

Metaverse Magic: Unveiling Brand Experiences in Branded Virtual Worlds

Apiradee WONGKITRUNGRUENG
Business Administration Division
Mahidol University International College
Mahidol University
Nakhon Pathom, Thailand
apiradee.won@mahidol.ac.th
0000-0003-2392-4540

Lokweeipun SUPRAWAN
Business Administration Division
Mahidol University International College
Mahidol University
Nakhon Pathom, Thailand
lokweeipun.sup@mahidol.ac.th
0000-0002-3144-075X

Abstract—Drawing from existing literature on virtual worlds and brand experience, this study investigates the complex and dynamic landscape of brand experiences in branded virtual worlds. Unlike prior research adopting the standard brand experience dimensions designed for the physical context or relying on platform characteristics and perceived value as the brand experience, this study used a qualitative approach to uncover brand experience dimensions specific to this context. Using a critical incident technique on a sample of 120 respondents, we discovered six dimensions: Sensory, Affective, Intellectual, Behavioral, Social, and Empowering, each with its own set of components. These fifteen components, including sensory coherence, negative and complex emotions, physical control, real-world actions, consumption empowerment, and lifestyle exploration, offer implications for designing branded virtual worlds that improve consumer engagement and brand outcomes in both the virtual and real worlds.

Keywords—Virtual world, Metaverse, Virtual brand experience, Brand experience, Customer experience

I. INTRODUCTION

Despite being overshadowed by AI, the metaverse continues to grow quietly but impactfully, such that in 2023 more than 350 brands activated in Roblox, Zepeto, Fortnite, and Minecraft [1]. On these platforms, brands like Disney, Gucci, Nike, and Samsung have created a branded virtual world featuring recreational landscapes, virtual shops, and events. Consumers can explore the world, purchase branded virtual items, and learn about the brand's history, its technology, products, and social responsibility programs [2]. These branded virtual spaces become additional touchpoints where young consumers could interact with the brand in a more immersive and interactive manner.

While previous studies found that metaverse characteristics and their perceived value positively affect brand image, brand love, and consumer engagement in the metaverse and in the real world [2-4], metaverse brand experience is not clearly defined and conceptualized. Some studies focus on a specific dimension of brand experience [5, 6] or use a single construct of brand experience [4]. Other studies in related settings such as AR/VR applications [7-9] use an existing brand experience scale (e.g., sensory, emotional, cognitive, behavioral) that has been adapted from the physical world context [10].

As the metaverse environment is unique and distinct from both offline and online settings [11], the metaverse's complex nature, including the role of avatars and immersive and interactive experiences, may not be adequately captured by conventional brand experience dimensions and measurement scales. For example, the standard scale does not specify the emotional valence induced by the metaverse environment [12]. Previous research mainly focuses on the positive side and neglects the negative side of the metaverse [13]. Since the metaverse is a computer-generated environment, not bounded by physical laws [13], users may be able to explore new adventures and creative activities, like flying in the sky, that they may not experience in real life. Thus, it is worth investigating what types of sensations, emotions, thoughts, actions, and connections exist in the metaverse.

To address this gap, this study employs a qualitative approach to investigate the rich, lived brand experiences in the metaverse. We seek to understand how users sense, feel, think, act, and relate in the metaverse and discover new brand experiences that have not been captured before. This paper seeks to identify the dimensions and components within each dimension that constitute the metaverse brand experience. These findings would help marketers and UX designers design more effective branded environments that fulfill multiple aspects of consumer experiences, which in turn enhances brand engagement and purchase intentions in the real world.

II. LITERATURE REVIEW

A. Foundations of Brand Experience

Brand experiences encompass consumers' internal and subjective responses (e.g., sensations, feelings, thoughts, relationships) to branded stimuli (e.g., design, identity, packaging, communications, and environments) [10]. These experiences are driven not only by direct interactions between consumers and companies, but also by indirect and uncontrollable interactions among consumers, peers, and influencers [12]. Brand experience focuses on delivering a consistent brand identity, creating unique and memorable experiences that reflect the brand's values to build brand equity, engagement, and differentiation in the minds of consumers [14].



This work is licensed under a Creative Commons Attribution 4.0 International License.



Brand experiences are complex and multidimensional. Focusing on the staged experiences in retail environments and events, Pine and Gilmore proposed four experience realms (*entertainment, education, aesthetics, and escapism*) based on two dimensions (active/passive and absorbing/immersive experiences) [15]. They stressed the necessity of engaging the senses, educating, beautifying, and escaping daily routines to produce memorable and transforming experiences. Drawing on an evolutionary psychology framework, Pinker argued that the human mind relies on four mental modules, designed to interact with and respond to environmental stimuli (*sensory-motor, feelings and emotions, creativity and thinking, and social relations*) [16]. Schmitt, separating the 'action' from 'sense', proposed five dimensions (*sense, feel, think, act, relate*) to help firms build complete brand experiences [17]. Sensory experience encompasses bodily sensations from the five senses (sight, hearing, smell, taste, touch). Affective experience comprises the feelings and emotions triggered by a brand stimulus. Intellectual experience aims to stimulate thinking, creativity, problem-solving, and a deeper understanding of the brand. Behavioral experience encompasses the behavioral reactions in response to a stimulus such as engaging in physical activities, adopting certain lifestyles, and interacting with a brand. Social experience involves a sense of belonging to a group, relationships with other people, and connections to one's ideal self [10, 17].

Focused on consumer experiences with the product, Gentile et al. expanded on earlier models and proposed six dimensions comprising sensory, emotional, cognitive, relational, pragmatic, and lifestyle dimensions [18]. The last two dimensions were separated from sensory and social dimensions. The pragmatic dimension encompasses the functional aspects of brand experience, involving the human-object interaction and product usability throughout the life-cycle stages. Brands should aim at providing seamless, efficient, user-friendly brand experiences. The lifestyle dimension involves the adoption of a lifestyle and behaviors that resonate with the consumer's values and beliefs, tapping into the symbolic meaning associated with the brand, which can reinforce consumers' internal self-identity.

While the majority of previous studies focused on five main dimensions, more can be learned about the types of sensations, emotions, thoughts, actions, and social relationships (components within the dimensions). Also, brand experiences are context-dependent [12], and the metaverse introduces new complexities requiring a critical examination of how these traditional dimensions adapt within the metaverse.

B. Unique Metaverse Characteristics

The metaverse is an immersive three-dimensional computer-generated virtual world that is supported by evolving advanced technologies such as extended reality, 3D modeling, AI, wearable devices, and blockchain [13]. According to Boo and Suh, the metaverse can be characterized by five distinct characteristics [19]: *concurrency* (synchronous interaction among multiple users, transcending geographical and physical limitations) [20], *seamlessness*

(smooth navigation and transition between activities without interruption), *presence* (the sense of reality and being there without physical contact) [20], *interoperability* (transferability of digital assets across platforms) [21], and *creator economy* (users' ability to generate content and monetize their creations) [19]. Thus, the metaverse refers to virtual spaces that allow users to engage in their desired activities (e.g., gameplay, social interaction, collaborative activities, and creation) concurrently and seamlessly, much as they would in the real world. Users also feel immersed and physically and socially present through their digital representations (avatars).

The metaverse environment has three key aspects that distinguish it from offline and traditional online contexts and have the potential to redefine brand experience. First, the role of avatars. In the metaverse environment, users create avatars to represent themselves by designing them to be close to their real or ideal selves. Avatars become not only digital representations but also extensions of users' self-identities [22]. Such similarity enables users to feel an embodied experience, perceiving the avatar they control and its actions as their own body and actions, feeling their emotions, and empathizing with other avatars [23].

Second, digital ownership. Users can personalize their avatars with branded digital items (e.g., makeup, clothing, accessories) to express their individual styles. The ability to try and own branded digital items not only creates an emotional connection and fosters a sense of belonging and exclusivity [24] but can also influence real-world purchase intention [2].

Third, immersive and interactive experiences. Advancements in extended reality (XR) technologies have facilitated the interaction of users with virtual objects and environments. This enhances the realism and immersion of metaverse environments [25] and converts them into third-space retailing, which combines physical and digital environments to create community hubs [26, 27].

These three characteristics could influence and reshape users' sensory, emotional, social, and behavioral brand experiences. Therefore, it is important not only to explore new brand experience dimensions in the metaverse context but also to delve into components of these dimensions that could fully capture the unique aspects of the metaverse brand experience.

C. Metaverse Brand Experience

Metaverse Brand Experience is the overall experience users derive from their interactions with brand touchpoints (e.g., branded virtual items, spaces/worlds, non-player characters (NPCs), advertising, games, missions, and events) within the metaverse. Because of its multisensory interactive nature, metaverse brand experience can be considered a direct experience despite being mediated (i.e., an indirect experience) [28].

Among brand experience research in the AR, VR, and XR setting, several studies (e.g., [7], [9], [28]) employed the existing brand experience dimensions developed by Pine and Gilmore [15], Schmitt [17], and Brakus et al. [10] to

investigate the effect of brand experience on consumer responses. In the metaverse setting, Jiang et al. [5] developed the brand experience scale for luxury brands based on Holbrook and Hirschman's experiential aspects of consumption (e.g., fantasies, feelings, and fun), and tested their effect on consumer happiness.

Other studies proposed new brand experience scales appropriate for the AR/VR/phygital settings [8, 29] by extending from the existing scale of Brakus et al. [10] and Schmitt [17] and adding context-specific dimensions. In the AR context, Chen et al. proposed the extended brand experience scale by combining Schmitt's dimensions with four AR attributes (e.g., perceived usefulness, interactivity, vividness, and novelty) [8].

Considering the dynamics and connectedness of offline and online channels, Batat conceptually proposes a phygital (physical + digital) consumer experience as a holistic way to evaluate the experience that shifts between physical and digital settings [29]. Six pillars of the phygital customer experience were suggested. Three of them—sensoriality, affectivity, and sociability—are consistent with the existing brand experience dimensions. The other three—practicality (the ability of a brand's products or services to solve consumers' problems), technicality (user-friendliness and reliability of technology), and immersivity (the ability to have consumers deeply engaged and involved throughout the journey) — are newly added [29].

While these newly added dimensions take into account contextual characteristics, *immersivity*, *interactivity*, *vividness*, and *novelty* are the characteristics of the mediated environment rather than consumers' subjective and internal responses. Meanwhile, perceived usefulness and practicality represent a more deliberative evaluation of value/benefits rather than more immediate responses like brand experience [30]. Brand experience serves as a mediator between stimuli characteristics and perceived value [31, 32] (see the relationship among these constructs in Figure I).

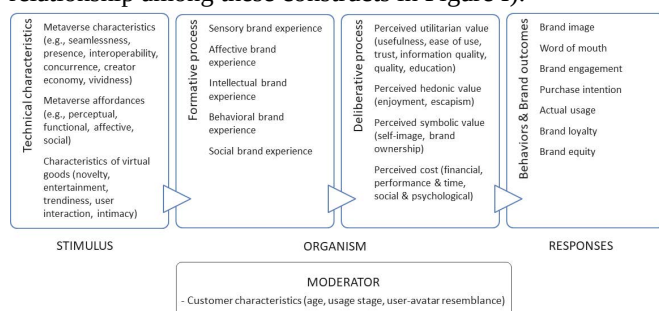


FIGURE I. FRAMEWORK OF METAVERSE USER EXPERIENCE AND BEHAVIOR

Source: Adapted from Fatma [33]; Zhou et al. [13]

Other qualitative research that identified new and interesting aspects of brand experience includes Jung et al. [34] and Jeon [35]. Jung et al. found three meanings of VR experiences [34]: *democratization* (feeling that consumption is accessible, though it remains exclusive in the real world), *escapism* (opportunity to escape from the daily burden), and *anxiety* (feeling lonely and anxious in VR). Jeon, employing a netnography, identified four brand experience dimensions:

entertainment (enjoyment), *relations* (social interactions, interpersonal relationship between avatars), *search* (exploration and discovery of brand's information), and *assembly* (users' ability to operate a brand's virtual items) [35]. In addition, their interviewees' excerpts include keywords about the ability to become, buy, or do things in the virtual world that they could not do in real life, suggesting other aspects of metaverse brand experience not yet captured in existing brand experience dimensions.

Therefore, this study aims to discover new brand experience dimensions in the metaverse context while delving deeper into components within each dimension [36] to answer underexamined questions, such as what are the components of the sensory experience in the metaverse setting? While sensory and behavioral dimensions can be easily experienced in the physical world, it is unclear how these experiences manifest in the metaverse. What emotions do consumers experience in the branded space? Studying both the dimension and component levels could ensure that the data fully capture the brand experience in a complex, multifaceted metaverse setting compared to physical or online settings.

III. METHODOLOGY

Due to the complex nature of consumers' subjective brand experiences, this study collected data using the critical incident technique (CIT), which has been widely used in studies of consumer experiences [37]. CIT is an inductive process for recording, analyzing, and classifying observations of human behavior [38], providing detailed incidents that significantly influence people's thoughts, emotions, and behaviors. This method enables researchers to analyze consumers' first-hand experiences through interviews or surveys [39].

In this study, CIT was administered through an open-ended questionnaire assigned to 120 undergraduate students who were enrolled in a marketing course at an international college in Thailand and participated in this study in exchange for course credit. Thailand is a significant part of the Asia-Pacific region, which is the second largest and fastest growing market of global metaverse gaming markets [40]. What sets Thailand apart from other markets is Thai users' strong willingness to pay. 49% are paying users and the per-capita spending is highest in Southeast Asia [41]. The average age of our respondents was 20. This is consistent with the largest segment of metaverse users (10-20 years), which accounts for 38% [42]. 88% of the respondents were Thais, while 12% were Indian, Chinese, and American. Our respondents were 66% female, while 41% of global metaverse users are female [42]. However, GMO Research & AI revealed that in Thailand, compared to other countries, brand-sponsored games are gender-balanced, not male-dominated [43]. Also, according to Niko Partners, 53% of gamers in Southeast Asia are female, and the number of female gamers grows by 11% annually [44]. Based on our data, several metaverse platforms (e.g., Roblox, Minecraft, Fortnite, Zepeto, Play Together, and Decentraland) were visited, suggesting that our respondents have prior and varying experiences with the virtual worlds.

While guidelines on the minimum number of respondents and reported incidents were not established [45], Lockwood

suggests a minimum of 100 incidents to establish reliable categories [46]. The sample size for this study yielded 131 incidents, which is adequate and comparable to previous exploratory CIT studies. Participants included those with and without prior experience of the metaverse, and all were given 1 month to explore the metaverse and complete this assignment, which aligns with the study of Payal et al. [47]. The variation in participants' metaverse experience level allows us to obtain both fresh perspectives and initial reactions from first-time users as well as more developed perspectives and varied impressions from experienced users to support the design and marketing strategies of the branded virtual world.

Participants were asked to choose the metaverse platform of their choice (e.g., Roblox, Fortnite, Minecraft), create their own avatar, and select one brand's virtual world within the chosen platform to visit. Upon their visit, they were asked to explore the brand's space, join a brand's events, games, and quests, as well as try the brand's virtual items. Then they completed a 60-minute self-report about their brand experiences in an open-ended questionnaire to describe the brand's virtual environment they saw, the activities they participated in, and their thoughts and feelings during each activity. They also reflected on what they liked and disliked about the brand's virtual world experience.

The average word count of participants' responses ranges from 700 to 900 words. The data were analyzed using deductive and inductive approaches that connect findings to existing research while being open to new discoveries [36]. This approach is useful for refining, extending, and enriching a specific concept or theory [48]. Two authors independently read through all the responses and highlighted sentences representing distinct brand experiences, evoked by brand-related stimuli rather than platform-related stimuli. This coding process was guided by existing brand experience dimensions. Similar narratives were grouped within the same dimension. Narratives that introduced a new construct, or that related to the unique metaverse setting, and were distinct from existing dimensions, were separated into a new dimension. Within each dimension, the narratives were re-read, coded, and categorized into components based on their similarity. This categorization continued until the incidents within a specific component resembled each other more than those in a different category [49]. This process resulted in 21 disagreements between the judges, yielding an overall interjudge reliability of 0.83. This level of agreement is considered satisfactory, as it exceeds the 0.80 threshold [50]. Disagreements between authors were discussed and resolved through mutual consensus.

IV. FINDINGS

Our findings are aligned with prior research that suggested sensory, affective, intellectual, behavioral, and social dimensions [10, 17]. Moreover, our data suggests a new dimension, empowering experience, separate from the social experience and similar to the lifestyle experience proposed in Gentile, et al. [18]. Overall, we found six dimensions of metaverse brand experiences and fifteen components within these dimensions.

A. Sensory Experience Dimension

Sensory experiences are users' sensations when interacting with virtual objects. In a brand's virtual world, visual (sight) is the most prominent sense [51], followed by auditory (hearing). While Schmitt conceptualizes sensory experience as perceptually interesting and appealing [17], our data suggests that branded virtual worlds and associated objects have to be similar to or consistent with real-world counterparts for users to appreciate. Therefore, our analysis revealed three components as follows:

1. Visual appeal refers to the aesthetics of the brand's virtual environment that captivates users' attention, creates a positive impression, and immerses users in the branded space [52, 53]. Aesthetics concerns both the design elements (e.g., shape, color, images) and principles (e.g., size, scale, layout) that can create visual impact, evoking amazement, wonder, and admiration [52]. Respondents reported that they were attracted to visually appealing environments (e.g., landscapes, architecture, objects), to the extent that they enjoyed taking photos of their avatars and wanted to visit such places in their real lives.

When I first entered the Gucci Garden, I felt like I'm drawn to it. There was a beautiful flower field. The graphics are pretty amazing and it is so pretty that I wish I could visit one like this. I actually took a photo of myself in the gallery (Panya, Female).

Respondents were impressed by the similarity between the virtual and real-world store designs, which makes it easy to recognize the brand in both worlds. Therefore, sensory coherence can enhance consumer familiarity, connection, and trust in the brand.

B. Affective Experience Dimension

Affective experiences describe how users feel as they interact with virtual environments, activities, and objects [23, 57]. While the existing brand experience scale was based on emotional strength rather than valence [12], the emotional reactions elicited by branded virtual worlds included both positive and negative basic emotions [57, 58] and complex emotions [59].

1. Positive emotions participants experience while exploring branded virtual worlds and participating in the brand's missions and games include *happiness, enjoyment, excitement, and relaxation* [5]. For instance,

*When I walked into the NIKELAND showroom, I was so excited and spent a lot of time there because there are tons of products I can try. But the best part about Nikeland is that, thanks to some cool features, I can hop on, fly, and hover around its spaces. It's a lot of fun and fascinating. There are also many games that I can dunk, skate, and play with other people, and win prizes (Phak, Male).
Sunsilk promotes many more wonderful spaces in the city that encourage players' feelings to be refreshed and happy. In the city, most decorations are filled with nature and sport grounds. To illustrate, there is a beach, a football field, a place for cycling, a lot of flowers, trees, which fulfill the feeling of nature and softness. With this*

decoration and mood, it enables everyone to play for relaxation whether kids or elderly people (Nakrit, Male).

Such satisfaction motivates users to engage more with brand elements, resulting in positive attitudes and emotional connections to the brands.

2. Negative emotions. Branded virtual worlds may unintentionally induce unpleasant emotions such as *boredom, doubt, frustration, or confusion*, which could affect users' engagement with and perception of the brand in the real world [60]. These emotions arise when virtual world elements fail to deliver or contradict what users expect or involve some costs (e.g., time/money waste) [58, 60]. Our data revealed that incidents negatively affecting user experience included excessively difficult tasks, boring and repetitive gameplay, and real-world contradictory content.

Forever 21 Shop City did not give me a good experience, as it was complicated and difficult to play. The tutorial at the beginning didn't really help. I was still confused. I did not know how to play or what to do next. The game was also full of bugs. My avatar got stuck in the wall and could not move. This wasted my time restarting the game (Pim, Female).

3. Complex and mixed emotions. Beyond basic emotional states, users can experience emotion blends (of the same valence), mixed cross-valence emotions (positive and negative), and complex emotions that involve cognitive evaluation and personal interpretation and are context-dependent [61]. Complex and mixed emotional states respondents experienced include *fantasy fulfillment, nostalgia, and inspiration*, and cross-valence emotions such as joy and disappointment. For example,

As a Star Wars fan, playing a Star Wars mode brought back my childhood memories and reminded me how much I love the brand. When I put the Darth Vader skin on my avatar, I felt like I was my favorite movie character, Darth Vader, causing chaos in the metaverse. I could finally connect with the character as I attacked other players as Darth Vader. This was a lot of fun and made me happy. But I was a little disappointed as my avatar still had to play with a gun instead of a lightsaber to stay true to my character (Ty, Male).

By tapping into users' personal experiences, desires, or aspirations, these complex states are likely to create a deeper emotional impact and connection between users and the brand.

C. Intellectual Experience Dimension

Intellectual experience denotes how the branded virtual world engages users intellectually by stimulating their thoughts, curiosity, and creativity [62, 63], resulting in a reevaluation of company or product attributes [17]. Compared with other experience dimensions, the intellectual dimension has a stronger impact on brand image and credibility, fostering a deeper consumer-brand connection [64]. Our data suggests three components of intellectual experience, as follows:

1. Creativity. Virtual worlds of several brands allow users to build, design, and customize virtual products, games, and environments, fostering their sense of creativity and artistic expression. For example, consumers can select product colors, arrange product placement in a virtual home, operate virtual stores, create artwork, and build their own sports fields according to their styles. By engaging in these creative tasks, respondents perceive an expansion of their creative boundaries. Simultaneously, this self-impression can spill over into brand perception and image [2]. One respondent wrote:

Nikeland offers the most creative and flexible game I've ever experienced. It gives us the freedom to design our own land, yard, character, and many other things in any way we desire. Playing this game made me feel as if my creative horizons had expanded (Itti, Male).

2. Problem-solving. Most brands in the metaverse present users with challenging missions/quests and games that require critical thinking, problem-solving skills, and smart decision-making to complete tasks and achieve goals [65]. In fact, there are many YouTube reviews that explain how to complete brands' missions in virtual worlds. Our respondents find it intellectually challenging and fun to complete the games and are motivated to advance to the next level. For example,

There are many skate parks in Vans World with lots of ramps and rails where I can learn and do cool tricks on my board. Tricks have difficulty ratings of rare, common, legendary, and epic. This makes me want to play the game more and challenges me to level up my skills (Supri, Male).

Some games feature multiple levels of difficulty, each with different rewards to motivate users to upgrade their level/skill to be eligible for more valuable rewards. This leads users to stay longer, increasing customer engagement with the brands.

3. Learning. The brand's virtual world can also inspire and facilitate learning, and enhance consumers' knowledge and skills. To this end, brands can design games, missions, or role-playing activities that incorporate content relevant to the brand. Brands can share their history, product information, and brand-associated socio-cultural meanings to increase consumers' brand knowledge [66]. Some brands (e.g., Gucci, Samsung) organize virtual exhibitions or museums that educate users about the brand, its technologies and social movements, and its products. Our respondents mentioned that the activities therein help them understand more deeply the corporate goal and meaningful brand purpose to which they are committed. Some respondents just realized a variety of brand portfolios after visiting a brand's virtual world. Also, they appreciate detailed information about the products, such as why, when, how, and by whom the item was created, as well as special product features and their applications and benefits.

Moreover, several branded worlds create missions, allowing players to play the role of employees, helping them learn about business operations in that industry. For instance,

In Forever21 City, I had the opportunity to gain retail experience by opening an apparel store. With my avatar, I

feel like I'm the one running the store. The game lets me create and run my ideal fashion store while competing for the top spot. I learned about the retailer's responsibilities, such as selecting a location, interior design, and product assortment, stocking inventory, and checking out. This role play helped me understand and adopt a retailer mindset (Pim, Female).

Also, brands like Hyundai created an innovation center or futuristic zone showcasing future mobility, robotics, smart technology, and eco-friendly solutions, allowing users to experience future living [67]. Finally, brands such as Sunsilk add an interactive, gamified feature that provides free access to real-world skill development (both soft and hard skills) relevant to their target customers. By providing access to new experiences and knowledge, our respondents perceive brands as adaptive and future-oriented, enhancing brand image and trust.

There is a "House of skill" building in Sunsilk metaverse that provides much information and knowledge, in which Sunsilk promotes and relates to Sunsilk in the real world in terms of supporting and inspiring dreams, and opening the world for girls, in the real world. To explain, Sunsilk with partnership are offering free online learning platform courses to power up the skills and chase the dreams (Nakrit, male).

D. Behavioral Experience Dimension

Behavioral experiences are behavioral reactions and physical actions evoked by brand-related stimuli (e.g., virtual products, events/games/activities, atmospherics, and surroundings) in the metaverse [10, 17]. Behavioral experiences encompass how users through their avatars navigate, explore, and complete games/missions in a brand's virtual world, as well as physical actions and behaviors in the real world.

1. Physical control refers to user manipulation of objects and content which influence the action outcome in human-computer interaction [68]. In the metaverse, avatars can navigate the space and interact with virtual objects, other avatars, and surroundings when users move their hands, fingertips, heads, and bodies [69]. With controllers (touchscreen, keyboard arrows, mouse wheels), users can zoom in/out and rotate to view different angles of virtual items (e.g., cars, clothes, home appliances). They can click icons to customize the item's colors, textures, product placement, and have avatars interact with it.

User control yielded positive reactions and stronger attitudes toward the product/brand [70]. It is a powerful determinant of presence, a psychological state of being engaged and feeling as if one is physically present in a virtual world [71]. Users could perceive themselves interacting with virtual objects as if they were real. The ability to control, along with realistic and vivid sensory elements, can enhance the sensation of being part of the virtual world and the extent to which the metaverse experience aligns with the expectations of a corresponding physical environment [27].

The skateboard game in Vans World is very fun. It feels like I actually skate because I can control my avatar's direction and also have a skateboarding posture to do (Vorra, Female).

The game is pretty solid and has good graphics and details, especially the gun that my avatar is holding which can make players feel like they are actually holding the gun (Phuri, Male).

Moreover, in some worlds like Nikeland, users can use a special mobile feature to transfer real-life movements into online play, resulting in a heightened immersive experience, which could further strengthen consumer connection to the brand in the real world.

I'm very impressed with Nike products modeled after real-life items, such as the Air Force 1. The sneaker also comes with a superpower so when I shake my iPhone with an accelerometer feature, I can activate super abilities like long jump and lightning speed for my avatar. It's so fascinating to see my real-life actions translated into my avatar's online movements, making me feel that my avatar and I are connected (Nicha, Female).

2. Real-world actions. The sense of presence and immersion influenced by user control and realism [27] can shape users' feelings, perceptions, learning, and behavior in the metaverse, driving potential user behavior in the real world [57, 72]. Real-world actions and behavioral intentions can include a physical or online store visit, engagement in a brand's events/campaigns, or non-branded activities aligned with brand values [2, 73]. In a study by Chan et al., metaverse users virtually explored virtual nature with support from a headset, handheld controller, and a swivel chair, resulting in more positive affect, pro-environmental attitude, and users' intention to engage with real-world physical nature [57]. Our respondents also reported being motivated toward physical, real-world behavior following their experience in the metaverse.

The mini-games in NIKELAND were fantastic. It's not only entertaining but also motivating. It made me more active and I immediately wanted to do some sports, and I finally went to the park for the first time in years (Phak, Female).

E. Social Experience Dimension

Social experience refers to a user's relational response to the brand-related stimuli in the metaverse. Unlike other individual-focused dimensions, this dimension involves consumers experiencing a brand through interactions and relationships with others [10, 62]. By engaging consumers in virtual events and cooperative and competitive activities involving interaction with other avatars, brands could shape their social experience and help them feel connected with the brand community and themselves.

1. Social interaction refers to the direct engagement and communication between two or more users with a strict timing demand [74]. Social interactions involving verbal and nonverbal behavior occur through reciprocal (conversation in chat box) or joint activity (collaborative and competitive gameplay) within the branded environment. From the data,

participants expressed joy at playing games with other avatars. They also appreciate the chance to meet new friends from all over the world from whom they could learn a different language and culture. Participants were amazed to meet non-player characters (NPCs) staff as if they were in a real-world branded store. For example,

I like the photo booth activity, it offers a variety of poses options for me to pick from, with different backgrounds/brands to pick from. Which was very fun to experience, because I was also able to take photos and interact with my friend's avatar (Ran, Female).

I get to interact with new friends around the world, and that is awesome. My brother is playing Nikeland for the purpose of practicing his English, and I think that is very helpful for those who need it (Itti, Male).

2. Community is a group of individuals with common interests and goals who communicate with each other in the brand's virtual environment [75]. Unlike social interaction, community members interact regularly and continuously, co-creating shared practices that foster a sense of commitment and duty. The brand or members can foster a sense of community through events, challenges, or discussion forums that can take place in both the metaverse and the physical world. Our respondent noted:

In the Vans World, I discovered a new community enjoying the same things as me. We had a good time skating and taking on challenges together. I also joined the community members created on Facebook to trade VANs items with other members (Virit, Male).

A sense of community entails a sense of belonging in which members feel connected to and identified with one another while differing from those outside the community [76]. Respondents reported feeling a part of the branded space when they wore the branded uniform in a role-play activity, and when they and their team members wore the same brand costumes in collaborative gameplay.

My friends and I agreed that by wearing the same theme, costumes for our avatar can be differentiated from the other groups from who we met in the game. Also, because Lacoste costumes need to be downloaded before the game begins and the color and patterns are unique, this helps us to distinguish who is in our team. This is very helpful because sometimes we cannot see the name of the avatar, but the costumes can help to see who that avatar belongs to (Uncha, Male).

F. Empowering Experience Dimension

Empowering experience is the new dimension added to capture the experience that consumers perceive they have more power and abilities to *be, do, and have* things they may not achieve in real life [77]. In the metaverse, users have the freedom to create, explore, and interact with virtual spaces and objects, and to participate in various activities (e.g., role-play, games, missions) that are inaccessible to them in the real world [78]. Therefore, users gain a sense of control, confidence, and self-efficacy [79]. The brand's virtual world could empower users in two ways through consumption and

lifestyle exploration.

1. Consumption empowerment. The most common metaverse user behavior is virtual consumption, allowing users to create, try, own, and trade virtual items [80]. This virtual consumption is enabled by functions in the virtual world, which are supported by new technologies (AI, Web3, XR). As respondents usually create avatars that look like them, they see this as the opportunity to test the product before visiting a physical store, which encourages them to try the physical counterpart in the real world. One respondent wrote:

When I tried an outfit from Zara, I realized that I wanted to try the outfit by myself. Because of the avatar that I created has associated with my style, I felt like the outfit that I tried to my character will also look like how I would dress in real life (Pakjira, Female).

Some virtual worlds like Vans World and Samsung 837X even allow users to customize products that are tailored to individual users' preferences, with options to order and purchase the physical copies. Respondents perceived this as a good opportunity for them to design a one-of-a-kind product that suits them better with digital twins for their avatars, and they do not have to visit a physical store.

This consumption empowerment is vital for luxury brands with extremely high prices and limited access and availability in the real world. Users can acquire branded virtual goods for free, at a discount, or upon mission completion, especially limited-edition items with real-world equivalents.

I purchased a Gucci Dionysus bag with a bee and a Gucci floral headband, both of which are extremely rare....To unlock Gucci Dionysus bags, I have to complete quests by the date which they require, play 30 mini-games, create 15 art pieces in the craftsmanship corner, vote on 30 art pieces, and complete 5 daily treasure hunts (Chana, Female).

Their experience with virtual stores and the ability to own branded virtual items led respondents to perceive luxury brands as more approachable. Therefore, they are more interested in purchasing the luxury brand and feel more confident about visiting its real-life store.

It's very hard for me to walk-in the Gucci store and just try on whatever I want since I'm a student who doesn't have a high income so I feel a bit awkward but my perspective changed [...]. With the function of decoration of the avatar, it helps me to decide which products will suit better to my personal style and personality [...]. Users can try the products as many as they can [.....]. It helps a lot for customers or users for decision making (Patso, Female).

Similarly, the metaverse enables a brand to organize events that would otherwise be limited by physical spaces and geographical locations, allowing users to attend the events virtually for free or at a lower cost [81]. Respondents shared experiences attending virtual concerts and events, enabling them to meet their favorite singers, idols, or characters, which is impossible for them in real life. Likewise, respondents via their avatars have interacted with a branded item and taken

personalized photos or videos as if they were presenters in brand advertising. This made them feel like a potential customer of the brand, which promotes a sense of exclusivity, pride, and a deeper connection to the brand.

2. Lifestyle exploration and fulfillment. Previous studies (e.g., [82]) showed that metaverse users like customizing their avatars and exploring fashion styles. Some also create several avatars to test their varied personas and alter egos, thus influencing their behaviors in the virtual and real world [83]. Likewise, users can experiment with different lifestyles (e.g., adventure, creative, sustainable, social, luxury) that they could not have in real life due to physical, financial, or mental limitations. This helps fulfill their aspirations and serves as a tool for personal growth and self-improvement [84].

I visited Kiehl's Four Seasons Garden in Zepeto. They have a virtual recycling campaign designed to support fundraising for zero-waste projects. In real life, I have not been interested in this kind of sustainability project. By completing the mission in this campaign, I feel good about myself, supporting the environment, which also inspired me to join similar movements in real life (Nij, Female).

Moreover, users could also experience a sense of control, mastery, and accomplishment as the usual narrative structures of metaverse games and missions entail challenges and competition; this helps reinforce users' confidence in their real-life potential [84]. Our respondent noted:

I'd like to try skateboarding, but I don't have any opportunities. Vans World provided enjoyable experiences for players like me who had never skateboarded in real life. I like how it makes me feel like we're expert skateboarders who can experiment with difficult movements that we wouldn't be able to do in real life (Napa, Male).

Overall, we have observed six dimensions and fifteen components of metaverse brand experiences. Further, we found that these brand experiences can influence respondents' perceived value of the branded virtual world and brand outcomes, as shown in Figure 1. Based on the data, metaverse brand experiences are associated largely with utilitarian value. Respondents perceive that the branded virtual world provides them with more detailed and valuable information about the brand (e.g., history, innovation, and campaign) and its product (e.g., assortment, new collection, unique features, and application) than in the real world, helping them know about and trust the brand more. For example, after learning about new technologies and a wide range of Samsung products through Samsung Virtual Worlds, respondents view Samsung as more innovative and cutting-edge.

Metaverse brand experience also impresses them by offering a more private, uninterrupted, convenient shopping experience. Respondents mentioned how easy it was to navigate, try, customize, and purchase virtual branded items with a few simple clicks, which in turn promotes in-store and online visits, enhancing consumer engagement with the brand in various channels. For example, users of Vans World visit Vans' website to try customizing shoes and join Vans' community on Facebook to learn about new product releases

and trade items with other customers. Purchase likelihood is high for products such as fashion and makeup, as respondents stated that their avatar is an extension of themselves, with characteristics similar to their own [66], allowing them to try the product directly.

As in real-world experience, respondents whose avatars wore a branded virtual item reported a heightened sense of status and psychological brand ownership [2]. Some also reported a sense of privilege from participating in the brand's exclusive virtual events and earning exclusive rewards. These symbolic values have the potential to enhance users' connection to and engagement with the brand and their likelihood of purchasing in the future.

V. GENERAL DISCUSSION

This study contributes to our limited theoretical understanding of metaverse brand experiences by 1) offering initial actions to resolve an immature measurement of the existing metaverse brand experience, 2) proposing a new dimension, and 3) delving deeper into components within each dimension.

First, our extensive literature review revealed that some research on virtual brand experience adopted the brand experience dimensions from Brakus et al. [10] and Schmitt [17] that were originally developed for the physical context. Others added new dimensions and combined stimuli characteristics and perceived value as part of the brand experience [8, 15, 29, 34, 35]. This resulted in confusing brand experience dimensions. We distinguish brand experience from perceived value as more immediate rather than deliberate reactions to brand-related stimuli.

Second, this study introduces empowering experience as a new dimension. This dimension is grounded in the characteristics and potential of immersive and hyper-realistic metaverse experiences, which enable users to perceive that they have more power than they previously had [77, 79]. This added sense of power allows them to access and possess branded items and explore desirable lifestyles that they cannot fulfill in real life due to physical or monetary limitations [78]. To date, research has established the concept of empowerment through technology in educational and gaming contexts [85], but has not explained how users experience empowerment within the branded metaverse.

Finally, components within each dimension add depth to the brand experience scale [10, 17] and capture the nuanced nature of metaverse brand experiences. Table I maps out unique metaverse characteristics and corresponding brand experience components. Avatars as extended selves help users discover new lifestyles and evoke complex emotions, thereby connecting users more deeply and personally. The ability to create, own, and trade in the metaverse gives users access to the brand, which could help the brand find potential leads. Immersive and interactive branded virtual worlds give users more control and enhance sensory coherence and realism, which helps bridge users' virtual and real-world experiences.

TABLE I. MAPPING METAVERSE CHARACTERISTICS AND BRAND EXPERIENCE COMPONENTS

Metaverse characteristics	Metaverse brand experience components
The role of avatar	Lifestyle exploration and fulfillment Complex emotions
Digital ownership	Consumption empowerment
Immersive and interactive experiences	Sensory coherence Physical control Real-world actions

Source: Authors' own work

Our findings provide managerial implications for how the branded virtual world should be designed to meet users' sensory, emotional, intellectual, and empowering desires while connecting with real-world marketing strategies to enhance real-world customer engagement. First, the branded virtual world, its virtual identity, objects, and surroundings should closely resemble their real-world counterparts regarding their appearance, physical laws, functionality, and attributes to enhance brand awareness and authenticity [86].

Second, brands should manage negative emotions (e.g., boredom, upset) and evoke meaningful complex emotions (e.g., nostalgic and fantasy emotions) to enrich users' personal experiences. Games and missions in the brand's virtual world should be user-friendly, including guided tutorials, progressive difficulty, and tiered branded rewards to keep users motivated and confident. Third, a branded virtual world could serve as a channel for users to access exclusive content (e.g., product history, secret recipes, and usage contexts), offerings, and events/communities which they may not easily access in real life.

Fourth, a brand's virtual world, store, and item should be connected with its real-world counterparts to smooth the shopping experience across platforms. This entails featuring the specific collection from the physical store with detailed product descriptions to easily visualize the real-world product. Lastly, a brand's virtual world should leverage the immersive metaverse characteristics and affordances that allow users to learn and explore new activities and aspirational lifestyles that they may not be able to pursue in real life due to financial, physical, or societal constraints.

Future research can address the limitations of our study. First, our respondents were students from a single university in a single country, and some of them were experiencing the metaverse for the first time. This has limited the generalizability of this study due to the lack of cultural and demographic diversity. Future research should study users across different age groups and cultural backgrounds with varying levels of metaverse experience or usage frequency. According to GMO Research & AI, different generations exhibit distinct behaviors [43]. While young consumers prefer gamified and entertainment-oriented experiences, mature consumers (40 and above) are more interested in practical applications that can ease their shopping or learning experiences. This presents an opportunity to investigate metaverse brand experiences among adults across various sectors (IT, finance, marketing, travel, health, and education)

[42].

Second, in our study, some respondents did not fully use all functions in the branded virtual world, which may affect their perceived brand experience. For example, one mentioned that the brand's virtual concert/event would be organized next month, and others mentioned that they did not have virtual currency to purchase and obtain the brand's virtual item. Future studies may compare the experience of new versus regular, active users to investigate the effect of branded virtual worlds and activities in their virtual and real life.

Third, the metaverse platforms that our participants experienced did not include VR features that provide users with more interactive, tangible experiences, thus limiting them from having richer sensory and behavioral experiences. Future studies could compare brand experiences across different types of metaverse platforms (including high- and low-fidelity, centralized and decentralized, and open and closed platforms) [87, 88]. Fourth, future research could validate the proposed brand experience dimensions by employing quantitative methods to establish psychometric properties and to determine significant relationships among the metaverse brand experience dimensions, components, perceived value, and brand outcomes.

ACKNOWLEDGEMENT

N/A

FUNDING

This research did not receive any outside funding or support. The authors report no involvement in the research by the sponsor that could have influenced the outcome of this work.

AUTHORS' CONTRIBUTIONS

All authors have participated in drafting the manuscript. All authors read and approved the final version of the manuscript.

CONFLICT OF INTEREST

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

DATA AVAILABILITY

The data supporting the findings of this study are available upon request from the authors.

ETHICAL STATEMENT

In this article, the principles of scientific research and publication ethics were followed. This research complies with ethical standards approved by the Mahidol University Central Institutional Review Board (protocol number: MU-CIRB 2022/066.1803). The original ethics approval was granted on April 18, 2022, and the amendment was approved on March 15, 2023.

DECLARATION OF AI USAGE

Generative AI, including ChatGPT and Grammarly, was only used to edit grammar and refine writing—no other use of



Generative AI was made for generating, analyzing, or interpreting this research.

REFERENCES

- [1] GEEIQ. (2024). *Why are brands investing in gaming?* Retrieved August 2, 2024, from <https://geeiq.com/why-are-brands-investing-in-gaming/>
- [2] Wongkitrungrueng, A., & Suprawan, L. (2024). Metaverse meets branding: Examining consumer responses to immersive brand experiences. *International Journal of Human-Computer Interaction*, 40(11), 2905–2924. <https://doi.org/10.1080/10447318.2023.2175162>
- [3] Arya, V., Sambyal, R., Sharma, A., & Dwivedi, Y. K. (2024). Brands are calling your AVATAR in Metaverse—A study to explore XR-based gamification marketing activities & consumer-based brand equity in virtual world. *Journal of Consumer Behaviour*, 23(2), 556–585. <https://doi.org/10.1002/cb.2214>
- [4] Mansoor, S., Rahman, S. M., & Bowden, J. L.-H. (2024). Purchase spillovers from the metaverse to the real world: The roles of social presence, trialability, and customer experience. *Journal of Consumer Behaviour*, 23(5), 2501–2552. <https://doi.org/10.1002/cb.2353>
- [5] Jiang, Q., Kim, M., Ko, E., & Kim, K. H. (2023). The metaverse experience in luxury brands. *Asia Pacific Journal of Marketing and Logistics*, 35(10), 2501–2520. <https://doi.org/10.1108/APJML-09-2022-0752>
- [6] Yu, X., Cheng, X., Kim, K. H., & Wang, H. (2024). Exploring the brand experience in the metaverse under the perspective of technology acceptance model. *Asia Pacific Journal of Marketing and Logistics*. Advance online publication. <https://doi.org/10.1108/APJML-10-2023-0952>
- [7] Baek, E., Choo, H. J., Wei, X., & Yoon, S.-Y. (2020). Understanding the virtual tours of retail stores: How can store brand experience promote visit intentions? *International Journal of Retail & Distribution Management*, 48(7), 649–666. <https://doi.org/10.1108/IJRDM-09-2019-0294>
- [8] Chen, S.-C., Chou, T.-H., Hongsuchon, T., Ruangkanjanases, A., Kittikowit, S., & Lee, T.-C. (2022). The mediation effect of marketing activities toward augmented reality: The perspective of extended customer experience. *Journal of Hospitality and Tourism Technology*, 13(3), 461–480. <https://doi.org/10.1108/JHTT-03-2021-0093>
- [9] Zeng, J.-Y., Xing, Y., & Jin, C.-H. (2023). The impact of VR/AR-based consumers' brand experience on consumer-brand relationships. *Sustainability*, 15(9), 7278. <https://doi.org/10.3390/su15097278>
- [10] Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand experience: What is it? How is it measured? Does it affect loyalty? *Journal of Marketing*, 73(3), 52–68. <https://doi.org/10.1509/jmkg.73.3.052>
- [11] Ali, M., Naeem, F., Kaddoum, G., & Hossain, E. (2024). Metaverse communications, networking, security, and applications: Research issues, state-of-the-art, and future directions. *IEEE Communications Surveys & Tutorials*, 26(2), 1238–1278. <https://doi.org/10.1109/COMST.2023.3347172>
- [12] Nysveen, H., Pedersen, P. E., & Skard, S. (2013). Brand experiences in service organizations: Exploring the individual effects of brand experience dimensions. *Journal of Brand Management*, 20(5), 404–423. <https://doi.org/10.1057/bm.2012.31>
- [13] Zhou, Z., Chen, Z., & Jin, X.-L. (2024). A review of the literature on the metaverse: Definition, technologies, and user behaviors. *Internet Research*, 34(1), 129–148. <https://doi.org/10.1108/INTR-08-2022-0687>
- [14] van de Sand, F., Frison, A.-K., Zotz, P., Riener, A., & Holl, K. (2020). The intersection of user experience (UX), customer experience (CX), and brand experience (BX). In *User experience is brand experience: The psychology behind successful digital products and services* (pp. 71–93). Springer International Publishing.
- [15] Pine, B. J., & Gilmore, J. H. (1998). Welcome to the experience economy. *Harvard Business Review*, 76(4), 97–105.
- [16] Pinker, S. (1997). *How the mind works*. Norton.
- [17] Schmitt, B. (1999). Experiential marketing. *Journal of Marketing Management*, 15(1–3), 53–67. <https://doi.org/10.1362/026725799784870496>
- [18] Gentile, C., Spiller, N., & Noci, G. (2007). How to sustain the customer experience: An overview of experience components that co-create value with the customer. *European Management Journal*, 25(5), 395–410. <https://doi.org/10.1016/j.emj.2007.08.005>
- [19] Boo, C., & Suh, A. (2024). Developing scales for assessing metaverse characteristics and testing their utility. *Computers in Human Behavior Reports*, 13, Article 100366. <https://doi.org/10.1016/j.chbr.2023.100366>
- [20] Hwang, R., & Lee, M. (2022). The influence of music content marketing on user satisfaction and intention to use in the metaverse: A focus on the SPICE model. *Businesses*, 2(2), 141–155. <https://doi.org/10.3390/businesses2020010>
- [21] Kim, J.-H., Kim, M., Park, M., & Yoo, J. (2021). How interactivity and vividness influence consumer virtual reality shopping experience: The mediating role of telepresence. *Journal of Research in Interactive Marketing*, 15(3), 502–525. <https://doi.org/10.1108/JRIM-07-2020-0148>
- [22] Kim, M., Oh, H. J., Choi, J. H., & Jung, Y. (2025). Decoding millennials and generation Z consumers' brand behaviors in the Metaverse: The relationships among avatar identification, self-presence, and psychological dynamics. *Journal of Consumer Behaviour*, 24(1), 44–57. <https://doi.org/10.1002/cb.2405>
- [23] Shin, D. (2022). The actualization of meta affordances: Conceptualizing affordance actualization in the metaverse games. *Computers in Human Behavior*, 133, Article 107292. <https://doi.org/10.1016/j.chb.2022.107292>
- [24] Vollero, A., Sardanelli, D., & Manoli, A. E. (2024). Exploring the influence of football fan tokens on engagement: A study on fans' meaning, team brand identification, and co-creation mechanisms. *Journal of Interactive Marketing*. Advance online publication. <https://doi.org/10.1177/10949968241305642>
- [25] Alsamh, M. H., Hawbani, A., Kumar, S., & Alsamhi, S. H. (2024). Multisensory Metaverse-6G: A new paradigm of commerce and education. *IEEE Access*, 12, 75657–75677. <https://doi.org/10.1109/ACCESS.2024.3392838>
- [26] Marder, B., et al. (2024). What drives advertisers toward or away from immersive virtual spaces? *Journal of Advertising Research*, 64(3), 255–283. <https://doi.org/10.2501/JAR-2024-020>
- [27] Papagiannidis, S., See-To, E., & Bourlakis, M. (2014). Virtual test-driving: The impact of simulated products on purchase intention. *Journal of Retailing and Consumer Services*, 21(5), 877–887. <https://doi.org/10.1016/j.jretconser.2014.02.010>
- [28] Lee, H., & Cho, C.-H. (2023). Virtual brand experience in digital reality advertising: Conceptualization and measurement. *Journal of Consumer Behaviour*, 22(2), 300–313. <https://doi.org/10.1002/cb.2126>

- [29] Batat, W. (2024). What does phygital really mean? A conceptual introduction to the phygital customer experience (PH-CX) framework. *Journal of Strategic Marketing*. Advance online publication. <https://doi.org/10.1080/0965254X.2022.2059775>
- [30] McLean, G., & Wilson, A. (2019). Shopping in the digital world: Examining customer engagement through augmented reality mobile applications. *Computers in Human Behavior*, 101, 210–224. <https://doi.org/10.1016/j.chb.2019.07.002>
- [31] Hsu, C.-L., & Chen, M.-C. (2018). How does gamification improve user experience? An empirical investigation on the antecedences and consequences of user experience and its mediating role. *Technological Forecasting and Social Change*, 132, 118–129. <https://doi.org/10.1016/j.techfore.2018.01.023>
- [32] Yoon, D., & Youn, S. (2016). Brand experience on the website: Its mediating role between perceived interactivity and relationship quality. *Journal of Interactive Advertising*, 16(1), 1–15. <https://doi.org/10.1080/15252019.2015.1136249>
- [33] Fatma, S. (2014). Antecedents and consequences of customer experience management—A literature review and research agenda. *International Journal of Business and Commerce*, 3(6), 32–49.
- [34] Jung, J., Yu, J., Seo, Y., & Ko, E. (2021). Consumer experiences of virtual reality: Insights from VR luxury brand fashion shows. *Journal of Business Research*, 130, 517–524. <https://doi.org/10.1016/j.jbusres.2019.10.038>
- [35] Jeon, J.-E. (2023). Conceptualization and development of a scale for brand experience in extended reality. *Global Business & Finance Review*, 28(6), 1–22. <https://doi.org/10.17549/gbfr.2023.28.6.1>
- [36] Hamzah, Z. L., Syed Alwi, S. F., & Othman, M. N. (2014). Designing corporate brand experience in an online context: A qualitative insight. *Journal of Business Research*, 67(11), 2299–2310. <https://doi.org/10.1016/j.jbusres.2014.06.018>
- [37] Stein, A., & Ramaseshan, B. (2016). Towards the identification of customer experience touch point elements. *Journal of Retailing and Consumer Services*, 30, 8–19. <https://doi.org/10.1016/j.jretconser.2015.12.001>
- [38] Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, 51(4), 327–358. <https://doi.org/10.1037/h0061470>
- [39] Edvardsson, B. (1992). Service breakdowns: A study of critical incidents in an airline. *International Journal of Service Industry Management*, 3(4), 17–29. <https://doi.org/10.1108/09564239210019450>
- [40] Dubey, V. (n.d.). *Global metaverse gaming market report overview*. Congruence Market Insights. Retrieved February 3, 2026, from <https://www.congruencemarketinsights.com/report/metaverse-gaming-market>
- [41] Antom. (n.d.). *Thailand gaming & payment trends report: Unveiling Southeast Asia's second-largest gaming market*. Ant International. Retrieved February 3, 2026, from <https://knowledge.antom.com/thailand-gaming-payment-trends-report-unveiling-southeast-asias-second-largest-gaming-market>
- [42] Pangarkar, T. (n.d.). *Metaverse statistics by new technology in virtual space*. Market.us Scoop. Retrieved January 29, 2026, from <https://scoop.market.us/metaverse-statistics/>
- [43] GMO Research & AI. (n.d.). *Metaverse adoption trends in Southeast Asia: A comprehensive market analysis of Indonesia, Philippines, Malaysia, and Thailand*. Retrieved January 29, 2026, from <https://gmo-research.ai/en/resources/studies/2025-study-metaverse-southeastasia>
- [44] Niko Partners. (n.d.). *Leveling the playing field for women in gaming across Asia and MENA*. Retrieved January 29, 2026, from <https://nikopartners.com/leveling-the-playing-field-for-women-in-gaming/>
- [45] Gremler, D. D. (2004). The critical incident technique in service research. *Journal of Service Research*, 7(1), 65–89. <https://doi.org/10.1177/1094670504266138>
- [46] Lockwood, A. (1994). Using service incidents to identify quality improvement points. *International Journal of Contemporary Hospitality Management*, 6(1/2), 75–80. <https://doi.org/10.1108/09596119410052170>
- [47] Payal, R., Sharma, N., & Dwivedi, Y. K. (2024). Unlocking the impact of brand engagement in the metaverse on real-world purchase intentions: Analyzing pre-adoption behavior in a futuristic technology platform. *Electronic Commerce Research and Applications*, 65, Article 101381. <https://doi.org/10.1016/j.elerap.2024.101381>
- [48] Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
- [49] Voss, R., Gruber, T., & Reppel, A. (2010). Which classroom service encounters make students happy or unhappy? *International Journal of Educational Management*, 24(7), 615–636. <https://doi.org/10.1108/09513541011080002>
- [50] Keaveney, S. M. (1995). Customer switching behavior in service industries: An exploratory study. *Journal of Marketing*, 59(2), 71–82. <https://doi.org/10.1177/002224299505900206>
- [51] Puntoni, S. (2024). Already here: Metaverse in touch and sound. *Journal of Consumer Psychology*, 34(1), 174–176. <https://doi.org/10.1002/jcpy.1358>
- [52] Cai, S., & Xu, Y. (2011). Designing not just for pleasure: Effects of web site aesthetics on consumer shopping value. *International Journal of Electronic Commerce*, 15(4), 159–188. <https://doi.org/10.2753/JEC1086-4415150405>
- [53] Zhang, W., Leng, X., & Liu, S. (2023). Research on mobile impulse purchase intention in the perspective of system users during COVID-19. *Personal and Ubiquitous Computing*, 27(3), 665–673. <https://doi.org/10.1007/s00779-020-01460-w>
- [54] Dam, A., Siddiqui, A., Leclercq, C., & Jeon, M. (2024). Taxonomy and definition of audio augmented reality (AAR): A grounded theory study. *International Journal of Human-Computer Studies*, 182, Article 103179. <https://doi.org/10.1016/j.ijhcs.2023.103179>
- [55] Gilbert, S. B. (2017). Perceived realism of virtual environments depends on authenticity. *Presence*, 25(4), 322–324. https://doi.org/10.1162/PRES_a_00276
- [56] Skarbez, R., Neyret, S., Brooks, F. P., Slater, M., & Whitton, M. C. (2017). A psychophysical experiment regarding components of the plausibility illusion. *IEEE Transactions on Visualization and Computer Graphics*, 23(4), 1369–1378. <https://doi.org/10.1109/TVCG.2017.2657158>
- [57] Chan, S. H. M., Qiu, L., & Xie, T. (2023). Understanding experiences in metaverse: How virtual nature impacts affect, pro-environmental attitudes, and intention to engage with physical nature. *Computers in Human Behavior*, 149, Article 107926. <https://doi.org/10.1016/j.chb.2023.107926>
- [58] Felnhof, A., et al. (2015). Is virtual reality emotionally arousing? Investigating five emotion inducing virtual park scenarios. *International Journal of Human-Computer Studies*, 82, 48–56. <https://doi.org/10.1016/j.ijhcs.2015.05.004>

- [59] Pizzolante, M., et al. (2023). Awe in the metaverse: Designing and validating a novel online virtual-reality awe-inspiring training. *Computers in Human Behavior*, 148, Article 107876. <https://doi.org/10.1016/j.chb.2023.107876>
- [60] Flavián, C., Ibáñez-Sánchez, S., Orús, C., & Barta, S. (2024). The dark side of the metaverse: The role of gamification in event virtualization. *International Journal of Information Management*, 75, Article 102726. <https://doi.org/10.1016/j.ijinfomgt.2023.102726>
- [61] Watson, D., & Stanton, K. (2017). Emotion blends and mixed emotions in the hierarchical structure of affect. *Emotion Review*, 9(2), 99–104. <https://doi.org/10.1177/1754073916639659>
- [62] Andreini, D., Pedeliento, G., Zarantonello, L., & Solerio, C. (2019). Reprint of “A renaissance of brand experience: Advancing the concept through a multi-perspective analysis.” *Journal of Business Research*, 96, 355–365. <https://doi.org/10.1016/j.jbusres.2018.05.047>
- [63] Kim, W. B., & Choo, H. J. (2023). How virtual reality shopping experience enhances consumer creativity: The mediating role of perceptual curiosity. *Journal of Business Research*, 154, Article 113378. <https://doi.org/10.1016/j.jbusres.2022.113378>
- [64] Bousba, Y., & Arya, V. (2022). Let’s connect in metaverse. Brand’s new destination to increase consumers’ affective brand engagement & their satisfaction and advocacy. *Journal of Content, Community & Communication*, 15(8), 276–293. <https://doi.org/10.31620/JCCC.06.22/19>
- [65] Park, S., & Kim, S. (2022). Identifying world types to deliver gameful experiences for sustainable learning in the metaverse. *Sustainability*, 14(3), Article 1361. <https://doi.org/10.3390/su14031361>
- [66] Park, H., & Lim, R. E. (2023). Fashion and the metaverse: Clarifying the domain and establishing a research agenda. *Journal of Retailing and Consumer Services*, 74, Article 103413. <https://doi.org/10.1016/j.jretconser.2023.103413>
- [67] Hyundai Motor Company. (n.d.). *Hyundai Motor vitalizes future mobility in Roblox metaverse space, Hyundai Mobility Adventure*. Hyundai Newsroom. Retrieved January 29, 2026, from <https://www.hyundai.news/eu/articles/press-releases/hyundai-vitalizes-future-mobility-in-roblox-metaverse-space.html>
- [68] Mahdjoubi, L., Hao Koh, J., & Moobela, C. (2014). Effects of interactive real-time simulations and humanoid avatars on consumers’ responses in online house products marketing. *Computer-Aided Civil and Infrastructure Engineering*, 29(1), 31–46. <https://doi.org/10.1111/j.1467-8667.2012.00775.x>
- [69] Lee, L.-H., Braud, T., Zhou, P. Y., Wang, L., Xu, D., Lin, Z., Kumar, A., Bermejo, C., Hui, P. (2024). All One Needs to Know about Metaverse: A Complete Survey on Technological Singularity, Virtual Ecosystem, and Research Agenda. *Foundations and Trends in Human-Computer Interaction*, 18(2–3), 100–337. <https://doi.org/10.1561/11000000095>
- [70] Klein, L. R. (2003). Creating virtual product experiences: The role of telepresence. *Journal of Interactive Marketing*, 17(1), 41–55. <https://doi.org/10.1002/dir.10046>
- [71] Weech, S., Kenny, S., & Barnett-Cowan, M. (2019). Presence and cybersickness in virtual reality are negatively related: A review. *Frontiers in Psychology*, 10, Article 158. <https://doi.org/10.3389/fpsyg.2019.00158>
- [72] Smith, S. A. (2019). Virtual reality in episodic memory research: A review. *Psychonomic Bulletin & Review*, 26(4), 1213–1237. <https://doi.org/10.3758/s13423-019-01605-w>
- [73] Shin, S., Koo, C., Kim, J., & Gursoy, D. (2024). Effects of metaverse experience on behavioral intention of visitors: Moderating role of similarity between virtual and real experience. *International Journal of Contemporary Hospitality Management*, 36(12), 4055–4073. <https://doi.org/10.1108/IJCHM-10-2023-1567>
- [74] De Jaegher, H., Di Paolo, E., & Gallagher, S. (2010). Can social interaction constitute social cognition? *Trends in Cognitive Sciences*, 14(10), 441–447. <https://doi.org/10.1016/j.tics.2010.06.009>
- [75] Sicilia, M., & Palazón, M. (2008). Brand communities on the internet. *Corporate Communications: An International Journal*, 13(3), 255–270. <https://doi.org/10.1108/13563280810893643>
- [76] Muniz, A. M., Jr., & O’Guinn, T. C. (2001). Brand community. *Journal of Consumer Research*, 27(4), 412–432. <https://doi.org/10.1086/319618>
- [77] Willett, W., et al. (2022). Perception! Immersion! Empowerment! Superpowers as inspiration for visualization. *IEEE Transactions on Visualization and Computer Graphics*, 28(1), 22–32. <https://doi.org/10.1109/TVCG.2021.3114844>
- [78] Khatibi, M. (2023). Empowerment through virtual reality: The capabilities of virtual environments in inspiring empathy, immersion, and empowerment. *Proceeding of the International Conference on Arts and Humanities*, 9(1). <https://doi.org/10.17501/23572744.2022.9108>
- [79] Przybylski, A. K., Rigby, C. S., & Ryan, R. M. (2010). A motivational model of video game engagement. *Review of General Psychology*, 14(2), 154–166. <https://doi.org/10.1037/a0019440>
- [80] Jung, Y., & Pawlowski, S. D. (2014). Virtual goods, real goals: Exploring means-end goal structures of consumers in social virtual worlds. *Information & Management*, 51(5), 520–531. <https://doi.org/10.1016/j.im.2014.03.002>
- [81] Yung, R., Le, T. H., Moyle, B., & Arcodia, C. (2022). Towards a typology of virtual events. *Tourism Management*, 92, Article 104560. <https://doi.org/10.1016/j.tourman.2022.104560>
- [82] Lee, E.-J., Park, S., Lee, W., & Kim, H. S. (2024). Identity experiment in the metaverse: Making sense of Zepeto users’ avatar use. *International Journal of Communication*, 18, 3284–3291.
- [83] Yee, N., & Bailenson, J. (2007). The Proteus effect: The effect of transformed self-representation on behavior. *Human Communication Research*, 33(3), 271–290. <https://doi.org/10.1111/j.1468-2958.2007.00299.x>
- [84] Ashcroft, O. S. (2024). Empowerment in virtual worlds: The influence of female hero characters on player self-identity. *Journal of Research in Social Science and Humanities*, 3(7), 58–68. <https://doi.org/10.56397/JRSSH.2024.07.07>
- [85] Chan, G. H. (2020). Application and effectiveness of play therapy using an online-game intervention for hidden youth. *The British Journal of Social Work*, 50(7), 2116–2134. <https://doi.org/10.1093/bjsw/bcz129>
- [86] Perroud, B., Régner, S., Kemeny, A., & Mérienne, F. (2019). Model of realism score for immersive VR systems. *Transportation Research Part F: Traffic Psychology and Behaviour*, 61, 238–251. <https://doi.org/10.1016/j.trf.2017.08.015>
- [87] Burke, J. (n.d.). *Reintroducing the Open Metaverse OS paper*. Outlier Ventures. Retrieved June 20, 2022, from <https://outlierventures.io/research/the-open-metaverse-os/>
- [88] Radoff, J. (n.d.). *The metaverse value-chain*. Medium. Retrieved August 8, 2022, from <https://medium.com/building-the-metaverse/the-metaverse-value-chain-afcf9e09e3a7>