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Claremont McKenna College

My Physical-Digital Self:

Exploring the Detrimental Effects of the Metaverse

on Relationship & Identity Development

submitted to
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and
Professor Michael Izbicki

by
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for
Senior Thesis in Media Studies with a Digital Concentration
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Abstract

The metaverse, which is the next iteration of the internet--an immersive, virtual world--poses a threat to the essential human need for healthy relationship and identity development. Coming out of the COVID-19 pandemic, the effects of isolation and virtual socialization led many to prefer physical experiences, despite society's overall dependency on and connectedness to the internet and technological devices. Framed by Maslow's hierarchy of human psychological needs, Turkle's analysis of the human relationship to earlier forms of virtual reality, and Foucault's principles of caring for and knowing the self, this paper argues that the metaverse will be detrimental towards developing participant's relationship and identity, because of its inability to satisfy needs for substantial relationships, in comparison to physical experiences, and because of its production of a virtual self that inhibits self-actualization. The analysis of the major players in the origins, the present-day, and the future of the metaverse, such as Second Life, The Sims, Fortnite, Meta (formerly Facebook), Microsoft, Unity, and Decentraland, reveals that these companies are not prioritizing and facilitating healthy relationship and identity development in their metaverse strategies. My gallery installation project, *My Physical-Digital Self*, helps conclude the paper, serving as an artistic expression and manifestation of the ideas explored in this paper. Despite the hype and innovations around the metaverse, this technology is at risk of replicating the harmful effects of virtual engagement on relationship and identity development, which already existed and were especially realized as a result of the COVID-19 pandemic.

Keywords: metaverse, identity development, relationship building, COVID-19, virtual reality, web3

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Introduction

This paper explores the impact of the metaverse on the relationship and identity development among humans, who can now be considered physical and digital beings. The metaverse is one of the latest, emerging concepts within Web3 that will transform the way people form their identities and interact with one another, both online and in real life. The internet has developed from read-only Web1 to the reading and writing capabilities of Web2, and now, to a decentralized Web3, where people can control and own their data and online content. Web3 is possible through the technology of blockchain, which is an unchangeable system that allows for the recording and transferring of digital information, maintained across a network of computers. Within Web3, one's digital identity is not fully linked to one's real identity, thus anonymizing the user and severing one's digital and physical realities.¹ These technological advancements help power the concept of the metaverse, which “would provide new 3-D environments for people to communicate, shop, learn, work, and do anything that would normally be done on the internet” or in the real world.² It is important to note that this project covers the metaverse as a general concept, and not the specific metaverse endeavor from Meta (formerly Facebook). As the concept of the metaverse is currently in development, there is no generally accepted consensus on whether there will be one metaverse or multiple metaverses, on which companies, organizations, or other entities

¹ Whiteboard Crypto, *What is Web 3.0? (Explained with Animations)*, Whiteboard Crypto, October 26, 2021, YouTube video, 0:08:39, <https://www.youtube.com/watch?v=nHhAEkG1y2U>.

² Rahaman, Tariq, 2022, “Into the Metaverse – Perspectives on a New Reality,” *Medical Reference Services Quarterly* 41 (3): 330–37, doi:10.1080/02763869.2022.2096341.

will own or regulate these spaces, and on what areas of the metaverse will be more widely adopted, popular, or useful for society.³ The metaverse, as currently understood, can be broken down into a few categories: consumer, organizational, and industrial. This paper focuses on consumer metaverse applications, including social, shopping, entertainment, gaming, and hospitality, while organizational and industrial metaverse applications focus on work-related applications and business-to-business applications. Within the consumer metaverse space, existing virtual worlds, like Second Life and The Sims, have existed and gained popularity, but in more gamified manners and on smaller scales than anticipated for the metaverse. The metaverse has the potential for large-scale adoption of a digital reality that mimics or replaces everyday functionalities and necessities. The rise in awareness of, investment in, and discussion around the metaverse all motivate me to write this paper and create my Capstone Project, *My Physical-Digital Self*, which looks critically at the future of existing in both a physical and digital reality.

In Chapter 1, I consider the development of the metaverse within the context of the COVID-19 pandemic, analyzing the impact of virtual socialization on relationship building and identity development. I elaborate on this analysis with the frameworks of psychologist Abraham Maslow's hierarchy of human psychological needs and the ideas of media studies theorists Sherry Turkle and Michel Foucault, arguing that the metaverse will be detrimental to those participating in it, as a result of how it does not satisfy one's needs for substantial relationships, in comparison to physical experiences, and of how it produces of a virtual self that inhibits self-actualization. In Chapter 2, I evaluate the roles

³ Shankland, Stephen, "The Metaverse Will Be a Multi-Platform Mess," CNET, CNET, March 26, 2022, <https://www.cnet.com/tech/computing/features/here-comes-the-multi-metaverse-mess/>.

of several companies involved in the development of the metaverse, and I use the frameworks from Chapter 1 to determine whether their metaverse endeavors will be detrimental. In Chapter 3, I describe my Capstone Project and elaborate on the process of creating an immersive gallery installation as an expression of the ideas discussed in this paper. Finally, I conclude with a discussion on the outlook for the metaverse and on future research, analysis, and engagement opportunities in the space.

Chapter 1: Historical and Theoretical Context

In an October 2022 New York Times article, Meta CEO Mark Zuckerberg stated, “One of the thought experiments that I like to do is thinking about how few of the things that we physically have in the world actually need to be physical.”⁴ This chapter grounds my thesis in questioning the opposite: How many of the things that we have digitally do we actually need to be digital? How many of these things enhance, help, or improve reality? If they have none of these effects, what effect do they have? This chapter explores the media history and theory that informs the discussion around the metaverse today. The context of the COVID-19 pandemic is also vital to this analysis, which helps prove the detrimental effects of the metaverse on the relationship and identity development. As a result of the COVID-19 pandemic, many people seemed to have more of a virtual presence and existence than a physical one. Now, more than two years into the pandemic, in-person, physical socialization returns, as does the realization of the necessity of relationship building and identity formation in developing as a physical being.

A recent study from Danaë Larivière-Bastien et. al evaluated the impact of the pandemic on the relationships and personal development of children and adolescents, conducting qualitative interviews with participants aged 5 to 14 years old, through May

⁴ Hill, Kashmir, “This is Life in the Metaverse,” New York Times, New York Times, October 7, 2022, <https://www.nytimes.com/2022/10/07/technology/metaverse-facebook-horizon-worlds.html>.

and June of 2020.⁵ Larivière-Bastien et. al's results showed that "the pandemic provoked reflection among the participants according to three main themes... (1) the irreplaceable nature of friendship, (2) the unsuspected benefits of school for socialization and (3) the limits and possibilities of virtual socialization."⁶ Expanding upon "the limits and possibilities of virtual socialization," the study found that the participants "appreciated the possibilities offered by virtual tools, but in general deemed them unsatisfactory. A central realization was their preference for face-to-face interactions."⁷ This study also discovered "a novel finding [which] is that the importance of physical closeness in friendship emerged as a main theme for participants and is not represented in seminal descriptions of friendship characteristics."⁸ While acknowledging the potential for virtual tools, this study confirms the preference for physical interactions on the basis that physical closeness is crucial to relationship development. The study concluded "that physical proximity is an important component of children's friendships" as well as their overall development and wellbeing.⁹ Ultimately, "This aspect may become especially important to promote in social intervention as virtual means become increasingly available and accessible even for young children."¹⁰ As children and adolescents are often target audiences for social media apps, games, and now, experiences in the metaverse, these findings are especially relevant and affirm the need to look critically at the virtual

⁵ Larivière, Bastien, et al. "Children's Perspectives on Friendships and Socialization during the COVID-19 Pandemic: A Qualitative Approach," *Child: Care, Health & Development* 48, no. 6 (November 2022): 1017–30. doi:10.1111/cch.12998.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

experiences in which one might engage. In fact, these effects are not limited to just children and adolescents.

American psychologist Abraham Maslow's famous Maslow's famous, foundational hierarchy of needs confirms that healthy relationship building and identity development are core human psychological needs for people of all ages to consider when evaluating the effects of the metaverse. Maslow "classifies needs to five levels: physiological, safety, love/belonging, esteem, and, [finally,] self-actualization needs," which he considers the top psychological need that one reaches after satisfying the ones prior.¹¹ Maslow accounts for the basic needs for survival with the "physiological" level, which include needs like food, clothing, and shelter. These foundational needs correspond with what was deemed essential in the beginning of the COVID-19 pandemic, through the notion of "essential workers," which prioritized the health and safety services, food services, and residential or shelter facilities, among others for receiving vaccinations, returning to work, and other protocols.¹² Larivière-Bastien et. al's study represents realizations made in the later days of the pandemic, when, months into social isolation and virtual schooling, working, and socialization, people recognized the vitality of other needs, like relationships or "love/belonging" and identity development or "self-actualization."¹³ Beyond mere survival, Maslow emphasizes for what else humans survive.

¹¹ Partala, Timo, "Psychological Needs and Virtual Worlds: Case Second Life," *International Journal of Human-Computer Studies* 69, no. 12 (December 2011): 787–800, doi:10.1016/j.ijhcs.2011.07.004.

¹² "Categories of Essential Workers: Covid-19 Vaccination." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, March 29, 2021. <https://www.cdc.gov/vaccines/covid-19/categories-essential-workers.html>.

¹³ Ibid.



Figure 1. Maslow's Hierarchy of Needs.¹⁴

The metaverse has the potential to provide social, creative, and entertainment spaces and to determine access to these spaces. It can also provide and limit access to other essential needs like clothing and food. Depending on how companies and brands use, or control, the metaverse, it could become the default space or one of the spaces for fulfilling one's essential needs at many levels, according to Maslow. Given the context and impact of the COVID-19 pandemic, the negative implications of dependence on virtual platforms have already been evident.

Before COVID-19, many people took for granted how intertwined with virtual reality they already were, existing digitally through the use of several devices, engaging in and consuming social media, and relying on the internet and online services. MIT science and technology professor Sherry Turkle discusses in her book, *Alone Together*:

¹⁴ McLeod, Saul. *Maslow's Hierarchy of Needs*. 2007. *Simply Psychology*. <https://www.simplypsychology.org/maslow.html>.

Why We Expect More from Technology and Less From Each Other, the implications behind having a “tethered” identity: one that is split between our physical and digital selves.¹⁵ Written in 2011, Turkle focuses on the impact of mobile devices, social media, and video games culture, not yet addressing the concept of the metaverse. Her ideas are still immensely relevant to my thesis, as she argues that there exists the “edited self,” one’s identity formed through social media participation, which functions similarly to the sort of avatar one would embody in a metaverse.¹⁶ Through social media and video games, Turkle explains that people “escape” reality and live in a different world, forming a new “self”.¹⁷ The metaverse is the next space to do just the same. Turkle argues that there is a danger in this escapism and new identity formation, as people turn to these “consequence free” virtual spaces that isolate users from others physically and are much unlike the real world.¹⁸ This split experience of existence encourages one to disconnect from the physical world as well as dissociate from their sense of self, which is more “fluid and many-sided” than depicted or created online.¹⁹ Social media, video games, and mobile devices have already had harmful effects of relationship and identity development and are at risk of worsening given the increasingly immersive qualities of the metaverse.

Because of the dependency people have formed on technology, there becomes a preference for the online world, as one’s life offline can be lonely and disconnected in comparison.¹³ This phenomenon was especially apparent in the height of COVID-19,

¹⁵ Sherry Turkle, “Growing Up Tethered,” in *Why We Expect More from Technology and Less from Each Other* (New York: Basic Books, 2011), 171.

¹⁶ Ibid, 180.

¹⁷ Ibid, 179.

¹⁸ Ibid 179.

¹⁹ Ibid.

when various regulations forced people into isolation, and virtual experiences were the only way to connect with others.²⁰ Looking ahead, even if virtual experiences are not yet comparable to their physical counterparts, there may still be increased pressure, dependency, and preference for an virtual world into which one can escape because of the amount of investment in advancing the technology and quality of virtual experiences. In the aftermath of a global pandemic, many have already recognized the detrimental effects of existing virtually; Turkle’s analysis of the effects of pre-COVID forms of virtual realities helps center a critical lens that one must use when facing the looming metaverse.

French philosopher Michel Foucault writes in *Technologies of the Self* about the “techniques that human beings use to understand themselves,” with specific interest in and emphasis on the “technologies of power, self, and self-domination.”²¹ As he explores the means by which people exert power over others and themselves and achieve states like happiness, perfection, and immortality, he centers on the 4th to 6th century Greek moral principles to “Know yourself” and to “Take care of oneself.”²² According to Foucault, to “Know yourself” originates from a Greek “rule to be observed for the consultation of the oracle,” meaning “Do not suppose yourself to be a god,” and “Be aware of what you really ask when you come to consult the oracle.”²³ Foucault asserts that, “In the modern world, knowledge of oneself constitutes the fundamental principle,”

²⁰ Larivière, Bastien, et al, “Children’s Perspectives on Friendships and Socialization during the COVID-19 Pandemic: A Qualitative Approach,” *Child: Care, Health & Development* 48, no. 6 (November 2022): 1017–30, doi:10.1111/cch.12998.

²¹ Michel Foucault, *Technologies of the Self: A Seminar with Michel Foucault*. (University of Massachusetts Press, 1988), 224-5.

²² *Ibid*, 226.

²³ Michel Foucault, *Technologies of the Self: A Seminar with Michel Foucault*. (University of Massachusetts Press, 1988), 226.

similar to how self-actualization, achieving one's fullest potential, is at the top of Maslow's hierarchy of needs.²⁴ To "Take care of oneself" is a step that comes only after knowing oneself, and involves introspection, examining the soul, and "occupying oneself with oneself".²⁵ It is critical to look at the metaverse through this lens of taking care of and knowing oneself, as the metaverse is a space in which individuals will have the opportunity to not only build their own identity but also relationships to others. Foucault questions, "What is this self? ... Departing from what ground shall I find my identity?"²⁶ He elaborates, arguing that "the self is not clothing, tools or possessions; it is to be found in the principle that uses these tools."²⁷ Foucault seems to believe that oneself is built, taken care of, and known through introspection and internal factors, rather than external factors. Contrastingly, the metaverse prompts users to build an identity in a virtual world, often through external factors like virtual clothing and items. Hence, how can one know and take care of oneself in both places in a healthy way? Given the dissonance between the physical and digital experiences established by Turkle and Larivière-Bastien et. al, is it possible to find harmony between these two selves? Can one achieve Maslow's self-actualization in both or either self? By engaging in the metaverse, the creation and undertaking of a virtual self, a second identity, complicates one's ability to take care of and know their physical self, as well as develop healthy relationships in either the physical or virtual world.

²⁴ Ibid, 228.; McLeod, Saul. *Maslow's Hierarchy of Needs*. 2007. *Simply Psychology*. <https://www.simplypsychology.org/maslow.html>.

²⁵ Ibid, 231-232.

²⁶ Ibid, 230.

²⁷ Ibid.

Before the COVID-19 pandemic, there was many people were increasingly dependent on and preferred for virtual experiences. The popularity of social media platforms and life simulator games suggested a desire to escape the physical world and create ideal selves and lives virtually. Beyond Maslow's hierarchy of needs which lists one's relationships and personal identity as the third and first most important needs, respectively, theorists Turkle and Foucault emphasize the weight of these needs and how they are at risk of development when disrupted by virtual engagement. After experiencing the height of the pandemic, the resulting sentiment displays a preference for the relationship building and identity formation in a physical space. There is less, or no, desire to build a virtual identity or virtual relationships after the pandemic exposed the dissonance between the physical and digital experiences.

Chapter 2: Case Studies

INTRODUCTION TO CHAPTER

This chapter examines several types of companies involved in the metaverse. It evaluates the metaverse's origins, components, and leading endeavors, both in present-day and in the future. These companies are broken down into the following groups:

1. The “Early Players”, such as Second Life and The Sims, who were early to the space and laid the groundwork upon which more contemporary companies now build the metaverse,
2. The “Smaller Players,” such as Unity and Decentraland, who are contributing in various ways to the metaverse but are not as well-known as the final group of companies,
3. The “Giants,” such as Meta and Microsoft, who are among the companies receiving the majority of the press and investments in the metaverse space.

A brief analysis of the Early Players and the Smaller Players provides vital context on the origins and components of the metaverse, while the chapter's deeper analysis of the Giants Meta and Microsoft illuminates the potential effects of their approaches to bringing the metaverse to life.

Furthering the historical and theoretical lenses established in Chapter 1, this chapter will contextualize and analyze each of these companies' past, current, and future contributions to the metaverse, and argue whether or not the contributions will be detrimental to one's ability to develop one's relationships and identity. Chapter 1 establishes that social media and other virtual technology had a negative effect on one's ability to form healthy, meaningful relationships during the pandemic. Chapter 1 also

argues that the role of the virtual self in the metaverse inhibits the necessary process of taking care of and knowing oneself to develop one's identity. As informed by the history and theories in Chapter 1, this chapter will compare each company's work against the following critical questions to help determine the impact of the company's ventures:

1. **How do the company's ventures influence how the user forms relationships with others?** This question analyzes the company's approach in relation to Larivière-Bastien et. al's and Turkle's findings from Chapter 1, looking at how a company fosters social environments and relationship building between virtual users.
2. **How do the company's ventures influence how the user forms a sense of identity?** This question evaluates a company's philosophy on the metaverse against Foucault's and Turkle's ideas from Chapter 1, looking at what opportunities a company presents for a user to form and take on a virtual identity.

Examining each company through these questions and lenses will help confirm whether current developments in the metaverse will be detrimental to relationship and identity formation.

EARLY PLAYERS

Popular games Second Life, The Sims, and Fortnite make up the Early Players in this section. Virtual worlds like those depicted and created in these games have always existed. Decades before these Early Players were published in the early 2000s to late 2010s, the earlier applications of the metaverse existed in online multiplayer games, in the military, in NASA, and more. In the 1980s, the United States military created SIMNET, which is short for “simulator network,” the first “demonstration of an extensive simulator network for collective teaming and mission rehearsal.”²⁸ In the late 1980s, NASA partnered with VPL Research to create VIEW, short for “Virtual Interface Environment Workstation,” which includes a “head-mounted stereoscopic display system in which the display may be an artificial computer-generated environment or a real environment relayed from remote video cameras,” a set of connected “DataGloves” that generate “an image of the hand [that] move exactly as the operator is moving,” and a “DataSuit” that “reports to the computer the motions, bends, gestures and spatial orientation of the wearer.”²⁹ Virtual reality also had early origins in film and photography spaces, including cinematographer Morton Heilig’s first-ever head mounted display in 1960 and Ivan Sutherland and Bob Sproull’s first-ever headset connected to a computer and not a camera in 1968.³⁰ The term “virtual reality” was coined in 1987 by VPL founder Jaron Lanier, when the company began commercializing the technology they had

²⁸ McArdle, Jennifer, and Caitlin Dohrman. “The Full Potential of a Military Metaverse.” War on the Rocks, February 18, 2022. <https://warontherocks.com/2022/02/the-full-potential-of-a-military-metaverse/>.

²⁹ Rosson, Lois. “The Virtual Interface Environment Workstation (VIEW), 1990.” NASA. NASA, April 15, 2014. https://www.nasa.gov/ames/spinoff/new_continent_of_ideas/.

³⁰ “History of Virtual Reality.” Virtual Reality Society, January 2, 2020. <https://www.vrs.org.uk/virtual-reality/history.html>.

developed with NASA, selling the DataGloves and other iterations of the headset to consumers.³¹

In these earliest applications, the social and commercial aspects of the metaverse were separate from the technical or artistic virtual reality space. Meta is one of the first to try to combine these two areas, with smaller companies and startups attempting to do the same. Second Life and The Sims were notable for being among the first to create widely adopted, immersive, and creative virtual worlds. What differentiates the future of the metaverse from the early days of Second Life and The Sims is the exponential increase in commercialization, which integrates brands and monetization into the virtual worlds previously intended for unaffiliated expression and imagination. An additional shift in virtual worlds occurs when users in the metaverse are encouraged to take on avatars that resemble themselves and their physical identities, as well as engage in activities in the virtual world, like retail or grocery shopping, to fulfill needs in the physical world. It is crucial to look at the origins of virtual worlds in classic games like Second Life and The Sims and how they have inspired the generation of games like Fortnite, as it is now among the top games leading the way in bringing games into the metaverse. While Second Life was a pure life simulator and world-building game, The Sims was a life simulator with some added objectives. Fortnite is a more goal-oriented game, with different modes that vary one's objectives to be more about world-building, battling, or another motive. Fortnite is less of a life simulator game but has been host to several

³¹ “History of Virtual Reality.” Virtual Reality Society, January 2, 2020. <https://www.vrs.org.uk/virtual-reality/history.html>.

popular metaverse events that put it at the forefront of the games diving further into the consumer metaverse space.

Second Life

Launched in 2003 by Linden Lab, Second Life is a Massively Multi-player Online Role-Playing Game (“MMORPG”), in which the users enter a 3D virtual world and are not tasked with a certain objective, but rather, able to create their own avatars, explore, socialize, buy and sell, help build this virtual world. Second Life was one of the first highly successful virtual world platforms, with still 750,000 monthly users as of November 2021. At its peak in the 2000s, Second Life hosted a state governor town hall and virtual stores for brands like Reebok and Dell, elements that tech companies currently imagine for their metaverse platforms today. Second Life founder Philip Rosedale “likes to say that Second Life contained the first NFTs: unique virtual goods that you could buy and sell”.³² In fact, “in the 10 years following its launch, Second Life users spent \$3.2 billion of real money on in-world transactions.”³³ By the mid to the late 2010s, Second Life saw a decrease in users, especially due to difficulties with the platform’s technology, which remains a “huge roadblock to mass adoption.”³⁴

According to the Linden Lab website, their company mission is to “develop platforms that empower everyone to create virtual experiences.”³⁵ The “Tao of Linden” is a list of company “guiding principles,” the last of which is “Make Change on a Global

³² Chow, Andrew R. “What Can Metaverse Builders Learn From Second Life?” Time. Time, November 26, 2021. <https://time.com/6123333/metaverse-second-life-lessons/>.

³³ Ibid.

³⁴ Ibid.

³⁵ “Who We Are.” About Linden Lab | Linden Lab. Accessed December 4, 2022. <https://www.lindenlab.com/about>.

Scale. Our work brings people together, builds communities. Our work helps people understand who they are, helps them be better. Our work brings empathy, helps people see the world through others' eyes. Settle for nothing less than changing the world for the better.”³⁶ Although not a specific mission statement or philosophy on creating Second Life, this value highlights the company's overall framework of leading with creativity, community, empathy, and positive impact. In the end, founder Rosedale believed the “unbounded potential for creation,” and “the ability to be creative and expressive in a realistic, lifelike domain,” was what made it so successful, popular, and beneficial for its users.³⁷

A 2011 study from Timo Partala gathered responses from 258 Second Life users, measuring the satisfaction of human psychological needs, based upon the measure of Maslow's famous, foundational hierarchy “which classifies needs to five levels: physiological, safety, love/belonging, esteem, and, [finally], self-actualization needs,” which Maslow considers the top psychological need.³⁸ Partala's results “indicated that self-esteem, autonomy and physical thriving were the most highly satisfied needs” within Second Life rather than in real life. Conversely, competence, relatedness, self-actualization, meaning, security, and popularity-influence were more extensively satisfied in the users' daily lives than when in Second Life. It is interesting to note that this study indicates both positive and negative effects of virtual world life on certain psychological

³⁶ “Who We Are.” About Linden Lab | Linden Lab. Accessed December 4, 2022. <https://www.lindenlab.com/about>.

³⁷ Chow, Andrew R. “What Can Metaverse Builders Learn From Second Life?” Time. Time, November 26, 2021. <https://time.com/6123333/metaverse-second-life-lessons/>.

³⁸ Partala, Timo. “Psychological Needs and Virtual Worlds: Case Second Life.” *International Journal of Human-Computer Studies* 69, no. 12 (2011): 787–800. <https://doi.org/10.1016/j.ijhcs.2011.07.004>.

needs. Second Life may help humans with self-esteem and autonomy--and physical thriving for those with physical disabilities--but it notably affects the way in which humans form and achieve self-actualization, which Maslow considers the top psychological need. Second Life was “responsible for introducing millions of people [to] fostering incredibly tight-knit [virtual communities],”³⁹ but it still seems to have limitations to achieving relatedness, security, and popularity-influence in relationships with others. Ultimately, Second Life was able to create foster some positive relationships but not to the level of physical relationships, as explored in Larivière-Bastien et. al’s study in Chapter 1. Second Life also did not help users achieve self-actualization, indicating it negatively affected their ability to develop their identities.

The Sims

The Sims is another Early Player and MMORPG, and it was developed by Maxis and published in 2000 by Electronic Arts.⁴⁰ The Sims’s latest version, Sims 4, still charts 10 million monthly active users, demonstrating much higher, longer lasting success than Second Life.⁴¹ According to Electronic Arts’ website, they consider themselves to be “a global leader in digital interactive entertainment,” with a philosophy for “believing in the power of positive play and that being part of a gaming community should be a fun, fair,

³⁹ Partala, Timo. “Psychological Needs and Virtual Worlds: Case Second Life.” *International Journal of Human-Computer Studies* 69, no. 12 (2011): 787–800. <https://doi.org/10.1016/j.ijhcs.2011.07.004>.

⁴⁰ “The Sims.” Encyclopædia Britannica. Encyclopædia Britannica, inc. Accessed December 4, 2022. <https://www.britannica.com/topic/The-Sims>.

⁴¹ Kerr, Chris. “The Sims 4 Records Peak High of 10 Million Monthly Active Users.” Game Developer, June 19, 2020. <https://www.gamedeveloper.com/business/-i-the-sims-4-i-records-peak-high-of-10-million-monthly-active-users>.

and safe experience for all.”⁴² The Maxis website shares similar sentiment, stating that they “create spaces for players to experiment and find inspiration”.⁴³

The Sims is comparable to Second Life, as it serves as a platform for users to create and build. Curtin believed users “were acting out their real lives, or a life they wish they had.”⁴⁴ Interestingly, the Sims was not a people-centered game at first; Rather, it was based on its predecessor SimCity, which was a city-building video game popular throughout the 1990s.⁴⁵ However, as the Maxis team grew, their focus expanded and shifted more to building a person-centered game.⁴⁶ They began with a “core simulator” “with eight bars in it that corresponded to the core motives of people. There was a social motive, a hunger motive and a bladder motive”.⁴⁷ Similar to Maslow’s hierarchy of needs, this core simulator seems to try to account for basic survival needs as well as needs like socialization. They evolved and added more goals, getting close to creating a goal that accounts for self-actualization, such as building up a Sim’s “artistic slider by having them paint " if you wanted them to be an artist”.⁴⁸ The team even considered monetary objectives but decided against them because they believed they were “so

⁴² “About EA - Electronic Arts.” Accessed December 5, 2022. <https://www.ea.com/about?isLocalized=true>.

⁴³ “What We Build.” Maxis. Accessed December 5, 2022. <https://www.ea.com/ea-studios/maxis/what-we-build>.

⁴⁴ Cole, Sean. “The Sims: An Oral History From the Game's Creators.” Vice. Vice, October 14, 2022. <https://www.vice.com/en/article/wxn44z/sims-game-an-oral-history>.

⁴⁵ Cole, Sean. “The Sims: An Oral History From the Game's Creators.” Vice. Vice, October 14, 2022. <https://www.vice.com/en/article/wxn44z/sims-game-an-oral-history>.

⁴⁶ Ibid.

⁴⁷ Ibid.

⁴⁸ Ibid.

trite”.⁴⁹ As Maxis faced influence from its parent company⁵⁰ Electronic Arts (“EA”) to build The Sims, designer Roxy Wolosenko revealed that “EA brought a lot of money and marketing to it, [but] didn’t have the same core values. They wanted to gamify it more.”¹⁰ Another designer Claire Curtin shared that EA’s “opinion was that successful games were about escapism. They were about being somebody else or having powers nobody ever had. This game was the exact opposite of that.”⁵¹ Still owned by EA, The Sims continues to iterate, but away from its origins of creativity and expression. Its impact on users’ identity and relationship development is comparable to Partala’s findings in Second Life, suggesting players of The Sims may experience difficulty achieving relatedness, security, and popularity-influence in relationships with other players and achieving self-actualization through their virtual avatar.

Fortnite

Released by Epic Games in 2017 and created on Epic Games’ game engine Unreal Engine, Fortnite is the most recent of the Early Players discussed in this chapter. Fortnite is an example of an Early Player in the metaverse space, rather than the virtual world space, as it is leading the way among other contemporary games by venturing into the commercialization opportunities like virtual concerts and store fronts.⁵²

⁴⁹ Ibid.

⁵⁰ Favis, Elise. “How the Sims Navigated 20 Years of Change to Become One of the Most Successful Franchises Ever.” The Washington Post. WP Company, February 13, 2020. <https://www.washingtonpost.com/video-games/2020/02/04/how-sims-navigated-20-years-change-become-one-most-successful-franchises-ever/>.

⁵¹ Cole, Sean. “The Sims: An Oral History From the Game's Creators.” Vice. Vice, October 14, 2022. <https://www.vice.com/en/article/wxn44z/sims-game-an-oral-history>.

⁵² Berthiaume, Dan. “Ralph Lauren Extends Metaverse Promotion to Fortnite.” Chain Store Age, November 1, 2022. <https://chainstoreage.com/ralph-lauren-extends-metaverse-promotion-fortnite>.

In an interview with Fast Company, Epic Games founder, CEO, and majority stakeholder Tim Sweeney shared his hopes for a future decentralized metaverse, not one “gate-kept by any one company.”⁵³ Sweeney’s approach with Epic Games, Unreal Engine, and Fortnite is to provide the code, tools, and opportunities to create and connect with others.⁵⁴ Sweeney is also open about commercializing Fortnite, and games in general, stating, “Whenever we talk to third-party companies, world-class brands, about bringing major brand presences into Fortnite, they’re all about how they can reach customers and build direct relationships with customers themselves.”⁵⁵ Without naming specific examples, he does acknowledge that there is “going to be some reckoning with reality for the companies that are building things that don’t quite or don’t really work.”⁵⁶ Still, he sees Unreal Engine and Fortnite as “the foundations for the future” of the metaverse.⁵⁷ Epic Games is actively investing more in the future of the metaverse, investing in metaverse infrastructure developer Hadean in September 2022.⁵⁸ Hadean’s technology could help scale Fortnite’s ecosystems and virtual events to host more players at a time, signaling at Epic’s intentions to expand their offerings to the needs of an interconnected metaverse.⁵⁹

⁵³ Sullivan, Mark. “Epic Games CEO Tim Sweeney Talks the Metaverse and Crypto.” Fast Company. Fast Company, April 25, 2022. <https://www.fastcompany.com/90741893/epic-games-ceo-tim-sweeney-talks-the-metaverse-crypto-and-antitrust>.

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Tassi, Paul. “Fortnite’s Epic Games Makes a Metaverse Investment to Scale up Even Further.” Forbes. Forbes, October 12, 2022. <https://www.forbes.com/sites/paultassi/2022/09/23/fortnites-epic-games-makes-a-metaverse-investment-to-scale-up-even-further/>.

⁵⁹ Ibid.

Fortnite has four modes, Battle Royale, Zero Build, Save the World, and Creative. All of the modes are Massively Multi-player (“MMO”) Games, but they vary in their objectives; Some are first-person shooter, survival, or similar to a MMORPG life simulator. Fortnite Creative seems to expand upon Second Life and The Sims, centering the objective of making one’s own islands and mini games within the game. Its emphasis on expression and imagination suggest that the game is more about what a player creates rather than the identity they create, perhaps less negatively affecting the user’s physical identity development outside of the game. Fortnite strongly encourages community and sharing creations online with friends, so the game still has the potential to foster virtual socialization that might actually have negative effects on relationship and identity development of the players, as explored in Chapter 1. However, Fortnite Creative’s distance from replicating the physical world, and instead making islands and games, suggests users could use the game for its imaginative intent rather than use it to escape and replace physical reality exactly. Through my research, it is unclear whether companies and brands have any presence within the Creative mode, but their presence would contribute to connecting the game to the physical world, implying more complex, detrimental effects on a player’s identity and relationship development.

SMALLER PLAYERS

The next set of companies, the Smaller Players, have vital contributions to building the metaverse but have less prominence and brand awareness in the space overall. These companies enable Meta and Microsoft to exist, operate, and expand. There are several components of the metaverse, but a few that will be discussed in this chapter are game engines, Integrated Virtual World Platforms (IVWPs), retail companies.

Game engines are the platforms upon which virtual games are built. For example, Unreal Engine, owned by Epic Games, is a leader among game engines. Unreal Engine's main competitor is Unity, which was founded in 2004 and was behind over 50% of the games made for mobile, PC and console in 2021.⁶⁰ Unity's philosophy is that "the world is a better place with more creators in it." They emphasize the value-add of their products in "almost every industry," not just gaming. Unreal Engine creates its own games while Unity does not sell games, and each has a different approach to advertising and stores in the metaverse.⁶¹ Although Unity and Unreal Engine currently seem to occupy different segments of the industry, their comparison and competition will be interesting to follow as the metaverse industry develops to see whether how they might diverge or converge. It will also be important to follow whether the game engine sector becomes monopolized or decentralized as the demand for their services increases.

Integrated Virtual World Platforms (IVWPs) are the games themselves. Smaller IVWPs are those not owned by bigger gaming companies like Epic Games and Tencent.

⁶⁰ "Wondering What Unity Is? ." Unity, November 7, 2022. <https://unity.com/our-company>.

⁶¹ Malaeb, Jad. "The Fight For Metaverse Dominance: Unity Versus Unreal Engine – Who Wins?" Yahoo! Yahoo!, November 22, 2022. <https://www.yahoo.com/now/fight-metaverse-dominance-unity-versus-131500365.html>.

For example, games like Decentraland are blockchain-based games, offering users ownership of the game through profit share and governance in the game. Outside of its ownership structure, Decentraland seems to have a similar philosophy as other MMORPGs, advertising their avatar and world building opportunities.⁶² Although Decentraland and its peers had “less than 1% of Roblox’s and Minecraft’s daily active users,” the companies and others in the space believe their structure will help them to grow faster than the larger games.⁶³ IVWPs will be interesting to follow as they are integrated with blockchain and other Web3 technologies, and they seem to center their users, perhaps empowering them to have a better experience regarding identity and relationship development in their virtual worlds.

In the retail space, Walmart is one of the leaders rolling out virtual shopping experiences. While apparel brands have been creating virtual stores and virtual collections, Walmart is the first among grocery stores to enter the space.⁶⁴ A 2017 clip of a virtual Walmart store mockup resurfaced the internet in a Twitter thread in January 2022, spreading false ideas for what the company might be imagining for their virtual shopping experiences. The video had been commissioned by Walmart and created by digital marketing agency Mutual Mobile “to impress influencers at SXSW”.⁶⁵ While the

⁶² Welcome to Decentraland. Accessed December 4, 2022. <https://decentraland.org/>.

⁶³ Ball, Matthew. *The Metaverse: And How It Will Revolutionize Everything*. New York, NY: Liveright Publishing Corporation, a division of W.W. Norton & Company, 2022.

⁶⁴ Walk-Morris, Tatiana. “Lacoste Launches Virtual Store with NFT-Holder Perks.” Retail Dive, November 30, 2022. <https://www.retaildive.com/news/lacoste-nft-virtual-store-perks/637470/>; “Forever 21 Launches the World’s First Metaverse-Tested Fashion Collection, IRL.” Business Wire, December 1, 2022. <https://www.businesswire.com/news/home/20221201005082/en/Forever-21-Launches-the-World%E2%80%99s-First-Metaverse-Tested-Fashion-Collection-IRL>.

⁶⁵ Vincent, James. “That Walmart VR Shopping Video Is Old News - but so Is the Metaverse.” The Verge. The Verge, January 5, 2022. <https://www.theverge.com/tldr/2022/1/5/22868323/walmart-metaverse-shopping-video-viral-old>.

video is years old, many viewers found it to be similar to the virtual experiences one sees today.⁶⁶ However, the company's metaverse strategy has since changed, entering the MMO game Roblox in September 2022 and targeting Gen Z shoppers.⁶⁷ CNBC coverage of Walmart's first moves in the metaverse shares that Roblox is their "testing ground [they] consider other moves in the metaverse and beyond."⁶⁸ The venture includes a variety of approaches, like livestreamed events, shoppable recipes, and an augmented reality-powered tool for testing furniture in one's home.⁶⁹ Walmart's Chief Marketing Officer William White shared that the company's strategy is to drive cultural relevance, develop community and engagement, and increase brand favorability with younger consumers.⁷⁰ The company seems to have shifted to this strategy "after seeing the pandemic shake up shopping habits and fuel consumers' engagement with social media, apps and gaming websites."⁷¹ However, as people have returned to and realized a preference for physical experiences, it will be interesting to evaluate whether people opt to shop virtually whether for convenience, fun, or other motivating reasons. In addition, it will be interesting to follow whether companies like Walmart will realize and assume the responsibility they have to foster virtual relationship and identity development, beyond just customer experience.

⁶⁶ Vincent, James. "That Walmart VR Shopping Video Is Old News - but so Is the Metaverse." The Verge. The Verge, January 5, 2022. <https://www.theverge.com/tldr/2022/1/5/22868323/walmart-metaverse-shopping-video-viral-old>.

⁶⁷ Repko, Melissa. "Walmart Enters the Metaverse with Roblox Experiences Aimed at Younger Shoppers." CNBC. CNBC, September 26, 2022. <https://www.cnbc.com/2022/09/26/walmart-enters-the-metaverse-with-roblox.html>.

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Ibid.

META

Founded in 2004, Meta is one of The Giants to be discussed in this section. Meta is one of the world's largest tech companies, with the mission "to give people the power to build community and bring the world closer together".⁷² In October 2021, founder and CEO Mark Zuckerberg announced that Facebook would be rebranded to Meta, reflecting the company's commitment to building the metaverse, what the company calls "the next evolution of social connection."⁷³ Meta's company's vision is "to help bring the metaverse to life," explicitly stating the company's sole commitment to the metaverse.⁷⁴ Meta's offerings include social media apps Facebook, Messenger, Instagram, and WhatsApp, and the acquired Oculus, now Meta Quest, headset devices. The company has also created other hardware like the Meta Portal displays for video calling and streaming and Ray-Ban Stories glasses and sunglasses for recording and sharing content to social media.

Meta's philosophy for the metaverse is that it will be social first.⁷⁵ Through their metaverse app Horizon Worlds, the company offers users "an ever-expanding social universe where you can hang with friends, meet new people, play games, attend cool events" available through their Meta Quest headsets.⁷⁶ The company's emphasis on the

⁷² "FAQs." Meta - Resources. Accessed December 4, 2022.

<https://investor.fb.com/resources/default.aspx#:~:text=Originally%20founded%20in%202004%20as,support%20and%20make%20a%20difference>.

⁷³ "The Facebook Company Is Now Meta." Meta, November 7, 2022.

<https://about.fb.com/news/2021/10/facebook-company-is-now-meta/>.

⁷⁴ "Welcome to Meta." Meta. Accessed December 4, 2022. <https://about.meta.com/meta/%C2%A0>.

⁷⁵ Ibid.

⁷⁶ "Horizon Worlds: Virtual Reality Worlds and Communities." Meta Horizon Worlds. Accessed December 4, 2022. https://www.oculus.com/horizon-worlds/?utm_content=77361.

social applications of the metaverse immediately indicates their impact on the virtual relationship and identity development. Hence, the company's endeavors with Horizon Worlds are at high risk of being detrimental towards its users, as it focuses on the use of virtual avatars and virtual community.

Even Meta's own employees have expressed dissatisfaction with the product and metaverse strategy thus far. One year into Meta's rebranding, the company has spent billions of dollars on a strategy that undergoes "frequent strategy shifts that seem tied to Mr. Zuckerberg's whims rather than a cohesive plan."⁷⁷ In fact, according to a New York Times article, "in a May [2022] poll of 1,000 Meta employees... only 58 percent said they understood the company's metaverse strategy," with some employees "jokingly [referring] to key metaverse projects as M.M.H., an acronym for 'make Mark happy.'"⁷⁸ Despite hefty investments, the unstable strategy has led to unfavorable results for the company, including a "stock price [down] nearly 60 percent in the past year" and a mere "300,000 monthly active users" compared to Facebook's 2.9 billion, Fortnite's 83 million, and The Sims's 10 million.⁷⁹ The failures of Horizon Worlds thus far have fed "some investors' skepticism that the metaverse will be highly lucrative anytime soon."⁸⁰

⁷⁷ Mac, Ryan, Sheera Frenkel, and Kevin Roose. "Skepticism, Confusion, Frustration: Inside Mark Zuckerberg's Metaverse Struggles." The New York Times. The New York Times, October 10, 2022. <https://www.nytimes.com/2022/10/09/technology/meta-zuckerberg-metaverse.html>.

⁷⁸ Ibid.

⁷⁹ Ibid.; "Fortnite Usage and Revenue Statistics (2022)." Business of Apps, September 6, 2022. <https://www.businessofapps.com/data/fortnite-statistics/>; Kerr, Chris. "The Sims 4 Records Peak High of 10 Million Monthly Active Users." Game Developer, June 19, 2020. <https://www.gamedeveloper.com/business/-i-the-sims-4-i-records-peak-high-of-10-million-monthly-active-users>.

⁸⁰ Mac, Ryan, Sheera Frenkel, and Kevin Roose. "Skepticism, Confusion, Frustration: Inside Mark Zuckerberg's Metaverse Struggles." The New York Times. The New York Times, October 10, 2022. <https://www.nytimes.com/2022/10/09/technology/meta-zuckerberg-metaverse.html>.

Horizon Worlds is falling much short of goals and struggling to retain users, specifically as a result of the poor experience users are having on the platform. In Zuckerberg's letter to the company announcing the layoffs of 13% of Meta's staff, he acknowledged his failed prediction that the COVID surge in online activity "would be a permanent acceleration that would continue even after the pandemic ended," the phenomenon supported by Larivière-Bastien et. al's study in Chapter 1.⁸¹ Other reviews said Horizon was full of "baffling branded content, persistent bugs, and empty worlds with no user interactions."⁸² Wall Street Journal also reported that "that only 9% of worlds built by users are ever visited by at least 50 people, while most never receive any visits at all."⁸³ These characteristics suggest very few opportunities for meaningful experiences through which one can build relationships and identity. Beyond these issues, some users have "reported harassment and digital groping," which led Meta to add "a virtual 4-foot buffer around avatars on the platform."⁸⁴ Horizon Worlds exemplifies the failures and dangers of the metaverse, which centers commercialization and does not focus enough on fostering safe, healthy socialization and identity development.

⁸¹ Vanian, Jonathan. "Meta Laying off More than 11,000 Employees: Read Zuckerberg's Letter Announcing the Cuts." CNBC. CNBC, November 9, 2022. <https://www.cnbc.com/2022/11/09/meta-to-lay-off-more-than-11000-thousand-employees.html>.

⁸² Tangalakis-Lippert, Katherine. "Most Metaverse Users Don't Even Make It a Month, WSJ Reports." Yahoo! News. Yahoo! Accessed December 4, 2022. <https://www.yahoo.com/news/most-metaverse-users-dont-even-061917566.html>.

⁸³ Tangalakis-Lippert, Katherine. "Most Metaverse Users Don't Even Make It a Month, WSJ Reports." Yahoo! News. Yahoo! Accessed December 4, 2022. <https://www.yahoo.com/news/most-metaverse-users-dont-even-061917566.html>.

⁸⁴ Ibid.

Despite the company's results and 11,000 layoffs, Zuckerberg remains positive about his strategy, keeping the metaverse as Meta's main priority.⁸⁵ In a November 2022 CNBC article, Meta even admits to anticipating that "losses will grow significantly year-over-year."⁸⁶ In Zuckerberg's letter to the company, he stated their revised approach: "[shifting] more of our resources onto a smaller number of high priority growth areas — like our AI discovery engine, our ads and business platforms, and our long-term vision for the metaverse."⁸⁷ Hence, despite their existing metaverse ventures failing, costing them billions of dollars and thousands of employees, Zuckerberg remains committed to his vision. He believes the company is "deeply underestimated" and is "confident that if [they] work efficiently, [they will] come out of this downturn stronger and more resilient than ever."⁸⁸

⁸⁵ Vanian, Jonathan. "Meta Laying off More than 11,000 Employees: Read Zuckerberg's Letter Announcing the Cuts." CNBC. CNBC, November 9, 2022. <https://www.cnbc.com/2022/11/09/meta-to-lay-off-more-than-11000-thousand-employees.html>.

⁸⁶ Ibid.

⁸⁷ Ibid.

⁸⁸ Ibid.

MICROSOFT

Founded in 1975, Microsoft is the other Giant discussed in this chapter and one of the world's largest technology companies, with the mission "to empower every person and every organization on the planet to achieve more."⁸⁹ Known for Microsoft 365 productivity suite, Windows operating system, Surface hardware, Xbox gaming, and its ownership of LinkedIn, the company has recently made moves to venture into the metaverse space.⁹⁰ The company's current CEO, Satya Nadella, shared in a Fast Company article from January 2022 that he thinks, "the next wave of the internet will be a more open world where people can build their own metaverse worlds, whether they're organizations or game developers or anyone else."⁹¹ Nadella and Microsoft seem to be focusing on the organizational, industrial, and gaming applications for the metaverse, rather than the social approach of Meta.⁹²

One of Microsoft's main ventures into the metaverse space is Microsoft Mesh, which is technology that "enables presence and shared experiences from anywhere – on any device – through mixed reality applications."⁹³ Mesh has integrations with Teams and 365, Microsoft's leading solutions for remote or hybrid work. According to the company website, a significant portion of Microsoft's commitment to their overall

⁸⁹ "Facts about Microsoft." Facts About Microsoft, October 25, 2022. <https://news.microsoft.com/facts-about-microsoft/#Subsidiaries>.

⁹⁰ Microsoft. Accessed December 4, 2022. <https://www.microsoft.com/en-us/>.

⁹¹ Sullivan, Mark. "Microsoft's Metaverse Vision Is Becoming Clear—and Makes Sense." Fast Company, January 27, 2022. <https://www.fastcompany.com/90716389/microsoft-activision-metaverse>.

⁹² Ibid.

⁹³ "Introducing Microsoft Mesh." Microsoft. Accessed December 4, 2022. <https://www.microsoft.com/en-us/mesh>.

mission is through how they play a part in “responding to COVID-19 together.”⁹⁴ Within this commitment, the company elaborates on tools they have built to help companies and employees adapt to the challenges imposed by working from home as a result of the global pandemic.⁹⁵ A company website aimed at helping small businesses, linked from the COVID-19 response page, highlights Microsoft 365 and Teams as their strongest solutions for virtual working. On the Teams landing page, Microsoft is currently advertising the use of “Mesh avatars for Microsoft Teams,” available to a limited group of customers before the public launch of the feature.⁹⁶ The company is also working on integrating their 365 solution with metaverse endeavors, with the preview launch of Microsoft Mesh App, an application for their HoloLens 2 headset with which users can experience synchronous and asynchronous collaboration with 3D content imported from OneDrive, the file storage and management offering within 365. These products exemplify Microsoft’s growing efforts to integrate immersive metaverse technology with their existing productivity and business offerings.

With Mesh, Microsoft seems to be focusing on the organizational applications of the technology, such as collaboration, training, and even medical visits, rather than social use cases.⁹⁷ Still, Microsoft recently announced a partnership with Meta, making Mesh

⁹⁴ “About - Values.” Microsoft. Accessed December 4, 2022. <https://www.microsoft.com/en-us/about/values>.

⁹⁵ “Responding to COVID-19 Together.” Microsoft. Accessed December 4, 2022. <https://news.microsoft.com/covid-19-response/#remote-working>.

⁹⁶ “Microsoft Teams.” Microsoft. Accessed December 4, 2022. <https://www.microsoft.com/en-us/microsoft-teams/teams-for-work#coreui-contentrichblock-oq18mcr>.

⁹⁷ “Introducing Microsoft Mesh.” Microsoft. Accessed December 4, 2022. <https://www.microsoft.com/en-us/mesh>.

for Microsoft Teams available on Meta Quest headset devices.⁹⁸ This move to partner up with Meta, given their differing approaches to the metaverse, may signify a move from Microsoft to get more involved in the social, consumer side of the metaverse, or a move from Meta to get more involved in the organizational side. Alternatively, the partnership could create a bridge between the consumer and organizational, thus increasing the interconnectedness of the metaverse industries. Microsoft also announced that the company was working on getting Windows 365 apps on the Meta Quest devices as well as Xbox Cloud Gaming to the Meta Quest Store. Their philosophy behind connecting Xbox and Meta Quest was to “allow [more] gamers to stream hundreds of high-quality Xbox games” to more devices. Regarding the partnership of Teams, 365, and Meta Quest, Microsoft reiterated their commitment to “to ensure the software experiences we deliver can benefit users on all their favorite devices [and] to provide customers with more choice and security as they venture into the metaverse.”⁹⁹ Nonetheless, it will be interesting to follow the future relationship between these two companies as their endeavors into the metaverse mature, perhaps with or without one another.

Microsoft’s second metaverse venture is Azure Digital Twins (“Digital Twins”), an industrial metaverse application, meaning it functions more as a tool that companies can use for their production and process needs. Microsoft aims for users to use this tool to build “better products, optimize operations and costs, and create breakthrough customer

⁹⁸ Teper, Jeff. “Microsoft and Meta Partner to Deliver Immersive Experiences for the Future of Work and Play.” The Official Microsoft Blog, October 12, 2022.

<https://blogs.microsoft.com/blog/2022/10/11/microsoft-and-meta-partner-to-deliver-immersive-experiences-for-the-future-of-work-and-play/>.

⁹⁹ Ibid.

experiences.”¹⁰⁰ According to the Digital Twins website, the product is “an Internet of Things (IoT) platform that enables you to create a digital representation of real-world things, places, business processes, and people.”¹⁰¹ IoT refers to the network of everyday “things” or objects and the technology that connect them with the internet, such as cars with “smart dash cams” or houses with “smart thermostats,” which have “sensors to collect data and respond intelligently to users.”¹⁰² Hence, a business can connect existing IoT assets and other business systems into the Digital Twins IoT platform to build and gather the most valuable insights.¹⁰³ In the end, the goal behind this technology is to learn from the digital twin to implement the physical twin. In a May 2021 company blog post, Sam George, then Corporate Vice President of Azure IoT, wrote about the Digital Twins technology as “a convergence of the physical and digital worlds ... [creating] a new world of opportunity and transformative solutions that will change everything.”¹⁷

In Microsoft’s organizational and industrial cases, the convergence of the physical and digital realities present benefits for business, employees, and customers. Their philosophy with these products is to enhance work and productivity, rather than the more personal and social factors like identity and relationship development. Through their current endeavors with Microsoft Mesh and Azure Digital Twins, Microsoft also emphasizes the value in having a spectrum of augmented reality experiences, thus

¹⁰⁰ “Digital Twins – Modeling and Simulations: Microsoft Azure.” Microsoft. Accessed December 4, 2022. <https://azure.microsoft.com/en-us/products/digital-twins/#overview>.

¹⁰¹ Ibid.

¹⁰² “What Is Iot?” Amazon AWS, 1978. <https://aws.amazon.com/what-is/iot/#seo-faq-pairs#what-is-the-internet-of-things-iot>.

¹⁰³ “Digital Twins – Modeling and Simulations: Microsoft Azure.” Microsoft. Accessed December 4, 2022. <https://azure.microsoft.com/en-us/products/digital-twins/#overview>.

building for mixed reality in addition to full virtual reality, as well as having the end goal of improving the physical world.

Microsoft's final endeavor into the metaverse is their intention to acquire Activision Blizzard ("Activision"), a major American video gaming company, for \$69 billion.¹⁰⁴ Announced in January 2022, it would be the largest consumer technology deal in two decades.¹⁰⁵ As of December 2022, the acquisition has yet to be finalized, is under the review of sixteen governments, and is at risk of an antitrust investigation from the Federal Trade Commission.¹⁰⁶ Thus far, the acquisition of Activision is Microsoft's main venture into the more consumer-centric space of the metaverse besides its previously discussed, potential partnership with Meta to integrate Xbox gaming and Meta Quest. If the acquisition is successful, Microsoft will become one of the top gaming companies, potentially giving Microsoft "outsize power" in the gaming industry.¹⁰⁷ In addition, this result will bring gaming to the forefront of Microsoft's metaverse strategy, positioning the company in the consumer metaverse space with more potential of creating detrimental virtual experiences for their consumers. If the acquisition is unsuccessful, this result is a sign to other tech giants that they may not be able get away with potentially

¹⁰⁴ McCabe, David, and Karen Weise. "Can Big Tech Get Bigger? Microsoft Presses Governments to Say Yes." *The New York Times*. *The New York Times*, November 21, 2022. <https://www.nytimes.com/2022/11/21/technology/microsoft-activision-deal.html>.

¹⁰⁵ *Ibid.*

¹⁰⁶ *Ibid.*

¹⁰⁷ "Microsoft to Acquire Activision Blizzard to Bring the Joy and Community of Gaming to Everyone, across Every Device." *Microsoft Stories*, January 21, 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/>; McCabe, David, and Karen Weise. "Can Big Tech Get Bigger? Microsoft Presses Governments to Say Yes." *The New York Times*. *The New York Times*, November 21, 2022. <https://www.nytimes.com/2022/11/21/technology/microsoft-activision-deal.html>.

monopolizing deals going forward. However, another company could try to position to acquire Activision as a way to get into gaming industry, thus still increasing the gaming sector of the metaverse.¹⁰⁸

In all, Microsoft's current philosophy and efforts towards creating the metaverse serve as an example that is focusing more on organizational and industrial applications of metaverse technology rather than consumer and social use cases. While Microsoft's ventures into the virtual gaming space remain to be determined, the company's principles seem to protect and prioritize the physical world and reality, only bringing their users into virtual or mixed reality experiences to help professional collaboration, to improve design processes, or to expand access to gaming. Still, depending on the mechanics of their virtual games, there is increased potential for the company to have detrimental effects on identity formation and relationship.

¹⁰⁸ Tassi, Paul. "What Happens If Microsoft Is Blocked from Buying Activision Blizzard?" Forbes. Forbes Magazine, October 19, 2022. <https://www.forbes.com/sites/paultassi/2022/10/18/what-happens-if-microsoft-is-blocked-from-buying-activision-blizzard/?sh=33a8bc3d380d>.

CONCLUSION TO CHAPTER

This chapter reiterates the importance of relationship building and identity formation for human development and evaluates several approaches to building user experiences in the metaverse that affect these areas. A look at the Early Players, notably Second Life and The Sims, in the metaverse space illuminates the origins of virtual worlds for creativity and expression, as well as the more recent approach from Fortnite towards the commercialization of virtual spaces. The assortment of Smaller Players helps contextualize the many parts of the metaverse, like game engines and retail experiences, that come together to make the metaverse possible and holistic. The deeper analysis of Meta's and Microsoft's different strategies for the metaverse illuminates the detrimental effects on relationship and identity development in Meta's social Horizon Worlds and Microsoft's gaming endeavors. Microsoft's organizational and industrial metaverse efforts, on the other hand, present the potential for positive impact, as these products focus on cultivating business rather than social outcomes and on improving the physical world with the use of virtual tools rather than escaping the physical to immerse oneself in the virtual.

Thus far, Chapter 1 established the detrimental effect of virtual experiences on identity and relationship development, and this chapter has provided the history, current endeavors, and future ideas of companies developing the metaverse in the coming years. This chapter highlights the directions in which the tech industry is going, further conflating the physical and digital.

Chapter 3: Capstone Project

My Capstone Project, titled *My Physical-Digital Self*, is an artistic expression and manifestation of my thesis, research, and analysis from this paper. This chapter explores the ideation, execution, and reflection upon my completed Capstone Project. At the time of writing this paper, my gallery installation was incomplete. Photos and videos of my installation can be accessed here at this [link \(https://sdcreative.cargo.site\)](https://sdcreative.cargo.site) for readers to view and reference.

My Physical-Digital Self is an immersive gallery installation that includes a central, narrative video component and physical items. The video tells a narrative 24 hours in the metaverse, bringing the viewer through several consumer metaverse experiences, ranging from grocery shopping, retail shopping, socializing, or attending a concert in the metaverse. The video runs around 6 minutes long and plays on a loop projected on the three walls of the small video studio room next to Pitzer College's Kallick Gallery. Physical items, such as fruit, laundry detergent, and clothing, correspond with the experiences portrayed in the video and are displayed on pedestals along each wall of the room, just below the video projections. A brief artist statement accompanies the installation, which includes context and questions related to my thesis for viewers to ponder as they view the piece. The complete list of the experiences included in the video is as follows: Fortnite, Pokémon Virtual Concert, Meta Horizon Worlds, The Sims, Second Life, virtual H&M Store, virtual Dior Store, virtual Walmart Store, and Azure Virtual Store Platform, which is not affiliated with Microsoft Azure products.

My Physical-Digital Self both draws inspiration from and differentiates itself from other works in the immersive installation space, whether through the thematic subject or

the sensory foci of the piece. The immersive art space has roots in the human “aspiration to create and augment realities,” and has experienced a boom in popularity in the 2020s as a result of technological developments and social media culture.¹⁰⁹ Driven by the “growing public desire to not just see art, but to experience it too,” immersive installations utilize tools like virtual reality headsets, holography, and digital projection to help a viewer interact with the work itself.¹¹⁰ However, immersive art existed before and without the use of these technologies. Notably, since the 1960s, Japanese contemporary sculpture artist Yayoi Kusama has specialized in welcoming viewers into her art through the use of large-scaled installations, sculptures, and mirrors.¹¹¹ The desire for immersive artwork also has a history rooted in participatory and experiential art that centers the viewer as a “protagonist” or “core component” of the work, rather than a “passive spectator.”¹¹² My project takes inspiration from these genres and principles, similarly centering the viewer and “entices them within artificial, constructed, often multi-sensory environment.”¹¹³ Given the history of immersive art, *My Physical-Digital Self* expands upon existing ideas of creating alternate realities through art, literally recontextualizing digital realities and asking viewers to be active participants in questioning what it means to have a digital identity and life.

¹⁰⁹ “The origins of immersive experiences,” FutureLearn, FutureLearn, Accessed October 13, 2022, <https://www.futurelearn.com/info/courses/introduction-to-virtual-reality/0/steps/98674#:~:text=The%20earliest%20known%20tangible%20example,and%20ceiling%20of%20their%20caves>.

¹¹⁰ Compton, Alice, “What is immersive art? The story of immersive art and 5 exhibitions you can visit in 2022,” Kooness, Kooness, February 1, 2022, <https://www.kooness.com/posts/magazine/what-is-immersive-art>.

¹¹¹ Ibid.

¹¹² Ibid.

¹¹³ Ibid.

My project also draws specific inspiration from artists Pipilotti Rist, Cao Fei, Ragnar Kjartansson, and Alfredo Jaar. Pipilotti Rist is a Swiss experimental video and installation artist whose work *Big Heartedness, Be My Neighbor*, is topically similar to my project as it is an exploration of the body in relation to projected videos.¹¹⁴ Rist's piece also questions ideas of home, neighborhood, and space, in a similar way that my project questions one's surroundings and realities. A driving question for Rist, "Where or when does comfort become confinement?," relates to my goal of portraying the discomfort and disorienting effect of the metaverse for my viewers.¹¹⁵ Hence, I draw thematic inspiration from Rist, as well as technical inspiration as she has employed video projection over blank walls and over found, everyday objects suspended on walls, just as I did. Another influence of mine is Cao Fei, a Chinese contemporary artist, who has numerous video works that critique and reimagine the state of society.¹¹⁶ Fei has explored the virtual world and augmented reality space in a number of works, including a 2007 project *i.Mirror* in which she spent six months embodying an avatar in the game Second Life and creating a film from her documented experiences.¹¹⁷ *i.Mirror* inspired me to draw footage from Second Life, but it is an "ultimately optimistic" narrative-style piece, while my project is more critical of life in the virtual world.¹¹⁸ Fei has also embarked on

¹¹⁴ "Pipilotti Rist: Big Heartedness, Be My Neighbor," MOCA. MOCA, Accessed October 13, 2022. <https://www.moca.org/exhibition/pipilotti-rist>.

¹¹⁵ Myers, Terry R, "Pipilotti Rist's 'Big Heartedness, Be My Neighbor'," Art Agenda Reviews, Art Agenda Reviews, Accessed October 13, 2022, <https://www.art-agenda.com/criticism/473434/pipilotti-rist-s-big-heartedness-be-my-neighbor>.

¹¹⁶ Fei, Cao, "About." Cao Fei, Cao Fei, Accessed October 13, 2022, <http://www.caofei.com/about.aspx>.

¹¹⁷ Fei, Cao, "The Second Life of Cao Fei," Cao Fei, Cao Fei, Accessed October 13, 2022, <http://www.caofei.com/texts.aspx?id=21&year=2007&aitid=1>.

¹¹⁸ Ibid.

making art in the virtual world, creating *The Eternal Wave AR* and *The Eternal Wave*, both in 2020.¹¹⁹ Using a smartphone or VR headset, respectively, viewers are “participants and players,” both exploring and contributing to the art.¹²⁰ *My Physical-Digital Self* differentiates itself from these projects which asks one to consider only a digital world. My project focuses on the conflation of the digital and physical world, being a gallery installation that is placed in the physical world but portrays the digital world. Lastly, the two pieces, *The Visitors* by Ragnar Kjartansson, an Icelandic contemporary artist, and *06.01.2020 18.39* by Alfredo Jaar, a Chilean artist have both informed the technical components of my project. *The Visitors* is distinct from my project as it portrays reality, including a real house full of real people, but I am inspired by its unique pairing of sound and visuals.¹²¹ While my project relies on the videos, I was inspired by *The Visitors* to create an auditory experience that was just as immersive and which assisted in making my piece disorienting for the viewer to experience. Jaar’s *06.01.2020 18.39* employs video, audio, and overhead fans blowing to mimic helicopters in the accompanying video. *06.01.2020 18.39* includes footage from Black Lives Matter protests in Washington D.C., prompting the viewer to reflect upon reality in the physical world, while my project cues the viewer to imagine a life in the virtual world.¹²² Still, I drew ideas from the use of fans and audio in Jaar’s work to create such an emotional and

¹¹⁹ “Cao Fei,” Acute Art, Acute Art, Accessed October 13, 2022, <https://acuteart.com/artist/cao-fei/>.

¹²⁰ Ibid.

¹²¹ “Ragnar Kjartansson: The Visitors.” ICA. ICA, Accessed October 13, 2022. <https://www.icaboston.org/exhibitions/ragnar-kjartansson-visitors-1>.

¹²² Cascome, Sarah. “‘This Work Is About the Abuse of Power’: Alfredo Jaar on His Immersive Black Lives Matter Protest Piece at the Whitney Biennial.” Artnet News. Artnet News, April 13, 2022. <https://news.artnet.com/art-world/alfredo-jaar-whitney-biennial-2022-2093016>.

life-like experience for his viewers. Influenced by these artists' pieces, *My Physical-Digital Self* builds a distinct installation experience that urges the viewer to be an active participant in the piece through immersive art techniques and an expansion upon themes of reality, identity, and relationships.

My process for creating the video began with storyboarding and determining the footage for the piece. My video is compiled entirely from found footage, so I began by browsing content available on the internet, primarily YouTube, and then narrowing down the virtual experiences I wanted to include and represent in my project. I first narrowed my scope by choosing to focus on the consumer metaverse space, which is an area that was more relevant to the media studies theory I referenced and which I found has more detrimental effects compared to its counterparts in the business, industrial, or other spaces. I then narrowed within the consumer metaverse space to focus only on entertainment, social, retail, and grocery experiences, eliminating hospitality, travel, and other virtual experiences for which I either found less footage or were less developed areas of the metaverse. I also found that the entertainment and social footage provided a strong contrast from the retail and grocery footage, while providing a smooth flow from one experience to the next. After collecting this footage, I drafted up multiple versions of the video, outlining the various orders in which I could edit the videos together. I finalized the order of the videos during a class critique, deciding to bring the viewer through "a day in the metaverse," and order the clips in what my peers and I determined to be the most to least appealing virtual experience. For example, a video of a high-production virtual concert with vibrant visuals starts the video, while a slow, lagging video of a virtual grocery shopping experience concludes the video. I also worked with

Professor Tran to determine how best to make use of the footage that was from either first or third person perspective. I decided to use both, starting with third person perspective footage to help situate the viewer in the avatar's body, then shifting to the avatar's perspective, and finally, ending the video back in third person perspective, as though helping the viewer exit the virtual world perspective and re-enter their own body.

In response to my Work in Progress ("WIP") Presentation, Professor Ma strongly suggested testing the video in the video studio room, which is the gallery space I was able to secure for the installation, as my final step for completing the video. Seeing the video on the projectors and screens, as well as with the other elements of sound and physical items, helped me to make my final edits. In gathering feedback on the video test from the Director of Media Studies Production Services as well as another Media Studies senior who is also creating a gallery capstone project, I confirmed that the pacing of the video and audio level and types worked for the given space. I also decided to add seating and was able to test different seating, ultimately choosing a large, round ottoman that will allow viewers to sit and view from any angle as well as walk around the space freely. After a final critique of the video from my classmates, I shifted from suspending the physical items from the ceiling to displaying them on pedestals just below the projections on the wall, as I did not want the objects distracting from the video projections. In a final feedback meeting with Professor Tran, we worked through final touches to add to the video, including more transitions to help guide the viewer through the different points in the narrative of the video, such as a more intentional and longer transition from the retail to the grocery shopping clips where the pacing of the video drastically changes. Other ideas for codes or cues to help guide the viewer along included timestamps and progress

bars. The final idea that I experimented with was adding a voiceover to help situate the video within my thesis for the project, in case a viewer saw the video without the artist statement or without the rest of the gallery installation. These final edits helped build out my video to communicate my ideas more clearly even without the added elements of the gallery installation.

My project evolved at each point of feedback: the proposal, the pitch, the draft of Paper 1, and finally, our WIP presentations. In response to my proposal, Professor Tran encouraged me to think about my installation beyond the visual, video components and to try to account for all five senses of my viewers. As I aimed for this installation to be as immersive as possible, Professor Tran's comments helped me generate more ideas for how I could use sound in the installation. For example, I was not sure at the time what kind of sound I would use to accompany my video. I have decided to keep the original audio in most video clips or try to match the genre and tone of the original audio, in the case that the original audio had a voiceover in it. Overall, the video clips are accompanied by ambient sounds that are affiliated with their visual representations, such as the song the artist is singing in a virtual concert, background music from *The Sims*, or ambient grocery store sounds. I decided to keep the original audio to create authentic representations of the virtual experiences, which I found to be disorienting already, without manipulation of their audio counterparts.

The idea to have physical items in my installation, in addition to the video, originates from early feedback from Celine O'Hara, our class TA, who wrote, "To emphasize the distinction between physical and digital spaces, I think it would be beneficial to include some physical aspects in your installation... combining the work

with a live performance or even incorporating plants... a signifier of the living. You want participants to experience digital and physical realities simultaneously, but I think you might need to push them to be reminded of their physical selves somehow.”¹²³ As an example of an artist who has created installations with both digital and physical pieces, Celine recommended I look at Pipilotti Rist and her installation *Big Heartedness, Be My Neighbor*. After reading my draft of Paper 1 where I discussed the intention of using Rist as a primary artist inspiration, Celine provided me with photos from her visit to the installation, where Rist has a mix of projections and physical items, including plants, trinkets, furniture, and other house-like structures. These images, included in the Documentation section, helped me to see how Rist created her own immersive world, specifically utilizing the interaction between projections and physical items. Rist also experimented with providing various ways for her viewer to interact with the installation, whether with seating areas or enough for viewers to walk around the installation. I also admired her detail-oriented approach to the piece, experimenting with every inch of her gallery space, by placing items on the floor or suspending items from the ceiling and wall, as though the space were a filming set. Drawing from Celine’s feedback and Rist’s *Big Heartedness, Be My Neighbor*, I decided to include physical items to correspond with the retail and grocery shopping virtual experiences displayed in the video. For example, I have hats and hand fruits on pedestals just below the projections, serving as “signifiers of the living,” to help remind viewers of their physical selves and needs as they experience these more mundane virtual trips to the store. I decided not to have physical items that

¹²³ Celine O’Hara, Box comment to author, October 17, 2022.

accompany the entertainment and social video clips as I thought the retail and grocery experiences were more tightly associated with the physical items one gets out of those experiences, while the entertainment and social experiences had less tangible objects that function as signifiers to our physical versions of these experiences.



Figure 2. Celine's photo of Rist's
Big Heartedness, Be My Neighbor.

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Figure 3. Celine's photo of Rist's
Big Heartedness, Be My Neighbor.

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In response to my pitch, Professor Ma challenged me to reflect upon the chosen medium of my installation and to dive deeper into my artist inspirations in order to confirm whether video was the best way to communicate my ideas. He wrote, “The idea of immersion you are interested in can be created through a number of media and formats (e.g. sound, gaming environments, theme parks). Is a video installation the best way? I wonder if artists who move through different states of virtual and actual being in their

¹²⁴ Rist, Pipilotti, *Big Heartedness, Be My Neighbor*, videos, physical items, 2021, MOCA.

¹²⁵ Ibid.

work (e.g. Orlan, Cao Fei, Ryan Trecartin, and others) may provide better examples for you to think through? Furthermore, are there formats or lessons you have learnt in your computer science work that can be incorporated into this project? Unless there is a good reason you want to create a video installation as your Capstone, my advice to you is to broaden your exploration of the questions you started with, and let the final form of your media project take shape as you research and think more about it."¹²⁶ Upon meeting with Professor Tran to discuss these ideas further, we found that, while it was interesting to explore the more performance based works of Orlan, Cao Fei, Ryan Trecartin, my project was more about centering the viewer as the physical being experiencing the work, rather than the viewer witnessing me in the work. Inspired by artists like Yayoi Kusama, discussed earlier in this chapter, I aimed to center the viewer as a highly participatory protagonist. While Orlan, Cao Fei, Ryan Trecartin all included some form of performance or presence within their art, Professor Tran found that their“ final presentation forms are all videos, either in museums/galleries or online or both.”¹²⁷ This conclusion led us to think that video would still be the ideal way to communicate my ideas. In thinking about my other methods learned through my computer and data science studies, Professor Tran and I thought more about other formats like using VR or AR headsets, as popularly used in gaming or socializing in virtual worlds. While this approach would be more immersive for the virtual experiences, it would not allow for as much experimentation with the physical experiences as a gallery space could. Finally, we thought a theme park design or ride simulation might be feasible but perhaps not as

¹²⁶ Ming-Yuen Ma, Sakai comment to author, September 20, 2022.

¹²⁷ Kim-Trang Tran, email message to author, September 27, 2022.

effective. Nonetheless, I see ways that my installation could represent a ride simulation as it is a representation of a world of its own and attempts to account for the participant's five senses.

Reflecting on my completed project, there are several parts of the process that did not go as expected. To start, I planned to have the art completed much sooner and allotted more time for testing it in the gallery space. However, it took much longer than anticipated to finalize what medium or method I wanted to use to communicate my ideas best. Originally, I planned to create 2D digital art pieces that I would project or display on gallery walls in some way rather than video projections. I quickly shifted from static art to video art as I researched more into how people experience virtual worlds through immersive video-like media. Another challenge in the overall process was configuring equipment and gallery spaces. As it is one of my first times displaying my art in a gallery and my first time displaying video art through projections, I had to familiarize myself with the video and projection equipment available through Pitzer and with the kinds of spaces that would be ideal for the installation. It was difficult to try to make a video for an undetermined space and simultaneously try to figure out the ideal space based on an incomplete video. To accomplish this, I tried to have multiple backup gallery spaces with mockups for each and to create and edit the video such that it would be as immersive as possible through a variety of installation mockups and methods. It was also important at this stage to think iteratively about what physical items to include and how to include them, as these items helped supplement the digital aspects of the piece and ensure that the installation was immersive in both digital and physical ways regardless of which space I ended up using at the gallery.

I learned a few key lessons in the process of creating this project that I will carry forward with me as I undertake future creative projects and other personal endeavors. First, I learned how to engage in the practice of separating and sequencing the making and critiquing of one's work. While I am still developing this skill, I began implementing this technique more after Sita Bhaumik's artist visit to our class. I learned how difficult it could be to make progress with my art when I would create and critique at the same time. Rather, it was more generative and productive to create, then critique, then cycle through again. Bhaumik also reminded us of the importance of others' feedback in addition to our own self critique. The multiple rounds and types of feedback in the process of making this capstone project have been instrumental in maturing and bringing my ideas to life. This support system and cyclical nature of creating also helped hold me accountable to producing work in time for deadlines and to digest feedback fully and iterating based on it.

Despite deadlines and strategies, the second lesson I learned from this experience was how difficult it can be to ideate and execute a gallery installation within one semester. I worked on this capstone project at the same time that I wrote my CMC senior thesis paper, which provided additional context and analysis on the metaverse. As a result, I had an abundance of additional research and ideas that I wanted to explore further but realized were not realistic within the scope of this project. For example, I was interested in experimenting more with using VR or AR headsets, perhaps not as the primary method for viewing my work, but as a component of it. Also I learned more about game engines that power virtual worlds, I became interested in trying to build something of my own in a virtual world or even displaying my own gameplay footage

and including that in my art. Given my lack of experience in these areas entering the semester, I decided they would be more realistic and effective to explore through research and analysis in my CMC paper, rather than in the artwork itself for this project. Hence, the main conceptual changes I made were to continuously narrow my scope to make sure the project was both substantial and realistic. Having overlapping deadlines between the project and my CMC paper, I learned how to prioritize, coordinate, and communicate my scope, progress, and needs with my various readers, advisors, and consultants. I appreciate how this project was a highly collaborative effort, emphasizing the necessity and effectivity of collaboration in bringing creative ideas to life.

The third and final takeaway I have from this process was the opportunity to develop my artistic practices and techniques, specifically in communicating physical and digital experiences with both physical and digital elements. In taking Intermediate Digital Art in Spring 2022 with Professor Ogasian, I had my first experiences displaying my artwork in a gallery setting. I appreciated how Professor Ogasian emphasized the importance of considering the physical elements and potential of our artwork, even being a digital art class. Through this class, I experimented with and learned the foundations of combining physical and digital elements, from mixing artwork I made in the Adobe Creative Suite and artwork I made in the laser cutter at the Harvey Mudd Makerspace to having the opportunity to think about and execute the ideal installation, lighting, and viewing experience for my final pieces on a gallery wall. With Professor Ogasian, I would brainstorm ways to express physical phenomena digitally and digital phenomena physically, a practice that has been central to this capstone project. It is rewarding to have been able to expand my artistic skills and methods that I came in with at the beginning of

this project and to come out of it with a deeper understanding of video, gallery, and immersive art. By combining the physical and the digital, this project was a case study of my own thesis. Although at the time of writing I have yet to display my complete installation to a larger audience I have been able to weigh the potential for detrimental effects of the metaverse through the process of making this piece and through the experiences of my viewers. In the feedback I have received thus far, there is an appeal to the entertainment space of the metaverse, specifically in gaming and concerts which are like immersive visual and musical experiences. Virtual socialization can be reminiscent of the forced virtual socialization during the height of the pandemic, and many continue to prefer in-person socialization. Virtual everyday tasks like grocery or retail shopping are disorienting but may be something to which people become more accustomed in the future. In the meantime, I return to my thesis questioning what benefit these increasingly immersive virtual experiences add. In the end, *My Physical-Digital Self* helps to prove my thesis that the metaverse has detrimental effects on the relationship and identity development by demonstrating the distance and dissonance between physical and virtual reality.

Conclusion

In Chapter 1, I analyzed the developing metaverse concept in the context of a post-COVID-19 society, looking at the negative effects of virtual on relationship and identity development. With Maslow's hierarchy of needs, Turkle's ideas on earlier forms of virtual reality, and Foucault's frameworks for taking care of and knowing the self, I argued that the metaverse is not an apt environment in which one can properly build relationships and one's identity. In Chapter 2, I elaborated on the history of virtual reality as well as the current and future endeavors of companies in all segments of the metaverse, claiming that the majority of the companies' philosophies do not prioritize fostering healthy relationship and identity development. In Chapter 3, I described my process for ideating and executing my Capstone Project and reflected on lessons learned in regard to refining my artistic process, creating collaboratively, and experimenting with communicating my ideas in physical and digital manners.

As the metaverse is still currently in development, there is a lot of speculation about how the concept will ultimately come to fruition. One opportunity for more development is the deeper integration of the metaverse with other web3 technologies like blockchain, cryptocurrency ("crypto"), and non-fungible tokens ("NFTs"). While the metaverse can and already does exist without the use of the aforementioned technologies, blockchain specifically has the potential to increase the scale, reach, and quality of the metaverse, as already harnessed by companies like Decentraland. The integration of crypto and NFTs into the metaverse would expedite the commercialization of the metaverse, further enabling a digital economy among users and potentially making the metaverse platform more of a consumer space and less of a creative one.

As society enters this next phase of the internet, it will be interesting to see how a decentralized Web3 will be run. With blockchain technology, which enables ownership of one's own data without by a third party like a company or the government, Web3 will be the most open and interconnected version of the internet to exist.¹²⁸ Despite this decentralized design, it seems as though companies are still the forefront of its development, with the power to determine how it will come to life. Will there be a set of core principles guiding the philosophy behind Web3? Who will make and decide them? How can society use them to make Web3 more beneficial than detrimental to reality? In the wake of a number of crypto scams and pitfalls, it is especially important for the companies building out Web3 to focus on establishing trust with their users. Namely, the November 2022 scandal with crypto exchange FTX and founder and CEO Sam Bankman-Fried “sent shockwaves through the crypto world,”¹²⁹ causing “a crypto winter [or] an extended downturn.”¹³⁰ Bankman-Fried is under investigation for using “customers' deposits to fund bets at Bankman-Fried's hedge fund, Alameda Research, a violation of U.S. securities law.”¹³¹ His actions “may have helped make the case for stricter regulation,” something “many supporters of crypto oppose.”¹³² While FTX's

¹²⁸ Marr, Bernard. “What Is web3 All about?” Forbes. Forbes Magazine, October 12, 2022. <https://www.forbes.com/sites/bernardmarr/2022/01/24/what-is-web3-all-about-an-easy-explanation-with-examples/?sh=3d34b5fa2255>.

¹²⁹ “The Downfall of FTX's Sam Bankman-Fried Sends Shockwaves through the Crypto World.” NPR. NPR, November 14, 2022. <https://www.npr.org/2022/11/14/1136482889/ftx-sam-bankman-fried-shockwaves-crypto>.

¹³⁰ Janse, Alejandra Marquez, Sarah Handel, and Ailsa Chang. “How FTX's Fallout Impacts the World of Cryptocurrency.” NPR. NPR, November 14, 2022. <https://www.npr.org/2022/11/14/1136604973/how-ftxs-fallout-impacts-the-world-of-cryptocurrency>.

¹³¹ “The Downfall of FTX's Sam Bankman-Fried Sends Shockwaves through the Crypto World.” NPR. NPR, November 14, 2022. <https://www.npr.org/2022/11/14/1136482889/ftx-sam-bankman-fried-shockwaves-crypto>.

¹³² Ibid.

collapse is causing rifts among users about short and long term changes in regulations, the situation also caused immediate disruption and harm to people’s lives, with FTX owing customers billions of dollars but unable to get their money back in the near future.¹³³

A final area of interest for further research is Decentralized Autonomous Organizations (“DAOs”), which are also a Web3 concept. A DAO is “a group, company or collective that are bound by rules and regulations coded into a blockchain,” on which all shareholders can vote.¹³⁴ The concept of a DAO eliminates the need for “middlemen,” and is touted to be able to help make Web3 more accessible new users.¹³⁵ I am curious whether these organizations will be able to help foster healthy relationship and identity development or will replicate the virtual communities and environments created by social media that stifle and complicate relationship and identity development.

The metaverse has a long future ahead of itself. As a facet of Web3, the metaverse may fluctuate with developments in crypto, NFTs, DAOs, and more. As human beings fluctuating between physical and digital existence, we have a long future ahead of ourselves, in hopes of designing this technology to protect and only enhance our essential human needs.

¹³³ Ramirez, Dalia. “FTX Crash: Timeline, Fallout and What Investors Should Know.” NerdWallet, November 28, 2022. <https://www.nerdwallet.com/article/investing/ftx-crash#what-does-this-mean-for-u.s.-customers>.

¹³⁴ Marr, Bernard. “What Is web3 All about?” Forbes. Forbes Magazine, October 12, 2022. <https://www.forbes.com/sites/bernardmarr/2022/01/24/what-is-web3-all-about-an-easy-explanation-with-examples/?sh=3d34b5fa2255>.

¹³⁵ Ibid.; Exposito, Alyssa. “Here's How Daos Are Making Digital Land More Accessible to Metaverse Denizens.” Cointelegraph. Cointelegraph, March 13, 2022. <https://cointelegraph.com/news/here-s-how-daos-are-making-digital-land-more-accessible-to-metaverse-denizens>.

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