The following publication Shin, S., Koo, C., Kim, J. and 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, Vol. 36 No. 12, pp. 4055-4073 is published by Emerald and is available at https://doi.org/10.1108/IJCHM-10-2023-1567.

Effects of Metaverse Experience on Behavioral Intention of Visitors: Moderating Role of Similarity between Virtual and Real Experience

Journal:	*International Journal of Contemporary Hospitality Management*
Manuscript ID	IJCHM-10-2023-1567.R2
Manuscript Type:	Original Article
Keywords:	Metaverse, General learning model, Social cognitive theory, Avatar, Servicescape

Effects of Metaverse Experience on Behavioral Intention of Visitors: Moderating Role of Similarity between Virtual and Real Experience

Abstract

Purpose - This research aims to examine the impact of metaverse experiences on customers' offline behavioral intentions: How do customers' visits to a hospitality business's virtual property in the metaverse affect their intentions to visit the physical property in the real world?

Design/methodology/approach - Based on the general learning model and social cognitive theory, this research hypothesizes the positive impact of metaverse experiences on customers' visit intentions and explores two boundary conditions for positive impact: user–avatar resemblance and servicescape similarity. Two experimental studies were conducted.

Findings - Metaverse experience has a significant impact on customers' visit intentions, and this impact is moderated by user–avatar resemblance and servicescape similarity.

Research implications – This research addresses the call for empirical studies regarding the effects of metaverse experience on people's behavioral intention.

Originality - As one of the earliest empirical studies on the marketing effects of the metaverse, this research provides a basis for future metaverse studies in the hospitality field.

Article classification: Research paper

Keywords: Metaverse; general learning model; social cognitive theory; avatar; servicescape.

1. Introduction

Many hospitality businesses are adopting the metaverse trend for marketing purposes (Ghare, 2022). Some leading brands have already established plans for metaverse marketing campaigns (Wood, 2022): restaurants (McDonald's), hotels (Ritz Carlton), entertainment (Walt Disney), and more. After being selected as one of the top trends that will reshape the hospitality industry, metaverse marketing is rapidly growing in popularity in the industry (EHL Insights, 2022). The recent COVID-19 pandemic has encouraged people to pay attention to virtual experiences in the metaverse to satisfy their wanderlust. According to Gartner's report (2021), about one in three people is expected to spend over two hours a day in the metaverse for entertainment by 2027. The potential business benefits of metaverse marketing are being actively discussed in the hospitality industry (Gursoy *et al.*, 2022).

The metaverse is defined as a virtual world where our avatars and those of other people in the world come together for various purposes, such as working, shopping, attending classes or events, and travelling (Koo *et al.*, 2022). As an alternate reality, the metaverse incorporates a range of technologies to parallel the real world (e.g., a 5G network for real-time interaction, augmented or virtual reality for multisensory interaction, and non-fungible tokens for the transaction of digital and physical assets) (Hollensen *et al.*, 2022). As it blurs the line between the virtual and real worlds, it is expected that what we do in the metaverse does not end in the virtual world but affects how we behave in the real world (Buhalis *et al.*, 2023). The expectation that the metaverse experience affects visitors' offline behavior is leading hospitality businesses to adopt specific strategies for metaverse marketing.

By building a digital twin of its property in the metaverse, a hospitality business enables people to virtually experience the service that they can be offered when they visit the business's physical property. With such a strategy, a hospitality business encourages virtual customers to be actual customers in the real world. Specifically, a hospitality business allows

people to undertake a range of activities on its virtual property that are feasible in the real world, to induce them to visit the physical property (Lee and Kim, 2022). A restaurant encourages guests to order food in the business's virtual branch in the metaverse and receive it in its physical branch in the real world (Ampountolas *et al.*, 2023). By allowing customers to enjoy a rooftop lounge on its virtual property, a hotel hopes to boost their desire to visit its physical property to enjoy the amenities (Kilburn, 2022). When hosting a concert in the metaverse, the organizer allows people to see an artist very closely or take pictures with the artist to ensure the virtual attendees have an increased intention to visit the artist's actual concert in the real world (Savage, 2021).

Although a hospitality business strives to influence customers' offline behavioral intentions through the metaverse experience, the precise impact of this experience remains uncertain. Recent marketing studies, spanning beyond the hospitality sector, have emphasized the need to explore the connection between the metaverse experience and customers' offline behavioral intentions (Hollensen *et al.*, 2022; Kim, 2021; Wiederhold, 2022). However, existing hospitality and tourism research primarily discusses the metaverse's impact on customers' real-world behavior in a conceptual manner (Buhalis *et al.*, 2023; Go and Kang, 2023; Gursoy *et al.*, 2022; Koo *et al.*, 2022; Mladenović *et al.*, 2023). Although empirical studies on the metaverse experience in various contexts, such as retail shopping and promoting pro-environmental attitudes, have been conducted (Chan *et al.*, 2023; Jafar *et al.*, 2023; Kim *et al.*, 2023; Xi *et al.*, 2023), the majority of studies have focused on individuals' attitudes or behavioral intentions within the metaverse. Despite the metaverse's rising popularity as the next paradigm in the hospitality industry, its implications for marketing remain unknown (Cai *et al.*, 2024; Hazan *et al.*, 2022; Zaman *et al.*, 2024).

This research aims to investigate the impact of the metaverse experience on customers' offline behavioral intentions in the hospitality context. Considering the metaverse

marketing strategies employed by hospitality businesses, the research addresses the following question: How does a customer's visit to a hospitality business's virtual property in the metaverse influence their intention to visit its physical property in the real world? Additionally, the research explores two potential boundary conditions for the relationship between the metaverse experience and behavioral intention: Is the impact of the metaverse experience on customers' offline behavioral intentions moderated by the extent to which an avatar resembles the customer, and by the similarity between a business's virtual property and the physical one in terms of servicescape?

Drawing on the general learning model (GLM) (Buckley and Anderson, 2012) and social cognitive theory (Bandura, 1977), this research hypothesizes that (1) the metaverse experience increases customers' intentions to visit a hospitality business's physical property in the real world, and (2) the effect of the metaverse experience becomes more pronounced when the experience is similar to the real situation (i.e., when customers use avatars resembling their own appearance and when virtual properties have the same servicescape as physical ones). To achieve these objectives, two studies were conducted in a café context.

2. Research Background

Although the metaverse is not yet clearly defined, it generally refers to a parallel reality where people, as avatars, can work, play, communicate, and "live" (Needleman, 2021). The term, a combination of the words "meta" and universe, was first coined in a piece of science fiction written by Neal Stevenson, *Snow Crash,* in 1992. The virtual world concept has been realized and developed through four major transitions from text-based interactive games (e.g., AberMud, DikuMud) to virtual open worlds (e.g., Active World, Onlive Traveler), massive multiplayer online games (e.g., Second Life, Minecraft), and immersive virtual environments on smart mobiles and wearables (e.g., Pokémon GO, VRChat) (Duan *et*

al., 2021). Every transition was driven by the advent of enabling technologies (e.g., Internet, 3D graphics, extended reality, blockchain, and so on) (Wiederhold, 2022), and now several metaverse platforms are considered to almost realize Stevenson's imaginings (e.g., Decentraland, Sandbox, Roblox, and Zepeto) (Dwivedi *et al.*, 2022).

The metaverse has several characteristics that distinguish it from video games that closely imitate the real world, platforms that leverage virtual environments, and other related concepts (Go *et al.*, 2021; Lee *et al.*, 2021). First, people can make digital creations inside the metaverse, ranging from a piece of textual content to a virtual item, an event, a building, or a city. Also, people can interact with objects, places, and others in various ways (e.g., purchasing or selling an artwork, taking a selfie at a popular spot in a city, and travelling with friends) (Go *et al.*, 2021). These differentiate the metaverse from social virtual reality platforms, which limit the ability to make digital creations and provide limited options for interactions (Lee *et al.*, 2021). Second, the metaverse is a perpetual space. Even when you log out of the metaverse, the virtual world keeps changing based on others' activities or interactions (e.g., launching a new event, building a new store, selling a real estate asset) (Goldston *et al.*, 2022). As a sustained and persistent virtual world, the metaverse does not vanish, regardless of whether you log into the world or not. This differentiates the metaverse from the virtual spaces for games, events, classes, and so on, which disappear after the focal activities (Lee *et al.*, 2021). Last, the metaverse coexists and interoperates with the real world. The metaverse comprises digital twins of their physical counterparts, including people and their motions or behaviors, objects and their functions, business properties, and even cities (Lv *et al.*, 2022). The digital copy of the physical environment operates based on social norms, economies, and laws, which are analogous to the real world's existing systems (Kicks, 2021). In a parallel reality, people have a daily life as they do in the real world, and their activities in the metaverse affect their behavior in the real world (Go *et al.*, 2021). This

differentiates the metaverse from almost all other virtual platforms, which have lower levels of extension of reality (Lee *et al.*, 2021).

The last characteristic of the metaverse drives hospitality businesses to expect an impact of virtual experiences on people's offline behavior and, further, to adopt specific strategies for metaverse marketing. A hospitality business offers replication of real service experiences to people in the metaverse in order to increase their likelihood of visiting the business's physical property for real experiences (Lee and Kim, 2022). Domino's Pizza enables customers to order pizza through the digital twin of its ordering kiosk in Decentraland and encourages them to visit its physical branch as a result of the virtual order experience (Canter, 2022). An emerging hotel brand in the United Kingdom, LEVEN, plans to launch virtual fitness and meditation sessions at its virtual property in the metaverse, which are linked to the sessions taking place at its physical property in the real world, to transform virtual guests into actual ones (Kilburn, 2022). When hosting a virtual concert in Roblox, the management agency for pop star Zara Larsson sold the outfits, hairstyles, and dance moves of the artist to make virtual attendees feel more connected to the artist and, subsequently, increase their intention to attend a real concert in the future (Savage, 2021). With a similar objective, the management agency of Blackpink, a South Korean girl group, hosted a virtual fansign in Zepeto and allowed virtual attendees to connect with each member of the group via avatars in various ways (e.g., getting an autograph or taking a selfie together) (Song, 2021).

The potential influence of metaverse experiences on customers' behavioral intentions in the real world finds support in the GLM proposed by Buckley and Anderson (2012). An extension of the general aggression model, which explains the impact of a violent stimulus on an individual's antisocial behavior (Bushman and Anderson, 2002), the GLM posits that all information in the surrounding environment can serve as a learning opportunity, influencing an individual's present internal state (comprising cognition, affect, and arousal) and guiding

behavioral responses (Buckley and Anderson, 2012). According to GLM's assumptions, various stimuli, such as media or games, can trigger individual behavior by affecting their internal state (Buckley and Anderson, 2012). For instance, GLM suggests that consuming media content offers significant learning opportunities. Studies have explored the impact of media content consumption on behavior, showing that engaging with prosocial content in books, music, and TV programs increases individuals' intention to engage in prosocial behavior (Hahn *et al.*, 2022; Ruth, 2017; Zhang, 2021). GLM has also been applied to virtual experiences, such as specific activities conducted through avatars in virtual games. Research indicates that playing violent games results in corresponding real-world behavior, while engaging in healthy activities through avatars positively influences players' health-related behavior in the real world (Rheu *et al.*, 2020; Wu *et al.*, 2023).

A crucial theoretical component of GLM, social cognitive theory, further elaborates on the impact of learning experiences on individual behavior. The theory introduces three boundary conditions that enhance the influence of learning experiences on behavioral reactions: the extent to which an individual is rewarded for the learned behavior (i.e., reinforcement); the extent to which an individual has the ability to do the learned behavior (i.e., self-efficacy); and the extent to which the role models are similar to an individual in terms of appearance (i.e., identification) (Bandura, 1977). Focusing on the moderating role of identification in virtual experiences, the theory argues that individuals are more likely to replicate learned behaviors when their virtual representation (e.g., avatar) resembles them and when the virtual space mirrors their surroundings. Given that the metaverse experience shares similarities with virtual experiences, involving the use of avatars for various activities in a virtual environment, we anticipate that GLM and social cognitive theory arguments are applicable. Engaging in specific activities in the metaverse is expected to lead individuals to

replicate similar activities in the real world, with the impact being more pronounced when the individual's avatar resembles them and their surroundings.

Many hospitality businesses have either implemented or plan to adopt metaverse marketing, expecting the virtual experience to alter customers' behavior in the real world (Lee and Kim, 2022). Also, recent conceptual research on metaverse marketing has proposed the use of metaverse experiences to modify customers' attitudes and behaviors in the real world (Buhalis *et al.*, 2023; Gursoy *et al.*, 2022; Kim, 2021; Koo *et al.*, 2022). However, the potential impact of metaverse experiences on customers' offline behavioral intentions has not been tested, and thus, empirical research investigating the impact is being called for by both researchers and practitioners (Hazan *et al.*, 2022; Hollensen *et al.*, 2022; Wiederhold, 2022). Numerous empirical studies have explored the effects of virtual travel experiences on customers' behavioral reactions, offering insights that can be applied to discussions on metaverse experiences (Kim *et al.*, 2020a). However, the vast majority of these studies focused on experiences mediated by virtual reality. Consequently, their findings may present challenges in directly extrapolating implications for the relationship between metaverse experiences and customers' behavioral intentions. Given this background, this research aimed to address the knowledge gap by examining the impact of metaverse experience on customers' offline behavioral intentions in the hospitality context. Specifically, this research tests how customers' visits to a hospitality business's virtual property in the metaverse affect their intention to visit its physical property in the real world. Furthermore, to further understand the relationship between the metaverse experience and behavioral intentions, this research explored two potential boundary conditions for the relationship: the extent to which an avatar resembles its user in terms of appearance and the extent to which the servicescape of a virtual property is similar to that of a physical one.

3. Research Model and Hypotheses Development

Drawing on the GLM (Buckley and Anderson, 2012) and social cognitive theory (Bandura, 1977), we developed the conceptual framework and research hypotheses (Figure 1). The GLM posits that virtual experiences, such as playing a virtual game, serve as learning opportunities that can influence an individual's internal state and behavior (Buckley and Anderson, 2012). Consequently, the GLM is frequently employed to investigate the impact of virtual experiences on individual behavioral reactions. According to the GLM, virtual experiences lead individuals to perceive their virtualized representation (e.g., avatars) as themselves and integrate into the environment where they are engaged (Bailey and Bailenson, 2017). This sense of presence primes individuals with the actions performed during the virtual experience, influencing them to replicate similar behaviors in the real world (Bushman and Anderson, 2002).

[Figure 1]

In a study by Yin *et al.* (2022), a prosocial virtual game was considered a learning stimulus based on the GLM, revealing that individuals tended to use prosocial words more frequently after playing the game. Conversely, Wu *et al.* (2023) focused on unethical behavior in a virtual game, demonstrating that engaging in such behavior in the game increased the likelihood of individuals engaging in similar behavior in the real world. Applying the GLM argument within the context of virtual experiences, we anticipate that the metaverse experience will influence customers' behavioral intentions. Specifically, we hypothesize that customers' visits to the virtual property of a hospitality business in the metaverse will heighten their intention to visit the business's physical property in the real world.

Hypothesis 1: The experience of visiting a hospitality business's virtual property in the metaverse increases a customer's intention to visit the business's physical property in the real world.

The social cognitive theory delineates how the impact of virtual experience on an individual's behavior can be nuanced by factors such as reinforcement, self-efficacy, and identification (Bandura, 1977). According to the GLM, virtual experience influences people's offline behavior by immersing them in a virtualized scenario (Bushman and Anderson, 2002). The social cognitive theory further posits that this immersion is more likely under specific conditions, enhancing the impact of virtual experience on individuals' offline behavior (Bandura, 1977). These conditions include situations where individuals' behavior in the virtualized setting is rewarded (Hahn, 2022), when they perceive virtual actions as easy to replicate in the real world (Alvarez-Risco *et al.*, 2022), and when their virtualized representation (e.g., avatars) closely resembles their actual selves (Rheu *et al.*, 2020).

Among these conditions, identification holds particular relevance in the literature when virtual experience is used as a learning stimulus, given the central role of avatars in the experience (Kim, 2021). The increased impact of virtual experiences on individuals' offline behavior due to the greater similarity between avatars and users' appearances has been explored in various contexts. For instance, Navarro *et al.* (2022) observed that participants exposed to avatars wearing sports clothes with their faces had higher cardiac frequency than those exposed to stranger faces. Similarly, Koulouris *et al.* (2020) conducted experiments where participants engaging in exercise via a virtual reality game using avatars customized to resemble themselves were more inclined to exercise regularly than those using non-customized avatars. Applying the identification aspect of social cognitive theory to the current research, the experience of visiting a hospitality business's virtual property in the

metaverse is expected to significantly increase customers' intentions to visit its physical property when people use avatars customized to resemble themselves. Specifically, we hypothesize that customers' visits to the virtual property of a hospitality business in the metaverse will more substantially boost their intention to visit the business's physical property in the real world when there is a high level of user–avatar resemblance.

Hypothesis 2: Customers' intentions to visit a business's physical property after a metaverse experience will be higher when a customer uses an avatar customized to resemble themselves.

Several recent studies grounded in social cognitive theory have expanded the concept of identification to include the similarity between the environment in a learning stimulus and an individual's surroundings. It is argued that a learning stimulus exerts a greater impact on an individual's behavioral reaction when they find themselves in a situation similar to that depicted in the stimulus (Scavarelli *et al.*, 2021). Discussing the potential of virtual reality in education, Hernandez-Pozas and Carreon-Flores (2019) advocated for a virtual space that mirrors the students' study environment, emphasizing the importance of such similarity for enhancing the learning effect. Similar arguments were supported in the work of Behnamnia *et al.* (2020), who demonstrated that a digital game-based learning program for preschool children led to the repetition of virtualized learning in the real world by creating a similarity between the virtual and usual learning spaces. Building upon this empirical evidence, we hypothesize that the impact of the metaverse experience on customers' visit intentions is moderated by the similarity between a hospitality business's virtual property and the physical one in terms of servicescape (servicescape similarity hereafter). Specifically, we propose that customers' visits to the virtual property of a hospitality business in the metaverse will

significantly increase their intention to visit the business's physical property in the real world when there is a high level of servicescape similarity.

Hypothesis 3: Customers' intentions to visit a business's physical property after a metaverse experience will be higher when the virtual property has the same servicescape as the physical property.

We further predicted an interaction effect between user–avatar resemblance and servicescape similarity in the metaverse experience on customers' visit intentions. Considering that identification through user–avatar resemblance is more obvious for the metaverse experience, the effect of servicescape similarity on customers' visit intentions was expected to be stronger only when a customer uses an avatar customized to resemble themselves. When the avatar in the virtual world is different from the customer's actual appearance, the metaverse experience is expected to be very low in terms of mental simulation and meaningful engagement (Hilken *et al.*, 2022).

Hypothesis 3a: The main effect of servicescape similarity on customers' visit intentions will be stronger when a customer uses an avatar customized to resemble themselves. Conversely, the main effect of servicescape similarity on customers' visit intentions will be weaker when a customer uses an avatar customized to be dissimilar themselves.

4. Methodology

The four hypotheses were examined through two studies employing an experimental design within a café context. Study 1 was executed to assess H1, aiming to determine

whether participants who virtually experienced a café through the metaverse exhibited a higher intention to visit the actual café compared to those who did not undergo such an experience. Study 2 was conducted to investigate H2, H3, and H4, all within the same café context. We tested H2 by examining whether the participants who visited a café's virtual property using avatars that resembled their appearance had a higher intention to visit the café's real property than those who visited the same virtual property using avatars that do not resemble their appearance. On the other hand, we targeted three cafés that are different in terms of servicescape similarity: 1) a café whose virtual property's servicescape is similar to real property's; 2) a café whose virtual property's servicescape is better than real property's; and 3) a café whose virtual property's servicescape is worse than physical property's. The participants visited the virtual property of one of the three cafés. To test H3, we compared the three groups in terms of the intention to visit the focal café's real property. Finally, we investigated the interaction between two factors in H4 as well.

Of the several world-famous metaverse platforms, Zepeto was used in this research for several reasons, which is the biggest metaverse platform in Asia in terms of the number of users (Oi, 2021). First, Zepeto is famous for its avatar-editing function, which enables users to customize their avatars (Davies and Junga, 2022). Although it is difficult to customize avatars to reflect users' appearances in detail on other metaverse platforms due to the semi-standardized avatar system, Zepeto provides a higher degree of freedom in customizing avatars (Park and Kim, 2022) (Figure 2). This allowed us to examine the moderating impact of user–avatar resemblance on the relationship between metaverse experience and customers' offline behavioral intentions.

[Figure 2]

Lastly, both high and low servicescape similarity are available on Zepeto. Although most hospitality brands' virtual properties are designed differently from their physical

properties on other metaverse platforms, both differently and similarly designed virtual properties are available on Zepeto (Park, 2022) (Figure 3). This allowed us to examine the moderating effect of servicescape similarity on the relationship between metaverse experience and customers' offline behavioral intentions.

[Figure 3]

5. Study 1

We tested H1 by investigating the influence of metaverse experience on customers' offline behavioral intentions within the context of a café. The experiment involved comparing participants who virtually experienced a specific café in the metaverse with those who did not, with a focus on their intention to visit the café in the real world.

5.1. Design, procedure, and stimuli

Participants were randomly assigned to either the without-metaverse or with-metaverse experience conditions in a between-subjects design. Those in the without-metaverse condition watched a short video showcasing the café, whereas those in the with-metaverse condition watched the same video and additionally visited the virtual version of the café on Zepeto. Subsequently, both groups completed a survey.

We selected a café in South Korea, *SameE*, which had established a virtual property on Zepeto. The virtual property shared the same name as the physical one, and its servicescape, encompassing exterior, interior, food and beverage, and goods, closely resembled that of the physical property (Figure 3). Participants in the with-metaverse experience condition virtually explored *SameE* through Zepeto for approximately 5 minutes using their smart devices, under the guidance and observation of a research assistant. To ensure comparability in exposure time to content about *SameE*, we presented the 5-minute

video to the without-metaverse experience group and the shortened 1-minute version to the with-metaverse group. A total of 120 undergraduate and graduate students in Hong Kong participated, receiving bonus points of coffee as compensation.

Data cleaning involved removing responses from participants who had previously watched the video and those who had visited *SameE* before. Additionally, participants who did not watch the given video were filtered out based on the time spent watching and a validity check question. Consequently, 107 participants (53 in the without-metaverse and 54 in the with-metaverse groups) were included for further analysis. A power analysis using the G*Power program ($w = 0.25$, power $(1 - \beta) = 0.8$, $\alpha = 0.05$) confirmed that our sample size exceeded the minimum required for analysis (minimum sample size = 51 per condition). Thus, our sample was deemed sufficiently large for subsequent analysis (Faul *et al.*, 2007).

5.2. Measures and analysis

Customers' offline behavioral intentions were measured with four items drawn from An *et al.* (2021). All measures used a 5-point Likert scale (1 = definitely not, 5 = absolutely). The four items were highly correlated ($\alpha = 0.85$), and their mean scores were used for further analyses. As participants watched a video about *SameE*, their intention to visit the café might be influenced by their perceptions of the video. Additionally, their preferences or evaluations of the café could introduce confounding factors. To address this, we measured participants' perceptions of the video, preferences, and evaluations of the café, employing measurement items derived from relevant previous research (Byun and Jang, 2015; Das, 2014). The measurement items exhibited high correlations ($\alpha = 0.79$ for video perception, $\alpha = 0.75$ for café preference, and $\alpha = 0.77$ for café evaluation). The mean scores of these items were utilized as three control variables in subsequent analyses to mitigate the confounding impact of

participants' perceptions on their visit intention. With the above-mentioned measures, we conducted a one-way between-subjects ANOVA with a covariate.

5.3. Results and discussion

The demographic details of the participants are provided in the Appendix. The results of a one-way between-subjects ANOVA with a covariate revealed that participants who experienced the virtual version of *SameE* on Zepeto exhibited significantly higher visit intentions compared to those who did not visit the virtual café ($M_{with\text{-}metaverse} = 3.16$, SD = 0.96 vs. $M_{without\text{-}metaverse} = 2.46$, SD = 0.93; $F(1, 104) = 14.94$, $p < 0.001$, $\eta 2 = 0.12$) (Figure 4). Study 1 demonstrated a positive impact of visiting a virtual property in the metaverse on the intention to visit the real property within a café context. Engaging in a virtual visit to a café through the metaverse increased individuals' willingness to visit the actual café, thereby supporting H1. These findings align with prior research indicating that certain activities in virtual environments can influence individuals' intentions to engage in similar behavior in the real world (Wu *et al.*, 2023; Yin *et al.*, 2022). Moreover, these empirical results substantiate the arguments made in conceptual hospitality research regarding the impact of metaverse experiences on customers' offline behavior (Buhalis *et al.*, 2023; Gursoy *et al.*, 2022; Koo *et al.*, 2022).

[Figure 4]

6. Study 2

We examined the main effects of user–avatar resemblance (H2) and servicescape similarity (H3) as well as their interaction effect (H4) on the relationship between metaverse experience and customers' offline behavioral intentions in Study 2. We conducted an experiment in a café context.

6.1. Design, procedure, and stimuli

In this study, participants were randomly assigned to one of four experimental conditions using a between-subjects design: 2 (user–avatar resemblance: high vs. low) × 2 (servicescape similarity: high vs. low). All participants were instructed to watch a brief video showcasing a physical café and then to visit the virtual property of the same café on Zepeto. Initially, we manipulated user–avatar resemblance, where participants used avatars resembling their appearance (high resemblance) or avatars that did not resemble them (low resemblance) based on their assigned condition. Subsequently, participants visited one of two cafes that differed in servicescape similarity: 1) a café with a virtual property mirroring its physical property's servicescape, and 2) a café with a virtual property differing from its physical property's servicescape (e.g., distinct interior, presence or absence of facilities/amenities in the virtual property compared to the physical property). As stimuli, we selected two cafés in South Korea, *SameE* and *Café Blossom*, both of which had virtual properties on Zepeto. Although *SameE*'s virtual property closely resembled its physical counterpart, the opposite was true for *Café Blossom* (refer to Figure 3). For each café, we curated a YouTube video showcasing the servicescape, editing it into a presentation lasting approximately 1 minute.

A total of 200 undergraduate and graduate students from Hong Kong participated in the experiment, receiving bonus points as compensation. We utilized responses from 131 participants for further analysis, with 32 participants in the low user–avatar resemblance and high servicescape similarity conditions, and 33 participants in each of the remaining three conditions. To ensure our sample size was adequate, we performed a power analysis using the G*Power program ($w = 0.25$, power $(1 - \beta) = 0.8$, $\alpha = 0.05$) (Faul *et al.*, 2007). The results

indicated that a minimum of 32 samples were required for each experimental condition, confirming the sufficiency of our sample for further analysis.

6.2. Measures and analysis

Customers' offline behavioral intentions were assessed using the same four items employed in Study 1. Additionally, participants' video perception, café preferences, and café evaluations, measured with the items from Study 1, were considered as control variables. A 2 × 2 ANOVA with a covariate was executed to examine the hypotheses H2, H3, and H4.

6.3. Results and discussion

The participant demographics are detailed in the Appendix. To ensure the successful manipulation of user–avatar resemblance, a comparison of responses to the manipulation check question indicated successful achievement ($M_{high\text{-}resemblance} = 4.22$ vs. $M_{low\text{-}resemblance} = 1.81$, $t = 25.26$, $p < 0.001$). Additionally, the manipulation of servicescape similarity was confirmed to be successful, with participants in the high similarity group perceiving a higher servicescape similarity than those in the low similarity group ($M_{high\text{-}similarity} = 4.15$ vs. $M_{low\text{-}similarity} = 2.00$, $t = 20.01$, $p < 0.001$).

For the main analysis, employing ANCOVA for visit intention, a significant main effect of user–avatar resemblance was observed ($F(1, 130) = 44.473$, $p < 0.001$, $\eta 2 = .266$). Specifically, participants using avatars resembling their appearance showed significantly higher visit intentions than those using avatars that did not resemble them ($M_{high\text{-}resemblance} = 3.68$, $SD = .76$ vs. $M_{low\text{-}resemblance} = 2.71$, $SD = 1.11$). These results align with prior observations that the impact of virtual experience on individuals' offline behavior is heightened when their virtual representation (e.g., avatars) resembles them in appearance (Koulouris *et al.*, 2020; Navarro *et al.*, 2022), supporting H2.

Furthermore, a main effect of servicescape similarity was found (F (1, 130) = 16.420, p = 0.001, η2 = .118), with higher visit intentions in the high servicescape similarity group compared to the low servicescape similarity group ($M_{high\text{-}similarity}$ = 3.48, SD = .99 vs. $M_{low\text{-}similarity}$ = 2.92, SD = 1.06), supporting H3. These results are consistent with previous research indicating that the impact of virtual experience on individuals' offline behavior is accentuated when the virtualized environment resembles their current surroundings (Behnamnia *et al.*, 2020; Hernandez-Pozas and Carreon-Flores, 2019). Additionally, these findings endorse the notion that the identification concept of social cognitive theory can extend to the similarity between role models' appearance and their surrounding environment (Scavarelli *et al.*, 2021).

Finally, a significant interaction effect was observed (F (1, 130) = 9.721, p < 0.001, η2 = .073). Notably, the impact of servicescape similarity on visit intention was significant when user–avatar resemblance was high, supporting H3a. As illustrated in Figure 5, the difference in visit intention between the high and low servicescape similarity groups was more pronounced in the high user–avatar resemblance condition.

[Figure 5]

7. General Discussion and Conclusion

7.1. Conclusions

This study aimed to investigate the impact of metaverse experience on customers' offline behavioral intentions in the hospitality context, while also exploring two potential influencing factors: user–avatar resemblance and servicescape similarity. Drawing on the GLM (Buckley and Anderson, 2012) and social cognitive theory (Bandura, 1977), the research hypothesized that a virtual visit to a hospitality business's property in the metaverse positively influences customers' willingness to visit its physical counterpart.

Conducting two experimental studies in a café setting, Study 1 provided empirical evidence supporting the positive impact of metaverse experience on customers' visit intentions. This finding aligned with conceptual studies on metaverse marketing in the hospitality and tourism industries (Gursoy *et al.*, 2022). In Study 2, the research delved into the effects of user–avatar resemblance and servicescape similarity on the relationship between metaverse experience and customers' visit intentions. The results were consistent with prior research on the impact of virtual experiences on offline behavioral intentions, indicating that the influence is contingent on the perceived similarity between avatars and individuals (Koulouris *et al.*, 2020; Navarro *et al.*, 2022) and the perceived similarity between the virtual environment and the individuals' surroundings (Behnamnia *et al.*, 2020; Hernandez-Pozas and Carreon-Flores, 2019; Scavarelli *et al.*, 2021). Additionally, though not the primary focus, supplementary analysis suggested a potential dependence of the effect of servicescape similarity on the relationship between metaverse experience and customers' visit intentions on user–avatar resemblance.

7.2. Theoretical implications

This research holds several theoretical implications. Firstly, it stands as a pioneering empirical study delving into the marketing effects of the metaverse within the hospitality and tourism domains. Although conceptual discussions on the potential impact of metaverse marketing have been prevalent (Gursoy *et al.*, 2022; Kim, 2021; Koo *et al.*, 2022; Mladenović *et al.*, 2023), this research addresses the call for empirical studies in the field (Buhalis *et al.*, 2022; Dwivedi *et al.*, 2022). By empirically examining how metaverse experience influences tourists' offline behavioral intentions in a café context, this research establishes a crucial empirical baseline, aligning with observations from previous research on the impact of virtual experiences on offline behavior (Wu *et al.*, 2023; Yin *et al.*, 2022).

Secondly, this research expanded the horizons of studies on experience-simulating technologies by incorporating the metaverse into the discourse (Buhalis *et al.*, 2022; Gursoy *et al.*, 2022; Koo *et al.*, 2022). Previous research in hospitality and tourism predominantly delved into various types of experience-simulating technologies, such as augmented reality (Jiang et al., 2022) or virtual reality (Alyahya and McLean, 2022). Through an examination of the metaverse's impact on tourists' behavioral intentions, this study posits the metaverse as a promising context for exploration and suggests avenues for extending the literature on virtual tourism experiences (Kim *et al.*, 2020). Additionally, while prior research has embraced diverse theoretical models to elucidate the effects of experience-simulating technologies on tourists' behavioral intentions, including the technology acceptance model, the stimulus–organism–response model, and flow theory, this research introduces another theoretical framework, the GLM and social cognitive theory, as a valuable addition to the existing literature.

Thirdly, leveraging social cognitive theory, this study identified two key factors, user–avatar resemblance and servicescape similarity, that moderate the impact of metaverse experience on tourists' intentions. Aligning with prior research that underscores the substantial impact of virtual experiences on behavior through heightened identification (Behnamnia *et al.*, 2020; Koulouris *et al.*, 2020; Navarro *et al.*, 2022), this research contributes to the literature on the effects of experience-simulating technologies on tourists' behavioral intentions by introducing previously unexplored moderators. Although existing literature often considers individual characteristics, such as demographics or personal innovativeness, as moderators, this research highlights the significance of situational characteristics as critical factors influencing the effects of experience-simulating technologies on tourists' behavioral intentions (Kang *et al.*, 2022). Furthermore, despite not being the primary focus, the examination of the interaction between user–avatar resemblance and

servicescape similarity contributes to social cognitive theory by suggesting that different types of boundary conditions that enhance the impact of learning experiences on individuals' behavioral reactions may interplay with each other.

Fourthly, this study explored a café context, a domain seldom addressed in the literature on the impacts of experience-simulating technologies on tourists' behavioral intentions. Although previous research has primarily focused on various contexts such as cities, natural attractions or heritage sites, landmarks, and museums, numerous contexts remain unexplored. By investigating the effects of experience-simulating technologies on tourists' behavioral intentions within an uncharted context like cafés, this research underscores the potential for further expansion of the literature in terms of diverse contexts.

7.3. Practical implications

First, the findings of this research can help hospitality businesses have clear expectations regarding their metaverse marketing campaigns: building a virtual property in the metaverse is effective in increasing customers' intentions to visit the physical property. Although many hospitality businesses have considered building virtual properties in the metaverse, most of them are not sure about the actual benefits of such a marketing strategy (Gutt *et al.*, 2022). Such a lack of knowledge makes it difficult for a hospitality business to decide whether to invest its resources in metaverse marketing. This research may provide insight into this issue. The findings of Study 1 show the actual impact of metaverse experience on tourists' behavioral intention and could help a hospitality business assess whether the investment in building a virtual property in the metaverse is worthwhile. At the same time, our findings can help hospitality businesses whose goals are not related to customers' actual visits in implementing metaverse marketing. For example, takeaway- or delivery-oriented cafés, which do not aim to increase customers' actual visits, could avoid

using their limited resources for building virtual properties in the metaverse as it would not fit with such businesses' situations or goals.

Second, the findings of this research provide insights into what factors a hospitality business should consider when choosing a metaverse platform for its marketing. Since a list of metaverse platforms is now available (e.g., Roblox, Sandbox, Decentraland, and so on), a hospitality business needs to target a specific platform for metaverse marketing (Park and Kim, 2022). Although various factors should be taken into account in choosing a target platform (e.g., user statistics or how game-oriented a platform is), a hospitality business can consider other factors based on the findings of Study 2, such as whether a platform enables users to customize their avatars. As mentioned in the methodology section, the currently available metaverse platforms are different in terms of the extent to which the avatars can be customized (Dwivedi *et al.*, 2022). The results of Study 2 indicate that a hospitality business should target a metaverse platform that allows users to customize their avatars if the business aims to encourage users to follow up on their virtual visit in the real world.

Third, the insights derived from this research offer valuable guidance to hospitality businesses regarding the design of their virtual properties in the metaverse. As indicated by the results of Study 2, the creation of a virtual property with a servicescape similar to its physical counterpart proves to be a more effective strategy in encouraging virtual visitors to transition into real visitors. Despite this evidence, some hospitality businesses, such as Singapore's Millennium Hotels and Resorts, continue to adopt less effective approaches, featuring virtual properties with exteriors and interiors that differ from their physical establishments (Cho, 2022). For those hospitality businesses unaware of the most impactful design approach for their metaverse properties, our findings serve as empirical references to inform their strategies. Furthermore, taking into account the results of the additional analysis (i.e., weakened effect of servicescape similarity when user–avatar resemblance is low),

businesses can tailor their approaches based on the metaverse platforms they target. In instances where users cannot customize their avatars to resemble their appearance, the decision of whether to align the servicescape of the virtual property with the physical property may not be a critical consideration.

Finally, different design strategies can be developed according to the features of metaverse platforms using the results of the interaction effects between user–avatar resemblance and servicescape similarity. Study 2 found that servicescape similarity was important in increasing people's visit intention when user–avatar resemblance was high, but not as critical when it was low. These findings suggest that a hospitality business should be more cautious about making its virtual property similar to its physical one when targeting metaverse platforms that allow avatar customization. Conversely, if the targeted metaverse platforms do not allow avatar customization, a hospitality business could focus their efforts on aspects other than servicescape similarity.

7.4. Limitations and future research directions

This research has several limitations that can guide future research directions. Firstly, the exclusive participation of Hong Kong students in this study diminishes the generalizability of our findings. To enhance the external validity, future research could aim to diversify participant samples by including individuals from various demographics and cultural backgrounds. Secondly, despite controlling for various factors that could influence customers' visit intentions, there may still be unaccounted confounding variables. Although we addressed potential confounders such as participants' perceptions of the videos and cafés, their prior visits, familiarity with a given place, and knowledge about the metaverse, there might be additional uncontrolled factors that could be explored in future studies. Future research could provide more robust findings by considering a wider range of control factors.

Lastly, several aspects of the metaverse remain unexplored. This research focused on two aspects of the metaverse among various factors that could affect users' behavioral intentions, such as interaction with other users or transactions via NFTs. By investigating the unexplored aspects of the metaverse, future research could complement this study by examining the interrelationships between additional aspects.

References

Alvarez-Risco, A., Del-Aguila-Arcentales, S., Rosen, M. A. and Yáñez, J. A. (2022), "Social cognitive theory to assess the intention to participate in the facebook metaverse by citizens in Peru during the COVID-19 pandemic", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 8 No. 3, 142.

Alyahya, M. and McLean, G. (2022), "Examining tourism consumers' attitudes and the role of sensory information in virtual reality experiences of a tourist destination", *Journal of Travel Research*, Vol. 61 No. 7, pp. 1666-1681.

Ampountolas, A., Menconi, G. and Shaw, G. (2023), "Metaverse research propositions: online intermediaries", *Tourism Economics*, Vol. .30, No. 1, pp, 255-261.

Bandura, A. (1977), *Social Learning Theory*, Prentice Hall, Englewood Cliffs, NJ.

Bailey, J. O. and Bailenson, J. N. (2017), "Considering virtual reality in children's lives", *Journal of Children and Media*, Vol. 11 No. 1, pp. 107-113.

Behnamnia, N., Kamsin, A., Ismail, M. A. B., and Hayati, A. (2020), "The effective components of creativity in digital game-based learning among young children: a case study", *Children and Youth Services Review*, Vol. 116, 105227.

Buckley, K. E. and Anderson, C. A. (2012), "A theoretical model of the effects and consequences of playing video games", Peter V. and Jennings B. (Eds.), *Playing Video Games,* Routledge, New York, NY, pp. 427-446.

Buhalis, D., Leung, D. and Lin, M. (2023), "Metaverse as a disruptive technology revolutionising tourism management and marketing," *Tourism Management,* Vol. 97, 104724.

Buhalis, D., Lin, M. S. and Leung, D. (2022), "Metaverse as a driver for customer experience and value co-creation: implications for hospitality and tourism management and

marketing", *International Journal of Contemporary Hospitality Management,* Vol. 35 No. 2, pp. 701-716.

Bushman, B. J. and Anderson, C. A. (2002), "Violent video games and hostile expectations: a test of the general aggression model", *Personality and Social Psychology Bulletin*, Vol. 28 No. 12, pp. 1679-1686.

Byun, J. and Jang, S. S. (2015), "Effective destination advertising: matching effect between advertising language and destination type", *Tourism Management*, Vol. 50, pp. 31-40.

Cai, R., Wang, Y. C., and Zhang, T. (2024). "Does metaverse stimulate tourism prosocial behavior? A mindfulness-driven model with a psychological ownership perspective", *International Journal of Contemporary Hospitality Management*, Ahead-of-print.

Canter, A. (2022), "Five things restaurateurs need to consider before venturing into the metaverse and web 3.0", *Forbes*, 24 June, https://www.forbes.com/sites/forbesbusinesscouncil/2022/06/24/five-things-restaurateurs-need-to-consider-before-venturing-into-the-metaverse-and-web-30/?sh=4b2e30524889

Chan, S. H. M., Qiu, L., and 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*, Vol. 149, 107926.

Cho, S. (2022), "This hotel company invites your avatar to the metaverse", *Bloomberg*, 27 April, https://www.bloomberg.com/news/articles/2022-04-27/this-hotel-company-invites-your-avatar-to-the-metaverse?leadSource=uverify%20wall

Das, G. (2014), "Store personality and consumer store choice behaviour: an empirical examination", *Marketing Intelligence & Planning*, Vol. 32 No. 3, pp. 375-394.

Davies, C. and Junga, S. (2022), "Asia's largest metaverse platform Zepeto ramps up global expansion", *Financial Times*, 27 September, https://www.ft.com/content/14c88e84-f3c8-485e-a9df-31ead34e48f0

Duan, H., Li, J., Fan, S., Lin, Z., Wu, X. and Cai, W. (2021), "Metaverse for social good: a university campus prototype", in *Proceedings of the 29th ACM International Conference on Multimedia*, ACM, New York, NY, pp. 153-161.

Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M. M., Dennehy, D., Metri, B., Buhalis, D. and Cheung, C. M. (2022), "Metaverse beyond the hype: multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy", *International Journal of Information Management*, Vol. 66, 102542.

EHL Insights. (2022), "2022 top hospitality industry trends", available at: https://hospitalityinsights.ehl.edu/hospitality-industry-trends (accessed 6 March 2024)

Faul, F., Erdfelder, E., Lang, A. G., and Buchner, A. (2007), "G* Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences", *Behavior Research Methods*, Vol. 39 No. 2, pp. 175-191.

Gartner. (2021), "Predicts 2022: 4 technology bets for building the digital future", *Garner Research*, 8 December, https://www.gartner.com/en/documents/4009206

Ghare, S. (2022), "Will the metaverse revolutionize the hospitality industry?", *Forbes*, 10 January, https://www.forbes.com/sites/forbestechcouncil/2022/01/10/will-the-metaverse-revolutionize-the-hospitality-industry/?sh=36a456ef25e7

Go, H. and Kang, M. (2023), "Metaverse tourism for sustainable tourism development: tourism agenda 2030", *Tourism Review*, Vol. 78 No. 2, pp. 381-394.

Go, S.-Y., Jeong, H.-G., Kim, J.-I. and Sin, Y.-T. (2021), "Concept and development direction of the metaverse", *Korea Information Processing Society Review*, Vol. 28 No. 1, pp. 7-16.

Goldston, J., Chaffer, T. J. and Martinez, G. (2022), "The metaverse as the digital leviathan: a case study of Bit. Country", *Journal of Applied Business & Economics*, Vol. 24 No. 2, pp. 40-59.

Gursoy, D., Malodia, S. and Dhir, A. (2022), "The metaverse in the hospitality and tourism industry: an overview of current trends and future research directions", *Journal of Hospitality Marketing & Management*, Vo. 31 No. 5, pp. 1-8.

Gutt, E., Guzman, J. and DeMicco, F. (2022), "Taking hospitality to new virtual heights: the metaverse", *HospitalityNet*, 7 June, https://www.hospitalitynet.org/opinion/4110732.html

Hahn, L. (2022), "Moral clarity decreases as viewer age increases: a content analysis of the moral values and reinforcement cues depicted in popular US children's television", *Journal of Children and Media*, Vol. 16 No. 2, pp. 168-187.

Hahn, L., Tamborini, R., Prabhu, S., Grall, C., Novotny, E. and Klebig, B. (2022), "Narrative media's emphasis on distinct moral intuitions alters early adolescents' judgments", *Journal of Media Psychology: Theories, Methods, and Applications*, Vol. 34 No. 3, pp. 165-176.

Hazan, E., Kelly, G., Khan, H., Spillecke, D. and Yee, L. (2022), "Marketing in the metaverse: an opportunity for innovation and experimentation", *The McKinsey Quarterly*, 24 May, https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/marketing-in-the-metaverse-an-opportunity-for-innovation-and-experimentation

Hernandez-Pozas, O. and Carreon-Flores, H. (2019), "Teaching international business using virtual reality", *Journal of Teaching in International Business*, Vol. 30 No. 2, pp. 196-212.

Hilken, T., Keeling, D. I., Chylinski, M., de Ruyter, K., Golf Papez, M., Heller, J., ... and Alimamy, S. (2022), "Disrupting marketing realities: a research agenda for investigating the psychological mechanisms of next-generation experiences with reality-enhancing technologies", *Psychology & Marketing,* Vol. 39 No. 8, pp. 1660-1671.

Hollensen, S., Kotler, P. and Opresnik, M. O. (2022), "Metaverse–the new marketing universe", *Journal of Business Strategy,* Vol. 445 No. 3, pp. 119-125.

Jafar, R. M. S., Ahmad, W., and Sun, Y. (2023), "Unfolding the impacts of metaverse aspects on telepresence, product knowledge, and purchase intentions in the metaverse stores", *Technology in Society*, Vol. 74, 102265.

Jiang, S., Moyle, B., Yung, R., Tao, L. and Scott, N. (2023), "Augmented reality and the enhancement of memorable tourism experiences at heritage sites", *Current Issues in Tourism,* Vol. 26 No. 2, pp. 242-257.

Kang, Y. G., Song, H. D., Yun, H. and Jo, Y. (2022), "The effect of virtual reality media characteristics on flow and learning transfer in job training: the moderating effect of presence", *Journal of Computer Assisted Learning,* Vol. 38 No. 6, pp. 1674-1685

Kicks, P. (2021), "Into the void: where crypto meets the metaverse", *Metaversed*, 18 January, https://pierskicks.substack.com/p/coming-soon

Kilburn, H. (2022), "LEVEN unveils plans for second hotel in the metaverse", *Hotel Designs*, 10 June, https://hoteldesigns.net/2022/leven-unveils-plans-for-second-hotel-in-the-metaverse/

Kim, D. Y., Lee, H. K., and Chung, K. (2023), "Avatar-mediated experience in the metaverse: the impact of avatar realism on user-avatar relationship", *Journal of Retailing and Consumer Services*, Vol. 73, 103382.

Kim, J. (2021), "Advertising in the metaverse: research agenda", *Journal of Interactive Advertising*, Vol. 21 No. 3, pp. 141-144.

Kim, M. J., Lee, C. K., and Jung, T. (2020), "Exploring consumer behavior in virtual reality tourism using an extended stimulus-organism-response model", *Journal of Travel Research*, Vol. 59 No. 1, pp. 69-89.

Koo, C., Kwon, J., Chung, N. and Kim, J. (2022), "Metaverse tourism: conceptual framework and research propositions", *Current Issues in Tourism*, pp. 1-7.

Koulouris, J., Jeffery, Z., Best, J., O'neill, E. and Lutteroth, C. (2020), "Me vs. super (wo) man: effects of customization and identification in a VR exergame", in *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems,* ACM, New York, NY, pp. 1-17.

Lee, L. H., Braud, T., Zhou, P., Wang, L., Xu, D., Lin, Z., Kumar, A., Bermejo, C. and Hui, P. (2021), "All one needs to know about metaverse: a complete survey on technological singularity, virtual ecosystem, and research agenda", *Journal of Latex Class Flies,* Vol. 14 No. 8, pp. 1-66.

Lee, U. K. and Kim, H. (2022), "UTAUT in metaverse: an "Ifland" case", *Journal of Theoretical and Applied Electronic Commerce Research*, Vol. 17 No. 2, pp. 613-635.

Lv, Z., Qiao, L., Li, Y., Yuan, Y. and Wang, F.-Y. (2022), "BlockNet: beyond reliable spatial digital twins to parallel metaverse", *Patterns*, Vol. 3 No. 5, 100468.

Mladenović, D., Ismagilova, E., Filieri, R. and Dwivedi, Y.K. (2023), "MetaWOM – toward a sensory word-of-mouth (WOM) in the metaverse", *International Journal of Contemporary Hospitality Management*, Ahead-of-print.

Navarro, J., Peña, J., Cebolla, A. and Baños, R. (2022), "Can avatar appearance influence physical activity? User-avatar similarity and Proteus effects on cardiac frequency and step counts", *Health Communication*, Vol. 37 No. 2, pp. 222-229.

Needleman, S. E. (2021), "The amazing things you'll do in the 'metaverse' and what it will take to get there", *The Wall Street Journal*, 16 October, https://www.wsj.com/articles/the-amazing-things-youll-do-in-the-metaverse-and-what-it-will-take-to-get-there-11634396401

Oi, M. (2021), "Is this the world's largest virtual fashion show?", *BBC*, 23 December, https://www.bbc.com/news/business-59558921

Park, D. (2022), "Who are the biggest players in the metaverse today?", *Forkast*, 28 February, https://forkast.news/biggest-players-in-the-metaverse/

Park, J. and Kim, S. (2022), "How do people with physical disabilities want to construct virtual identities with avatars?", *Frontiers in Psychology*, Vol. 13, 994786.

Rheu, M., Jang, Y. and Peng, W. (2020), "Enhancing healthy behaviors through virtual self: a systematic review of health interventions using avatars", *Games for Health Journal*, Vol. 9 No. 2, pp. 85-94.

Ruth, N. (2017), "Heal the World: a field experiment on the effects of music with prosocial lyrics on prosocial behavior", *Psychology of Music*, Vol. 45 No. 2, pp. 298-304.

Savage, M. (2021), "How pop star Zara Larsson made a seven-figure sum on Roblox", *BBC*, 5 November, https://www.bbc.com/news/entertainment-arts-59163449

Scavarelli, A., Arya, A. and Teather, R. J. (2021), "Virtual reality and augmented reality in social learning spaces: a literature review", *Virtual Reality*, Vol. 25 No. 1, pp. 257-277.

Song, K. (2021), "The world gets a dose of virtual reality as metaverses loom", *Korea JoongAng Daily*, 22 March,

https://koreajoongangdaily.joins.com/2021/03/22/business/tech/metaverse/20210322191306642.html

Xi, N., Chen, J., Gama, F., Riar, M., and Hamari, J. (2023), "The challenges of entering the metaverse: an experiment on the effect of extended reality on workload", *Information Systems Frontiers*, Vol. 25 No. 2, pp. 659-680.

Wiederhold, B. K. (2022), "Ready (or not) player one: initial musings on the metaverse", *Cyberpsychology, Behavior, and Social Networking*, Vol. 25 No. 1, pp. 1-2.

Wood, D. (2022), "Hotel industry continues digital age evolution with metaverse hospitality", *TravelPulse*, 14 July, https://www.travelpulse.com/news/travel-technology/hotel-industry-continues-digital-age-evolution-with-metaverse-hospitality.html

Wu, Y., Hu, J., and Li, W. (2023), "The link between online gaming behaviour and unethical decision-making in emerging adults: the mediating roles of game cheating and moral disengagement", *Behaviour & Information Technology*, Vol. 42 No. 10, pp. 1534-1547.

Yin, M., Qiu, B., He, X., Tao, Z., Zhuang, C., Xie, Q., Tian, Y. and Zhang, W. (2022), "Effects of reward and punishment in prosocial video games on attentional bias and prosocial behaviors", *Computers in Human Behavior,* Vol. 137, 107441.

Zaman, M., Hasan, P.R., Vo-Thanh, T., Shams, R., Rahman, M. and Jasim, K.M. (2024), "Adopting the metaverse in the luxury hotel business: a cost–benefit perspective", *International Journal of Contemporary Hospitality Management*, Ahead-of-print.

Zhang, Q. (2021), "Positive effects of prosocial cartoon viewing on aggression among children: the potential mediating role of aggressive motivation", *Frontiers in Psychology*, Vol. 12, 742568.

Appendix

Participants' demographics

Demographic variables		Study 1		Study 2	
		Freq.	%	Freq.	%
Sex	Male	23	21.2	26	19.4
	Female	84	78.8	106	80.6
Age	20–29	103	96.1	116	88.4
	30–39	4	3.9	15	11.6
Education	4-year degree	96	89.7	125	95.4
	Postgraduate	11	10.3	6	4.6
Occupation	Students	107	100.0	131	100.0
Annual income (KRW)	Less than 10 million	92	85.8	122	93.1
	10–30 million	15	14.2	9	6.9
	Total	107	100.0	131	100

Note. Categories of zero value in both groups were excluded.

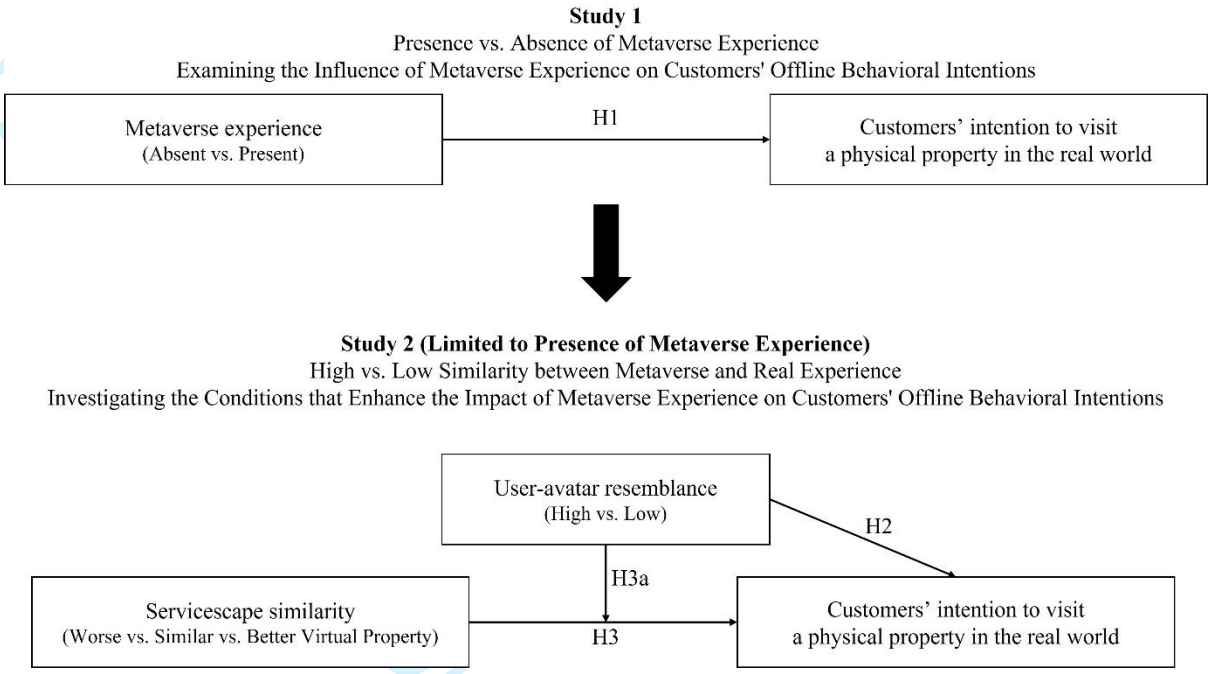


Figure 1. Conceptual framework

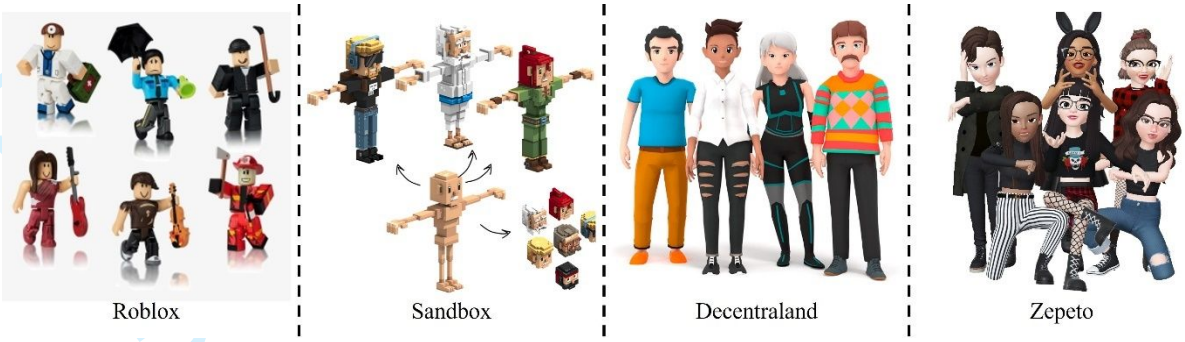


Figure 2. Avatars on metaverse platforms

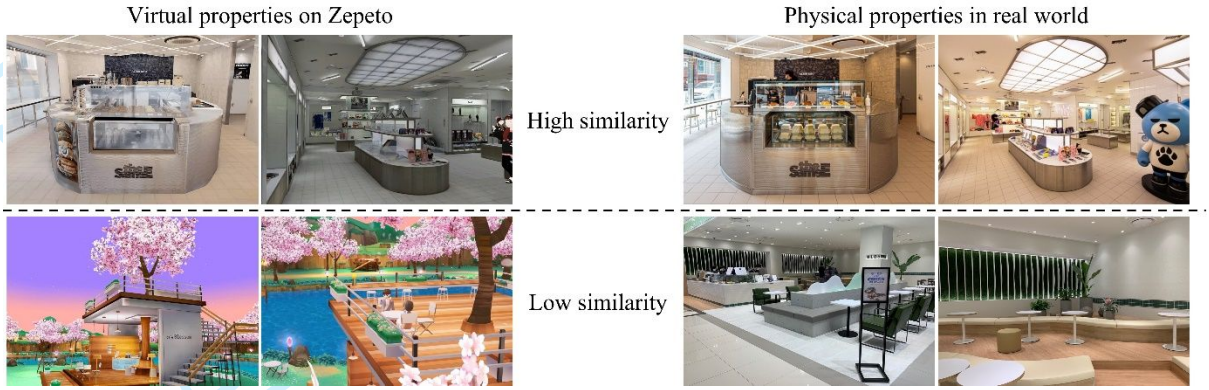
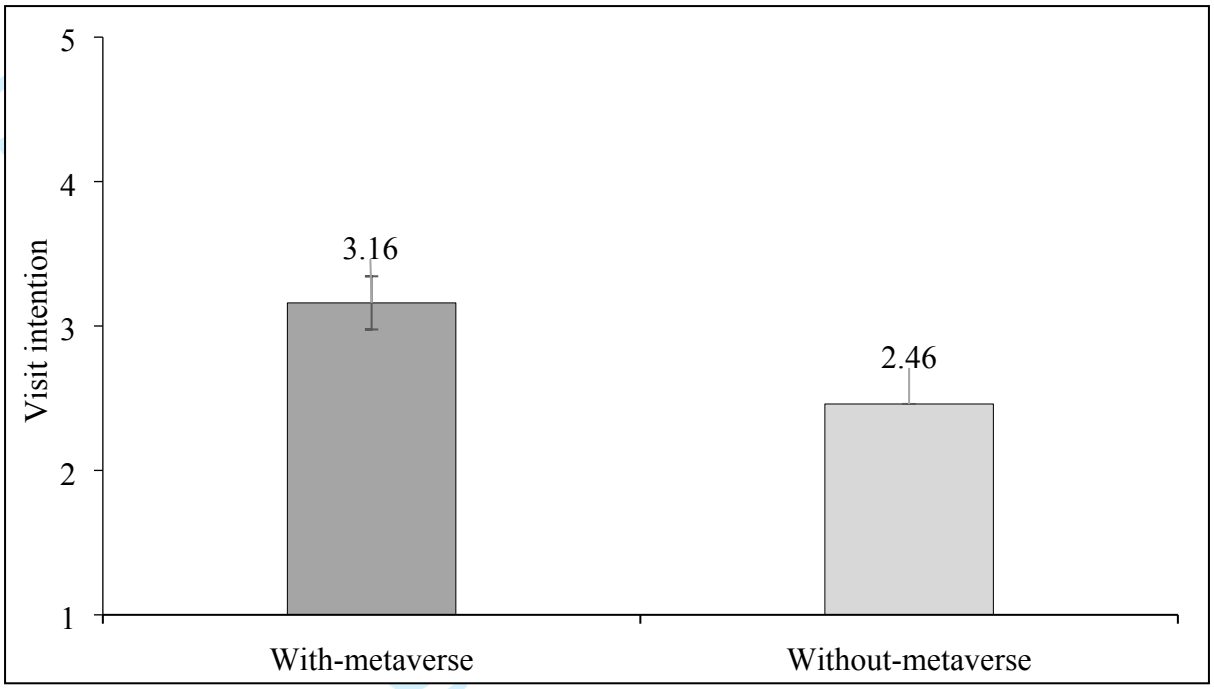


Figure 3. Cases of high and low servicescape similarity on Zepeto



*Error bars represent the standard error.

Figure 4. Results of Study 1

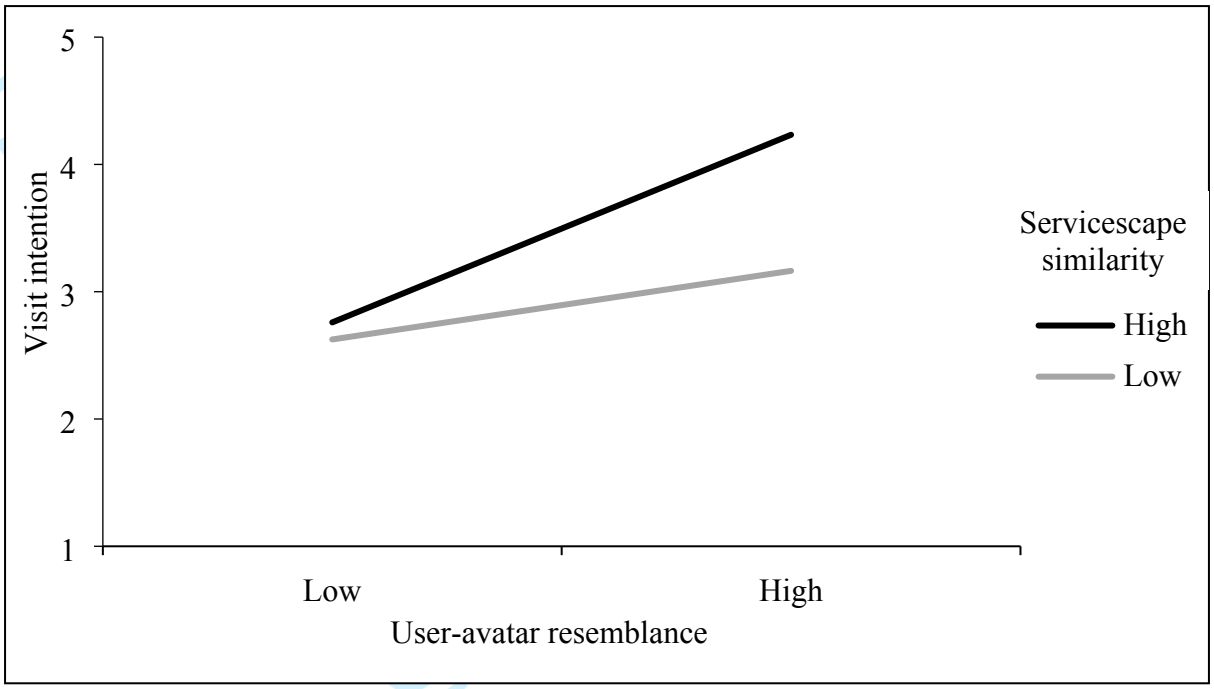


Figure 5. Results of Study 2: Interaction plot