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Master Thesis in Business and Management

Branding on the Metaverse

A quantitative study on consumers reaction to branded virtual
worlds on metaverse gaming platforms

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Abstract

In recent years, the metaverse has gained immense attention in the media as it promises to be the next evolution of the internet. It is defined as a virtual universe where people can seamlessly interact in a digital world parallel to the physical world. The metaverse represents a transformative opportunity for marketing, offering brands the ability to engage their audience in immersive, interactive, and entertaining ways. One approach that brands have experimented with is creating branded virtual worlds on metaverse gaming platforms. However, little is known about how consumers react and behave in response to such marketing activities within the metaverse. This thesis explores how consumers react and interact with these branded virtual worlds, examining how the metaverse attributes of immersion, interactivity, and entertainment affect consumer reactions both on the platform via their virtual purchase intentions and in real life, through real world consumer brand engagement. Moreover, the thesis explores if the metaverse attributes influence metaverse user engagement, and if metaverse user engagement serves as a mediator. A correlational research design was employed using data from 273 users of one of the largest metaverse gaming platforms, Roblox. Results showed that interactivity positively influenced metaverse user engagement and virtual purchase intentions, while entertainment positively influenced real-world consumer brand engagement. Immersion, however, showed limited support for influencing metaverse user engagement, virtual purchase intentions, and real-world consumer brand engagement. Furthermore, metaverse user engagement was found to mediate many of the relationships between these factors. These findings suggest that branded virtual worlds in the metaverse can serve as effective platforms for delivering immersive, interactive, and entertaining experiences for consumers. Given the novelty of the metaverse, the author hopes these findings inspire further research on this topic, with this thesis serving as a valuable starting point for understanding marketing in the metaverse.

Key Words: *metaverse, branded virtual worlds, marketing, immersive technology, gamified marketing*

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1. Introduction

1.1. Background

“Glasses are going to be the next major computing platform. We're going to get to this point probably sometime in the 2030's where you have your phone with you but it's going to stay in your pocket more because you're just going to be doing more and more things on your glasses that maybe today you would do on your phone.” - Mark Zuckerberg, 2024.

Can you imagine a world where everyone walks around with computer glasses, seamlessly living in both the real world and a virtual world? This is the future that Mark Zuckerberg, founder of Meta, envisions; a world where we live in a virtual world parallel to our physical world (Tiff In Tech, 2024). While the concept of the metaverse has been around for a while, it just recently has gained attention and has opened opportunities for businesses in the future. To put simply, the metaverse is a 3-D digital space that uses extended reality (Tremosa, 2024), to enable interactions and experiences in a virtual world through the use of avatars (*What Is the Metaverse and Where Will It Lead Next?*, 2022). Advocators of the metaverse refer it as the next generation of the internet, where the real world merges with a virtual platform, removing the traditional boundaries we see today within the digital context (*What Is the Metaverse and Why Is It Important?*, 2024). It will be a place where users can interact, work, play, and create in an immersive digital environment (Elmasry et al., 2022).

Despite skepticism about its future, there are several signs that point to that the metaverse has potential to become the next major digital transformation. A 2022 survey by McKinsey & Company revealed that 20% of Americans want to use the metaverse for activities they currently do in the physical world, such as working, studying, shopping, entertainment, and exercise (Aiello et al., 2022). Specifically, Gen Z's and millennials are expecting to spend almost five hours daily on the metaverse in the future. Similarly, Gartner predicts that by 2026, 25% of people will spend at least one hour per day in the metaverse (*Gartner Predicts 25% of People Will Spend At Least One Hour Per Day in the Metaverse by 2026*, n.d.). Major corporate investments further underscore its potential, where investments have grown from \$120 billion in 2022 to a projected \$5 trillion by 2030 (Elmasry et al., 2022). Many believe that consumer deceives like VR headsets

and glasses and haptic technology will be the enabler of the true metaverse in the future, and while adoption of these devices remains low today, their growth trajectory mirrors past tech breakthroughs such as smartphones (Aiello et al., 2022). While society might not exactly be in the place of time where the true potential of the metaverse can be employed, proponents believe people will soon add the metaverse into their ways of life.

Today, the gaming industry is the largest and most active user base within the metaverse, being at the forefront of metaverse development (Aiello et al., 2022). Gaming platforms like Roblox, Fortnite, and Minecraft have increased in growth the last couple of years within the younger generation who views these virtual worlds not only as video games, but also as social and creative platforms to meet new friends, be creative, and express themselves (*Young People Are Already in the Metaverse*, 2023).

For a brand trying to reach the younger generation, the metaverse presents a unique and expansive opportunity to connect and engage via the immersive and interactive metaverse environment. Beyond its large user base, the direct-to-avatar market of virtual goods is a \$54 billion industry (*Opportunities in the Metaverse*, 2022), which means that brands can sell a product that essentially has zero production cost, and users are eager to buy them. Many brands have already developed a metaverse strategy, such as Gucci striving to build brand awareness with younger customers by developing a virtual world in Roblox (McDowell, 2021), or Adidas integrating the metaverse into its omnichannel strategy by launching a metaverse-exclusive fashion collection (Moss, 2023). However, the question remains regarding how consumer behaviors will manifest within this emerging virtual space. Will these digital interactions a user has with a brand translate into real life behaviors that benefits the brand?

1.2. Problem Discussion

As the growth of virtual worlds opens new opportunities for brands to engage with customers in new and interesting ways, traditional marketing channels are becoming increasingly irrelevant for the younger generation at the same time (*Marketing in the Metaverse: An Opportunity for Innovation and Experimentation* | McKinsey, n.d.). The younger generation, particularly Gen Z and Alpha who grow up as digital natives, are moving away from these traditional marketing

channels such as television or print and are expecting more interactive, experiential, and engaging forms of brand interaction. For brands aiming to maintain relevance and grow customer loyalty, this generational shift in media consumption creates a need to adapt and innovate their marketing strategy. What's more, capturing the attention and loyalty of the younger generation is especially valuable to brands, as winning over this demographic early can create lifelong customers.

Metaverse gaming platforms may thus be an optimal channel for brands to communicate and connect with their audience. These platforms allow brands to create memorable, interactive experiences that go beyond conventional advertising, appealing to younger consumers' desire for connection, authenticity, and entertainment (*How to Advertise on Roblox*, n.d.). However, marketing on the metaverse is a new avenue for brands. Being at the forefront, it is unsure if brands have found real success with their metaverse activations, and if reaches its goals the brand has set out.

Likewise, limited research has been done on the modern version of the metaverse. Certainly, much research has been done on marketing in video games, including how different elements of the videos game affect the user. Moreover, early versions of metaverse gaming platforms such as Second Life has received attention in research, with research conducted on how brands can integrate onto those early platforms. However, metaverse gaming platforms today are fundamentally different in terms of the users and the levels of immersion and interactivity. As such, it is important to explore consumers reactions and behaviors to brands integrations on today's metaverse gaming platforms.

1.3. Aim and Research Question

The aim of this research is to gain a deeper understanding of if, and if so, why, the metaverse can act as a marketing channel for brands. There is a current hype of the metaverse, with advocates stating the importance for brands to create a presence on the metaverse today in order to stay relevant for the future generations (Berman, 2023). However, developing a metaverse strategy is not only expensive, but it can also take a lot of time to learn. As such, the aim of this study is to understand if a marketing activity on metaverse game platforms has positive effects on the consumers. More specifically, the study aims to see if metaverse gaming platforms, which are

immersive, interactive, and entertaining, is a suitable place for brands to have presence on by examining the users intentions to want to engage with the brand on the platform, their intentions to purchase virtual items from the brand, and lastly if the brands presence on a video game translates into real life brand engagement. By identifying different metaverse attributes that makes the platform distinctive, one might better understand how the brands presence on the metaverse is able to affect the consumer.

The study aims to answer the following research question:

“Does the presence of a brand on a metaverse gaming platform, due to it being immersive, interactive, and entertaining, have an effect on consumers intentions to engage with the virtual experience, virtual purchasing behavior and their intentions to engage with the brand in real life? Does type of brand have an impact on these effects?”

1.4. Expected Contribution

While the metaverse has existed to some extent for a while, and the opportunity for brands to engage consumers via video games is not a new practice in marketing, the metaverse today is inherently different from what it was before. Technological advances within AR, VR, and AI has made virtual interactions even more realistic and responsive, accurately mirroring real world human behaviors (*How Has the Metaverse Changed in the Past Few Years - Landvault Blog*, n.d.). The virtual experiences that consumers have today is inherently different from the experiences they could have had on early metaverse gaming platforms such as Second Life. This study has the potential to develop the academic research of marketing on this new wave of metaverse gaming industry. Specifically, it adds to previous research by evaluating the role of immersion, interactivity, and entertainment in engaging the user into the digital branded experience and its subsequent effects on consumer behavior, both on the metaverse platform and in real life.

Moreover, this study aims to contribute with actionable insights to marketer practitioners. Firstly, it aims to give insights to if a brand presence on the gaming platforms translates into real world engagement from the consumer. Right now, there are limited studies showing if the investments a brand must make to be integrated on the metaverse can translate into real world consumer behavior. The results of this study can thus bring insights for brand managers as to if they should invest into this new marketing channel. Secondly, there may be takeaways for how the brands should be developing the metaverse experience. By exploring the mechanisms behind the metaverse, the

study can give insights into what aspect of the metaverse (immersion, interactivity, or entertainment) they should focus on to maximise consumer engagement in the metaverse. Given that many platforms are free to play (such as Roblox), advertising is a revenue model used by most platforms. Insights onto what drives engagement is thus of high value to the metaverse platforms as well, as the higher engagement the more revenue they can receive from advertisers.

1.5. Scope and Limitations

The scope of this study is controlled to consumers reaction to branding activities on gaming metaverse platforms. The metaverse goes beyond just gaming, but the biggest communication forum for brands today is seen in the gaming industry. Moreover, there are many ways for a brand to integrate a presence on the metaverse. This study focuses on virtual worlds that the brand itself has built on the gaming platform.

This study also focuses on the three main attributes of the gaming metaverse, namely immersion, interactivity, and entertainment. These were chosen as they are the major attributes that make the metaverse unique to different gaming platforms, and as such of interest.

2. Literature Review

In this section, the concept of the metaverse is presented, along with how marketing on gaming metaverse platforms currently looks like. A conceptual framework is then presented with prior research on each concept. The suggested effects are then developed in hypotheses.

2.1. The Metaverse

While the metaverse is thought to be a recent phenomenon due to modern technological advancements, the concept of a metaverse can be traced back to the 1950s (*History and Evolution of the Metaverse Concept*, 2023). The term metaverse was first used in 1992 in a science fiction novel by Neal Stephenson (Stephenson, 1992) to describe a virtual world in which people are represented by avatars. Metaverse gaming platforms are also not a recent innovation, as one of the first real-life metaverse platforms was developed already in 2003 called “Second Life”, an online game that allows people to create an avatar and interact with others within the virtual world (Wood, 2023). Nonetheless, it was just in the past few years in which interests in it has seen a major spike. Internet searches on the term ‘metaverse’ grew over 7000% in 2021 (L. Yee, 2022), with ‘metaverse’ even making the 2021 top ten words of the year list (Golf-Papez et al., 2022).

As mentioned previously, the metaverse is a novel 3-D virtual world, merging the physical and digital realities into a seamless experience where users can do all things you do in the physical world but digitally, such as work, education, play, or socializing. It is representing the next evolution of the internet, where instead of consuming content in 2-D, in the metaverse you will be projected into the internet. The metaverse has applications in many use cases, including socializations, gaming, workspaces, education, and commerce (*What Is the Metaverse and Where Will It Lead Next?*, 2022). See Appendix A for examples of how the metaverse can be used in the future.

The metaverse is intended to be used in many different industries and experiences but the biggest consumer application of the it today is in gaming. After the 2020 global pandemic, many went online searching for digital experiences in absence of physical experiences (*What Is the Metaverse and Where Will It Lead Next?*, 2022). Gaming emerged as a success given the industry’s growth in recent years. Roblox, one of the most popular metaverse based gaming platform, had as of Q3

2024 90 million daily active users who spend an average of 2.4 hours on the platform each day. This meant Roblox reached 20.7 billion hours of user engagement in Q3 2024 alone (Roblox, 2024). Fortnite, another popular metaverse gaming platform, had over 500 million players in 2023, a number that is expected to be outperformed in 2024 (*How Many People Play Fortnite?*, 2024).

A metaverse based gaming platform is distinct from typical video games and can be thought as going beyond the traditional video game boundaries. Compared to traditional video games, which are often limited to specific objectives, levels, or storylines, metaverse games offers a persistent, interconnected world that players can explore, personalize, and shape through their actions. Players can experience immersive gameplay that is interactive and engaging, all while having a social connectivity as collaboration, social interactions, and competitions are built onto the platform. Increasingly, aspects of the real world are integrating into the digital platforms. Virtual events real such as concerts and movie premiers are increasing in popularity, which is inherently different from the traditional game play. Overall, metaverse gaming platforms has evolved traditional gaming to become a more immersive, interactive, and social gaming experience.

2.2. Marketing Activities on the Metaverse

Marketing via video games is not a new concept and has been a part of many brands integrated marketing communication strategies. In-game advertising involves embedding ads within the gaming platform by seamlessly integrating the brand, its products, or services into the gaming experience (Terlutter & Capella, 2013). In-game advertising has been effective for brands, allowing them to reach millions of diverse users who are actively engaged (Chang et al., 2010). Metaverse brand integrations can be seen as a natural development of such practice. In game advertising was popular on early metaverse platforms such as Second Life, where brands could market their products in the digital world.

Although the current metaverse gaming is still relatively new, brands have already started experimenting with brand integrations on these platforms. These integrations can be seen as a range based off two dimensions, immersion and interactivity. Immersion ranges from basic to advanced, and interactivity ranges from passive to interactive.



Figure 1: Matrix showing immersion and interactivity of brand activations on metaverse game platforms.

Basic levels of brand integration involve creating branded virtual items, such as branded virtual clothing that users can wear via their avatars. When the virtual clothing is only provided via the platforms store, it is considered to be passive as its limited in terms of interactivity. Such brand integrations are not only common but has also been shown to be successful. Fortnite reported \$50 million in earnings from its partnership with the NFL solely through the sale of NFL branded skins¹ in 2021 (Tassi, 2021).

Brands can increase interactivity but still provide basic immersion by for example opening virtual storefronts in public spaces within these platforms, where users can enter, browse, and interact with products just as they would in a physical store. While still being basic in terms of immersion, it becomes more interactive for the user to play around and interact with the brand.

Moreover, brands can focus on immersion but have a passive experience for the user. In these brand integrations, the brand creates an immersive experience for the consumer to view passively, limiting the interactivity. For instance, in 2023 Decentraland held a Metaverse Fashion week,

¹ In *Fortnite*, a "skin" is a cosmetic item that changes the appearance of a player's in-game character, known as an avatar. Skins are purely aesthetic and do not provide any competitive advantage or affect gameplay mechanics. They allow players to customize their avatars with different outfits, designs, and character looks, often inspired by a wide range of themes, including original designs, pop culture, movies, or collaborations with famous franchises, musicians, or athletes.

where 63 brands including Tommy Hilfiger, Adidas, and Dolce & Gabbana, presented digital fashion looks (Linares, 2023). Similarly, entertainment brands can create ‘viewing parties’ on these gaming platforms. For instance, Paramount launched an immersive movie trailer experience for their upcoming movie Teenage Mutant Ninja Turtles, which allowed fans to transport into the movie context. The immersive trailer received 1.7 million visits, which helped drive hype for the upcoming movie (*Paramount on Roblox*, n.d.).

The most integrated level for a brand is creating customized virtual world on the gaming platform. This requires the largest investments and is the most complex integration. Even so, many brands have created their own virtual worlds, including Nike (NIKELAND in Roblox), Gucci (Gucci Garden & Gucci Town in Roblox), Walmart (Walmart Land), Hyundai (Hyundai Future Adventure), and many more. Each branded virtual world is different in ways adapted for their brands, yet the fundamentals stay the same. The worlds are immersive, and the environment is visually represented as their brands. To engage the user, the virtual worlds include interactive games and challenges as well as social spaces and community hubs where users can interact with each other. These brand integrations allow the user to explore and create their own experience in the world, empowering the user to personalize their experience. For instance, Vans World was launched in 2021 in which players skate around with their friends, exploring or competing against each other in skateboard challenges to win points. The virtual world incorporates elements of the brand into the experience, making it fun and exciting to explore for the user. For example, with fun and interactive elements and clear brand integrity throughout the immersive virtual world, Vans World reached 100 million visits with over 8 million cumulative hours of active engagement in the world in 2023 (Braun, 2023).

2.3. Research Gap

Although marketing on metaverse platforms dates back to platforms such as Second Life in the early 2000’s and as such has received attention in research, today’s platform is fundamentally different. This entails that limited research has been done within today’s context, as only recently have brands have started experimenting with this platform. Nonetheless, the metaverse has received some attention in research in recent years, detailed below.

Previous research on metaverse marketing can be split up into three different research streams. The first stream focuses on the early versions of virtual worlds, such as Second Life (Barnes et al., 2015; Shelton, 2010). This research focuses on the opportunity that brands have on virtual worlds, and how it affects the consumer. The second stream focuses on the specific technological elements of the metaverse, such as immersion, interactivity, VR, and AR technology and its effect on the consumer (Li & Daugherty, 2002; Scholz & Smith, 2016; Verhagen et al., 2015). This research stream focuses on how each element affects consumers, and how brands can use it in their practice in digital contexts. The third research stream focuses on the overall concept of the modern metaverse, its possibilities for brands in the future, and identifying research gaps (Bilgihan et al., 2024; Dwivedi et al., 2023; Giang Barrera & Shah, 2023). This research stream is mostly based off qualitative research, focusing on exploring the metaverse in the context of marketing.

As such, there remains a significant gap in research concerning consumer behaviors in the latest wave of marketing activities in the gaming metaverse. Unlike earlier virtual worlds, today's gaming metaverse platforms, such as Fortnite, Roblox, and Decentraland, feature complex and interactive virtual worlds with integrated marketplaces, social experiences, gaming activities and brand integrations on a larger scale. Similarly, while many studies have shown how computer elements such as level of interactivity and immersion has an effect on the consumer, it has never been put into the context of the current metaverse. Research on this topic would help brands navigate the gaming metaverse better, gaining an understanding behind the mechanisms that drive the behaviors in the metaverse.

2.4. Impact of Metaverse Brand Experience on Consumer Behavior

In this section, the attributes that shapes the metaverse brand experience are conceptualized, and how the metaverse experience can affect the consumers perceptions of the brand and its intentions to purchase from the brand. Minimal research has been done to understand the mechanisms behind the consumers reactions to brand integrations on metaverse platforms. As such, a deductive approach was chosen by constructing a conceptual framework, and then applying previous theories of digital elements and brand experiences in virtual settings.

The main thesis is that when a consumer encounters a branded virtual world on a metaverse gaming platform, the consumer will engage in the experience which then affects their intentions to purchase from the brand in the virtual world, as well as their attitudes towards the brand in the real-world. It is believed that this happens in part because of the unique attributes of the metaverse including its ability to immerse the user, the level of interactivity within the virtual world, and the entertainment associated with the world. Additionally, it is thought that the effect of the metaverse brand experience is mediated by how engaged the consumer is in the branded experience. The type of brand, either high involvement brand or low involvement brand, is conceptualized to have a moderating effect on this relationship. The conceptual framework is visualised in Figure 2, and the following section will delve deeper into each concept.

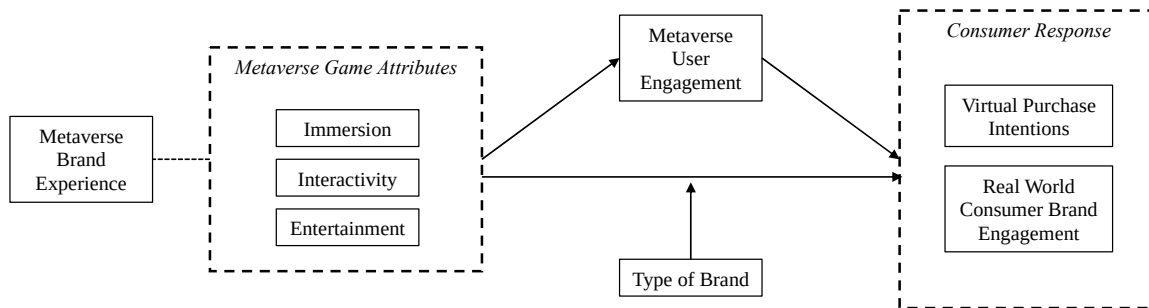


Figure 2: *Proposed Conceptual Framework*

2.4.1. Metaverse Attributes

The metaverse is distinct from other technological platforms such as social media or traditional video games. As already mentioned, there are certain attributes that define the metaverse and it is the combination of these attributes that characterizes the metaverse. This thesis will be focusing on the main attributes of the metaverse, namely immersion and interactivity (Rahman et al., 2024). Moreover, this thesis focuses specifically on metaverse gaming platform and as such entertainment is also deemed an important attribute that may have an effect on consumers response. This section explains what the three metaverse gaming attributes are and how it contextualizes on the metaverse gaming platforms.

Immersion

In the metaverse, users are often described as being inside the internet, rather than simply accessing it (Hadi et al., 2023). This distinction emphasizes why immersion is one of the most prevalent features of the metaverse. Immersive technology refers to the ability to create a realistic experience that effectively transports users into a digital environment (Bowman & McMahan, 2007). As such, immersion is the ability of the metaverse virtual world to engage the user's senses, allowing them to experience the metaverse world such that it was real, producing a sense of actually being in the virtual world all while being present in the physical world (Cummings & Bailenson, 2016).

Virtual worlds are highly immersive, leveraging advanced technologies to create experiences that mimic real-world environments. Through the use of 3D graphics, spatial audio, haptic feedback, and interactive elements, virtual worlds on the metaverse can create immersive environments for the user (Marinescu & Iordache, 2023). Moreover, immersion is further enhanced with avatars. Avatars play a crucial role in fostering immersion by allowing users to feel represented, personalized, and engaged in the virtual world (Ante, 2023). This is believed to happen via self-presence, which refers to the extent to which an individual feels as though their virtual avatar reflects how the user is in real life (R. Ratan, 2013). Ratan and Hasler found that avatars that were personalized to reflect the user's personalities enhanced self-presence and immersion, as users saw their avatars as extensions of themselves (R. A. Ratan & Hasler, 2010). Additionally, the Proteus Effect Theory posits that people tend to conform to the characteristics of their avatars, which can enhance immersion by allowing them to embody their avatars' traits within the virtual environment (N. Yee & Bailenson, 2007).

Interactivity

In metaverse games, players are not only able to interact with other players in real time, but they can also interact and manipulate the virtual world. Interactivity refers to the ability of users to engage with and influence the virtual environment, other players, and digital objects in real-time (Park & Kim, 2022). It is one of the core elements that defines the user experience in the metaverse, making the environment dynamic, personalized, and responsive.

The role of avatars is also evident in terms of interactivity, enabling users to interact with the world and others. Through the use of avatars users can have real-time interactions that can mirror those

of the physical world and interact with the virtual objects by controlling their avatar (L.-H. Lee et al., 2021). These interactions with the virtual objects are personalized, adapting to the unique ways each user engages with the digital space. Moreover, metaverse games are inherently social, being built around the concept of shared experiences and interactions with other players. The platform allows anyone to join at any time, creating a dynamic, collective experience where a user's experience is often influenced by the presence and actions of others (Hadi et al., 2023). Players can communicate, collaborate and interact with each other's in various ways such as through text or voice in real time. As such, the metaverse platforms are considered interactive.

Entertainment

At its core, video games are played by users to have fun and be entertained. Fun and enjoyment are consistently regarded as the main reason for users playing video games (Boyle et al., 2012). Metaverse gaming platforms offer an outlet for users to explore, create, and actively play, providing enjoyment for the users. Entertainment refers to the external activity or experience, acting as a medium to elicit internal emotional responses in the user.

The Uses and Gratification Theory (UGT) is a prevalent theoretical framework that explains how and why people actively seek out specific media types to satisfy their needs (Katz et al., 1973). Katz et al. suggests that people are not passive consumers of media, but rather they are active participants that make choices based on their individual needs. This theory has been used in several studies to show why people use new technologies and media. For instance, Yee found that the most significant motivations for playing immersive virtual world game included entertainment and escapism (N. Yee, 2006). Another study on virtual worlds found that there are nine possible user motivations, in which entertainment was a significant part (Shelton, 2010). This highlights that one of the core elements of the metaverse gaming platforms is entertainment.

2.4.2. Metaverse User Engagement

User engagement is often regarded as a condition to be able to claim that a digital experience is considered successful (Verhagen et al., 2015). When a brand creates an experience on a metaverse platform, one of the outcomes that is anticipated is that the players actively engage with the

branded experience. Attfield et. al defines user engagement as “the emotional, cognitive and behavioural connection that exists, at any point in time and possibly over time, between a user and a resource”, in their research paper of user engagement towards new technology (Attfield et al., 2011). On a metaverse gaming platform, engagement is evident when users exhibit behaviors such as focused attention on the game, active participation, and emotional investment (Attfield et al., 2011). Therefore, user engagement becomes an important variable when examining the impact of metaverse games on consumer behavior.

Immersion and metaverse engagement

Prior research has demonstrated that the more immersed players are in the experience, the more engaged they will be. Immersion, which enables users in these environments to evoke feelings of physically ‘being there’, engages the user on a deeper level (D. Shin, 2019). Shin explains how the heightened sense of presence eliminates distractions from the real world, drawing users deeper into the experience. As a result, users are more focused which enhances their engagement. Similarly, Scholz & Smith studied how to design immersive experiences to maximise consumer engagement. Due to the users focus and attention on the activity, immersive brand experiences lead to consumers wanting to engage in the branded experience (Scholz & Smith, 2016). As such, as users in a branded virtual world becomes more focused on the experience, their engagement may increase as well.

Additionally, enhancing user engagement has been shown to be done through multisensory cues in immersive games. In their study on user engagement, Kruijff et al. highlight a direct relationship between engagement and emotions. The authors show how the user’s emotional response is in part created through the immersive environment. The authors demonstrate that when users experience immersion through multiple senses, such as vivid visuals, dynamic sounds, or haptic feedback, their emotional responses are amplified, resulting in more engagement (Kruijff et al., 2015). Similarly, Rahman et al. state that immersion increases the users emotional and sensory engagement, which makes the metaverse platform more captivating and thus can lead to higher levels of engagement (Rahman et al., 2024). It can thus be inferred that in a branded virtual world

within the metaverse, multisensory elements allow users to become deeply immersed, evoking stronger emotional connections and increased engagement in the game.

Interactivity and metaverse engagement

Similarly, interactivity is shown to be a key aspect when it comes to metaverse user engagements. The relationship between interactivity and engagement can be explained by the Flow Theory, first proposed by Csikszentmihalyi in 1975. This theory describes a mental state where individuals become fully focused and engaged in an activity, losing track of time and their surroundings because they are deeply engaged and performing at their peak level of concentration (Csikszentmihalyi, 1975). Roh et al. in their study on technological stimuli's effect on users intentions to engage in digital experiences found that interactivity affects a user's flow state as the user got self-motivated to continue with the experience in VR environments (Roh et al., 2024). Moreover, Pramod and Patil found similar results on their study on interactivity on the metaverse, where interactivity both in terms of interacting with the virtual world and interacting with other users lead to the flow state (Pramod & Patil, 2023). Pramod and Patil showed how the users flow state led to hedonic gratifications, which increased the user's intentions to stay on the platform. As such, interactivity serves as a mechanism to facilitate the flow state which then enhances the user's engagement.

Moreover, the metaverse enables players to create a personalized experience by allowing the users to choose how they interact with the virtual world and other users. The way one user interacts with the virtual world will be different to how another user will interact with the same world, enhancing the sense of individuality within the experience. This personalization, driven by interactivity, fosters deeper engagement by making the experience feel more meaningful and relevant. This was shown in Kumari's article on interactivity of a mobile application and users engagement, in which personalization via interactivity increased user engagement (Kumari, 2022). Similarly, Rahman et al. found that personalization, such as being able to modify the avatar and decorate the virtual space, created a more meaningful experience for the user and as such generating a deeper connection to the virtual world and fostering more engagement. Similarly, they found how the

ability to be creative leads to higher engagement, as when users were able to create and customize the virtual products it created a sense of ownership and involvement (Rahman et al., 2024).

Interactivity also concerns the ability of users to interact and socialize with others in the experience. Real time multisensory social interactions are central to the metaverse as users communicate and interact with others via their avatars. Henning-Thurau et al. found that such interactions generate value for the user, as it builds community and social presence, motivating the user to engage in the experience (Hennig-Thurau et al., 2023). Community is found to be an important aspect of user engagement and long term participation in the metaverse, as it creates shared beliefs, emotions, and knowledge (Rahman et al., 2024). Similarly, Weibel et. al found that playing against a human versus against a computer yielded stronger feelings of flow, leading to engaging more in the game (Weibel et al., 2008), further suggesting that interactions can evoke metaverse user engagement.

Entertainment and metaverse engagement

Lastly, entertainment has also been shown to influence user engagement in the metaverse experience. As mentioned previously, entertainment is the external offering that the game in this case provides. Studies have demonstrated that entertainment in a game evokes the internal emotional response of enjoyment, which is a key driver of engagement (Mekler et al., 2014). Moreover, in their systematic review on engagement in digital entertainment games, Boyle et al. found that enjoyment plays a central role in understanding user engagement across various gaming contexts (Boyle et al., 2012). Furthermore, several studies in Boyle et al.'s review draw on Flow Theory to explain the relationship between entertainment, enjoyment, and engagement (Hsu & Lu, 2004; D. Lee & LaRose, 2007; Sherry, 2004). For instance, Hsu and Lu clarifies how the flow theory suggests that when users experience deep enjoyment from the game, they are more likely to enter a flow state. This flow state enhances their engagement, as users become intrinsically motivated to continue interacting with the game. In the metaverse, the ability of entertainment to elicit enjoyment and induce flow makes it a critical factor in driving user engagement with experiences in the virtual world (Hsu & Lu, 2004).

Furthermore, in the same systematic review, several studies draw on the Uses and Gratifications Theory to explain how entertainment influences user engagement (Colwell, 2007; Klimmt et al., 2009; Lucas & Sherry, 2004). These studies highlight that video games are fundamentally designed to provide enjoyment and satisfaction, which serve as intrinsic motivators for user engagement. Since their motivations are to play for enjoyment, when a user then feels like the game is providing entertainment for them, they will continue to engage in the experience (Hsu & Lu, 2004; D.-H. Shin & Shin, 2011; van der Heijden, 2004). This reasoning can be extended to branded virtual experiences within the metaverse. If a branded virtual world elicits entertainment for the user, the user may then become more engaged.

Given the above previous research on engagement of a virtual experience and immersion, interactivity, and entertainment, it can be hypothesized that:

H1: The metaverse game attributes (a, b, and c) has a significant positive effect on the consumers metaverse user engagement.

- a. Immersion
- b. Interactivity
- c. Entertainment

2.4.3. Virtual Purchase Intentions

Virtual commerce refers to the buying and selling within the virtual contexts, where transactions either involve digital or real-world money (Shen et al., 2021). In the context of a metaverse brand experience, users can purchase branded virtual goods such as fashion items for their avatars, collectible digital assets, or other branded objects. Virtual spending is a large part of the metaverse experience. When a user purchases a virtual item from a branded experience, this transaction can represent a successful marketing effort, as they reflect user's willingness to invest in the brand's virtual offerings.

Unlike real-world goods, virtual items are intangible and have no intrinsic value outside the game or platform where they are purchased (E. Huang, 2012). Their value thus lies in fulfilling specific consumer needs. Applying the Theory of Consumption Values (Sheth et al., 1991), virtual goods

primarily satisfy social and emotional needs. For example, purchasing branded virtual clothing allows users to enhance their avatars' appearance, signaling status or aligning with their personal identity in a social context. Similarly, collectible items may provide emotional satisfaction by fostering a sense of ownership, exclusivity, or connection to the brand. Beyond social and emotional gratification, virtual commerce can also address functional needs, particularly when users purchase in-game upgrades or tools that enhance their performance or unlock new gameplay possibilities. For instance, a user might buy branded virtual vehicles or equipment that provide practical benefits within the game's ecosystem, such as faster travel or improved abilities (Guo & Barnes, 2011).

Immersion and virtual purchase intentions

Immersion is thought to have an effect on the virtual purchase intentions within virtual worlds. Lui et. al explains that through the process of presence, virtual worlds can replicate real-life shopping experiences, which can in turn improve consumers knowledge about products, positively influence their attitudes towards those products, and hence increase their intention to purchase in the virtual world . Lui et. al draws on Media Richness Theory, developed by Richard Daft and Robert Lengel in 1986 (Daft & Lengel, 1986) to explain how immersion enhances the richness of the medium. This theory posits that richer communication mediums are better at conveying complex and nuanced information. In the context of virtual worlds, immersive environments heighten the perceived value of products by making them feel more tangible and meaningful within the user's experience. This emotional and sensory experience increases the likelihood of purchase intentions. Similarly, Huang found that users who feel present in the virtual environments perceive virtual goods as integral to their experience, increasing their desire to purchase items for their avatars or as collectables (E. Huang, 2012).

Interactivity and virtual purchase intentions

Moreover, interactivity is also thought to be able to influence purchase intentions in virtual worlds. Schlosser found that advertisements featuring object interactivity led to high in game purchase intentions compared to ads where the information is presented passively (Schlosser, 2003). This interaction included being able to actively manipulate the items in the game, which was predicted to evoke vivid mental images and thus increase purchasing intentions.

Moreover, considering the Theory of Consumption Value, fulfilling social needs is an important aspect as to why consumers purchase items. Social interactions have been shown to drive purchase intentions due to community influence and peer behavior in virtual worlds (Animesh et al., 2011). Metaverse platforms are a socially rich environment where virtual goods and products can be seen as an expression of the user's personality. Observing others wearing branded items or using exclusive products can inspire users to purchase similar goods, as they seek to align with social norms or express their individuality within the community (E. Huang, 2012). Moreover, Guo and Barnes state that users may feel better self-esteem through personalization of avatars, showing their unique style to other users (Guo & Barnes, 2012). Interactions with other avatars thus helps explain how virtual purchase intentions are formed in the metaverse. Many users see their avatars as an extension of themselves, and thus how they look in the metaverse is how they feel about themselves in the real world (Suprawan & Wongkitrungrueng, 2023). Similar to in real life, people are motivated to spend money in order to fit in or gain higher social status, and as such consumption in the virtual worlds can be seen as to build one's identity and status.

Entertainment and virtual purchase intentions

Lastly, level of entertainment has also been shown to be significant motivator for users virtual purchasing intentions. As mentioned previously, entertainment refers to the external activities, while enjoyment is the internal emotional response elicited from entertainment. In Domina, Lee, and MacGillivray's study on factors affect consumer intentions to shop in virtual worlds, the authors found that consumers perceived enjoyment positively influenced their shopping intentions (Domina et al., 2012). Enjoyment drives strong positive emotions, and these emotional connections draws the user into the experience and increases virtual purchase intentions. Similarly, in their study on virtual purchasing in Second Life, Shelton found that players who had higher motivations for entertainment when playing purchased more products compared to those who had lower motivations for entertainment (Shelton, 2010). This was because the enjoyment that users derived from the virtual experience encouraged users to make purchases that further enhance this experience and enjoyment. Lastly, Guo and Barnes found that perceived enjoyment experienced in virtual worlds enacts as an important predicator of purchase intentions of in game products (Guo & Barnes, 2012).

As such, immersion, interactivity, and entertainment may all increase virtual purchasing intentions. Given the above analysis, it is hypothesized that:

H2: The metaverse game attributes (a, b, and c) has a positive significant effect on virtual purchase intentions.

- a. Immersion
- b. Interactivity
- c. Entertainment

Mediating role of metaverse user engagement on virtual purchase intentions

It is also predicted that there is an indirect effect of the metaverse game attributes on virtual purchasing intentions via the consumers metaverse engagement. While all three metaverse game attributes is predicted to have a direct effect on virtual purchase intentions, how engaged the user is in the experience is thought to help explain the mechanism behind purchase intentions as well.

Engagement in the virtual world captures how emotionally and mentally invested the users are in the experience (O'Brien & Toms, 2008). When consumers are engaged in a virtual world, they are actively involved in the experience, feeling more connected and focused on the experience. Mäntymäki and Salo found that the more time and the more engaged a user is in the virtual environment, the more likely the users are to make purchases in that world (Mäntymäki & Salo, 2011). Moreover, Blasco-Arcas et al. found that user engagement leads to increased purchase intentions via the emotion connections that users experience in interactive media contexts (Blasco-Arcas et al., 2016). Similarly, Hsieh and Chang found that in co-creating opportunities, there is a positive relationship between engagement and purchase intentions, although this was not in the digital context (Hsieh & Chang, 2016).

Immersion, interactivity, and entertainment are all hypothesized to be key drivers of engagement in virtual world experiences. Higher engagement, in turn, increases the likelihood of consumers purchasing virtual items from the store. Equally, a virtual purchase may then not take place if a consumer is not engaged in the experience. Consumers who feel more immersed, have increased

interactions, and find enjoyment in the experience will more deeply engage in the experience, and thus encourage them to purchase virtual items from the branded experience.

As such, it is hypothesized that:

H3: The relationship between the metaverse game attributes (a, b, and c) and virtual purchase intentions is mediated by metaverse user engagement.

- a. Immersion
- b. Interactivity
- c. Entertainment

2.4.4. Real World Consumer Brand Engagement

Brands today are increasingly focusing on non-transactional activities to build long-term relationships with customers rather than purely focusing on the sales transactions (Busalim et al., 2021). The value of a customer for a brand extends beyond the financial returns of their purchases, encompassing a broader spectrum of engagement that can highlight brand loyalty and advocacy. Moreover, while virtual purchases in the metaverse offers revenue opportunities for brands, the investment required to create and sustain a virtual world is often difficult to recoup through virtual sales alone. As such, one important metric when evaluating the success of a marketing building activity such as a branded virtual world is the real-world customer brand engagement (RWCBE). RWCBE helps bridge the gap between virtual interactions and real-life consumer behaviors, providing insights into how virtual experiences translate into tangible outcomes for brands.

Customer brand engagement (CBE) is defined as the customer's involvement and connection with a brand's offerings and activities, whether those interactions are initiated by the company or the customer, throughout the entire customer journey (Vivek et al., 2012). It encompasses the mental, emotional, and physical resources that customers invest in their relationship with a brand, such as their thoughts, emotions, actions, time, money, and energy, leading to aspects such as brand loyalty in the longer run (Kumar & Nayak, 2019).

Immersion and RWCBE

Immersive experiences are reasoned to have an impact on RWCBE. As mentioned previously, immersive experiences on metaverse games engages multiple senses simultaneously, such as visual via high resolution graphics, auditory via interactive soundscapes and spatial audio, and touch via haptic feedback for example (Falk et al., 2022). Sensory richness has been found to drive vivid memories of the experience and consumer exploratory behaviors (T.-L. Huang et al., 2023). When these memories are positive and tied to a branded virtual world, users are more likely to recall the brand and develop an interest in learning more about it.

Moreover, Hanji et al. found that strong emotional connections with a brand significantly enhance brand recall, making emotional engagement a critical factor in driving consumer-brand relationships (Hanji et al., 2024). In their study on emotions in video games, Mendonça and Mustaro demonstrated that immersion directly influences emotions, as immersive environments engage the human sensory system in a multidimensional way (Mendonça & Mustaro, 2012). By creating vivid, sensory-rich experiences, immersive environments have the unique ability to evoke powerful emotional responses. This suggests that in virtual worlds, such as those in metaverse environments, users are likely to develop an emotional connection with brands that leverage this immersive design effectively. Through these emotional connections, users may carry their engagement with the brand beyond the virtual space into the real world. Thus, immersion not only enhances emotional resonance but also acts as a bridge between the virtual brand experience and real-life consumer behavior.

Interactivity and RWCBE

Similarly, interactivity can significantly impact RWCBE. In their study on flagship brand stores on Second Life, Haenlein and Kaplan found that interactivity between the user and the virtual world produced more positive attitudes toward those brands in real life for the user. This demonstrates a spillover effect between virtual and real-world experiences, where engaging interactions in the virtual world can generate real world behaviors (Haenlein & Kaplan, 2009). Building on the findings in Haenline and Kaplan's study, it can be inferred that the interactive

elements of a branded virtual world within a metaverse game will similarly influence user's real-world engagement with the brand. These virtual interactions increase the likelihood of consumers thinking about, talking about, and engaging with the brand in real life, effectively bridging the gap between virtual engagement and real-world consumer behavior.

Entertainment and RWCBE

Moreover, entertainment is also thought to positively affect RWCBE on metaverse branded worlds. A study on the metaverse platform Zepeto found that perceived hedonic value, recognized as the enjoyment and pleasure derived from the experience, positively influences real-world engagement with the brand (Suprawan & Wongkitrungrueng, 2023). This is because enjoyable and immersive experiences create positive emotional associations with the brand, which can lead to increased brand loyalty and a higher likelihood of consumers supporting the brand in real life.

Additionally, enjoyment fosters goodwill and emotional attachment to the brand, strengthening the consumer-brand relationship. This emotional connection not only encourages loyalty but also motivates users to advocate for the brand by sharing positive word-of-mouth in their real-world interactions (Rane et al., 2023). Thus, entertainment serves as a driver of RWCBE by creating memorable and emotional experiences that bridge virtual interactions with tangible real-world outcomes.

Given the above discussion on immersion, interactivity, and entertainment on RWCBE, it is hypothesized that:

H4: The metaverse game attributes (a, b, and c) has a positive significant effect on real world consumer brand engagement.

- a. Immersion
- b. Interactivity
- c. Entertainment

Mediating role of metaverse engagement on real world consumer brand engagement

Moreover, it is thought that there is an indirect effect of metaverse game attributes and real-world consumer brand engagement via consumers intentions to engage in the metaverse experience. Metaverse engagement is thought to influence RWCBE. A user's engagement in the metaverse helps explain how immersion, interactivity, and entertainment affect RWCBE.

Engagement in virtual world can be driven by the users ability to enter a state of flow (Faiola et al., 2013). In immersive, interactive, and entertaining virtual environments, users may achieve a flow state where their full attention is on the experience, enhancing their level of engagement. As users become more engaged with the brand within the virtual world, they are more likely to develop positive emotions and favorable attitudes toward that brand. DeWester et al. explains that the positive emotions generated during the flow state contribute to the strengthening of brand equity (DeWester et al., 2010). While brand equity and consumer brand engagement are interconnected yet distinct concepts, DeWester et al.'s study suggests that achieving flow within a virtual experience can have comparable effects on consumer brand engagement in the real world.

As such, it is hypothesized that:

H5: The relationship between the metaverse game attributes (a, b, and c) and real-world brand engagement is mediated by metaverse user engagement.

- a. Immersion
- b. Interactivity
- c. Entertainment

2.4.5. Role of Brand Type: High Involvement vs Low Involvement Brands

One of the core marketing principles is that there is not a single 'standardized' marketing strategy, and the type of products or services a brand offers significantly influences its marketing, branding, and communication strategies. One way to classify brands is by examining the level of consumer involvement required during the purchasing process. Involvement refers to the degree of mental, emotional, and behavioral investment a consumer commits to decisions about products, brands, or

marketing communications (Gordon et al., 1998). High involvement typically occurs when the product is important, expensive, complex, or strongly tied to the consumer's self-identity or personal values (Holmes & Crocker, 1987). Conversely, low involvement is associated with products that are relatively inexpensive, low risk, or part of routine, habitual purchases.

The level of involvement a consumer has within a product category typically affects the brands marketing strategy (Gordon et al., 1998). For high involvement brands, consumers invest more time and effort evaluating options, and as such require a marketing strategy that focuses on educating and building trust with the consumer to facilitate a well-informed, confident decision. Low involvement offerings, on the other hand, focuses on maximising visibility, ease of access, and encourages quick, habitual purchases (Dens & De Pelsmacker, 2010). As such, the goals of the marketing strategies differ between the product groups.

For a branded virtual world on a gaming metaverse platform, product categories that are typically high involvement may benefit for the immersive and interactive nature of the platform. As above analysis details, the immersive environment allows for deeper engagement within the brand, allowing consumers to interact and participate in the branded world on a deeper level. By getting to know the brand in the immersive and interactive way, users perception of authenticity and trust increases in the brand (Peng & Ke, 2015). Additionally, a lot of emotions is involved for these purchasing decisions. Immersion, interactivity, and entertainment aids in creating an emotional response in the user. As such, it can be expected that high involvement brands, such as luxury brands, automobile brands, or high-end electronics, have a stronger effect on the consumers response to the branded virtual world on the metaverse platform.

Thus, it can be hypothesized that:

H6: The type of brand (high involvement vs low involvement) moderates the relationship between metaverse game attributes (a, b, and c) and consumer response.

- a. Immersion
 - 1. Virtual purchase intention
 - 2. Real world consumer brand engagement
- b. Interactivity

1. Virtual purchase intention
 2. Real world consumer brand engagement
- c. Entertainment
1. Virtual purchase intention
 2. Real world consumer brand engagement

Table 1 below summarizes all the hypotheses.

Metaverse user engagement	H1: The metaverse game attributes (a, b, and c) has a positive significant effect on metaverse user engagement. a. Immersion b. Interactivity c. Entertainment
Virtual Purchase Intentions	H2: The metaverse game attributes (a, b, and c) has a positive significant effect on virtual purchase intentions. a. Immersion b. Interactivity c. Entertainment H3: The relationship between the metaverse game attributes (a, b, and c) and virtual purchase intentions is mediated by metaverse user engagement. a. Immersion b. Interactivity c. Entertainment
Real world consumer brand engagement	H4: The metaverse game attributes (a, b, and c) has a positive significant effect on real world consumer brand engagement. a. Immersion b. Interactivity c. Entertainment H5: The relationship between the metaverse game attributes (a, b, and c) and real-world brand engagement is mediated by metaverse user engagement. a. Immersion b. Interactivity c. Entertainment
Type of Brand	H6: The type of brand (high involvement vs low involvement) moderates the relationship between metaverse game attributes (a, b, and c) and consumer response. a. Immersion 1. Virtual purchase intention 2. Real world consumer brand engagement b. Interactivity 1. Virtual purchase intention 2. Real world consumer brand engagement c. Entertainment 1. Virtual purchase intention 2. Real world consumer brand engagement

Table 1: *Summary of all hypotheses*

3. Method

In this section, the scientific research approach, data collection, and how the data will be used is outlined and described. Data quality is also discussed.

3.1. Scientific Research Approach

A deductive research design was employed in this thesis to study consumer behavior within the digital environment of the metaverse gaming space. This approach began with established theories and frameworks on technological elements and its effect on consumer behavior in digital environments and marketing, allowing for formulations of specific hypotheses about how consumers would interact with and respond to branded virtual worlds on the metaverse (Bell et al., 2022). By using a deductive approach, the study aimed to test these hypotheses empirically, examining whether observed consumer responses align with theoretical expectations outlined previously. This deductive approach was particularly appropriate given the developed field of computer-human interaction research which has applied deductive methods across diverse digital contexts. Existing theories provided a solid foundation for generating hypotheses that help understand the relationships between consumer behavior in the metaverse. Lastly, qualitative studies on metaverse marketing have highlighted a research gap in understanding consumer perceptions in virtual branded spaces, signaling the need for further exploration (Dwivedi et al., 2023).

3.2. Research Design

To answer the research question of how consumers react to branding activities on metaverse gaming platforms, this study employed a quantitative, correlational research design. A correlational study design was chosen for this research to explore naturally occurring relationships between consumer responses and marketing activities within metaverse gaming platforms, rather than establishing causation through manipulation of variables (Samuel & Okey, 2015). Given that the primary aim was to assess associations between the marketing tactic of branded virtual worlds and consumer behaviors such as purchasing intentions and RWCBE, a correlational design was deemed most appropriate. Correlational studies allow researchers to gather insights into relationships that can later form the basis for experimental studies if causation needs to be tested (Spector, 1981).

Moreover, this approach is often preferred when ethical or practical limitations prevent the manipulation of variables, as seen in social and behavioral research contexts (Privitera, 2024). While experimental research designs are often chosen due to its ability to establish causation, an experimental design was deemed unfeasible for this study due to the challenges in replicating the dynamic and immersive gaming environments of the metaverse. In a typical experimental setup, researchers need to maintain high levels of control over the environment and variables to manipulate participant's experiences consistently (Mize & Manago, 2022). However, the metaverse is a complex, interactive digital space where users interactions, virtual environments, and in-game activities are constantly changing, making it difficult to recreate a standardized experience for each participant (N. Yee & Bailenson, 2007). Additionally, recreating branded marketing experiences or specific virtual worlds outside the original gaming platform would require extensive resources and technical support. Such complexities make it nearly impossible to ensure consistency across experimental conditions. A correlational design, therefore, allows for the study of real consumer interactions and responses within authentic gaming environments, offering valuable insights without the impracticalities and limitations of attempting to replicate a controlled version of the metaverse. It captures the respondents' authentic experiences in the virtual world.

Metaverse platform

This study focused on one metaverse platform, in which respondents were asked to reflect on a time they encountered a branded virtual world on Roblox. The decision to study a single platform rather than multiple was due the fact that it is important to have a consistency in user experience. Metaverse gaming platforms look differently, and this approach can control for these platform-specific factors (such as interface design, game mechanics, and avatar styles) that might influence consumer behavior. Roblox was chosen as the platform for several reasons. Firstly, they have a large and diverse user base, with almost 90 million daily active users across various age groups, although especially popular among younger generation (under 25), being active on the platform for an average of 2.5 hours per day (Roblox, 2024). Secondly, many well-known brands have already established branded virtual worlds on Roblox (Gucci, Nike, Vans, Walmart, etc.), with

more than 400 cumulative brand activations having taken place on Roblox (*FAQs for Brands on Roblox*, n.d.). As of Q3 2024, there has been 4.83 billion visits to branded experiences on Roblox, with 19 experiences visited per month per user (*Brand Solutions on Roblox*, n.d.). This indicates that the probability that a user has come across and interacted with a brand on Roblox to be much higher. Thirdly, virtual spending on Roblox is common, as seen in that Roblox has forecasted that virtual consumption will add up to \$4.34 billion dollars in 2024 (Roblox, 2024).

3.3. Study Design

Sample Group

There were several requirements to be a part of this study as this thesis was studying a specific sample group. The data was gathered from respondents who are actively engaged in Roblox (plays at least once every other week) and that has engaged with a virtual world in Roblox in the last 60 days. This was done to ensure relevance and focus. The findings are only relevant for consumers who naturally and authentically play video games, as they are the target group for the marketers. It does not make sense to study the reactions of consumers who would not naturally be found playing video games. Moreover, this focused sample group enhances the validity of the study by reducing variability that might arise from including individuals unfamiliar with the metaverse, allowing for a clearer analysis of the relationship between exposure to marketing activities and user's behaviors. By concentrating on Roblox users, the study aims to provide insights specifically relevant to brands and marketers targeting this unique audience, leading to more practical and reliable outcomes that can guide future marketing strategies in virtual spaces.

Study Flow

The survey was developed on the online questionnaire application Qualtrics and is divided up in seven sections. The first section is an introduction and welcome, including a topic introduction, GDPR, estimated time to complete, and contact information. Section 2 ensures that the respondents are eligible to be part of the study, with questions regarding their experience playing on Roblox, frequency of being active on Roblox, and if they have encountered a branded virtual world on Roblox (and if yes, which branded virtual world). Respondents who have not encountered a branded virtual world or do not play at least once every other week will be forwarded to exit the survey, as they are not eligible to be included in the sample group. Section 3 includes a question

on the respondents' familiarity with the brand before encountering it on Roblox, and a question of how they perceive the brand in terms of involvement (high involvement vs low involvement). Section 4 includes the questions on the respondent's perception of the various metaverse game attributes, including immersion, interactivity, and entertainment. Section 5 is a question on the respondent's engagement in the virtual world experience as well as a control question to ensure they are paying attention. The survey then continues to section 6, which includes the questions relating to the respondent's reaction and behavioral response to the branded virtual world, including virtual purchase intentions and real-world consumer brand engagement. Lastly, section 7 includes another control question on the survey topic to check that the respondent understands the survey topic, and demographic questions including age and gender. The survey flow is summarized in table 2 below, and full questionnaire is found in Appendix B.

Regarding the raffle to win, an external survey was linked at the end of the original survey. The external survey, also done on Qualtrics, was made accessible only if you have answered all questions. In this external survey, the respondents were then able to enter their email addresses to be able to be contacted if they won.

Moreover, this study employs a correlational design relying on participants' self-reported recall of their interactions with branded virtual worlds in Roblox. While this approach allows us to gather data efficiently and without requiring live access to the branded environments, it introduces limitations associated with recall bias, where participants' memories may be incomplete or influenced by their personal interpretations. Alternative designs involving real-time observation could potentially yield more accurate data but were not feasible given the resource constraints of this study. To account for this trade-off, certain steps were taken to ensure reliability and validity, as discussed later in this section.

1	2	3	4	5	6	7
Introduction	Metaverse Behavior Questions	Branded Virtual World	Metaverse Attribute Questions	Metaverse User Engagement	Consumer Response / Behavior	Control & Demographics
Topic intro	Roblox gaming experience	Brand familiarity	Immersion	Metaverse user engagement	Virtual purchase intentions	Survey topic
GDPR	Frequency of gaming	Type of brand	Interactivity	Control question 1	Real world consumer brand engagement	Age
Estimated time to complete	Branded virtual world experience		Entertainment			Gender
Contact information						Option to enter raffle

Table 2: Overview of survey flow

3.3.1. Scales and Measures

All variables were measured using a five-point Likert scale ranging from (1) Strongly Disagree to (5) Strongly Agree. Having a scale of five points allows for reasonable array of options, while also ensuring that respondents do not lose interest and reducing the ‘frustration level’ with respondents (*5-Point Likert Scale: The Key To Easily Understanding Your Audience*, n.d.). Moreover, a multi-item question design was used throughout the survey, where applicable. This is common in social science studies, as it increases validity and reliability of the study, capturing nuances and covering different aspects of the variable that cannot be assessed with a single item question (Liu, n.d.). Cronbach’s Alpha was calculated for each multi-item scale questions to determine which were able to be turned into indexes. Constructs tested with a reliability score of 0.70 or higher were formed into an index. The scales were adopted from previous established research but adapted to fit the metaverse experience, summarized in table 3 below.

Construct	Items
<i>Immersion</i> CA ² =0.842	IMM1: I felt absorbed in the game when I was in the virtual world. IMM2: I had all my attention on the game when I was in the virtual world. IMM3: I felt like I was actually in the virtual world.
<i>Interactivity</i> CA=0.852	INT1: I was in control of my navigation and pace through the virtual world. INT2: I was able to interact with the world and its virtual objects (e.g. picking up, moving, or customizing items, participating in events, or trying on the virtual items). INT3: The virtual world responds to my actions in a personalized manner. INT4: I am able to interact and talk with others in the world.
<i>Entertainment</i> CA=0.861	ENT1: The virtual world is fun to explore. ENT2: The mini games and activities in the virtual world are enjoyable. ENT3: The activities and games in the virtual world are entertaining.
<i>User engagement in metaverse</i> CA= 0.860	ENG1: I spent a significant amount of time exploring the virtual environment. ENG2: I was motivated to keep exploring and interacting with the virtual world. ENG3: I would like to come back to this virtual world. ENG4: I am interested in exploring more experiences by this brand in the virtual world.
<i>Virtual Purchase Intention</i> CA=0.913	VIRPI1: I am interested in buying virtual products from this brand in the virtual world. VIRPI2: I would likely buy a virtual item from this brand in the virtual world. VIRPI3: In the near future, I plan on purchasing a virtual item from this brand in the virtual world.
<i>Real World Consumer Brand Engagement</i> CA=0.828	RWCBM1: I'd like to be a fan of this brand outside of the game. RWCBE2: I'd like to keep track of the real-world activities of the brand. RWCBE3: In real life, I'm likely to recommend the brand to my friends.
<i>Involvement type</i> CA=0.821	INV1: I would spend a lot of time researching before buying a product from this brand. INV2: I would regret making a purchase from this brand if it didn't meet my expectations INV3: Products from this brand is typically expensive INV4: This brand is important to my sense of style
<i>Previous Knowledge of Brand</i> CA=0.846	PBK1: I was familiar with the brand before encountering it in the game. PBK2: I was aware of this brand before encountering it in the game. PBK3: I knew which specific products this brand offers before encountering it in the game.

Table 3: Summarized multi-item variables

² CA = Cronbach's alpha

3.3.2. Data Collection and Participants

Data Collection

Data was gathered in a form of a survey from the online survey tool Qualtrics. The survey was distributed through an anonymous link on Facebook and Discord groups concerning the theme of Roblox. Upon answering all questions, qualified respondents were eligible to enter a raffle for the chance to win a \$10 dollar gift card to Roblox. There were thirty \$10 gift cards available to win. Data was collected through October 28th – November 12th, 2024. The total number of respondents who finished the survey was 297. However, 24 respondents had to be deleted due to not meeting the requirements of the study (for instance not correct interpretation of branded virtual world in the metaverse). Demographics of the participants of the study is found in Appendix C.

3.4. Analysis of Data

Preparation for analysis

To prepare for the empirical analysis of the data, certain steps were taken. Firstly, it was established that IBM SPSS 25 will be utilized for the statistical analysis in this thesis due to its ability to perform advanced statistical analysis. Secondly, the data was directly imported into SPSS, minimizing the risk of human error during data transfer. Thirdly, responses deemed invalid, as detailed below, were removed from the dataset. The constructs measured involved multiple questionnaire items, and as such had to be recoded into index variables, which SPSS calculated by taking the arithmetic mean of the underlying items for each construct.

Statistical tests

The findings are based and tested from the set hypotheses. This analysis uses a significance level of 0.05, following the set standard for both correlational research as well as social science research (Doan, 2005). The significance level of 0.05 was chosen to minimize the risks of Type I and Type II errors. It allows for detecting true effects, while avoiding overly strict thresholds that could obscure meaningful findings. Means of each variable is summarized in Appendix D.

To test the hypotheses, different statistical analyses were conducted. Firstly, to test the direct relationships, multiple regression analyses were conducted. This approach was chosen because

multiple regression is a robust statistical method that allows for the evaluation of the unique contribution of each predictor while controlling for other variables in the model. By incorporating the covariates of previous brand knowledge and frequency of playing, the analysis adjusts for potential confounding factors, ensuring that the observed effects of the primary predictors are not biased by these additional influences (Alexopoulos, 2010). Furthermore, regression analysis enables the simultaneous assessment of multiple independent variables, providing insights into the relative importance of each metaverse attribute. Regression analysis is particularly useful in understanding real-world phenomena like metaverse user engagement, where multiple factors are likely to interact and influence outcomes. By producing standardized coefficients (β), regression also allows for the direct comparison of the strength of these relationships, facilitating interpretation and actionable insights.

Secondly, mediation analysis was conducted using the PROCESS macro model 4 in SPSS to test the hypotheses and examine whether the relationship between the metaverse attributes and the various dependent variables (virtual purchase intentions and RWCBE) operates through metaverse engagement. This approach allowed for precise testing of the indirect effects using bootstrapping methods and provided insight into the causal pathways. By leveraging PROCESS, the analysis quantified the mediated effects, offering a robust understanding of these relationships.

Lastly, moderation analysis was also conducted using the PROCESS macro model 1 in SPSS to test the hypotheses and determine whether the strength or direction of the relationship between the metaverse attributes and the two dependent variable (virtual purchase intentions and RWCBE) varies depending on the levels of perceived brand involvement type. The use of PROCESS enabled the exploration of interaction effects and the assessment of conditional relationships, providing a nuanced understanding of the boundaries of the hypothesized relationship. This analysis clarified the contexts or conditions under which the relationship is stronger, weaker, or reversed, enhancing the interpretation of the theoretical framework.

3.5. Data Quality

There are some considerations taken to acquire reliability and validity in the study. When doing a correlational research design, there are a couple things that are essential to consider. Correlational

studies have some drawbacks, that if not accounted for, affects the validity and reliability of the study.

3.5.1. Reliability

Reliability indicates the extent to which the study results are consistent and can be replicated (Silver et al., 2012). This study was conducted meticulously, with each step clearly described in the method section to facilitate replication and similar outcomes (Bryman & Bell, 2015). Additionally, internal reliability was evaluated for all multi-item scales. Cronbach's alpha values ranged from 0.821 to 0.913, which is considered satisfactory (Lewis et al., 2019).

3.5.2. Validity

Validity points to how meaningful the research components are, referring to the accuracy of a measure evaluating how well the data collected actually measures what it intends to measure (Silver et al., 2012). This study takes five types of validity into consideration, including construct, internal, external, ecological, and statistical conclusion validity.

Construct validity

Construct validity refers to the degree to which the variables chosen to be studied accurately represents and measures the theoretical concept it is intended to assess (Cronbach & Meehl, 1955). The constructs measured are clearly defined and grounded in previous theory and adapted to the metaverse environment. Additionally, the study used established scales that have been validated in similar digital or branding contexts. For instance, immersion was adapted from the immersion questionnaire for video game developed by Jennett et al. (Jennett et al., 2008). Interactivity was adapted from Weber et al. established scale of interactivity in video games (Weber et al., 2014). Moreover, entertainment was adapted from Owen Schaffer's enjoyment questionnaire in digital games (Schaffer, 2022). Metaverse user engagement was adapted from Wiebe et al. questionnaire on engagement in video game environments (Wiebe et al., 2014). Measure of virtual purchase intention was adapted from Mkedder et al. scale on virtual goods purchasing intentions (Mkedder et al., 2024). Finally, a measure scale for real world engagement was adapted from Hollebeek,

Glynn, and Brodie study of customer engagement emerging from social media platforms (Hollebeek et al., 2014).

Internal validity

Internal validity refers to the degree to which a study is able to demonstrate a cause-and-effect relationship between the variables in focus (Drost, 2011). One of the major drawbacks of correlational studies is that there is a low internal validity, given that nothing is manipulated or controlled in an experiment and as such it is more challenging to ensure that there is not inference from other external or confounding variables (6.2 *Correlational Research – Research Methods in Psychology*, n.d.). In correlation studies, it is particularly important to consider the potential effects of the confounding variables. A confounder is a variable that influences the variables, both independent and dependent, being studied and potentially distorting the results and obscuring the true relationship between them (Pourhoseingholi et al., 2012). In this study, the potential confounding variables included was firstly how familiar the respondent was with the brand prior to the experience and secondly the frequency of being active on Roblox. Brand familiarity is considered a confounding variable because if a participant already knows and likes the brand, they might be more likely to enter, explore, and interact with the branded virtual world on Roblox. This creates a natural bias, as users who are familiar with the brand might engage differently than those who are unfamiliar. Frequency of playing on Roblox was the second potential confounding variable as players who are on Roblox frequently are more likely to come across branded virtual worlds, spend more time in them, and interact with branded content compared to infrequent players. This increased exposure can lead to higher levels of engagement simply because they play more often, not necessarily because they have a particular interest in the brand. By accounting for the prior familiarity of the brand and the frequency of game play, the true effect between the independent and dependent variables is better observed.

External validity

A strength of correlational studies is that they often offer a higher external validity compared to experimental research designs (6.2 *Correlational Research – Research Methods in Psychology*, n.d.). External validity refers to the extent to which findings of a study can be generalized to other settings, populations, or times (Mitchell, 1985). This study uses a representative sample that

reflects the broader population, given that all respondents are those who naturally are active on the platform. Roblox is by a majority being played by the younger generations, with 58% of the players being under 20 years old (*Global Roblox Game User Distribution by Age 2023*, n.d.). This was reflected in the study demographics as well.

Ecological Validity

Additionally, ecological validity also refers to the extent to which the findings can be generalizable to real world setting (*Ecological Validity*, n.d.). Controlling for ecological validity involves specifically designing the study in ways that make the conditions, behaviors, and environment as similar as possible to real-life situations. This was ensured as data is collected from real world settings, allowing for more genuine behaviors and attitudes than responses influenced by a controlled setting in an experiment.

4. Empirical Findings

In this section, the results are commented on and summarises the analysis of the collected data.

4.1. Effect of Metaverse Gaming Attributes on Metaverse Engagement

The first hypothesis sets out to test if metaverse game attributes (immersion, interactivity, and entertainment) have a relationship with consumers metaverse engagement. A multiple regression analysis was conducted to examine the relationships between the metaverse game attributes and metaverse user engagement. The regression results showed that the overall model explains 59.5% of the variance in metaverse user engagement, and is highly significant overall ($F = 78.4$, $p < 0.001$). The results indicate that interactivity is the only main variable that predicts metaverse user engagement ($\beta = 0.122$, $p = 0.007$), with immersion ($\beta = -0.004$, $p = 0.918$) and entertainment ($\beta = 0.046$, $p = 0.289$) not being statistically significant. The control variables, frequency of playing ($\beta = 0.748$, $p < 0.001$) and previous knowledge of brand ($\beta = 0.086$, $p = 0.029$), also show that they have significant effects. This suggests that frequency of playing (to a larger effect), and previous brand knowledge (to a smaller effect) are important covariates.

Variable	B (Unstandardized Coefficients)	Std. Error	β (Standardized Coefficients)	t	Sig. (p-value)
Constant	-1.247	.309	-	-4.033	<.001
Immersion	-.004	.035	-.004	-.103	.918
Interactivity	.140	.051	.122	2.733	.007
Entertainment	.046	.043	.047	1.061	.289
Frequency of playing	.835	.044	.748	19.002	<.001
Previous knowledge of brand	.046	.021	.086	2.189	.029

Model summary

R^2	Adjusted R^2	F	p-value
0.595	0.587	78.402	<0.001

Table 4: Summary of multiple regression analysis on metaverse engagement

The results suggest that interactivity has a positive, significant relationship with metaverse user engagement, while immersion and entertainment does not, providing partial support for H1.

H1: The metaverse game attributes (a, b, and c) has a positive significant effect on metaverse user engagement.
 a. Immersion → NOT SUPPORTED
 b. Interactivity → SUPPORTED
 c. Entertainment → NOT SUPPORTED

4.2. Effect of Metaverse Gaming Attributes on Virtual Purchase Intention

Hypothesis 2a, 2b, and 2c suggested a positive, significant relationship between metaverse game attributes and virtual purchase intentions. A multiple regression analysis was conducted to test the relationships while controlling for the variables ‘frequency of playing’ and ‘previous knowledge of the brand’. The model explains 19.2% of the variance in virtual purchase intentions, indicating a small but meaningful level of explanatory power. Interactivity ($\beta=0.226$, $p < 0.001$) has a significant positive effect on virtual purchase intentions, while immersion ($\beta=0.056$, $p = 0.381$) and entertainment ($\beta=0.077$, $p = 0.330$) do not have a significant effect on virtual purchase intentions. Moreover, the covariate of frequency of playing has a strong significant positive effect on virtual purchase intentions ($\beta=0.332$, $p < 0.001$), while previous knowledge of the brand did not.

Variable	B (Unstandardized Coefficients)	Std. Error	β (Standardized Coefficients)	t	Sig. (p-value)
Constant	-.643	.565	-	-1.138	.256
Immersion	.056	.063	.053	.878	.381
Interactivity	.338	.094	.226	3.602	<.001
Entertainment	.077	.079	.061	.976	.330
Frequency of playing	.479	.080	.332	5.975	<.001
Previous knowledge of brand	-.005	.039	-.007	-.122	.903

Model summary

R^2	Adjusted R^2	F	p-value
0.192	0.176	12.653	<0.001

Table 5: Summary of multiple regression analysis on virtual purchase intentions

The results suggest that interactivity has a positive, significant relationship with virtual purchase intentions, while immersion and entertainment does not, providing partial support for H2.

H2: The metaverse game attributes (a, b, and c) has a positive significant effect on virtual purchase intentions.

- a. Immersion → NOT SUPPORTED
- b. Interactivity → SUPPORTED
- c. Entertainment → NOT SUPPORTED

4.3. Effect of Metaverse Gaming Attributes on Real World Consumer Brand Engagement

Hypothesis H4 posits that metaverse game attributes have a positive, significant relationship with RWCBE. A multiple regression analysis was conducted to test for these relationships and to control for the potential covariates of frequency of playing and previous knowledge of the brand. The model explains 22.2% of the variance in RWCBE. Immersion ($\beta=0.039$, $p = 0.448$) and interactivity ($\beta=0.134$, $p = 0.076$) do not have a significant effect on RWCBE, while entertainment ($\beta=0.144$, $p=0.019$) shows a small but significant positive effect on RWCBE. Frequency of playing ($\beta=0.393$, $p<0.001$) shows a moderate significant effect on RWCBE, and previous knowledge of the brand is not significant.

Variable	B (Unstandardized Coefficients)	Std. Error	β (Standardized Coefficients)	t	Sig. (p-value)
Constant	-.224	.454	-	-.493	.622
Immersion	.039	.051	.045	.760	.448
Interactivity	.134	.075	.110	1.782	.076
Entertainment	.150	.064	.144	2.353	.019
Frequency of playing	.245	.065	.393	7.211	<.001
Previous knowledge of brand	.033	.031	.058	1.068	.286

Model summary

R^2	Adjusted R^2	F	p-value
0.222	0.207	15.224	<0.001

Table 6: Summary of multiple regression analysis on real-world consumer brand engagement

The results suggest that entertainment has a positive, significant relationship with real-world consumer brand engagement, while immersion and interactivity does not, providing partial support for H4.

H4: The metaverse game attributes (a, b, and c) has a positive significant effect on real world consumer brand engagement.

- a. Immersion → NOT SUPPORTED
- b. Interactivity → NOT SUPPORTED
- c. Entertainment → SUPPORTED

4.4. Mediation Effect of Metaverse User Engagement

It was also predicted that metaverse user engagement mediates the relationship between the metaverse game attributes and consumers behavioral response. Mediation effects were tested using Process Macro model 4 on SPSS and included the control variables of frequency of playing and brand familiarity.

Virtual Purchase Intention

Mediation analysis was conducted to test for hypothesis H3. The results indicate that metaverse user engagement mediates the relationship between interactivity and virtual purchase intention as well as entertainment and virtual purchase intention.

For interactivity, the results indicate that metaverse engagement significantly mediates the relationship between interactivity and virtual purchase intentions (indirect effect = 0.052, CI = 0.008, 0.112). The direct effect of interactivity on virtual purchase is also significant ($\beta = 0.142$, $p = 0.016$), suggesting partial mediation.

Metaverse engagement also significantly mediates the relationship between entertainment and virtual purchase intentions (indirect effect $\beta = 0.036$, CI 0.001, 0.086). Similarly, the direct effect of entertainment on virtual purchase intentions is also significant, ($\beta = 0.186$, $p = 0.001$), suggesting partial mediation.

No significant mediation effect can be seen between the relationship of immersion and virtual purchase intentions, however the direct effect of immersion on virtual purchase intentions are significant ($\beta = 0.142, p = 0.016$)

In summary, all three variables (immersion, interactivity, and entertainment) have significant direct effects on virtual purchase intention, indicating that each *X* variable also influences virtual purchase intention independently of the mediator in this analysis. Interactivity and entertainment are stronger predictors of virtual purchase intention through both direct and mediated pathways. Immersion's influence on virtual purchase intention is predominantly direct, with limited mediation via metaverse engagement. Metaverse engagement also has significant direct effect on virtual purchasing behavior across all three mediation tests.

Variable (X)	Effect of X on M (X → M)	Effect of M on Y (M → Y)	Direct effect: (X → Y)	Total effect: (X → Y)	Relationship	Indirect effect
a. Immersion	0.043 $p = 0.182$	0.397 $p = 0.012$	0.142 $p = 0.016$	0.159 $p = 0.008$	Immersion → Metaverse user engagement → Virtual Purchase intention	0.017 BootLLCI = -0.008 BootULCI = 0.055
b. Interactivity	0.162 $p < 0.001$	0.319 $p = 0.004$	0.352 $p < 0.001$	0.404 $p < 0.001$	Interactivity → Metaverse user engagement → Virtual Purchase intention	0.052 BootLLCI = 0.008 BootULCI = 0.112
c. Entertainment	0.096 $p = 0.015$	0.376 $p = 0.001$	0.186 $p = 0.01$	0.222 $p = 0.002$	Entertainment → Metaverse user engagement → Virtual Purchase intention	0.036 BootLLCI = 0.001 BootULCI = 0.086

Table 7: Summary of mediation analysis on virtual purchase intention

To summarize the mediation results of the metaverse attributes on virtual purchase intentions engagement, only interactivity and entertainment was found to have an indirect effect of metaverse engagement. This means that H3 is partially supported.

H3: The relationship between the metaverse game attributes (a, b, and c) and virtual purchase intentions is mediated by metaverse user engagement.

- a. Immersion → NOT SUPPORTED
- b. Interactivity → SUPPORTED
- c. Entertainment → SUPPORTED

Real-World Consumer Brand Engagement

Furthermore, mediation analysis was conducted on the three metaverse attributes and their relationship with RWCBE, with metaverse engagement as the hypothesized mediator to test for hypothesis H5.

The results indicate that metaverse engagement is a significant mediator for interactivity (indirect effect $\beta=0.063$, CI= 0.015, 0.130). The direct effect of interactivity on virtual purchase intentions is also significant ($\beta=0.165$, $p=0.013$), suggesting partial mediation of metaverse engagement.

Moreover, the results shows that metaverse engagement mediates the relationship between entertainment and RWCBE (indirect effect $\beta=0.038$, CI=0.001, 0.084). There is also a significant direct effect ($\beta=0.176$, $p=0.002$), suggesting partial mediation of metaverse engagement.

Immersion and RWCBE was found to not to be mediated by metaverse engagement, but it showed a significant direct effect ($\beta=0.094$, $p=0.042$).

Metaverse engagement was also shown to have a significant direct effect on RWCBE across all three mediation tests.

Variable	Effect of X on M (X → M)	Effect of M on Y (M → Y)	Direct effect: (X → Y)	Total effect: (INT → RWCBE)	Relationship	Indirect effect
a. Immersion	0.043 <i>p</i> =0.182	0.425 <i>p</i> <0.001	0.094 <i>p</i> =0.042	0.112 <i>p</i> =0.019	<i>Immersion → Metaverse user engagement → RWCBE</i>	0.018 <i>BootLLCI</i> = -0.011 <i>BootULCI</i> = 0.056
b. Interactivity	0.162 <i>p</i> <0.001	0.392 <i>P</i> <0.001	0.165 <i>p</i> =0.013	0.228 <i>p</i> =0.001	<i>Interactivity → Metaverse user engagement → RWCBE</i>	0.063 <i>BootLLCI</i> = 0.015 <i>BootULCI</i> = 0.130
c. Entertainment	0.096 <i>p</i> =0.015	0.398 <i>p</i> <0.001	0.176 <i>p</i> =0.002	0.214 <i>p</i> <0.001	<i>Entertainment → Metaverse user engagement → RWCBE</i>	0.038 <i>BootLLCI</i> = 0.001 <i>BootULCI</i> = 0.084

Table 8: Summary of mediation analysis on real-world consumer brand engagement

To summarize, the mediation analysis revealed that interactivity and entertainment contribute to RWCBE both directly and indirectly through metaverse engagement. This entails that H5 is partially supported.

H5: The relationship between the metaverse game attributes (a, b, and c) and real-world consumer brand engagement is mediated by metaverse user engagement.

- a. Immersion → NOT SUPPORTED
- b. Interactivity → SUPPORTED
- c. Entertainment → SUPPORTED

4.5. Moderation Effect of Involvement

Hypothesis H6 suggested the potential moderation effect that the level of involvement a brand is perceived to have on the relationship between the metaverse brand attributes and consumer response. To test the moderation effect, Process Macro on SPSS was used, utilizing model 1.

Starting with immersion, the results indicate that level of involvement does not have a moderation effect on the relationship, both on virtual purchase intention and RWCBE due to insignificant results (*p*>0.05). The influence of immersion on virtual purchase intention and RWCBE appears to be independent of the type of brand.

Variable	Interaction effect (Immersion * Type of Brand)	p - value
Virtual Purchase Intention	0.142	0.244
Real World Consumer Brand Engagement	0.024	0.806

Table 9: Moderation Analysis Immersion

Moreover, for interactivity, in both cases (virtual purchase intention and RWCBE), the interaction effects are not significant ($p > 0.05$). This suggests that type of brand does not moderate the relationship between interactivity and the outcome variables.

Variable	Interaction effect (Interactivity * Type of Brand)	p - value
Virtual Purchase Intention	0.063	0.707
Real World Consumer Brand Engagement	0.004	0.974

Table 10: Moderation Analysis Interactivity

For Entertainment, the moderation effect of type of brand is significant ($p < 0.05$) for the relationship between entertainment and RWCBE, with a negative interaction meaning that entertainment is less effective at driving RWCBE for low-involvement brands compared to high-involvement brands. For virtual purchase intention, entertainment's effect is consistent regardless of the type of brand, showing no moderation effect ($p > 0.05$).

Variable	Interaction effect (Entertainment * Type of Brand)	p - value
Virtual Purchase Intention	0.074	0.618
Real World Consumer Brand Engagement	-0.252	0.029

Table 11: Moderation Analysis Entertainment

To summarize, the moderation results showed that only one relationship between the metaverse attributes and the outcome variables was significant, leading to H6 being partially supported.

H6: The type of brand (high involvement vs low involvement) moderates the relationship between metaverse game attributes (a, b, and c) and consumer response.

- a. Immersion
 - 1. Virtual purchase intention → NOT SUPPORTED
 - 2. Real world consumer brand engagement → NOT SUPPORTED
- b. Interactivity
 - 1. Virtual purchase intention → NOT SUPPORTED
 - 2. Real world consumer brand engagement → NOT SUPPORTED
- c. Entertainment
 - 1. Virtual purchase intention → NOT SUPPORTED
 - 2. Real world consumer brand engagement → SUPPORTED

In table 12 below, all hypotheses are summarized along with their results.

Hypothesis		Results
Metaverse user engagement	H1: The metaverse game attributes (a, b, and c) has a positive significant effect on metaverse user engagement.	H1a: Not supported
	a. Immersion	H1b: Supported
	b. Interactivity	H1c: Not supported
Virtual Purchase Intentions	c. Entertainment	
	H2: The metaverse game attributes (a, b, and c) has a positive significant effect on virtual purchase intentions.	H2a: Not supported
	a. Immersion	H2b: Supported
	b. Interactivity	H2c: Not supported
	c. Entertainment	
	H3: The relationship between the metaverse game attributes (a, b, and c) and virtual purchase intentions is mediated by metaverse user engagement.	H3a: Not supported
Real World Consumer Brand Engagement	a. Immersion	H3b: Supported
	b. Interactivity	H3c: Supported
	c. Entertainment	
	H4: The metaverse game attributes (a, b, and c) has a positive significant effect on real world consumer brand engagement.	H4a: Not supported
	a. Immersion	H4b: Not supported
	b. Interactivity	H4c: Supported
Type of Brand	c. Entertainment	
	H5: The relationship between the metaverse game attributes (a, b, and c) and real-world brand engagement is mediated by metaverse user engagement.	H5a: Not supported
	a. Immersion	H5b: Supported
	b. Interactivity	H5c: Supported
	c. Entertainment	
	H6: The type of brand (high involvement vs low involvement) moderates the relationship between metaverse game attributes (a, b, and c) and consumer response.	H6a₁: Not supported
	a. Immersion	H6a₂: Not supported
	1. Virtual purchase intention	H6b₁: Not supported
	2. Real world consumer brand engagement	H6b₂: Not supported
	b. Interactivity	H6c₁: Not supported
	1. Virtual purchase intention	H6c₂: Supported
	2. Real world consumer brand engagement	

Table 12: *Hypotheses results summarized*

5. Analysis and Discussion

In this section, a summary of the results is presented and thereafter discussed in context with prior research on this topic.

This thesis set out to understand the effect of branding on metaverse gaming platforms on consumers behavioral response. The study thus investigated if the prominent metaverse gaming attributes of immersion, interactivity, and entertainment were able to predict if a consumer on the gaming platform were more likely to want to purchase from the brand in the virtual world, and if the brand presence on the platform was able to transfer to real life consumer brand engagement. Moreover, the study aimed to understand if the attributes had an effect on metaverse user engagement, looking to understand if immersion, interactivity, and entertainment were able to engage the consumer more into the virtual world. Hence, it aimed to determine if metaverse engagement mediated the relationship between the metaverse attributes and consumer response. The potential moderating effect of being a high involvement brand versus low involvement brand was also investigated.

Overall, the results indicated some support in the relationship between metaverse game attributes and the consumer responses of virtual purchase intentions and real-world consumer brand engagement. Furthermore, the results highlighted a mediating role of metaverse user engagement in most of these relationships. However, there was minimal evidence to suggest a moderating effect of involvement type.

5.1. The effect of immersion on metaverse engagement, virtual purchase intention, and real-world consumer brand engagement

Immersion was analyzed to understand if it has a relationship with metaverse engagement, virtual purchase intentions, and real-world consumer brand engagement with regression analysis. The results suggested that immersion does not directly predict how much a user engages with the metaverse branded virtual world, the users virtual purchase intentions, or in bridging metaverse experiences with real world consumer brand engagement. This does not align with previous

research, which has found that immersion does influence metaverse engagement, virtual purchase intentions, and RWCBE (Kruijff et al., 2015; Scholz & Smith, 2016; D. Shin, 2019).

However, the mediation analysis provides a more nuanced view of immersion's role. The mediation analysis did find that immersion has a direct effect on both virtual purchase intentions and RWCBE. However, immersion does not significantly influence metaverse engagement, limiting its role as a mediator, as seen in the non-significant indirect effect. Nonetheless, this may suggest that immersion might have a small role in predicting virtual purchase intentions and RWCBE, suggesting that these results align with previous research on the effect of immersion.

Moreover, immersion had the lowest mean score compared with the rest of the metaverse gaming attributes. This may indicate that immersion was overall comparatively low, and thus may not have a larger effect on the user. Nonetheless, in this study it was found that overall, immersion was not a good predictor of the various dependent variables.

Similarly, perceived immersion may be affected by the technological devices the user was using while playing. For instance, one player may feel higher immersion if they used a VR headset compared to another who did not have a VR headset, as it activates more senses. Roblox is compatible with most VR headsets such as the Meta Quest or Oculus Rift but can also be accessed via the computer or mobile. While the adoption of VR headset is considered low, in particular in comparison of Roblox's user base, such distinction in playing experience can have an effect on immersion, and thus maybe explaining its non-significant role in this study.

While the results of this study gave little support in immersion's role, it is still an important variable to consider in the context of the metaverse. One of the fundamental objectives of the metaverse is its ability to immerse the user and delivering a new level of realism in comparison to other digital experiences that are considered the norm today, such as consuming content (videos, reading, 2D pictures) or socializing (VIAR, 2022). As such, while this study provides little support of immersion's role on consumer behaviors, it can still be assumed to be an important aspect of the metaverse.

5.2. The effect of interactivity on metaverse engagement, virtual purchase intention, and real-world consumer brand engagement

Interactivity emerges as a significant and consistent predictor across most of the analyses, suggesting that it plays a pivotal role in influencing metaverse engagement and virtual purchase intentions, aligning with previous research on interactivity in digital contexts (Haenlein & Kaplan, 2009; Hennig-Thurau et al., 2023; Kumari, 2022; Schlosser, 2003) .

Within the regression analysis, interactivity has a significant direct effect with metaverse engagement. While the covariate of frequency of playing showed to be stronger predictor, interactivity still plays an important role in engaging the consumers in the virtual branded world. This aligns with previous research, providing more support that as users interact with the world and other players, engagement in the virtual world increases (Hennig-Thurau et al., 2023; Rahman et al., 2024). Moreover, interactivity has a stronger and significant direct effect with virtual purchase intentions compared to its role in metaverse engagement. This suggests that consumers are more likely to make virtual purchases when the virtual world is interactive, also aligning with previous research. For instance, social influence has previously been shown to be a strong influence on intentions to purchase (E. Huang, 2012). However, with its relationship with RWCBE, interactivity approaches significance, but is not as strong in this context. This does not align with previous research, which found that interactivity does have spillover effects on consumers real world perceptions of the brand (Haenlein & Kaplan, 2009). This result in the study may be because interactivity may only drive short term engagement and lacks the ability to be able to leave a lasting impression on the consumer. Metaverse engagement and virtual purchases are immediate, which may explain why interactivity directly drives those behaviors by enabling users to take actions. RWCBE reflects a longer involvement, and as such interactivity may not have the sustained impact to be able to drive RWCBE.

The mediation analysis gives slightly different interpretations than the regression analysis. The results highlight the indirect role of interactivity through metaverse engagement. For virtual purchase intentions, interactivity has a significant indirect effect, meaning that interactivity indirectly increases virtual purchase intentions by enhancing metaverse engagement. Its strong direct effect combined with the indirect effect highlights that interactivity is a critical driver of

purchase behavior in virtual environments. Moreover, with RWCBE, interactivity has a significant indirect effect. This indicates that interactivity contributes indirectly to consumers' real-world engagement with the brand by first strengthening metaverse engagement. While this is slightly different to the results in the regression analysis, the mediation results shows that interactive virtual worlds drive metaverse engagement, which then drives RWCBE. The metaverse engagement in this case may bridge the virtual and the real worlds, influencing the user's behavior and attitude towards the brand in the real world.

5.3. The effect of entertainment on metaverse engagement, virtual purchase intention, and real-world consumer brand engagement

Entertainment plays a consistent but less dominate role across the analyses. It emerges as a significant factor in some contexts, particularly in mediation analyses, suggesting it contributes indirectly to consumer outcomes by enhancing metaverse user engagement, but less significant in the regression analysis.

When interpreting the regression analysis, entertainment was found to not have a significant effect on metaverse engagement, suggesting that while entertainment may enhance the overall experience, it does not independently drive metaverse user engagement. This does not align with previous research, which highlights the fact that entertainment drives engagement in gaming environments (Boyle et al., 2012). Similarly, entertainment did not have a significant effect on virtual purchase intentions, also not aligning with previous research such as Domina et al.'s study showing that enjoyment drives positive emotions, which then drives purchases (Domina et al., 2012). Nonetheless, entertainment was found to have a significant direct effect on RWCBE in the regression analysis. This indicates that entertainment in the metaverse experience has a meaningful impact on consumers engagement with the brand in the real world, suggesting that enjoyable experiences foster positive brand associations that translate into real-world brand engagement. This aligns with previous research, such as Suprawan and Wongkitrungrueng who found that perceived hedonic value positively influences real world engagement (Suprawan & Wongkitrungrueng, 2023), or Rane et al. who highlights how enjoyment leads to an emotional attachment to the brand.

Moreover, entertainment's role becomes more evident when examining its indirect effects through metaverse user engagement. It was found that entertainment has a significant indirect effect via metaverse user engagement on purchase intentions, suggesting that while entertainment does not directly drive virtual purchase intentions, it enhances engagement in the metaverse which in turn fosters purchasing behavior. Similar results were found in the relationship with RWCBE, where entertainment has a significant indirect effect through metaverse user engagement, indicating that entertainment fosters real-world engagement indirectly by first increasing metaverse user engagement.

As such, entertainment's direct effects were limited to only RWCBE. Entertainment's role in the mediation analysis was shown to be stronger, suggesting that entertainment is more about fostering emotional and hedonic value, which indirectly influences virtual purchase intentions and RWCBE through metaverse engagement, rather than being a primary driver of consumer outcomes. Considering the Uses and Gratification theory, entertainment may be viewed as a baseline expectation rather than a differentiator. The users may thus already expect the virtual world to be entertaining, and as such additional entertainment elements may not enhance their engagement or purchasing behavior. Moreover, entertainment's stronger effect on RWCBE (both directly and indirectly) suggests that enjoyable experiences in the metaverse create a lasting impression that translates into real world engagement. While its direct effects are less definite than interactivity, its importance lies in fostering enjoyable experiences that translate into stronger brand connections and loyalty.

5.4. Role of Covariates: Frequency of Playing & Previous Knowledge of Brand

Two covariates were also included in the analysis as a way to control for variables that were not of main interest but still can affect the results. It turns out that the two covariates, frequency of playing and previous brand knowledge, play a role in metaverse user engagement, virtual purchase intentions, and real-world consumer brand engagement.

Frequency of playing emerges as a strong and consistent predictor across the analyses, having strong direct effects on metaverse user engagement, virtual purchase intentions, and RWCBE. The

more often a consumer plays on the metaverse gaming platform, the stronger the engagement in the virtual world, intentions to purchase, and real-world loyalty is. This is understandable, as consumers who play more often will be more familiar and may have greater psychological investment into the metaverse experience. As such, they may be more likely to engage with the brands in the virtual space, as well as feel more comfortable with virtual purchases and would like to connect with the brand in the real world.

Previous brand knowledge is a weaker but still notable role in some contexts. While not a dominate predictor, previous brand knowledge likely acts as a facilitator for engagement by making consumers more receptive to metaverse experiences. It does not directly predict virtual purchase intentions or real-world engagement. This suggests that while it may enable more engagement in the metaverse experience, having a lot of prior knowledge of the brand does not affect likelihood of purchases and RWCBE. It is important to note also that most brands who have virtual worlds on Roblox or other metaverse gaming platforms are usually quite well-known. Previous brand knowledge had an average of 4.2, indicating that the majority of respondents were familiar with the brand before encountering them on the platform.

5.5. The effect of perceived involvement of brand

Regarding the moderation effect of type of brand (high vs low involvement product category), there was no significant moderation effects for immersion and interactivity for both virtual purchase intention and RWCBE. However, it was shown that the relationship between entertainment and RWCBE is moderated by involvement type, in which brands with higher involvement showed a stronger effect of entertainment on RWCBE. This may be because entertainment directly taps into the emotional engagement of consumers, making it particularly relevant for high involvement brands that rely on strong emotional connections.

These moderation results thus suggest that all brands can expect similar results if they were to integrate onto a metaverse gaming platform. While not what was expected, these results are still valuable. Many different types of brands have already integrated onto the metaverse platforms, ranging from fashion, to restaurant, to car brands, all varying in terms of involvement type. For instance, brands that require significant decision making (high involvement), may benefit from the

metaverse platform as the users can explore its products in depth, while the brands that sell everyday products (low involvement) benefit because the experience makes the everyday products fun and memorable.

6. Conclusion

In this section, main conclusions are drawn based on the discussion of the results of the study and the research question is answered. Further, limitations of the study are commented on and suggestions for further research is discussed.

This thesis set out to gain a deeper understanding of the effect that metaverse marketing has on consumers when they encounter a branded virtual world on the platform. The aim was to give insights to brand marketers on how branded virtual worlds on metaverse platforms affects consumer behavior, so that the brand managers can make better informed decisions regarding whether to invest into metaverse platforms as a communication channel, and as such which attributes to focus on to engage the user the most. The study was conducted to answer the research question: *“Does the presence of a brand on a metaverse gaming platform, due to it being immersive, interactive, and entertaining, have an effect on consumers intentions to engage with the virtual experience, their virtual purchasing behavior and their intentions to engage with the brand in real life? Does type of brand have an impact on these effects?”*. The answer to this is yes, the presence of a brand on a metaverse gaming platform does have an effect on the consumers engagement in the virtual world, their virtual purchasing intentions, and their real-world consumer brand engagement. However, there was limited support for the effect of brand type (high vs low involvement) on these relationships.

More specifically, only interactivity had a positive, significant effect on metaverse user engagement, while immersion and entertainment did not (H1a, H1b, & H1c). Again, interactivity was the only metaverse game attribute that had a positive, significant effect on virtual purchase intentions, while immersion and entertainment did not (H2a, H2b, & H2c). However, both interactivity and entertainment were found to be mediated by metaverse engagement in their relationship with virtual purchasing intentions, though there was no support for the mediation effect on immersion (H3a, H3b, & H3c). Entertainment was the only metaverse attribute that had a positive, significant effect on RWCBE, while immersion and interactivity was not significant (H4a, H4b, & H4c). Nonetheless, both interactivity and entertainment on RWCBE was found to be mediated by metaverse engagement, but not immersion (H5a, H5b, & H5c). Lastly, there no significant effect on the type of brand moderating the relationship between the metaverse attributes

and the outcomes, expect for on entertainment and RWCBE, where high involvement brands benefit more with higher entertainment (H6a, H6b, & H6c).

6.1. Theoretical Contributions

The results of this study add theoretical contributions to marketing on the metaverse, specifically on the new wave of metaverse gaming platforms. Marketing on such platforms has for the most part only been studied quantitatively given its novelty, and while the previous research on the first types of metaverse gaming platforms such as Second Life gave a good base, this research adds to the research field of the modern metaverse gaming platform. This research has addressed the research agenda set out in prior studies such as Dwivedi et al.'s article on how marketing on the metaverse will take place in the future by empirically studying consumers reaction to metaverse marketing (Dwivedi et al., 2023). As such, this thesis extends the current research on consumers behavior on the metaverse, by showing how specified metaverse gaming attributes (immersion, interactivity, and entertainment) affects the metaverse user's behavior, both directly and via the users' intentions to engage in the experience. While the results varied in terms of the metaverse attributes effect on the user's behavior, it was clear that metaverse engagement had a significant positive effect on both virtual purchase intentions and RWCBE, extending the research of modern marketing on digital channels.

6.2. Practical Contributions

In addition to theoretical contributions, this study also adds with managerial implications. The results of this study showed that branding on metaverse gaming platforms may in fact have favorable effects on the consumer in terms of their intention to purchase in the virtual world and their intentions to engage with the brand outside of the virtual platform. By implementing a virtual world on a metaverse platform, a brand may not only receive benefits in form of revenue from the virtual purchases, but brand engagement may spillover into the real world as well. Regardless of the metaverse attributes, this study found that metaverse engagement has a significant effect on the outcome variables, signifying that by getting users engaged in the branded virtual world, the brands can experience positive effects from the consumer such as increased purchasing intentions and increased engagement in the real world.

According to the results in this study, brands should especially focus on creating an interactive experience in the virtual world to engage the user more and to drive virtual purchasing. For instance, a brand should attempt to gamify the experience, such as incorporating challenges, leaderboards and rewards, and multi-player games where users can interact and collaborate with others. Moreover, enabling customization of the virtual assets facilitates more interactivity, such as allowing the users to personalize their avatars or the products in the world. While interactivity came out as the strongest predictor, entertainment also had some significant effects, such as with RWCBE. Thus, focusing on providing entertainment can be beneficial for the brand, especially for high involvement brands who may benefit more from entertainment on RWCBE. Overall, a brand should focus on engaging the user into the virtual world, as this is seen to positively affect virtual purchase intentions and RWCBE.

6.3. Limitations

While limitations attempted to be avoided, this study is subject to some. Firstly, the study design, although being the one most suited for this scope of research, came with certain limitations. For instance, respondents were asked to reflect on a moment when they came across a virtual branded world. This can cause recall bias and or recall limitations. Recall bias refers to when respondents have an inaccurate memory of a past event and recall limitations refers to the tendency of humans to forget information overtime (*What Is Recall Bias?*, 2023). While efforts were taken to reduce these two issues, they can still have influenced the accuracy of the findings. Similarly, this lacks behavioral verifications as the study relies on self-reported measures of for instance purchase intentions and brand engagements in the real world. The intentions the respondents state in the survey may not translate into real-world actions, limiting the practical applicability of the findings. Moreover, the respondents were asked to choose a brand virtual world that they have visited recently. This might have caused some biases when answering the rest of the questions in the survey.

Moreover, this study only explored one metaverse platform, Roblox. While this was to increase control in the study, it has its limitations on generalizability. Metaverse gaming platforms, although having many similarities, do have unique characteristics such as the way avatars are presented, the type of games and activities the platform offers, and how the platform interface

looks like. These differences can make it hard to generalize the findings in this study. While the metaverse characteristics (immersion, interactivity, and entertainment) are assumed be the same across platforms, the other platform characteristics can cause results to differ across platforms. Results are thus not fully generalizable across all metaverse gaming platforms.

6.4. Future Research

With marketing on the metaverse still going through its beginning and exploring stage, there are many avenues for future research to be done to contribute with new perspectives and theories. The results of this study certainly highlight the potential for brands to reach and engage its audience, however details regarding how a brand should proceed remains undefined. As such, some areas of potential future research are detailed below.

Firstly, metaverse gaming platforms have the ability to collect a lot of data on for example exactly how the users move around, what they interact with, how long they stay in one activity, and what they purchase. By collaborating with a platform, researchers can set up an experimental research design by ethically collecting and analyzing this data. Subsequent questions can be asked though a survey to understand consumers brand perceptions. This would strengthen the results in this study by observing how the users truly react to a branded virtual world, instead of relying on how consumers respond to questions regarding their behaviors.

Moreover, as this study demonstrated that there are positive relationships between a branded virtual world and beneficial consumer behaviors for the brand overall, it would be interesting to delve deeper and study how a brand can optimize the effects. This study showed how interactivity and entertainment, and to a smaller extent immersion, affects the consumer, but it would be interesting to see if there are certain interactive activations that work best for certain brands. Ad congruency is an important concept in marketing, which refers to the alignment or consistency between an advertisement and the context in which it appears (Germelmann et al., 2020). Within the virtual worlds, there are many different types of activations available. Investigating if certain brand categories work better with certain interactive elements is thus interesting.

Additionally, the role of avatars and user's personal identity would be interesting to research with regards to brand integrations on the metaverse platforms. One's digital identity is becoming an increasingly important aspect on their personal identity. As users spend more time in the digital world socializing and playing games, how they are presented in that world may affect their behaviors. Future research on for instance how metaverse users associate their digital personas with real world brands or how the level of personalization in avatars affects how users interact and engage with the brand would be interesting.

Lastly, social media marketing has been a topic that has received a large amount of attention the past couple of years in research. An idea that would be interesting to test is to see if social media marketing techniques, such as influencer marketing, is applicable in the metaverse as well. Metaverse gamer streamers, which are people who live-stream when they are playing on for example Roblox or Fortnite, have grown in popularity and fans enjoy following these 'influencers'. It would be interesting to investigate if these streamers have the same influence power that other social media influencers have, especially because on metaverse platforms the fans can play with their influencers.

6.5. Concluding Remarks

This study offers insight on this new and growing topic of marketing on the metaverse, highlighting its potential for brands to reach and connect with the younger generations. As an exciting and dynamic platform, the metaverse enables brands to engage consumers through immersive, interactive, and entertaining experiences that go beyond the boundaries of traditional marketing channels. As the metaverse continues to evolve, it is becoming a channel for brands to create experiences that not only captures attention but also fosters relationships, positioning it as a unique opportunity for marketing in this new digital era.

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Appendix

Appendix A: Metaverse Use Cases

Work



<https://www.techeblog.com/microsoft-teams-mesh-3d-avatars-metaverse/>



<https://about.meta.com/what-is-the-metaverse/>



<https://about.meta.com/what-is-the-metaverse/>

- Remote collaboration: virtual offices, joining a meeting remotely, cross-border collaboration
- Training and onboarding: immersive trainings
- Product design and prototyping: virtual showrooms, digital twins, faster prototyping
- Data visualization: 3D dashboards, scenario testing

Socialization



<https://www.yankodesign.com/2022/02/13/the-metaverse-is-inevitable-and-its-already-changing-product-design-as-we-know-it/>



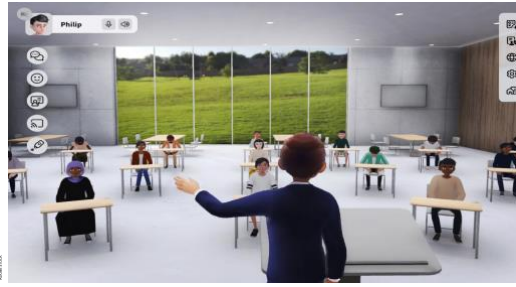
<https://about.meta.com/what-is-the-metaverse/>

- Virtual social spaces: 3D video calls, virtual hangouts
- Events and entertainment: live digital concerts, digital movie nights and watch parties, live sports viewing
- Immersive tourism: visit virtual landmarks, attend global cultural events regardless of current location

Education



<https://www.educationnext.org/meet-the-metaverse-new-frontier-virtual-learning/>



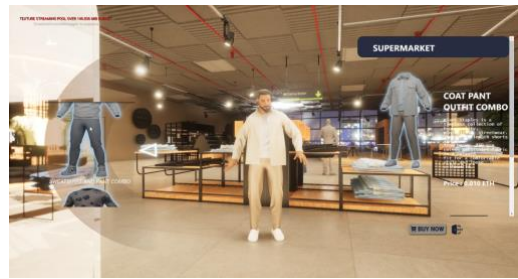
<https://www.viewsonic.com/library/education/6-benefits-of-immersive-learning-with-the-metaverse/>



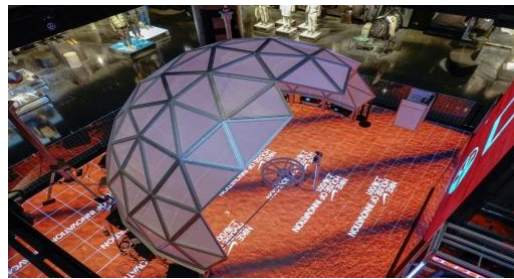
<https://about.meta.com/what-is-the-metaverse>

- Immersive learning environments: virtual classrooms, custom/personalized learning
- Experiential learning: historical reconstructions by teleport to any place and time to learn while exploring bringing history to life, scientific simulations
- Collaborative learning: group projects with people from around the world

Commerce



<https://www.linkedin.com/pulse/metaverse-exciting-new-frontier-retailers-allied-market-research/>



<https://www.forbes.com/sites/bernardmarr/2022/06/01/the-amazing-ways-nike-is-using-the-metaverse-web3-and-nfts/>



<https://www.yankodesign.com/2022/02/13/the-metaverse-is-inevitable-its-already-changing-product-design-as-we-know-it/>

- Virtual shopping experiences: 3D virtual stores where you can purchase both digital and physical products, interactive product displays, customized storefronts
- Product try ones: virtual fitting rooms, furniture placements
- Immersive brand experiences: virtual brand activations such as interactive events
- Social commerce: shop together with friends in real time, live shopping events

Appendix B: Study Questionnaire

Section 1:

Hi and welcome!

This survey is conducted by a Master student in the Business and Management Program at the Stockholm School of Economics. I am conducting this survey as part of my master's thesis. The aim of this study is to gather insights on consumer perceptions of brands presence on metaverse games, a topic that requires prior experience playing this type of game. **To be eligible for the study you need to have encountered a branded virtual world on Roblox within the last 60 days and be active on Roblox at least once every other**

week. If you have not encountered a branded virtual world, please exit this survey and thank you for your interest. Please note that there are no “right” or “wrong” answers. Provide your answers as truthfully as possible.

Information Regarding Data Protection

Your privacy is a top priority. All information you provide in this survey will be kept **anonymous** and **confidential**. The thesis that uses this survey data will not include any information that could personally identify you. Participation in this survey is completely voluntary, and you may choose to withdraw at any point. If you withdraw, any data you've provided will be permanently erased. All data is securely stored and managed by the Stockholm School of Economics and will be deleted once the project is finished. No personal details will be shared publicly. For more information on how the Stockholm School of Economics protects your rights under GDPR, please visit: <https://www.hhs.se/en/about-us/data-protection/>

If you choose to enter the prize raffle for participation, you will be forwarded to another survey at the end of this one where you will provide your email address. Your email address will not be linked with your answers in this survey.

This survey takes about 5 minutes to complete. If you have any questions, please feel free to contact me at 50752@student.hhs.se.

Thank you very much for your participation!

Hannah Linton

Page Break

Section 2

Before we start, please answer the following questions.

Do you have experience playing Roblox?

☐ Yes

☐ No

→ If answered “No”, the survey ended for the respondent.

How often do you play on Roblox?

☐ Every day

☐ Several times a week (e.g. 4-6 times per week)

☐ A few times a week (e.g. 2-3 times per week)

☐ Once a week

☐ A few times a month (e.g. 2-3 times per month)

☐ Once a month

☐ Less than once a month

Page Break

Think back to a time when you entered a virtual world in Roblox that was owned or created by a brand (such as Nike, Gucci, Vans, or other). As you continue with this survey, please keep that specific experience in mind and consider how it influenced your thoughts, feelings, and behaviors.

Have you encountered this type of branded experience in Roblox within the last 60 days?

☐ Yes

☐ No

→ If answered “No”, the survey ended for the respondent.

Which experience do you have in mind?

Page Break

Section 3

Brand Familiarity -

With the brand in mind, please rate the following statements

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I was familiar with the brand before encountering it in the game.	☐	☐	☐	☐	☐
I was aware of this brand before encountering it in the game.	☐	☐	☐	☐	☐
I knew which specific products this brand offers before encountering it in the game.	☐	☐	☐	☐	☐

Type of brand (high vs low involvement) –

With the brand in mind, please rate the following statements

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I would spend a lot of time researching before buying a product from this brand.	☐	☐	☐	☐	☐
I would regret making a purchase from this brand if it didn't meet my expectations.	☐	☐	☐	☐	☐
Products from this brand is typically expensive.	☐	☐	☐	☐	☐
This brand is important to my sense of style.	☐	☐	☐	☐	☐

Page Break

Section 4

Immersion -

With the branded virtual world in mind, please rate the following statements

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I felt absorbed in the game when I was in the virtual world.	☐	☐	☐	☐	☐
I had all my attention on the game when I was in the virtual world.	☐	☐	☐	☐	☐
It felt like I was actually in the virtual world.	☐	☐	☐	☐	☐

Interactivity -

With the branded virtual world in mind, please rate the following statements

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I was in control of my navigation and pace of the game through the virtual world.	☐	☐	☐	☐	☐
I was able to interact with the world and its virtual objects (e.g. picking up, moving, or customizing items, participating in events, or trying virtual items).	☐	☐	☐	☐	☐
The virtual world responds to my actions in a personalized manner.	☐	☐	☐	☐	☐
I am able to interact and talk with others in the world.	☐	☐	☐	☐	☐

Entertainment -

With the branded virtual world in mind, please rate the following statements

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
The virtual world is fun to explore.	☐	☐	☐	☐	☐
The mini games and activities in the virtual world are enjoyable.	☐	☐	☐	☐	☐
The activities and games in the virtual world are entertaining.	☐	☐	☐	☐	☐

Page Break

Section 5

Metaverse engagement-

With the branded virtual world in mind, please rate the following statements.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I spent a significant amount of time exploring the virtual environment.	☐	☐	☐	☐	☐
I was motivated to keep exploring and interacting with the virtual world.	☐	☐	☐	☐	☐
I would like to come back to this virtual world.	☐	☐	☐	☐	☐
I am interested in exploring more experiences by this brand in the virtual world.	☐	☐	☐	☐	☐

Control -

Please select "D" from the following alternatives

- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☐ E

Section 6

Virtual Purchase Intention -

With the branded virtual world in mind, please rate the following statements

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I'm interested in buying virtual products from the brand in the virtual world.	☐	☐	☐	☐	☐
I would likely buy a virtual item from the brand for my Avatar.	☐	☐	☐	☐	☐
In the near future, I plan to purchase a virtual item from the brand.	☐	☐	☐	☐	☐

Real World Consumer Brand Engagement -

With the branded virtual world in mind, please rate the following statements

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I'd like to be a fan of the brand outside of the game	☐	☐	☐	☐	☐
I'd like to keep track of the real world activities of the brand	☐	☐	☐	☐	☐
In real life, I'm likely to recommend the brand to my friends	☐	☐	☐	☐	☐

Section 7

Control -

What was this survey about?

- ☐ Brand experience in virtual world video games
- ☐ Taste preference for ice cream
- ☐ Customer review for hotel booking

Demographics

Age –

What is your age in numbers (e.g. 23)?

Gender -

What is your gender?

- ☐ Male
- ☐ Female
- ☐ Non-binary / third gender
- ☐ Prefer not to say

Prize Raffle

This is the end of the survey, thank you for participating.

To enter the prize raffle of \$10 USD worth gift card to Roblox please provide your email address by following the link. Otherwise, click to go to the next page to end the survey. There will be 30 gift cards in the raffle.

Your email address will only be used for the raffle entry and will not be associated with your survey responses. Your answers will remain completely anonymous.

Link:

[Prize Raffle](#)

Appendix C: Demographics of respondents

Age	16-20	135
	21-30	96
	31-40	35
	41-50	7
Gender	Male	136
	Female	133
	Non-binary / third gender	4

Appendix D: Means of variables

Variable	Mean
Immersion	3.23
Interactivity	4.41
Entertainment	3.98
Metaverse user engagement	3.72
Virtual purchase intentions	3.57
Real-world consumer brand engagement	3.26
Frequency of playing	5.6
Previous brand knowledge	4.25

Appendix E: Use of AI Disclosure

In this thesis, some AI tools have been used in certain instances. OpenAI's ChatGPT model 4o has been the chosen AI tool used in this thesis and was used throughout the thesis to assist in the development of this thesis. Specifically, ChatGPT was used to help clarify and condense certain sections of text to ensure that complex ideas and texts were communicated in a more effective and easier to read manner. Additionally, ChatGPT was used to support the interpretations of the results section (section 4. Empirical Findings) by providing alternative perspectives to the tests that were conducted in SPSS.

ChatGPT has contributed to increasing the quality of this thesis by improving the clarity and coherence of the text. For instance, if certain texts were overly complicated or redundant, ChatGPT helped by providing alternative phrasing to aid in readability of the thesis. It also contributed to the quality of the interpretation of results as it interpreted the results in a summarized manner, taking into consideration all different tests.

Nonetheless, the use of AI tools has risks that is important to take into consideration when employing the tools. AI can reduce originality or critical thinking in the text. Moreover, AI can result in inaccurate interpretation of results, as it might misinterpret complex data or provide overly simplified explanations. As such, to reduce these risks, AI was used purely as a supplement throughout the thesis, and the suggestions provided by ChatGPT were taken only as suggestions, and not copied word for word. All the suggestions were thus critically reviewed to ensure the meaning of the text was still the same as the authors original thinking. Moreover, the interpretations of the results were also critically observed before adding it into the text.

The insights gained from using ChatGPT was that it should purely be used as a supportive role and cannot replace original thought or critical thinking. Moreover, AI has shown to be a great assistant when writing, especially in ensuring that the meaning of a text written comes out concisely, enhancing the quality.