they typically say hello or wave a greeting. They often interact or ask to be your friend. It is a cheerful and colorful place. It's hard to know what role my identity as an older white male played or how it may have affected my encounters and visually displaying my pronouns was not an available option. There have been reports of sexual assault and abuse in *Horizon Worlds,* and they have been horrifying such as virtual gang rape of a female avatar (BBC News, 2022; SumOfUs, 2022).

Creation is a unique affordance in platforms that are or aspire to be a Metaverse platform or part of it. In *Horizon Worlds*, the user's ability to sense, interact and act upon the environment allows them to customize their experience, design spaces or worlds, generate symbolic meaning and present it to others in the form of new worlds, games and other types of experiences, including immersive movies created entirely within *Horizon Worlds* (though this requires a high level of skill or mastery of the virtual world and its properties). Much within *Horizon Worlds* is designed to stimulate user engagement, presence and content creation with incentives including cash prizes for experiences entered into the Creator's competition. When immersed in the process of creating, it's easy to lose one's self inside the virtual world and forget where and when you are. This suggests the relevance of

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flow theory (Csikszentmihalyi, 1990). Enveloping media can be powerful psychologically and the near zero latency of the sensory multimedia engagement of the Metaverse makes for a compelling combination. Yet the implications for the user's mental health, privacy and potential to be abused remain key concerns (Jaupi, 2022). Also, the affordances identified here are essentially positive or neutral and do not address potentially adverse, presumably unintended affordances (per Merton, 1936) such as bullying, abusing or scamming. The affordances examined here are also for the user and do not address those provided the platform owner such as user tracking and data selling (which are largely hidden to the user).

**Concluding Reflections**

Considering the affordances of the Metaverse within the context of the user experience suggests that storytelling is central to the nature of the meaning generated inside *Horizon Worlds*, and perhaps the Metaverse in general. But it is not storytelling in a conventional sense. Stories inside the Metaverse are not linear and there is no plot. But Metaverse stories do have characters, and they travel pathways and engage in activities and sequential events, and they may generate meaning. Options inside *Horizon Worlds* are finite though large in number (e.g., 10,000+ user created worlds) and growing within the parameters of the Metaverse platform. Each user constructs their own narrative. This parallels the narrative of life in the physical world. The meaning is not yet clear but may be constructed by the users themselves. There may be varied meanings with user contributions involving the creation of "worlds." Interaction both in terms of content and social engagement, animation and visual motion, spatial sound and haptic feedback are part of the narrative. *Horizon Worlds* offers a participatory and synchronous narrative environment. It is networked globally. It is three-dimensional, immersive and in 360 degrees, much as is the physical world. User movement is a key part of any virtual narrative. Users have six degrees of freedom (DoF) in the Metaverse, being

able to look around and move about in any direction (Barnard, 2019). Unfortunately, problems such as sexual assault violently undermine the promise of this virtual world, and unless the Metaverse can be made safe it is likely to devolve into a toxic virtual mess.

Because this investigation is an exploratory case study of a single Metaverse platform, generalizability is limited. Yet taken as a whole, this study suggests the combined experiences of users in a virtual world may constitute a meta-narrative. In this sense, the notion of meta-narrative is somewhat evocative of an experimental film documentary produced just a few years before the founding of NYSCA, but half a world away. *Man with a Movie Camera* was Paul Vertov's 1929 experimental documentary film shot in Kyiv, Ukraine and Moscow, Russia. Vertov shot his 68-minute documentary without a script. It was film realism. Life inside *Horizon Worlds* is something akin to cinematic virtual realism; there is no script, except in the form of underlying computer code and algorithms.

Much as Vertov's film reflected the beehive of activity that characterized life of the proletariat in a Soviet city, *Horizon Worlds* is a busy and popular place as reflected in the presence of many avatars. In his virtual journey, the author logged in at various times of the day, morning, midday, evening, weekday and weekend and many, varied avatars always were present and moving about, engaged in a variety of activities. A sense of presence was strong. For me, it felt like I was in an actual place and I almost could forget the fact I was sitting in my living room. This sense of presence is unlike watching a movie or a TV show in a conventional, non-immersive media space. Because of the level of activity and the frequent social engagement in *Horizon Worlds*, it is not easy to feel lonely. Moreover, the events users schedule often seem supportive, diverse and inclusive. But, this exploratory study provides only glimpses of what is possible in *Horizon Worlds*. Further research is

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needed to more systematically test the hypotheses suggested here. *Horizon Worlds* does not yet

support what may become a key root affordance, that of conducting transactions. Once this

affordance is available, it is likely that the buying and selling of NFTs, exchanges via crypto currency,

and the generation of not only culture but wealth may fundamentally reshape the Metaverse. It is

also not clear if there will continue to be multiple standards for the Metaverse or whether the diverse

platforms will one day all be intercompatible.

In conclusion, the findings of this virtual journey into an early Metaverse platform provides a

glimpse into the future of media and communication. On the occasion of NYSCA's 80th

anniversary, further scholarly inquiry into the Metaverse can help to provide insight into the nature

and consequences of life increasingly spent inside a globally connected immersive and interactive

virtual world. To adapt a phrase famously offered by American humorist Will Rogers in 1927, I

never Metaverse I didn't like (Smallwood, 2010). But taste notwithstanding, critical research is

needed to determine what role the Metaverse may play in 21st century human communication and

media.

References

Adrian, P. and Wurmser, Y. (4 April 2022). US Augmented and Virtual Reality Users Forecast 2022: Social Media and Retail Continue to Drive Growth. https://www.emarketer.com/content/us-augmented-virtual-reality-users-forecast-2022

Ahn, S. J. G., Bailenson, J. N., & Park, D. (2014). Short-and long-term effects of embodied experiences in immersive virtual environments on environmental locus of control and behavior. *Computers in Human Behavior, 39*, 235-245.

Archer, D. and Finger, K. (15 March 2018). "Walking in another's virtual shoes." *Columbia Journalism Review.* Retrieved 03/16/18 from https://www.cjr.org/tow_center_reports/virtual-reality-news-empathy.php

Au, W. J. (2008). *The Making of Second Life*. New York: Harper Business.

Bailenson, J. (2018). Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do. New York: W.W. Norton & Company: 1.

Ball, M. (2022). *The Metaverse: And How It Will Revolutionize Everything*. Liveright.

Banakou, D., Hanumanthu, P. D. and Slater, M. (29 November 2016). Virtual Embodiment of White People in a Black Virtual Body Leads to a Sustained Reduction in Their Implicit

Racial Bias. Frontiers in Human Neuroscience. DOI:10.3389/fnhum.2016.00601Corpus ID: 1470267

Barnard, D. (5 May 2019). Degrees of Freedom (DoF): 3-DoF vs 6-DoF for VR Headset Selection. https://virtualspeech.com/blog/degrees-of-freedom-vr

Baruch, R. (2007). Television Tightrope: How I Escaped Hitler, Survived CBS, and Fathered Viacom. Probitas Press. ISBN 9780967343228.

BBC News (25 May 2022). Female avatar sexually assaulted in Meta VR platform, campaigners say. https://www.bbc.com/news/technology-61573661.

Biocca, F., & Delaney, B. (1995). Immersive virtual reality technology. *Communication in the age of virtual reality*, *15*, 32.

Biocca, F., Kim, J., & Choi, Y. (2001). Visual touch in virtual environments: An exploratory study of presence, multimodal interfaces, and cross-modal sensory illusions. *Presence: Teleoperators & Virtual Environments, 10*(3), 247-265.

Boellstorff, T. Ethnography and Virtual Worlds : A Handbook of Method (Chapter 2; Pg 13 - 28). Princeton University Press, 2012.

Brennan, B. and dela Cerna, E. (1 August 2010). "Journalism in Second Life." E-Publications@Marquette https://epublications.marquette.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1065&context=comm_fac

Cerf, V. (13 January 2022). "Father of the Internet", and VP/ Chief Internet Evangelist, Google. Virtual Seminar. Columbia Institute for Teleinformation.

Charmers, D. J. (2022). Reality+: Virtual Worlds and the Problems of Philosophy. Apple Books.

Csikszentmihalyi, M. (1990). Flow: the psychology of optimal performance. Oxford University Press.

De la Pena, N. et al., "Immersive Journalism: Immersive Virtual Reality for the First-Person Experience of News," Presence: Teleoperators & Virtual Environments, 2010, no. 4, 291–301.

Decentraland (2022). "Blog about Decentraland." https://decentraland.org/blog/

D'koupil, T. (31 March 2023). Mornings in the Metaverse. CBS News.

Evans, C. (7 April 2022). Mornings in the Metaverse. CBS Mornings.

Flyverbom, M., Leonardi, P., Stohl, C., & Stohl, M. (2016). Digital age| the management of visibilities in the digital age—introduction. *International Journal of Communication*, *10*, 12.

Gibson, J. J. (1966). The Senses Considered as Perceptual Systems. London: George Allen & Unwin LTD. https://monoskop.org/images/d/df/Gibson_James_J_The_Sense_Considered_as_Perceptual_Systems_1966.pdf

Gibson, J. J. (1977). The theory of affordances. Hilldale, USA, 1(2).

Herrera, F., Bailenson, J., Weisz, E., Ogle, E., & Zaki, J. (2018). Building long-term empathy: A large-scale comparison of traditional and virtual reality perspective-taking. *PLOS ONE, 13*(10), e0204494.

Huang, Y., Jasin, S., & Manchanda, P. (2019). "Level Up": Leveraging Skill and Engagement to Maximize Player Game-Play in Online Video Games. Information Systems Research; DOI: 10.1287/isre.2019.0839 https://www.sciencedaily.com/releases/2019/09/190925133637.htm

Jaupi, J. (3 April 2022). Experts predict how Mark Zuckerberg's Metaverse will change our mental health forever. https://nypost.com/2022/04/03/experts-predict-how-the-Metaverse-will-change-our-mental-health/?utm_campaign=iphone_nyp&utm_source=mail_app

Kilteni, K., Groten, R., & Slater, M. (2012). The sense of embodiment in virtual reality. *Presence: Teleoperators and Virtual Environments*, 21(4):373–387, 2012.

Kubey, R. & Csikszentmihalyi, M. (2 February 2002). "Television Addiction Is No Mere Metaphor." *Scientific American*. http://www.commercialalert.org/issues/culture/television/television-addiction-is-no-mere- metaphor

Lanier, J. (3 February 2022). Virtual Seminar on Virtual Reality. Columbia Institute for Tele-Information.

Ljiljana, G. (January 2004). The ethnography of virtual reality – DOAJ. Glasnik Etnografskog Instituta SANU. Vol. 2004, no. 52. pp. 9 – 16. https://doaj.org/article/050be820548c4076b5bbd0a75f689b91

Marr, B. (3 April 2022). The Effects Of The Metaverse On Society. https://www.forbes.com/sites/bernardmarr/2022/04/04/the-effects-of-the-Metaverse-on-society/

Merton, R. K. (1936). "Unanticipated Consequences of Purposive Social Action." *American Sociological Review,* 1(6), 894-904.

Meta Quest (2022). Using Touch Controllers. https://support.oculus.com/articles/getting-started/getting-started-with-quest-2/using-touch-controllers-quest-2

Microsoft News Center (18 January 2022). https://news.microsoft.com/2022/01/18/microsoft-to-acquire-activision-blizzard-to-bring-the-joy-and-community-of-gaming-to-everyone-across-every-device/

Milano, M. (15 April 2022). Shocker: US teens don't care about the metaverse. https://www.androidauthority.com/teens-metaverse-3153930/

Mori, M. (12 June 2012). The Uncanny Valley: The Original Essay by Masahiro Mori "The Uncanny Valley" by Masahiro Mori is an influential essay in robotics. This is the first English translation authorized by Mori. https://spectrum.ieee.org/the-uncanny-valley

New York State Communication Association (NYSCA) (2022). Call for papers.

Nunneley, S. (8 July 2010). Rumble is "a rudimentary form of haptic feedback", says Tsunoda | VG247. https://www.vg247.com/rumble-is-a-rudimentary-form-of-haptic-feedback-says-tsunoda

Ochanji, S. (27 March 2022). Nike's Metaverse Store Has Had 7 Millions Visits So Far (NFTs and more via Roblox Metaverse). http://virtualrealitytimes.com/2022/03/27/nikes-Metaverse-store-has-had-7-millions-visits-so-far/

Shead, S. (13 April 2022). Meta plans a nearly 50% cut on virtual asset sales in its metaverse. https://www.msn.com/en-us/money/other/meta-plans-to-take-a-nearly-50-cut-on-nft-sales-in-its-metaverse/ar-AAWaueA

Shriram, K. & Schwartz, R. (2012). All Are Welcome: Using VR Ethnography to Explore Harassment Behavior In Immersive Social Virtual Reality. http://razschwartz.net/wp-content/uploads/2012/01/CameraReady_IEEE.pdf

Smallwood, J. & Gragert, S. (2010). *Will Rogers' Weekly Columns, The Coolidge Years, 1925-1927*. **2**. Will Rogers Memorial Museums. Retrieved on 31 January 2015.

Solon, O. & Finn, T. (5 October 2021). Facebook whistleblower tells Congress social network is 'accountable to no one'." https://www.nbcnews.com/politics/congress/facebook-whistleblower-tell-congress-social-network-accountable-no-one-n1280786

Statista (2022). Virtual Reality headset shipments worldwide. https://www.statista.com/statistics/754860/worldwide-vr-headset-shipment-by-segment/

Stephenson, N. (1992) *Snow Crash*. New York: Bantam Books: 24.

SumOfUs (May 2022). Metaverse: another cesspool of toxic content.
https://www.sumofus.org/images/Metaverse_report_May_2022.pdf

Sundar, S. S., Kang, J. & Oprean, D. (November 2017). "Immersive Journalism Affects our Perceptions and Cognitions." *Cyberpsychology, Behavior, and Social Networking.* Vol. 20, No. 11.

TV History. "Number of TV Households in America: 1950-1978." Accessed November 15, 2014.
http://www.tvhistory.tv/Annual_TV_Households_50-78.JPG

Uzun, K. & Aydin, C. H. (April 2012). The Use of Virtual Ethnography in Distance Education. Turkish Online Journal of Distance Education-TOJDE April 2012 ISSN 1302-6488 Volume: 13 Number: 2 Article 11. https://files.eric.ed.gov/fulltext/EJ983657.pdf

Vertov, P. (1929). "Man with a Movie Camera." www.youtube.com/watch?v=64jLxgCWukY

Virgilio (9 February 2022). "What Comparisons Between Second Life and the Metaverse Miss." Slate.com
https://slate.com/technology/2022/02/second-life-Metaverse-facebook-comparisons.html?via=rss_flipboard

Werner, A. (14 April 2022). Dangers in the Metaverse. CBS Mornings.

XR Today (13 April 2022). The Sandbox Metaverse Review. https://www.xrtoday.com/virtual-reality/the-sandbox-metaverse-review/

**Figure 1: Author's Avatar Selfie in Horizon Worlds**

| Root Affordances | Act | Sense | Interact | Create |
|---|---|---|---|---|
| Branch Affordances | Grasp, Manipulate, Move, Photograph | See, Hear, Touch | Attend, Converse, Participate, Party, Play, Share | Customize, Design, Assemble, Build |

Figure 2: Affordances in the Horizon Worlds Metaverse