

Brands are calling your AVATAR in Metaverse—A study to explore XR-based gamification marketing activities & consumer-based brand equity in virtual world

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Abstract

Brands are moving towards the Metaverse (3D immersive virtual spaces), where the growth of intangible products and nonfungible tokens (NFTs) are evolving into a new type of hybrid experience for the users. This paper aims to establish the role of a “gamification of marketing activities” and its influence on consumer-based brand equity for intangible products (NFTs) in the Metaverse and examine the mediating role of consumers' brand engagement and brand love. To evaluate the conceptual model based on the cross-cultural data from two emerging countries in Asia and Africa, the study followed a two-stage, hybrid mechanism using PLS-SEM and neural network modeling. This study provides insights into the Metaverse—a new taxonomy of technology, in the context of embodiment, presence of AVATAR, and interactivity in the virtual world, supported by the social exchange theory. This study also suggests practitioners focus on brand authenticity while projecting their brand in the Metaverse.

1 | INTRODUCTION

The term Metaverse got a buzz in the market during 2020, though it was coined by writer Neal Stephenson somewhere in his 1992 novel, *Snow Crash*. The Metaverse is a combination of a three-dimensional virtual world using the internet, Augmented Reality (AR), and Virtual Reality (VR) to frame Avatars of users in the virtual world (Kim, 2021; Wu et al., 2022; Jeon, 2021; Wedel et al., 2020; Kshetri & Dwivedi, 2023). The combination of AR and VR, known as XR and XR-based Metaverse technology, allows users to have a unique experience and share a digital space to reach physically separated people (Bousba & Arya, 2022; Dwivedi et al., 2023; Rauschnabel, Felix, et al., 2022; Zhao et al., 2022). The users materialize in the Metaverse in configurable digital bodies called AVATARS (Mystakidis, 2022).

These avatars help users to meet, socialize and interact in an embodied form with other users in a virtual place. Furthermore, AVATAR's personalisation helps users represent their idea or aspiration self, aiding them to communicate better, share experiences and engage in self-expression in a virtual world (Barrera & Shah, 2023). Bloomberg predicted the Metaverse market would grow to \$800 billion by 2024 (Bloomberg Intelligence, 2021). Metaverse platforms like Decentraland, Sandbox, Zepeto, Fortnite, Roblox, Special, etc., are providing virtual interface and immersion to the users (e.g., Oculus), economy (e.g., Coinbase), connecting with a social media platform, and virtual infrastructure using the cloud, AI, and VR for ad tech and connectivity between the brands and consumers (Newzoo, 2021).

Tech firms like Facebook, Google, Apple, and Microsoft lead the domain. In contrast, luxury retail brands have started offering their

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intangible products & nonfungible tokens (NFTs) to the consumers in Metaverse platforms to beautify their AVATAR in the Metaverse. The global luxury retail landscape has recently seen a new transformation where they offer virtually wearable products (VWPs), generally intangible products, to the consumers, facilitated by digital disruptions and trends in the Metaverse (Bousba & Arya, 2022). Consumers' inseparable connections and interaction with the Augmented Reality and Virtual Reality brands offering their services/products in the Metaverse are building new interfaces to luxury retail brands (Dwivedi et al., 2022; Koochang et al., 2023). US \$ 317.49 billion is expected to be the market for the global luxury goods industry by 2028 (Absolute Report, 2022), where sales in the Metaverse for virtually wearable products will be a significant contributor (Newzoo, 2021; Yoo et al., 2023).

Luxury brands like Nike are associated with NFT maker RTFKT to produce digital sneakers for AVATAR, and Adidas acquired a partnership with Bored Ape Yacht Club to have customized virtually wearable clothing for AVATAR, which they are offering to their consumers (Newzoo, 2022). To get a competitive advantage, luxury retail brands look forward to building consumer-based brand equity by improving consumers' virtual brand experience by offering virtually wearable assets to fulfil their AVATR-specific needs in the Metaverse. These virtually wearable assets are considered a gamification activity, where consumers are associated with the brand with a feeling of pre-ownership of the luxury product for their AVATAR. As discussed by Hsu and Chen (2018a) and Behl et al. (2023), gamification marketing activities trigger consumers to perform an action in an embodied environment where they provide personal information while associated with the gamified event, such a type of information like name, address, preferences of choice of brand, the cognitive process of product selection, and so forth, are a very crucial set of information for luxury retail brands. And interaction with brands in a 3-D environment provides a funnel system for brands to pool the consumers' valuable data while asking them to connect with the brand to use virtually wearable products for their AVATAR.

Previous research emphasized the integration of gamification-based marketing activities with brand loyalty (Behl et al., 2023; Hsu & Chen, 2018b), brand attitude (Yang et al., 2017), brand awareness (Abou-Shouk, & Soliman, 2021), brand engagement (Bousba & Arya, 2022; Eisingerich et al., 2019; Xi & Hamari, 2020), brand involvement (Nobre & Ferreira, 2017), brand love (Hsu & Chen, 2018a), brand experience (Eppmann et al., 2018), and impulse buying (Zhang et al., 2020). While most researchers investigate the effect of gamification on consumer engagement and its outcome, the impact of XR-based gamification implementation on consumer engagement, brand love, and marketing is still scarce (Xi & Hamari, 2020). And they have discussed the motivation of luxury consumers to adopt gamification (Jain et al., 2023).

However, this implementation has not been studied in the context of gamification marketing activities and experiencing the luxury retail brands virtually in the Metaverse for virtually wearable products. To the best of our knowledge, none of the studies tried to establish the relationship of 'gamification-based marketing activities' with consumer-based brand equity for luxury retail brands offering virtually wearable assets in the Metaverse.

Considering the above discussion, this study attempts to answer the following research questions: (1) What salient gamification marketing activities offered by brands in the Metaverse affect consumer-based brand equity? (2) How do consumers' brand love and engagement in Metaverse influence consumers-based brand equity in Metaverse? (3) How consumers perceived the brand authenticity of brands' intangible products in the Metaverse, and (4) whether purchase intention & resistance to negative information related to the intangible products of brands in i-commerce (immersive commerce) in the Metaverse is being developed after having consumers-based brand equity.

Addressing the above research questions contributes to the existing literature in many ways. First, this study focuses on re-conceptualizing the gamification marketing activities in an immersive (3-D) environment as a multidimensional higher-order construct, which establishes the relationship between the experience of different aspects of gamification of marketing activities in the Metaverse (entertainment, interaction, trendiness, intimacy, and novelty). Second, the mediating effect of consumers' brand love and their virtual brand engagement with intangible products offered by the brand in the i-commerce (immersive commerce) platform in Metaverse is something unique in which retail brands are interested as Metaverse is something more than an immersive platform for retail brands. Third, this study further explores antecedents of consumer-based brand equity of luxury retail brands for their virtually wearable assets in the Metaverse. And finally, the perceived authenticity of intangible products would be a strong moderating factor, based on which brands could predict the consumer behaviour towards virtually wearable products available in i-commerce platforms in Metaverse.

As per our knowledge, this study is the first of its kind, accentuating the literature on 'gamification marketing activities in the Metaverse'. The study provides empirical evidence of the role of brand authenticity as a moderator for the brand's association where the brand is offering its virtual assets using NFTs. Brand authenticity for physically available products was previously explored by researchers (Arya et al., 2019; Buhalis et al., 2022; Campagna et al., 2023; Das et al., 2022; Yoo et al., 2023). This study will provide interesting insights into the brand authenticity for virtually wearable products. Therefore, this study examines the moderation effect of brand authentication and discusses the outcome of consumer-based brand equity: consumers' behavioural intention to purchase virtually wearable assets and resistance to negative information for the luxury retail brands in the Metaverse.

The current study is based on the Social Presence Theory (SPT) proposed by Hollebeek et al. (2020) based on the theory given by Short et al. (1976), which describes the consumers' association with the brand when the relationship is triggered because of engagement with the brand on a virtual platform. According to SPT, virtual experiential marketing activities act as a medium to influence consumers' brand association (Hsu & Lin, 2016). This study will redefine the concept of gamification activities through the lens of the Metaverse that affects the performance of luxury retail brands. This study supports practitioners and their marketing strategies around the Metaverse. This is the potential future of all luxury retail brands where current

investment will bring increased revenue and helps brands create strong consumer-based brand equity.

2 | LITERATURE REVIEW

2.1 | Metaverse—A new phenomena

According to Gartner (2022), the Metaverse is a concept in which the physical and virtual worlds merge using virtual and augmented reality and blockchain technology-based non-fungible tokens (NFTs). Ownership of virtual assets, including in-game assets, virtual avatars, and real estate properties in the digital versions of the Metaverse, is only possible through non-fungible tokens (NFTs) (Buhalis et al., 2022; Zhang, 2022; Zhao et al., 2022). Metaverse-based NFTs allow users to buy virtually wearable assets and choose their favourite luxury branded products for their avatars, which is the digital persona/ agent materialized in the virtual world (Mystakidis, 2022; Singh, 2023). Users meticulously personalize their avatars with different accessories, configurations, props and digital inventory to reflect one's true selves in the virtual world. This also enables users to share a virtual space, interact with each other, and shop for their favourite brands in the Metaverse. Gartner (2022) also predicted that by 2026, 25% of consumers would visit the Metaverse for at least 1 h daily for official work, education, shopping, social interaction, or entertainment.

The Metaverse opens a new domain to retail luxury brands to offer virtually wearable assets to the users, which is already a common concept in many online-based games (Forbes, 2022). The market for the Metaverse is expected to hit \$8 trillion, where consumer spending alone for immersive experiences would be \$5 trillion by 2025 (Stanley, 2021). Luxury retail brands like Adidas, Gucci, H&M, Burberry, Louis Vuitton, Balenciaga, and so forth, are already making their impressions in the Metaverse with brands offering virtually wearable assets and NFTs to the digital AVTAR (Arpaci et al., 2022; Thomason, 2022). Meticulous customization of the avatar, from the facial expression to the digital wearable, allows users to create a sense of presence in the Metaverse, which is the derivative of human cognition. The quality of interaction with other avatars (users/brands) and immersive experience enhances the sense of space and objects in the Metaverse. Continuous stimulation by the brands through games, and co-created dialogues, bridging the gap between the virtual and real world and allowing users to achieve an adequate level of presence and co-presence in the Metaverse. This is in sync with the social presence theory (SPT), as the user accepts and owns his virtual presence and builds an emotional connection with the brand (Dolata & Schwabe, 2023). Short et al. (1976) introduced the, which examined intimacy and immediacy as two factors contributing to the mediating environment's social presence, which could develop the relationship with users using interactants and their interpersonal association. Social presence as “the ability of participants to identify with the community, communicate purposefully in a trusting environment, and develop interpersonal relationships by way of projecting their personalities” (p. 352). Hollebeek et al. (2020) extended the SPT and argued that a brand's engagement with its customers on various social networking platforms triggers user's decision-making

process. In the Metaverse context, these users will get attracted towards the brands because of the social presence of their AVATAR in the immersive environment. To enhance the virtual presence, users will experiment with different AVTAR for official meetings, tourism, hanging out, or social events, where they will be required to obtain virtual assets like clothes, watches, shoes, caps, glasses, and purses for their visit in the Metaverse (Anand et al., 2022; The Drum, 2022; Kshetri & Dwivedi, 2023). To be the leading marketing player in the Metaverse, luxury retail brands opt for new and advanced practices like the usage of Augmented Reality and Virtual Reality-based gamification marketing activities (Hilken, Keeling, et al., 2022; Hilken, Heller, et al., 2022; Garavand & Aslani, 2022; Souiden et al., 2019; Poncin et al., 2017; Wedel et al., 2020). According to Statista (2021a), the market for XR-based gamification activities will rise from \$ 30.7 billion in 2021 to \$300 billion in 2024, and most of the users will be from the age group 16–34 years.

Conversely, Perkins Coie (2021) claimed that 60% of XR-based Metaverse (AVTAR) technology uses come from the gamification industry, followed by the retail, healthcare, and education sectors (Sharma et al., 2023; Singh et al., 2022). Significantly, the retail sector is showing a marked interest in XR-based gamification activities in the Metaverse to engage their consumers virtually. Induction of the gamification strategy in the XR-based virtual engagement in the Metaverse can further strengthen consumers' perceptions of the luxury brand, virtually wearable product usage, and emotional bond (Xi & Hamari, 2020), thereby promoting consumer-based brand equity.

2.2 | Gamification of marketing activity in Metaverse

The rapid advancement of AR/VR technology and its interaction with consumers has hastened the entry of luxury brands into the Metaverse (Ciuchita et al., 2023; Javornik et al., 2021; Koohang et al., 2023). Generally, gamification is defined as “the application of game designs in nongame activities to engage individuals” (Bousba & Arya, 2022; Wang et al., 2022; Wang et al., 2019; Kaimann et al., 2018; Zhao et al., 2022). Gamification of marketing activities includes content development, award of digital badges, avatar development, coupon giving, etc., to enhance the customer's pleasure and engagement on the virtual platform (Arya et al., 2022; Shi et al., 2022). In online shopping for virtually wearable products, gamification is valuable for stimulating consumers' experiences and purchase intention and building consumer-based brand equity in the virtual world (Fernández-Ruano et al., 2020; Pamucar et al., 2022). Gamification exploits the designer's motivational power, creating a habit in consumers' relation to the virtual assets because it creates joy and provides an informative and entertaining feeling (Cunico et al., 2021; Rapp et al., 2019; Hämäläinen et al., 2020).

Considering this trend in the market, luxury brands are moving ahead of e-commerce and entering i-commerce (immersive commerce) to develop consumers' deeper interactions in the new form of shopping in the Metaverse (Fast company, 2022). The gamification marketing activities associated with immersive commerce in



FIGURE 1 Gucci garden in the Metaverse with gucci dresses and gadgets. Source: Gucci.



FIGURE 2 Virtually wearable products in the Metaverse. Source: Roblox & other meta platforms.

the Metaverse provide try-on features for the virtually wearable assets of luxury products and provide a unique experience to the users to scale their digital visibility to explore the virtual world (Koohang et al., 2023). For example, brands like Gucci launched its virtual Gucci Garden and their virtual assets in the Metaverse (Figure 1); Adidas and other luxury apparel brands like Gucci, Ralph Lauren, Zara, Levi's, Louis Vuitton, H&M, and Burberry also have launched their virtually wearable assets in Metaverse (Figure 2). And a Metaverse platform like Roblox has its own Meta-commerce where visitors can buy virtually wearable products in various ranges (Figure 3).

And these brands are offering virtually wearable clothes, called digital skins, which users can wear virtually while playing characters in a game like *League of Legends* or visiting the Metaverse for another reason (Papagiannis, 2020). Statista (2021a) states that gaming loot boxes and skins (virtual clothes) will hit the market with expected sales of \$50 billion by 2022. This development is not limited to the gaming industry; there are various events organized in the Metaverse, including marriages, official parties, destination tourism, art-gallery shows, and so forth (Figure 4), where visitors use virtual assets (dresses, caps, glasses, etc.) which were designed using polygon

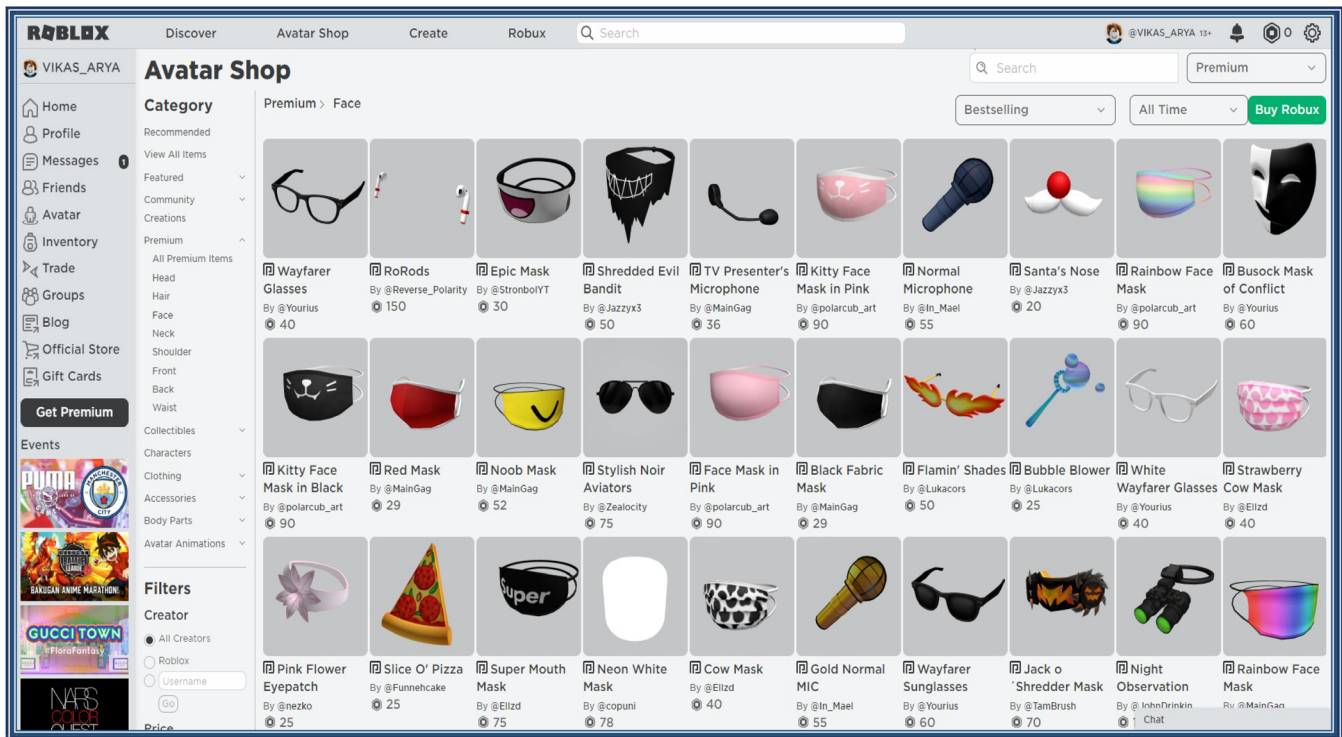


FIGURE 3 Virtually wearable products on Roblox in Metaverse. Source: Roblox.

blockchain technology and based on NFTs (Dwivedi et al., 2022; Malik et al., 2022).

2.3 | Brand love

Brand love has been defined as consumers' positive attitude towards and emotional attachment and connection with their loved brand(s) (Kumar et al., 2020). Brand love represents the most immersive consumer-brand relationship in the Metaverse (Dwivedi et al., 2022; Rauschnabel, Babin, et al., 2022). Consumers encounter brand love through different aspects of the Metaverse, like emotional bonding, self-identity, immersion, embodiment, identity construction, and hedonic benefits through brand usage (Kim, 2021; Pinas, 2021; Wongkitrungrueng & Suprawan, 2023).

2.4 | Consumers' brand engagement in the Metaverse

Hollebeek et al. (2014, p. 154) conceptualize consumer brand engagement in a virtual environment as “a consumer's positively valence cognitive, social, and behavioural brand-related activity during, or related to specific consumer/brand interactions.” The cognitive dimension represents the experiential value retained by the consumers in the Metaverse (Pamucar et al., 2022; Queiroz et al., 2023); the social dimension is rooted in the social exchange theory that suggests that engagement is co-created by the brands and consumers; and the

behavioural dimension, positive interaction between the consumer and brand, the which can be viewed as augmenting, co-developing, influencing, sensorily engaging, and immersive (Fletcher-Brown et al., 2021; Naeem & Ozuem, 2021; Bousba & Arya, 2022; Hollebeek et al., 2014; Wanick & Stallwood, 2023; Xu et al., 2023).

2.5 | Consumer-based brand equity in the Metaverse

Consumer-based brand equity (CBBE) has been defined as the differential effect of brand knowledge on consumer response to the brand's engagement activities (Cervova & Vavrova, 2021). Slaton et al. (2020) suggested that CBBE is the outcome of brand awareness, perceived quality, brand association, brand image, and brand loyalty (Cornwell et al., 2023; Yoo et al., 2023). In terms of the Metaverse, brands are trying to create a separate virtual space in Web 3.0, where users can sense the evolution of brands and associate with the brands by sharing and participating in developing the ecosystem for virtually wearable assets and the characteristic fandom brand is owned by offering quality products in the Metaverse (Forbes, 2022).

Brand association and brand image refer to a consumer's attachment to a brand's virtually wearable assets, which can be created through NFTs via intangible attributes, benefits, or uses (Kim, 2021; Parris & Guzman, 2023). A higher brand association fosters better acceptance of brand extensions and new products in the Metaverse. Simulated environments like the Metaverse provide consumers with a platform to connect with their favourite brands in the virtual world,



FIGURE 4 Events in Metaverse (official meeting, evening party, virtual marriage).

and the meteoric rise of NFTs gives them exclusive and immersive experiences (Farhat, 2022). Further quality of the brand, brand design and virtual environment helps align the Metaverse experience with the real-world environment to unify CBBE in real and virtual worlds (Wongkitrungrueng & Suprawan, 2023).

2.6 | Social presence theory

Social presence theory given by Short et al. (1976), discussed how people develop the interaction among each other at social places. In the same line, Hollebeek et al. (2020), explained how users are developing communication on virtual platforms. Especially it is interesting to notice the model of social exchange in the Metaverse where users' representation is done by their AVATAR and AVATAR connects with the brand in an immersive environment (Biocca & Harms, 2002). The XR-induced brand experience in the Metaverse helps engage users in the virtual platform, which is rooted in the social presence theory that suggests users' experience with the brand in the Metaverse environment helps the brand to increase their immersive and sensory engagement with the users (Bousba & Arya, 2022; Shin, 2022; Yoo

et al., 2023). XR-enhanced interactivity & immersiveness give consumers a new way of shopping before actually buying a product from the brand, a kind of pre-purchase experience (Hollensen et al., 2022; Mogaji et al., 2023), which increase consumers' happiness and satisfaction to the next level (Dwivedi et al., 2023). Hollebeek et al. (2020) discussed about the social presence theory while stating that the brand association get more colourful when users connect with the brand on various virtual platforms and develop brand value. Users' perceived value get increase when they connect with the brand in an immersive Metaverse connected with XR technology (Behl et al., 2023; Buhalis et al., 2022; Rauschnabel et al., 2019).

3 | HYPOTHESIS DEVELOPMENT

3.1 | Gamification marketing activities and consumer-based brand equity in the Metaverse

Consumers tend to build an intimate connection with the brand owing to the positive emotions derived from gamified marketing activities with the virtual community members in the Metaverse (Li et al., 2023;

Mattke & Maier, 2021; Wongkitrungrueng & Suprawan, 2023). When consumers have immersive experiences in the Metaverse, their emotions may evolve from the unique and novel experience, personalised attention from the brand itself, or a combination of both (Shin, 2022; Javornik et al., 2021; Papagiannis, 2017 & 2020; Rauschnabel, Felix, et al., 2022; Hadi, Melumad & Park, 2023; Habil et al., 2023).

Novelty in gamification activities attracts consumers and temporarily changes their perception of brands (De-Marcos et al., 2016). In updating the Metaverse, gamified activities trigger competitive spirit and positive emotions and motivate the consumers to the next level. It also enhances consumers' virtual learning, which helps them pay more attention to the brand in both the physical and virtual worlds (Rajavi et al., 2023; Stefanic, 2022). This increases the consumer's engagement in the Metaverse, ensures their commitment to staying in a relationship with brands in the virtual world, and reinforces a positive experience in the Metaverse (Ren et al., 2023; Zhao et al., 2022; Nikolinakou & Phua, 2020; McLean & Wilson, 2019).

To address this experience, brands like Disney, Gucci, Nike, Louis Vuitton, Hyundai, and Balenciaga are trying to add a new level of virtual experience for their users and a trending gamification experience to build consumer-based brand equity in the Metaverse (Hadi et al., 2023; Xi & Hamari, 2020). Brand equity has been defined by Aaker (1991) as a set of brand assets and liabilities linked to a brand name and symbol, which add to or subtract from the value provided by a product or service.

Being associated with the brand in the Metaverse helps consumers experience the brand with their virtually wearable assets and connect with the brand, its name, and its symbol within the Metaverse as compared to physical products consumers tried from the same brand (Bousba & Arya, 2022; Wanick & Stallwood, 2023). Accordingly, it can be inferred that XR-based gamification marketing activities in the Metaverse act as essential antecedents of consumer-based brand equity in a virtual environment where brands are offering virtually wearable assets (Farhat, 2022; Hafez, 2021; Villagra et al., 2021). Based on the above-supported literature, we position the following hypothesis:

H1. Gamification marketing activities have a positive, significant relationship with consumer-based brand equity in the Metaverse.

3.2 | Mediation effect of consumer brand love in the Metaverse

Prior studies endorse brand love as the centroid of the relationship between consumer experiences of gamified content and consumer-based brand equity (Hsu & Chen, 2018b; Torres et al., 2022). Carroll and Ahuvia (2006, p. 81) define brand love as “the degree of passionate, emotional attachment a satisfied consumer has for a particular trade name.” Customers who love the brand will identify with it more, build a passionate relationship with it, and increase their brand-value

perception (Bairrada et al., 2018; Hollensen et al., 2022; Nguyen & Feng, 2020). Using gamification activities by brands in the Metaverse (entertainment, interaction, trendiness, intimacy, and novelty) gives unique feelings to the consumers, like virtual engagement and emotions with the brand, social identity in the virtual world, interaction with the virtual community, and aspiration. These can infer that experiences evoked by XR-based Gamification marketing activities in the Metaverse positively impact consumers' brand love (Chen & Qasim, 2021; Torres et al., 2022).

Prior studies have also posited that gamification activities help in predicting brand love (Hsu & Chen, 2018a; Torres et al., 2022; Çelikkol, 2022), and brand love is one of the significant predictors in measuring consumer-based brand equity (Rather et al., 2022; Nawaz et al., 2020; Machado et al., 2019). In the context of a virtual environment, having a strong positive and passionate association with a brand in the Metaverse while using the brand's virtually wearable assets motivates consumers to build and maintain a long-lasting relationship with that brand (Mogaji et al., 2023). Such consumers will increase the long-term yield on tangible and intangible assets of the brand (Hafez, 2021). Thus, brand love has a positive and significant relationship with consumer-based brand equity. Marketing researchers are convinced that developing a consumer-brand relationship is the best strategy for this competitive environment (Bagozzi et al., 2017). As such, firms are investing resources to evoke brand love among their consumers and build long-term relationships with them. Based on this, we posit the following hypothesis:

H2. The relationship between Gamification marketing activities and consumer-based brand equity is significantly (positively) mediated by consumers' brand love in the Metaverse context.

3.3 | Mediation of consumers' brand engagement in the Metaverse

XR technologies adjust the tangible component of the brand's product and service with the intangible components (Abrar, 2018; Zhao et al., 2022; Coie, 2020). The advancement of technology-facilitated consumer engagement with the brand's intangible product/service in a new perspective to fulfil their cognitive, behavioural, and sensorial needs (Motiveforce, 2022). Consumers' excitement, their action towards brands, and their perception of a unique experience are changed completely after interacting with the brand in the XR-technological environment (Fletcher-Brown et al., 2021; Koo et al., 2022). XR-based gamification marketing activities allow more virtual engagement avenues by providing social interaction and achievement-related features (Rauschnabel, Felix, et al., 2022; Shin, 2022). Brands' gamified activities in the Metaverse give a unique experience to their users. For example, the Gucci Garden on Roblox gives its users a unique virtual experience that keeps them engaged with the brand by providing a trial room for virtually wearable products for their AVATAR. Thus, it can be inferred that XR- based

gamified marketing activities positively affect consumers' virtual brand engagement in the Metaverse. The unique experience evoked by XR-based gamification marketing activities stimulates the consumer to engage with the brand virtually in the Metaverse (Xi & Hamari, 2020).

The unique virtual experience also triggers consumers to invest more time and money engaging with the brand in both the virtual and real worlds. Such interaction allows consumers to understand the brand better, review its information, and compare it with the competitors' products (Henkens et al., 2021; Razmus & Fortuna, 2022; Xi & Hamari, 2020). Studies have also shown that such virtual brand engagements have higher consumer-based brand equity and intention to purchase (Xi & Hamari, 2020; Al-Zyoud, 2021; Kaushik & Soch, 2021; Verma, 2021). Based on this, the following hypothesis is proposed:

H3. Consumers' brand engagement in the Metaverse will significantly (positively) mediate the relationship between Gamification marketing activities and consumer-based brand equity in the Metaverse.

3.4 | Consumers' brand engagement & consumers' brand love in the Metaverse

Consumer engagement with the brand has risen owing to shopping for intangible products in the Metaverse (Dwivedi et al., 2023; Henkens et al., 2021; Hollebeek & Macky, 2019). This engagement is influenced by consumers' active participation with brands on social media and building co-communities there (Paintsil & Kim, 2022; Hamzah et al., 2021). This engagement manifests in experience while exploring intangible products (like NFTs, virtually wearable clothes, shoes, glasses, virtual currency, virtually experiencing the location, etc.) that brands offer in the Metaverse (Farhat, 2022; Zhang, 2022). Consumers virtually connect with the brand on various Metaverse platforms like SANDBOX, Star Atlas, Decentraland, Roblox, Space, and so forth. They like the brands' intangible products, share their virtual experiences, understand peer groups' views on them and recommend the brand in the Metaverse (Bousba & Arya, 2022). Engaging with the brand helps consumers build an emotional and extended engagement with the brand. It allows the consumers to build emotional attachment and more profound affection for the brand, resulting in brand love (Machado et al., 2019). Engagement with the brand in the Metaverse allows the consumer to derive more intimacy and commitment (Balis, 2022).

Further, the reviews and interaction with the brand community help build brand satisfaction, which ensures long involvement and effective brand commitment (Palusuk et al., 2019). This sense of brand community and self-brand connection strengthens brand love. The experiences derived from the engagement in the Metaverse also help consumers develop an intimacy with the brand, strengthening brand love. Thus, it is essential to understand the relationship between consumers' brand engagement and brand love in the Metaverse. Our hypothesis is as follows:

H4. The consumers' virtual brand engagement has a significant positive relationship with the consumers' brand love in the Metaverse.

3.5 | Consequences of consumer-based brand equity in the Metaverse

Consumers' Purchase Intention is the most acceptable outcome of consumer-based brand equity (Verma, 2021). Purchase intention refers to the customer's willingness to purchase the products advertised on various platforms (Jebarajakirthy et al., 2021; Sharma, Dwivedi, et al., 2022). Brands employ various marketing strategies and gimmicks to build brand equity by improving communication, removing customers' doubts, and reinforcing the positive image of their product/service (Arya et al., 2018). Consumer-based brand equity is a crucial dimension to evaluating a brand that leads to a favourable attitude towards the brand (Oliveira et al., 2023; Rambocas et al., 2018). A favourable attitude towards a brand can be either a positive purchase intention or acquisition (Rizwan et al., 2021; Verma, 2021).

The gamification marketing activities in the Metaverse create immersive experiences for consumers in a short time frame. The gamification activities help reduce preconceptions and misunderstandings towards brands' virtual assets in the Metaverse (Shen et al., 2022), increase consumer-based brand equity, and positively influence purchase intention (McClure & Yoo-Kyoung, 2020).

Resistance to negative information means the extent to which consumers refrain from letting negative information minimize their outlook on a brand (Su et al., 2021). Negative information also has a damaging impact on brand value, market share, and reputation. A brand enjoying more significant consumer-based brand equity fosters brand trustworthiness, integrity, and goodwill among the customers (Descotes et al., 2015). Thus, making consumers resistant to negative information about the brand (Kim & Woo, 2019). Gamification of the marketing activities in the Metaverse allows users to generate characters in the virtual environment, pick new identities, and develop new interactions with others perceived to be more novel and interesting. Hollebeek et al. (2020) suggest that consumers experiencing these are more stimulated owing to higher engagement of physical and mental senses. This eases building a connection and association with the brand, hence building consumer-based brand equity. Immersive experiences provided by the XR-based gamification activities in the Metaverse also encourage the consumer to purchase the brand again and resist any negative information regarding the brand. Thus, evaluating the relationship between consumer-based brand equity, consumers' behavioural intention to purchase, and their resistance to negative information in the Metaverse context is essential.

Hence, our hypothesis is as follows:

H5a. The consumer-based brand equity has a significant positive relationship with consumers' behavioural intention to purchase.

H5b. The consumer-based brand equity has a significant positive relationship with consumers' resistance to negative information.

H6b. Brand authenticity significantly moderates the relationship between gamification marketing activities in the Metaverse and consumers' virtual brand engagement.

3.6 | Brand authenticity as a moderator

The gamification marketing activities in the Metaverse allow the brands to provide an immersive experience to the consumers (Shen et al., 2022). Brands are expanding their resources to develop authentic and customised consumer journeys to foster a high level of virtual engagement (Milanesi et al., 2022). Brand authenticity is conceived as a factor that helps a brand build its unique identity, originality, unaffectedness, and reliability to maintain its essence (del Barrio-García & Prados-Peña, 2019). Brand authenticity provides tangible and intangible returns to the firm if it is authentic and can deliver what it claims to be (Södergren, 2021). An authentic brand can build customer relationships by building a memorable experience (Rosado-Pinto et al., 2020).

When a brand is perceived as a highly authentic brand, consumers develop an emotional bond with the brand, known as brand love (Manthiou et al., 2018). Once brand love is established, consumers expect a higher degree of brand relationship and commitment. Thus, higher brand authenticity significantly affects consumer-brand love evoked by XR-based Gamification marketing activities.

Consumers actively seek authentic experiences of brands and love to engage with the brand virtually on various online platforms (Kim, 2021; Petit et al., 2019). Brand authenticity gives consumers an emotional story that indicates its core values (Huang & Guo, 2021; Wanick & Stallwood, 2023). This emotional touch helps consumers develop close relationships with the brand and enhances the interpersonal relationship with the brand communities, evoking brand love (Kervyn et al., 2022). The consumer who loves the brand experience more on various online platforms provided by the brand will participate in their events, share their content, and communicate their experiences with the brand. Thus, brand love is evident, interfacing brand authenticity with the experience evoked by XR-based gamification marketing activities in the Metaverse. Based on the preceding, we can safely conclude that 'Perceived Brand Authenticity in Metaverse (BAUT)' has a positive effect on the relationship between 'Gamification Marketing Activities in Metaverse (GMAM)' and both 'Consumers Brand Love in Metaverse (CBLM)' and 'Consumers Brand Engagement in Metaverse (CBEM)'. In light of the preceding discussion, we proposed that BAUT positively moderates the relationship between GMAM and CBLM, as well as GMAM and CBEM, such that when BAUT is higher, the relationship between GMAM and CBLM and GMAM and CBEL tends to be higher, and vice versa. Hence the following hypothesis is formulated:

H6a. Brand authenticity significantly moderates the relationship between the gamification marketing activities in the Metaverse and consumer brand love.

Based on the above discussion, we proposed the following conceptual model (Figure 5).

4 | RESEARCH METHODOLOGY

4.1 | Gamification marketing activities in Metaverse (higher-order constructs)

The experience evoked by XR-based Gamification marketing activities in the Metaverse was proposed as a higher-order (type-2) reflective-formative construct with five lower-order reflectively measured constructs (entertainment, interaction, trendiness, intimacy, and novelty). Gamification of marketing activity in the Metaverse (GMAM) was proposed as a second-order reflective formative construct. The main reason for this way of conceptualization is from a methodological standpoint. This will reduce the number of hypothesized relationships in the model and reduce the collinearity issues, thus achieving reliable and valid empirical results (Sharma et al., 2021; Sharma, Fadahunsi, et al., 2022; Thien, 2020).

Earlier studies on experience evoked by XR-based Gamification experience as a multidimensional construct included entertainment (Ibáñez Sánchez et al., 2022; Behl et al., 2023), interaction (Ramadhan et al., 2021), trendiness (Kim & Ko, 2012), intimacy (Atiker, 2022), and novelty (Ramadhan et al., 2021). The preceding discussion provided an additional foundation for combining all five proposed dimensions of Gamification marketing activities in the Metaverse into a single higher-order construct because many previous independent studies have shown that these five constructs significantly affect consumers' brand love, brand equity, and brand engagement.

4.2 | Methodology for data collection

The quantitative study focuses on the causes and consequences of 'gamification marketing activities in the Metaverse'. The questionnaire for this study was based on previously established scales, with some wording changes to be more consistent with the 'Metaverse context'. Except for a few demographic questions, all were asked on a five-point Likert scale ranging from strongly disagree to agree strongly. Some items were coded in reverse to reduce response bias, which was corrected during the analysis. Before circulating the questionnaire for data collection, three industry experts and two academicians provided advice and approval on the wording and sequence of statements.

First, we asked the respondents to visit a real Metaverse created by Spatial using their smartphones. We were told how to access the Metaverse space, and we exposed them to the virtually wearable assets and NFTs brands using the Metaverse. Most respondents were

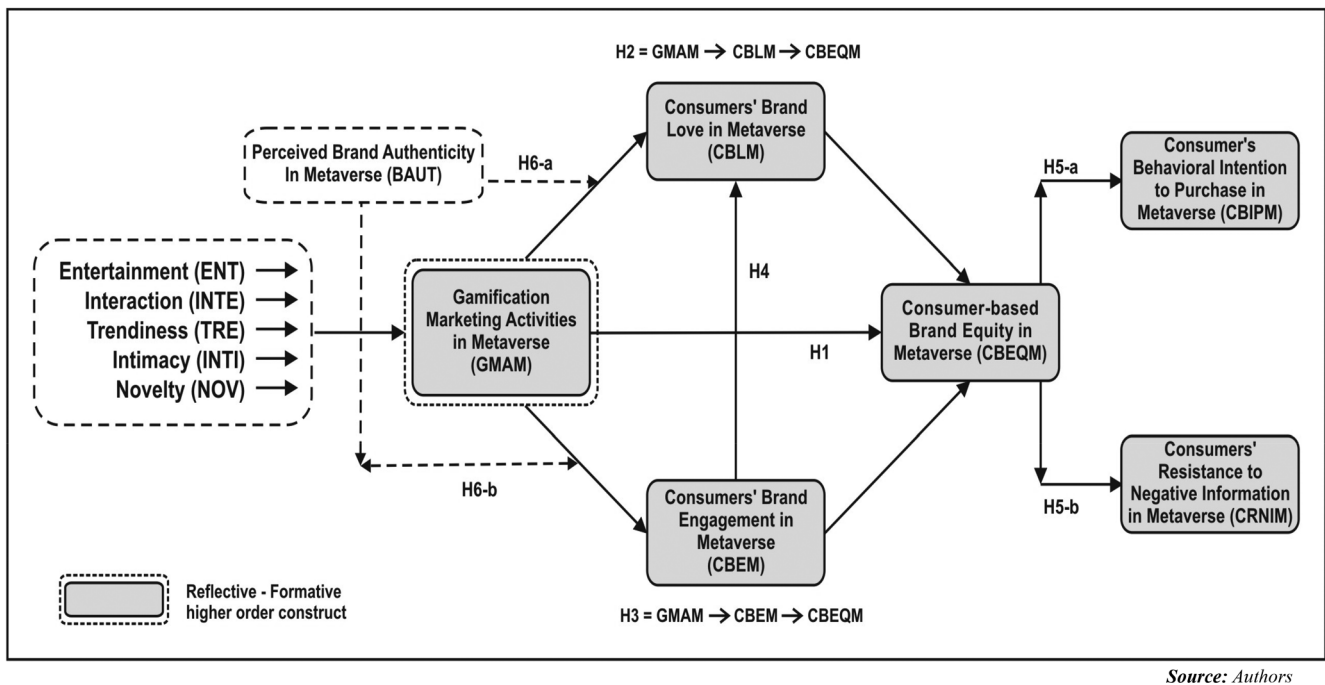


FIGURE 5 Conceptual model. Source: Authors.

aware of this technology in advance. The screening criteria to participate in this study was 'whether respondents visited the Metaverse in the last 6 months or not and used any intangible assets for their AVTAR available in the Metaverse free or on purchase. The participants were allowed to visit any digital space created by Spatial in the Metaverse. They were allowed to interact with each other on this platform and explore it for at least 20 min before answering the questionnaire.

We distributed an electronic survey using Google Forms to online communities using the hashtags #metaversegeneration #metaverse #metaversebrand #metaversegames on various social media platforms such as Facebook, Instagram, Snapchat, and others to reach the correct respondents for this study. Also, we have used several Metaverse-related groups on LinkedIn to reach the audience. And we also used a referral method to reach the audience who visited Metaverse. Several recent studies in the digital marketing context used similar data collection approaches. (Lo et al., 2022; Sharma, Fadahunsi, et al., 2022; Sharma, Dwivedi, et al., 2022; Wang et al., 2022). The data was collected from India and Morocco using a *Google Survey Form* from March to April 2022. India & Morocco were chosen to compare the responses between the country from Asia & Africa. These two emerging countries are showing very high penetration rates for internet users, and Metaverse has a high potential market where a high internet penetration rate is there in both countries. The penetration rate of internet users is 61% and 74.4% for India & Morocco, respectively, where 27.62 million internet users in Morocco & 560 million internet users in India. (Statista, 2021b, 2022a). The revenue projected for mobile games for India & Morocco is \$ 323 million & 29 million, respectively, for the year 2022. The

growth rate is expected to grow at 7.7% for India & 8.3% for Morocco (Statista, 2022b,c). These similarities are good enough to project the relationship between India & Morocco to represent one of the developing countries from two different continents, respectively.

After distributing the link to the online survey, we received 543 responses and 187 responses from India and Morocco, respectively, with a final usable sample of 516 (India) and 172 (Morocco) responses used for further statistical analysis after removing incomplete responses. The required sample size was calculated using G-Power software with 0.80 power, 0.05 alpha level, 0.15 effect size, and 5 predictors to be 123. In both countries, the actual sample size exceeds the 123 minimum sample size requirements. As a result, there was no concern about sample size appropriateness. This study aimed to evaluate the questionnaire and empirically validate the proposed research model and hypotheses using a two-stage approach that includes Partial Least Squares Structural Equation Modeling (PLS-SEM) and Artificial Neural Networks (ANN).

4.3 | The scale used for the study

The experience of XR-based gamification marketing activities in the Metaverse (EGMA) is a reflective-formative higher-order construct that is measured using five reflective constructs: entertainment, interaction, trendiness (Kim & Ko, 2012), intimacy (Chelune & Waring, 1984; Tomasi, 2007), and novelty (Huang, 2003). Consumers' brand engagement in the Metaverse from Kumar and Pansari (2016), consumers' brand love in the Metaverse from Carroll and Ahuvia

TABLE 1 Respondent's demographic profile ($n = 516$ [India]; 172 [Morocco]).

Profile	Characteristics	Morocco		Indian	
		Frequency	Percentage	Frequency	Percentage
Age	Below 25	31	18	127	25
	26–35	112	65	289	56
	36–45	26	15	78	15
	Above 45	3	2	22	4
Gender	Female	67	39	222	43
	Male	105	61	294	57
Education	High school & below	0	0	31	6
	Diploma	46	27	98	19
	Bachelor	86	50	247	48
	Master & above	40	23	140	27

Source: Authors.

(2006), and consumer-based brand equity in the Metaverse from Yoo et al. (2001). Consumers' resistance to negative information in the Metaverse from Eisingerich et al. (2011) and consumers' behavioural intention to purchase from Eisingerich et al. (2011). Appendix A details the items used in the study.

5 | DATA ANALYSIS

5.1 | Basics of data analysis

The data gathered is survey data, and survey data can be non-normal for a variety of reasons. Primary reasons include natural variation, bounded data, and categorical or ordinal data. The Likert scale data is primarily ordinal and has no continuous distribution. It is important to note that normality assumptions are not required for all statistical analyses. Non-normal data is frequently analyzed with techniques such as non-parametric tests. PLS-SEM is a modeling approach that can handle non-normal data effectively. The most common reasons for using PLS-SEM are non-normal data, small sample sizes, and complex models (Hair et al., 2019, 2021). We use Mardia's multivariate normality test to check multivariate data normality, which reveals that multivariate skewness (= 21.12) and kurtosis (= 174.09) are greater than the standard cut-off and confirm multivariate data nonnormality. As a result, PLS-SEM was the best data analysis option. Also, PLS-SEM was used for structural equation analysis to handle the reflective-formative second-order construct (Hair et al., 2019, 2021). Furthermore, SmartPLS v3.3.9 software can handle sequential mediation (Sarstedt et al., 2020).

This data analysis is done in two stages: measurement model and structural model analysis (Hair et al., 2019, 2021). Table 1 shows the demographic information for the respondents. According to the current study, 516 Indian sample responses and 172 Moroccan sample responses were analysed. In both samples, the majority of respondents were male. For details, please see Table 1.

5.2 | Measurement model analyses

Before going for the Measurement analysis, we processed the data with the CMB test (Kock, 2015). This is the full-collinearity test to ensure no CMB problem in the data set if pathological VIF values are less than the threshold value of 3.3. In this current study, the maximum VIF value was 1.93 in both samples, less than the threshold value. Also, this the samples from both the country was confirmed with the Harman single-factor test to investigate CMB. Podsakoff and Organ (1986) suggested that the variance for each factor should be less than 50%. In this study, both the samples have variance for each factor less than the 50%, which ranges from 1.25% to 46.21% for Morocco and, 1.81% to 37.53% for India Sample. Although the results met the threshold value of 50%, As a result, there is no multicollinearity issue (Kock, 2015).

To determine the convergent validity of the constructs, outer loading, Cronbach alpha, composite reliability, and average variance extracted were calculated. For discriminant validity criteria, Heterotrait-Monotrait ratio (HTMT; Henseler et al., 2015) values are used (Hair et al., 2019, 2021). Data analysis results in Tables 2, 3, and 4 establish both samples' convergent and discriminant validity.

5.3 | Second-order reflective-formative construct measurement model validation

To measure the higher-order reflective-formative construct 'gamification marketing activity in the Metaverse (GMAM)', we used a two-stage approach to test the measurement model of the reflective-formative higher-order construct, as suggested by Hair et al. (2021). We evaluated the convergent and discriminant validity of all first-order reflectively measured constructs in stage 1. In stage 2, we tested the convergent validity of the formatively measured model of HOC using redundancy analysis (Chin, 1998), VIF to ensure that multicollinearity is not an issue at the first-order construct level,

TABLE 2 Constructs loading value, CR, & AVE value.

Construct	Item	C	Loading	Alpha	rho_A	CR	AVE
Consumer behavioural Intention to purchase in Metaverse (CBIPM)	BIP 1-5	I	0.88, 0.86, 0.87, 0.75, 0.90	0.91	0.91	0.93	0.73
		M	0.75, 0.86, 0.81, 0.87, 0.91	0.89	0.90	0.92	0.71
Consumer-based brand Equity in Metaverse (CBEQM)	CBEQ 1-4	I	0.86, 0.87, 0.82, 0.76	0.85	0.85	0.89	0.69
		M	0.83, 0.82, 0.70, 0.81	0.80	0.81	0.87	0.63
Consumer brand love in Metaverse (CBLM)	CBL 1-9	I	0.77, 0.85, 0.87, 0.82, 0.73, 0.77, 0.80, 0.75, 0.82	0.93	0.94	0.94	0.64
		M	0.80, 0.80, 0.81, 0.81, 0.79, 0.81, 0.78, 0.82, 0.84	0.93	0.93	0.94	0.65
Consumer brand engagement in Metaverse (CBEM)	CUE 1-4	I	0.86, 0.83, 0.85, 0.88	0.87	0.87	0.91	0.71
		M	0.84, 0.87, 0.67, 0.86	0.83	0.86	0.88	0.66
Entertainment (ENT)	ENT 1-2	I	0.88, 0.90	0.76	0.76	0.89	0.80
		M	0.90, 0.91	0.78	0.78	0.90	0.82
Interaction (INTE)	INTE 1-3	I	0.84, 0.81, 0.79	0.75	0.75	0.85	0.66
		M	0.86, 0.88, 0.86	0.83	0.83	0.90	0.75
Intimacy (INTI)	INTI 1-5	I	0.69, 0.73, 0.83, 0.66, 0.81	0.80	0.81	0.86	0.56
		M	0.78, 0.81, 0.82, 0.83, 0.81	0.87	0.87	0.90	0.65
Novelty (NOV)	NVL 1-4	I	0.88, 0.83, 0.78, 0.87	0.86	0.87	0.91	0.71
		M	0.71, 0.81, 0.82, 0.82	0.80	0.81	0.87	0.62
Consumer resistance to negative information in Metaverse (CRNIM)	RTNI 1-4	I	0.89, 0.86, 0.86, 0.86	0.89	0.89	0.93	0.76
		M	0.74, 0.71, 0.74, 0.82	0.75	0.76	0.84	0.57
Trendiness (TRE)	TRE 1-2	I	0.94, 0.88	0.81	0.89	0.91	0.84
		M	0.91, 0.90	0.78	0.78	0.90	0.82

Abbreviations: AVE, average variance extracted; C, country; CR, composite reliability; I, India; M, Morocco.

Source: Authors.

	CBEQM	CBIPM	CBLM	CRNIM	CBEM	ENT	INTE	INTI	NOV
CBIPM	0.81								
CBLM	0.55	0.44							
CRNIM	0.68	0.50	0.34						
CBEM	0.68	0.43	0.39	0.31					
ENT	0.35	0.26	0.37	0.24	0.20				
INTE	0.38	0.32	0.16	0.37	0.13	0.10			
INTI	0.44	0.31	0.25	0.39	0.47	0.43	0.25		
NOV	0.35	0.29	0.30	0.29	0.14	0.36	0.17	0.24	
TRE	0.10	0.07	0.20	0.19	0.06	0.28	0.09	0.17	0.28

TABLE 3 HTMT value (Indian respondents).

Abbreviations: CBEM, consumer brand engagement in Metaverse; CBEQM, consumer-based brand equity in Metaverse; CBIPM, consumer behavioural intention to purchase in Metaverse; CBLM, consumer brand love in Metaverse; CRNIM, consumer resistance to negative information in Metaverse; ENT, entertainment; INTE, interaction; INTI, intimacy; NOV, novelty; TRE, trendiness.

Source: Authors.

and outer weight and its statistical significance to test the relative contribution in the formation of HOC.

We needed a single global item that reflects the overall meaning of the HOC to run a redundancy analysis (Cheah et al., 2018; Cheah et al., 2022; Hair et al., 2021). Based on the recommendations of Cheah et al. (2018), we created and validated a single global item that captures the essence of the construct to test the convergent validity of HOC through redundancy analysis. According to Cheah et al.

(2018) and Hair et al. (2021), the path coefficient between exogenous and endogenous constructs should be at least 0.7, and the determinant of the coefficient (R^2) of the single global item should be at least 0.5. To ensure the absence of multicollinearity, the VIF values should ideally be less than 3.3. (Diamantopoulos & Sigauw, 2006). Table 5 shows the result of the convergent and discriminant validity of FOC and HOC. We proceeded to test the structural model after establishing the convergent and discriminant validity of FOC and HOC (Hair et al., 2021).

TABLE 4 HTMT value (Moroccan respondents).

	CBEQM	CBIPM	CBLM	CRNIM	CBEM	ENT	INTE	INTI	NOV
CBIPM	0.80								
CBLM	0.66	0.64							
CRNIM	0.64	0.53	0.59						
CBEM	0.69	0.62	0.74	0.42					
ENT	0.49	0.33	0.51	0.39	0.44				
INTE	0.53	0.54	0.57	0.50	0.54	0.52			
INTI	0.61	0.51	0.52	0.45	0.59	0.36	0.51		
NOV	0.55	0.39	0.60	0.64	0.45	0.57	0.65	0.56	
TRE	0.47	0.46	0.65	0.66	0.47	0.55	0.68	0.49	0.66

Note: All abbreviations are the same as in Table 3.
Source: Authors.

TABLE 5 Higher order construct (gamification marketing activity in Metaverse by brands–GMAM).

Higher-order construct	Convergent validity	Formative indicators	C	Outer	VIF	t-value	[LLCI, ULCI]
GMAM	India = $\beta = 0.88$, $t = 102.11^*$, 95% BCCI = 0.87 to 0.89	Entertainment (ENT)	I	0.27	1.23	18.30***	[0.57; 0.68]
			M	0.67	1.37	10.88***	[0.19; 0.27]
		Interaction (INTE)	I	0.14	1.05	6.71***	[0.24; 0.40]
			M	0.81	1.71	25.58***	[0.29; 0.36]
		Intimacy (INTI)	I	0.45	1.17	24.08***	[0.65; 0.74]
			M	0.68	1.39	12.13***	[0.21; 29]
	Morocco = $\beta = 0.77$, $t = 18.83^*$, 95% BCCI = 0.69 to 0.83	Novelty (NOV)	I	0.52	1.15	29.05***	[0.70; 0.79]
			M	0.80	1.77	22.87***	[0.24; 0.31]
		Trendiness (TRE)	I	0.14	1.09	8.70***	[0.33; 0.49]
			M	0.76	1.67	18.68***	[0.21; 0.28]

Abbreviations: C, country; GMAM, gamification marketing activity in Metaverse; I, India; LLCI, lower lever confidence interval; M, Morocco; ULCI, upper level confidence interval; VIF, variance inflation factor.
Source: Authors.

5.4 | Assessment of the structural model

The proposed conceptual model's reliability and validity have been established in previous sections; the next step is to hypothesize the causal relationship (Hair et al., 2021). The issue of multi-collinearity was investigated, and the results show that the VIF value for all constructs is less than 5. We also calculated the R-square value, the predictive relevance Q-square value, and the F-square value to assess the structural model. The results of the structural analysis of the conceptual model are tabulated in Table 6.

The relationship between the gamification marketing activities in the Metaverse (GMAM) and consumer-based brand equity in the Metaverse (CBEQM) is found to be significant (GMAM → CBEQM; $\beta_{India} = 0.24^*$, $t = 5.83$; $\beta_{Morocco} = 0.32^*$, $t = 3.46$). Hence, we can accept Hypothesis H1. There is a positive and significant relationship found between GMAM and consumer brand love in the Metaverse (GMAM → CBLM; $\beta_{India} = 0.16^*$, $t = 4.46$; $\beta_{Morocco} = 0.30^*$, $t = 4.23$); the consumer brand love in the Metaverse, and consumer-based brand equity in the Metaverse (CBLM → CBEQM; $\beta_{India} = 0.25^*$, $t = 6.15$; $\beta_{Morocco} = 0.18^*$, $t = 2.17$). The indirect effect of

gamification marketing activities in the Metaverse (GMAM) and consumer-based brand equity in the Metaverse (CBEQM) via consumer brand love in the Metaverse (CBLM) is also found to be significant and positive ($\beta_{India} = 0.04^*$, $t = 3.34$; $\beta_{Morocco} = 0.05^*$, $t = 2.10$). Hence, it is found that there is a positive and significant mediation effect of consumer brand love in the Metaverse in the relationship between GMAM and consumer-based brand equity in the Metaverse (CBEQM). The mediation effect of consumer brand love in the Metaverse (CBLM) is complementary in both samples (India and Morocco), as $\beta_1 = GMAM \rightarrow CBLM$, $\beta_2 = CBLM \rightarrow CBEQM$ and $\beta_3 = GMAM \rightarrow CBEQM$; all three beta-values are positive and significant in both the samples. As such, we can accept Hypothesis H2 for both datasets.

The relationship between GMAM and consumers' brand engagement in the Metaverse (CBEM) is found to be significant (GMAM → CBEM; $\beta_{India} = 0.25^*$, $t = 4.34$; $\beta_{Morocco} = 0.40^*$, $t = 5.05$). The relationship of consumers' brand engagement in the Metaverse (CBEM) with consumer-based brand equity in the Metaverse (CBEQM) is also found to be significant (CBEM → CBEQM; $\beta_{India} = 0.42^*$, $t = 8.90$; $\beta_{Morocco} = 0.28^*$, $t = 3.23$). The indirect effect of the GMAM and consumer-based brand equity in the Metaverse (CBEQM) via

TABLE 6 Structural model analysis.

Hypo. No.	Path	Beta		SE		T value		[LLCI, ULCI]		F ² -value		Result	
		M	I	M	I	M	I	M	I	M	I	M	I
H1	GMAM → CBEQM	$\beta_1 = 0.32^*$	$\beta_1 = 0.24^*$	0.09	0.04	3.46	5.83	[0.13, 0.49]	[0.17, 0.31]	1.47	2.81	A	A
H2	GMAM → CBLM	$\beta_2 = 0.30^*$	$\beta_2 = 0.16^*$	0.07	0.04	4.23	4.46	[0.17, 0.45]	[0.10, 0.22]	1.92	2.23	A	A
	CBLM → CBEQM	$\beta_3 = .18^*$	$\beta_3 = 0.25^*$	0.08	0.04	2.17	6.15	[0.12, 0.35]	[0.19, 0.33]	0.96	2.90		
	GMAM → CBLM → CBEQM	$\beta_4 = 0.05^*$	$\beta_4 = 0.04^*$	0.02	0.01	2.10	3.34	[0.03, 0.13]	[0.02, 0.07]				
H3	GMAM → CBEM	$\beta_5 = 0.40^*$	$\beta_5 = 0.25^*$	0.08	0.06	5.05	4.34	[0.26, 0.56]	[0.15, 0.33]	2.27	2.01	A	A
	CBEM → CBEQM	$\beta_6 = 0.28^*$	$\beta_6 = 0.42^*$	0.09	0.05	3.23	8.90	[0.11, 0.45]	[0.34, 0.50]	1.43	3.73		
	GMAM → CBEM → CBEQM	$\beta_7 = 0.11^*$	$\beta_7 = 0.10^*$	0.03	0.03	3.12	3.65	[0.05, 0.20]	[0.06, 0.15]				
H4	CBEM → CBLM	$\beta_8 = 0.33^*$	$\beta_8 = 0.01^*$	0.07	0.04	4.59	0.11	[0.18, 0.46]	[-0.07, 0.06]	1.93	0.01	A	R
H5-a	CBEQM → CBIPM	$\beta_9 = 0.68^*$	$\beta_9 = 0.71^*$	0.05	0.04	13.05	19.34	[0.56, 0.77]	[0.64, 0.76]	3.26	4.58	A	A
H5-b	CBEQM → CRNIM	$\beta_{10} = 0.50^*$	$\beta_{10} = 0.60^*$	0.07	0.04	7.16	14.78	[0.34, 0.62]	[0.53, 0.66]	2.38	4.64	A	A
H6-a	(GMA Mx BAU) → CBLM	$\beta_{11} = 0.11^*$	$\beta_{11} = 0.07^*$	0.01	0.02	2.84	2.94	[0.14, 0.28]	[0.03, 0.10]	2.93	1.48	A	A
H6-b	(GMAM x BAU) → CBEM	$\beta_{12} = -0.17$	$\beta_{12} = -0.01$	0.17	0.04	0.99	0.31	[-0.24, 0.30]	[-0.08, 0.06]	1.18	0.06	R	R

Abbreviations: A, Accepted; BAU, brand authenticity in Metaverse; CBEM, consumer brand engagement in Metaverse; CBEQM, consumer-based brand equity in Metaverse; CBIPM, consumer behavioural intention to purchase in Metaverse; CBLM, consumer brand love in Metaverse; CRNIM, consumer resistance to negative information in Metaverse; GMAM, gamification marketing activities in Metaverse; I, India; M, Morocco; R, Rejected.

**p*-value less than 0.05.

Source: Authors.

consumers' brand engagement in the Metaverse (CBEM) is also found to be significant (GMAM → CBEM → CBEQM; $\beta_{India} = 0.10^*$, $t = 3.65$; $\beta_{Morocco} = 0.11^*$, $t = 3.12$).

Therefore, we determined that there is a positive and significant mediation effect of consumers' brand engagement in the Metaverse (CBEM) in the relationship of GMAM and CBEQM, which is complementary in both samples (India and Morocco), as $\beta_4 = GMAM \rightarrow CBEM$, $\beta_5 = CBEM \rightarrow CBEQM$ and $\beta_3 = GMAM \rightarrow CBEQM$; all three beta-values are positive and significant in both the samples. Hence, we accept Hypothesis H3 for both datasets.

The effect of consumers' brand engagement in the Metaverse (CBEM) on consumer brand love in the Metaverse (CBLM) is found to be significant in the Moroccan sample ($\beta_{Morocco} = 0.33^*$, $t = 4.59$, $p < .05$); however, it was found to be insignificant in the Indian sample ($\beta_{India} = 0.01$, $t = 0.11$ & $p > 0.05$).

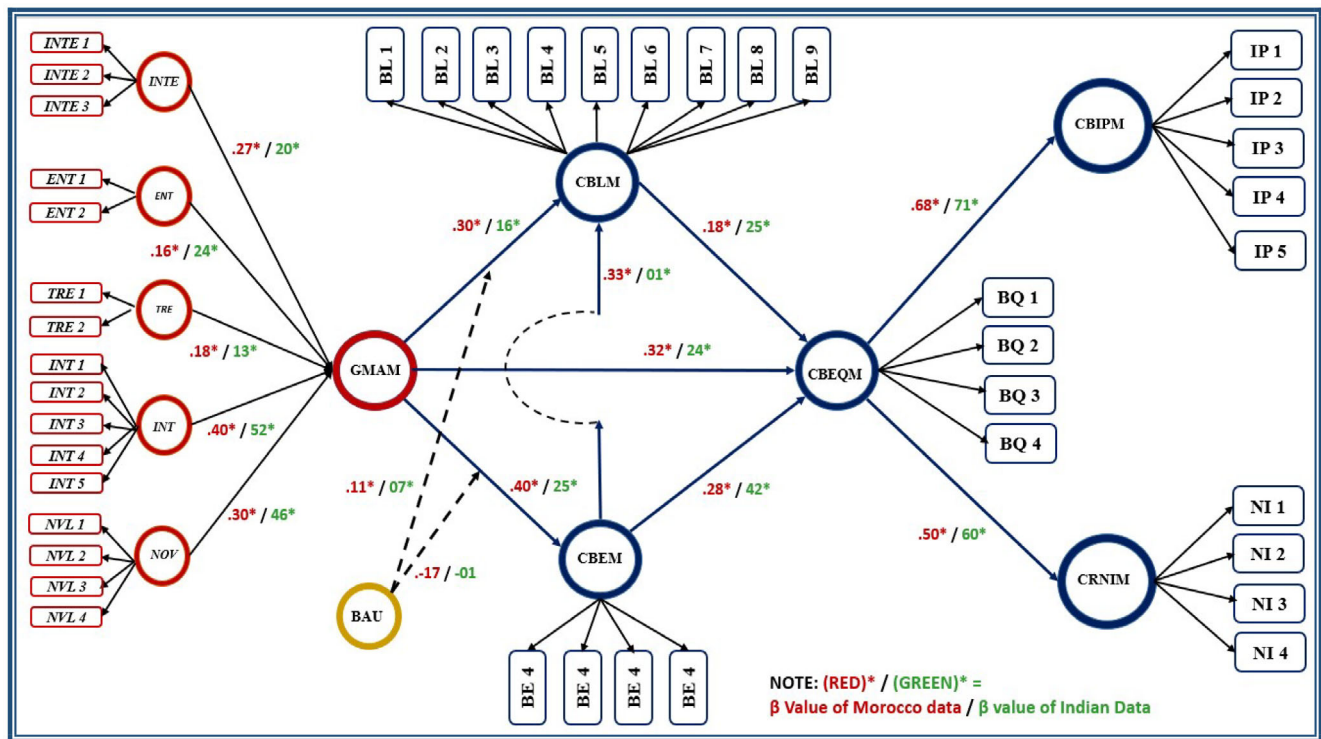
Further structural analysis is done to check the consequences of consumer-based brand equity in the Metaverse (CBEQM). As per the results shown in Table 6, the relationship between CBEQM and consumers' behavioural intention to purchase in the Metaverse (CBIPM) is found to be significant for both samples (CBEQM → CBIPM; $\beta_{India} = 0.71^*$, $t = 19.34$; $\beta_{Morocco} = 0.68^*$, $t = 13.05$). The relationship between CBEQM and consumers' resistance to negative information (CRNIM) is found to be significant for both cases (CBEQM → CRNIM; $\beta_{India} = 0.60^*$, $t = 14.78$; $\beta_{Morocco} = 0.50^*$, $t = 7.16$). Therefore, we can accept both Hypotheses H5-a and H5-b for both datasets.

In Hypothesis H6-a, brand authenticity (BAUT) acts as a moderator on the relationship of gamification marketing activities in the Metaverse (GMAM), and consumer brand love in the Metaverse (CBLM) is found to be significant for both the Indian and Moroccan

samples ($\beta_{India} = 0.07^*$, $t = 2.94$, $P < .05$; $\beta_{Morocco} = 0.11^*$, $t = 2.84$, $p > .05$). Whereas in Hypothesis H6-b, BAUT acts as a moderator on the relationship of GMAM and consumers' brand engagement in the Metaverse (CBEM); it was found to be insignificant for both Indian and Moroccan samples ($\beta_{India} = -0.01$, $t = 0.31$, $p > .05$; $\beta_{Morocco} = -0.17$, $t = 0.99$, $p > .05$). Hence, Hypothesis H6-a is accepted for Indian and Moroccan samples, and Hypothesis H6-b is rejected for both samples. Graphical representation of beta-value of Moroccan & Indian respondents is given in Figure 6.

Next, we evaluated the in-sample predictive accuracy and the coefficient of the determinant (R-square). According to Hair et al. (2021), 75%, 50%, and 25% R-square values are considered substantial, moderate, and weak, respectively. In this study, the R² value of consumer brand love in the Metaverse (CBLM) is 50.3% and 67.5% for India and Morocco, respectively, which are considered substantial effects. The R² values of consumer-based brand equity in the Metaverse (CBEQM) are 48.7% and 35.6% for India and Morocco, respectively, which are considered moderate effects. And the R² values of consumers' brand engagement in the Metaverse (CBEM) are 21.6% and 24.1% for India and Morocco, respectively, which are considered weak effects. The R² values of consumers' behavioural intention to purchase in the Metaverse (CBIPM) are 50.3% and 45.4% for India and Morocco, respectively, and the R² values of consumers' resistance to negative information (CRNIM) are 35.6% and 25.1% for India and Morocco respectively.

We used Q-square prediction to determine predictive relevance. The values of consumer brand love in the Metaverse (CBLM) = 0.44 and 0.38; consumers' behavioural intention to purchase in the Metaverse (CBIPM) = 0.37 and 0.31; consumer-based brand equity in the



Source: Authors

FIGURE 6 Structural analysis of Moroccan & Indian data. Source: Authors.

Metaverse (CBEQM) = 0.33 and 0.26; consumers' resistance to negative information (CRNIM) = 0.26 and 0.13; gamification marketing activities in the Metaverse (GMAM) = 0.25 and 0.39; and consumers' brand engagement in the Metaverse (CBEM) = 0.15 and 0.27 for India and Morocco respectively. Results above zero show the predictive relevance of these variables is good (Shmueli et al., 2016).

5.5 | Artificial neural network results

After establishing projected hypotheses, we used Artificial Neural Network (ANN) analysis using SPSS v.27 software to prioritize and rank the antecedents (Liebana-Cabanillas et al., 2017). ANN analysis was used to validate the PLS-SEM result. We chose ANN for this study because it outperforms traditional statistical tools in detecting both linear and nonlinear relationships instead of just linear relationships. Several other studies used this methodology (Sharma et al., 2021; Wang et al., 2022; Wong et al., 2022). Using the neural network model ensures the construct's reliability in validation, even for non-compensatory decisions made by users (Sharma et al., 2021). As a result, this research presents a more robust and predictive model capable of overcoming the fundamental constraints of the existing model and providing predictive analysis.

We ran the ANN analysis twice for India & Morocco data, respectively, the first time for the consumers' behavioural intention to purchase in the Metaverse (CBIPM) and the second time for the

consumer resistance to negative information in the Metaverse (CRNIM). And according to Figures 7 and 8 (India) and Figures 9 and 10 (Morocco), the RMSE training and testing value for consumers' behavioural intention to purchase & consumer resistance to negative information in the Metaverse (CRNIM) does not show a significant difference between the two for both India and Morocco.

According to the findings of the sensitivity analysis tabulated in Tables 7 and 8, consumer-based brand equity (CBEQM = 100%) is the most critical predictor of consumers' behavioural intention to purchase in the Metaverse (CBIPM) in both Indian and Moroccan samples, followed by consumer brand love in the Metaverse (CBLM) (Figures 11 and 13). To predict consumer resistance to negative information in the Metaverse (CRNIM), consumer-based brand equity (CBEQM = 100%) is found to be the most important predictor in the Indian sample (Table 7), followed by EGMA (43%) in the Indian sample (Figure 12). Consumer experience of gamification marketing activities (GMAM = 100%) is found to be more influential in the Moroccan sample (Table 8), followed by CBEQM (83%) in the Moroccan sample (Figure 14), to predict consumer resistance to negative information in the Metaverse.

6 | DISCUSSION

The reliability and validity of the higher-order reflective formative construct 'gamification marketing activities in the Metaverse

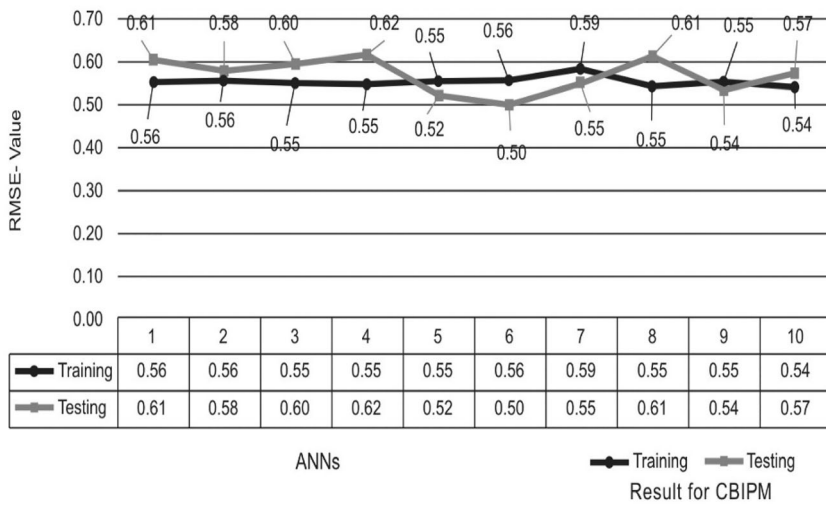


FIGURE 7 ANN training & testing for CBIPM (Indian).

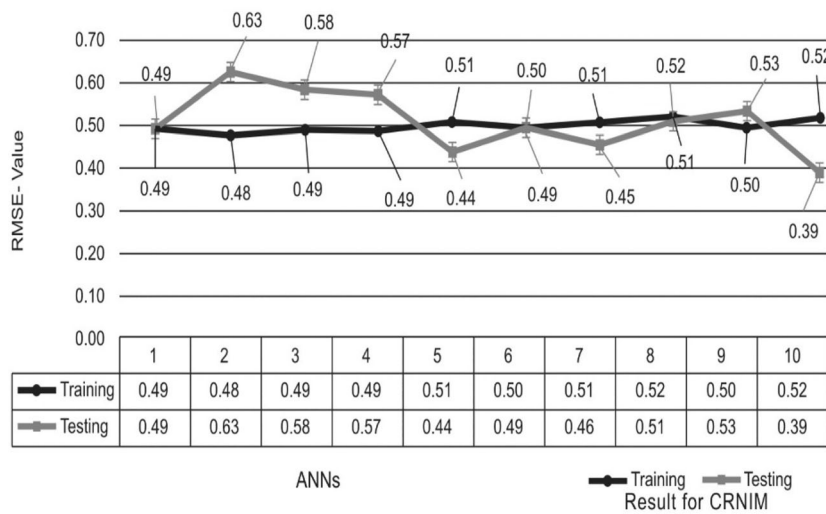


FIGURE 8 ANN training & testing for CRNIM (Indian).

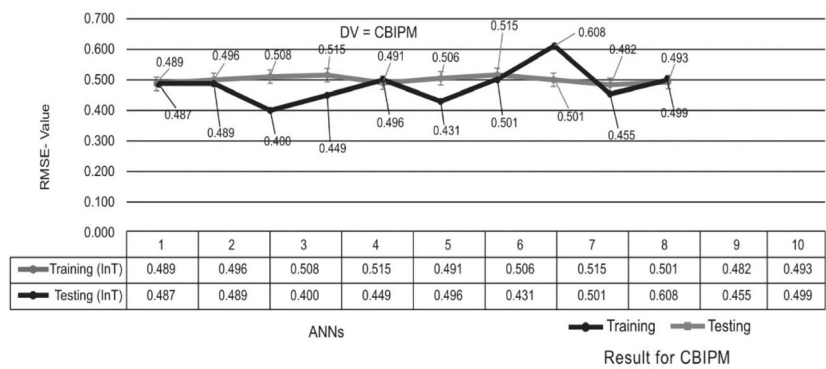


FIGURE 9 ANN training & testing for CBIPM (Morocco).

(GMAM) are established with five lower-order constructs: entertainment, interaction, trendiness, intimacy, and novelty. As per hypothesis H1, the higher-order construct ‘gamification marketing activities in the Metaverse (GMAM)’ has a significant positive impact on consumer-based brand equity in the Metaverse (CBEQM). This

demonstrates that the experience of XR-based gamification marketing activities endorsed by brands increases consumer-based brand equity with an R^2 -value of 48.7% for the Indian sample, and 35.6% for the Moroccan sample, which means this relationship is stronger in the case of Indian respondents.

FIGURE 10 ANN training & testing for CRNIM (Morocco).

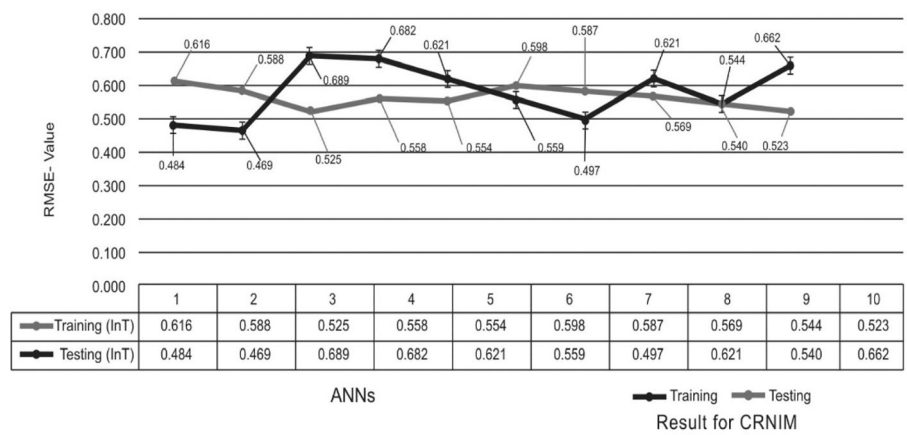


TABLE 7 Sensitivity analysis (Indian data).

	Model 1 output = CBIPM				Model 2 output = CRNIM			
	CBEQM	GMAM	CBEM	CBLM	CBEQM	GMAM	CBEM	CBLM
ANN1	0.78	0.08	0.07	0.05	0.53	0.34	0.04	0.07
ANN2	0.79	0.03	0.04	0.12	0.65	0.01	0.17	0.15
ANN3	0.62	0.21	0.05	0.10	0.53	0.30	0.11	0.05
ANN4	0.78	0.06	0.11	0.03	0.55	0.26	0.14	0.02
ANN5	0.79	0.07	0.07	0.05	0.58	0.26	0.11	0.02
ANN6	0.76	0.07	0.05	0.11	0.55	0.30	0.13	0.01
ANN7	0.79	0.03	0.07	0.10	0.58	0.18	0.15	0.06
ANN8	0.73	0.00	0.05	0.20	0.55	0.20	0.20	0.03
ANN9	0.69	0.08	0.15	0.06	0.52	0.28	0.15	0.02
ANN10	0.79	0.04	0.09	0.06	0.54	0.31	0.12	0.00
Average Importance	0.75	0.07	0.07	0.09	0.56	0.24	0.13	0.04
Normalized Importance	100	9.3	9.3	12	100	42.85	23.21	7.14

Abbreviations: CBEM, consumer brand engagement in Metaverse; CBEQM, consumer-based brand equity in Metaverse; CBIPM, consumer behavioural intention to purchase in Metaverse; CBLM, consumer brand love in Metaverse; CRNIM, consumer resistance to negative information in Metaverse; GMAM, gamification marketing activities in Metaverse. Source: Authors.

Hypothesis H2 established that the relationship between gamification marketing activities in the Metaverse (GMAM) and consumer-based brand equity in the Metaverse (CBEQM) is significantly (positively) mediated by consumers' brand love (CBLM). The relationship between GMAM and consumer brand love is significant, and consumer brand love (CBLM) and consumer-based brand equity in the Metaverse (CBEQM) are also positive and significant. This mediation effect complements Indian and Moroccan samples (Table 6). Hypothesis H3 established that the relationship between XR-based Gamification marketing activities in the Metaverse (GMAM) and consumer-based brand equity (CBEQM) are significantly (positively) mediated by consumers' brand engagement (CBEM).

The relationship between GMAM and consumers' brand engagement (CBEM) is found to be significant. The relationship between consumer brand engagement (CBEM) and consumer-based brand equity (CBEQM) is also positive and significant. This mediation effect is

complementary (Table 6). It means that consumers' engagement with the brand through the Metaverse lens increases their brand equity. Hypothesis H4, which stated that consumers' engagement in the Metaverse leads to consumer brand love, was rejected in the case of the Indian sample but accepted for the Moroccan sample, which means that Indian consumers may get engagement with the brand virtually in the Metaverse.

Still, it is not compulsory to state that consumers' virtual engagement with the brand in the Metaverse will also lead them to love the brand, and this would not be the case for Moroccan consumers. The Moroccan sample shows that if the consumers get engaged with the brand in the Metaverse, then they will have love and affection towards the brand. This is the cultural difference between Indian and Moroccan consumers, which needs to be addressed by the brands.

Further, the consequences of consumer-based brand equity were measured. We found that the consumers' behavioural intention to

TABLE 8 Sensitivity analysis (Moroccan data).

	Model 1 output = CBIPM				Model 2 output = CRNIM			
	CBEQM	GMAM	CBEM	CBLM	CBEQM	GMAM	CBEM	CBLM
ANN1	0.50	0.18	0.08	0.24	0.37	0.31	0.05	0.27
ANN2	0.40	0.27	0.09	0.23	0.25	0.44	0.08	0.22
ANN3	0.30	0.13	0.28	0.29	0.30	0.40	0.15	0.14
ANN4	0.20	0.08	0.35	0.38	0.27	0.28	0.16	0.29
ANN5	0.44	0.09	0.16	0.30	0.30	0.32	0.13	0.25
ANN6	0.24	0.25	0.22	0.30	0.37	0.19	0.08	0.34
ANN7	0.42	0.27	0.20	0.12	0.28	0.36	0.11	0.24
ANN8	0.36	0.20	0.31	0.12	0.24	0.43	0.09	0.24
ANN9	0.48	0.10	0.17	0.25	0.33	0.29	0.13	0.25
ANN10	0.50	0.11	0.17	0.21	0.28	0.33	0.13	0.25
Average Importance	0.38	0.17	0.20	0.34	0.30	0.34	0.11	0.25
Normalized Importance	100	44.73	52.63	63.15	88.23	100	32.35	73.52

Note: All abbreviations are same as Table 7.

Source: Author.

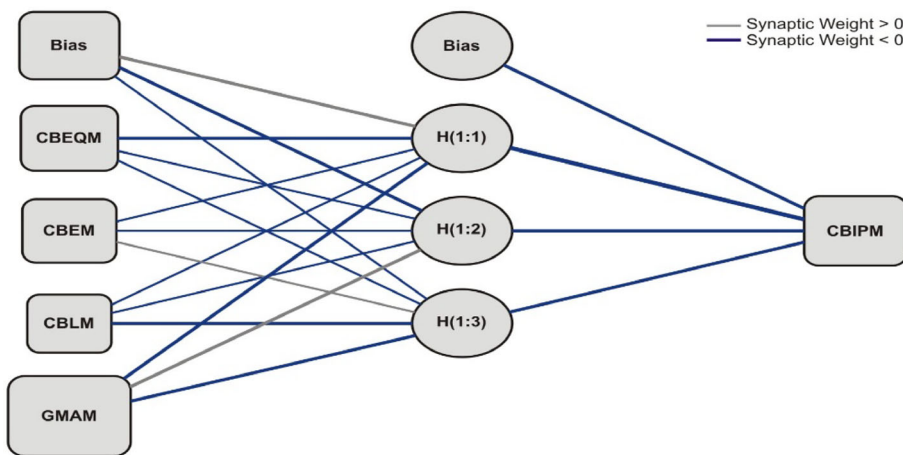


FIGURE 11 Neural network architecture for CBIPM (India).

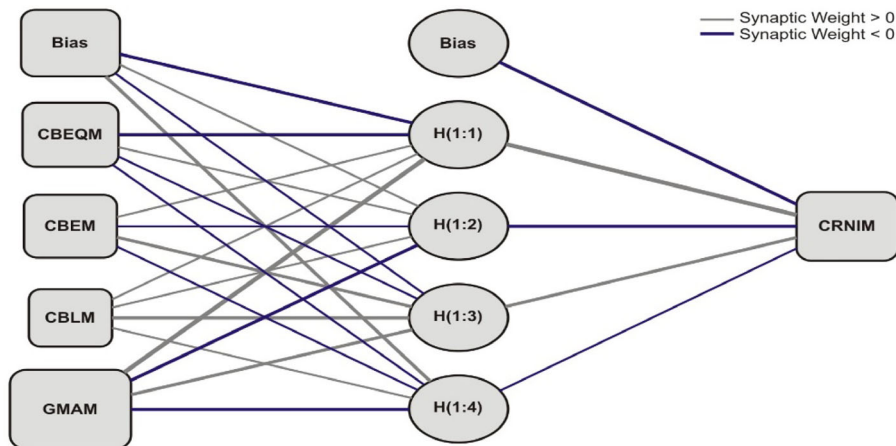


FIGURE 12 Neural network architecture for CRNIM (India).

FIGURE 13 Neural network architecture for CBPIM (Morocco).

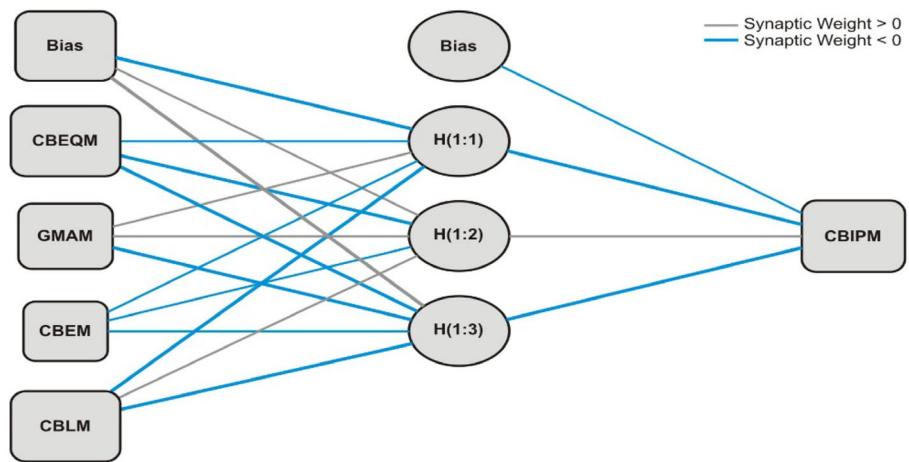
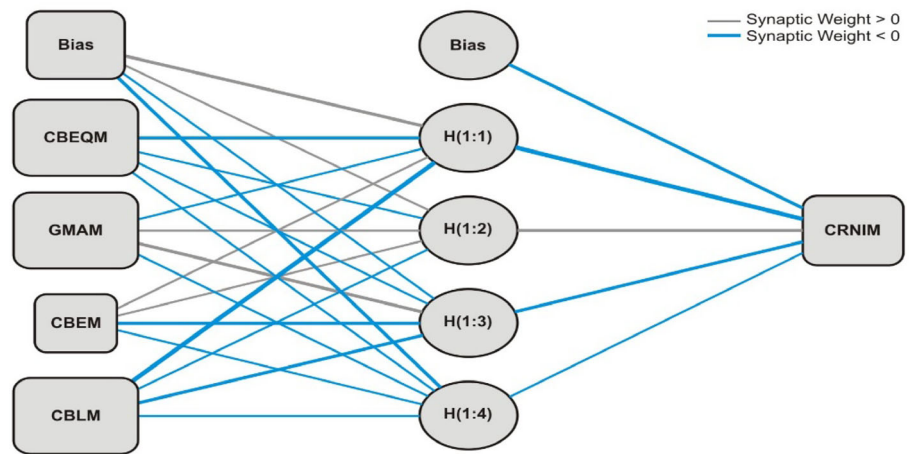


FIGURE 14 Neural network architecture for CRNIM (Morocco).



purchase is triggered by consumer-based brand equity (H5-a) with R²-value 50.3% and 38.6% in India and Morocco, respectively. The consumers' resistance to negative information was triggered with consumer-based brand equity (H5-b) with R²-value of 35.6% and 25.1% for India and Morocco, respectively.

To the next level, we checked the moderation effect of brand authenticity, a unique feature of a brand's consumer perception of the intangible assets in the Metaverse. Hypothesis H6-a is accepted for India and Morocco. This states that brand authenticity is a big concern for users in the Metaverse when they are developing brand love in the Metaverse. And H6-b is rejected for both India and Morocco, which states that brand authenticity is not considered a priority when consumers engage with the brand in the Metaverse. This helps us to conclude that different reasons cause consumers' high virtual engagement with the brand in the Metaverse but not the brand's authenticity.

To check the importance of variables, an Artificial Neural Network analysis was done, which concluded that consumer-based brand equity (CBBEQ) is the most important predictor to predict consumers' behavioural intention to purchase (CBIP) for both datasets. In contrast, the consumer brand love in the Metaverse (CBLM = 12% for

India and 63.15% for Morocco) is the second important predictor of consumers' behavioural intention to purchase (CBIP). The resistance to negative information for intangible products in the Metaverse (CRNIM) was mostly predicted by consumer-based brand equity (CBBEQ) for the Indian sample and gamification marketing activities in the Metaverse (GMAM) for the Moroccan sample. Finally, gamification marketing activities in the Metaverse (GMAM = 42.85%) and consumer-based brand equity (CBBEQ = 88.23%) are India and Morocco's second most predictive constructs, respectively.

7 | THEORETICAL CONTRIBUTION

This study adds to the theoretical knowledge about intangible products associated with non-fungible tokens (NFTs) that luxury brands in the Metaverse offer. The Metaverse is bringing a concept of Intangible products, where “touch” and “feeling” are giving a new experience to the consumers using virtual assets mediated by technology (Luangrath et al., 2022; Barrera & Shah, 2023). This unique and authentic experience of brands' digital assets in a virtual environment is explored in this study, where consumers' brand equity is measured

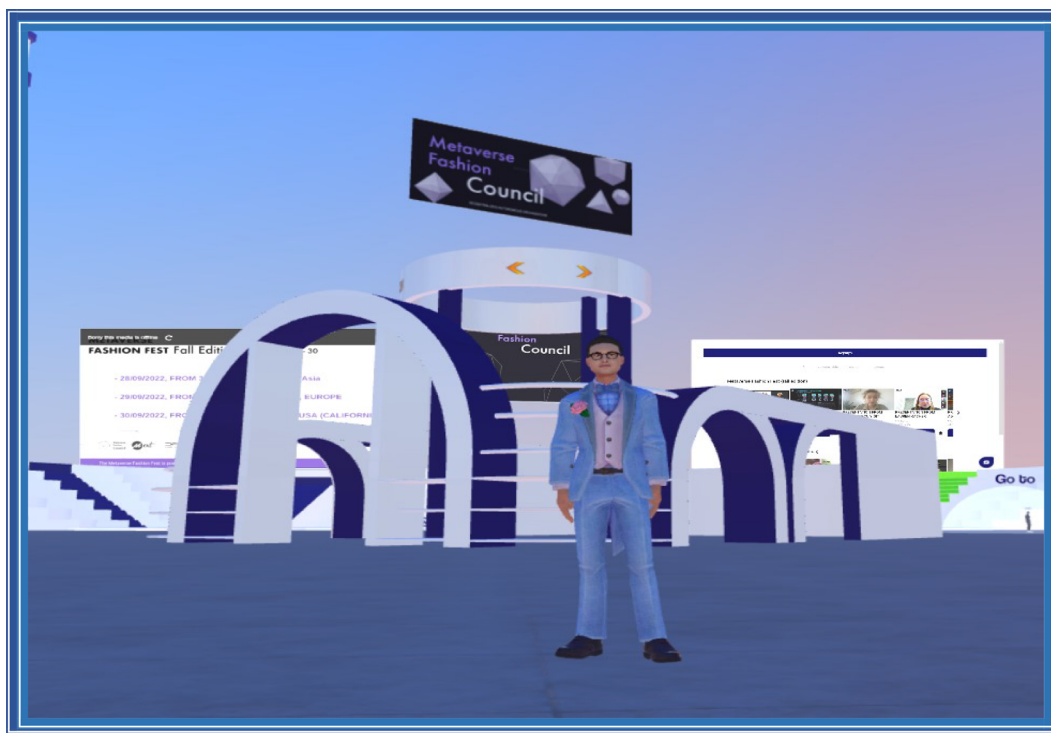


FIGURE 15 Avatar in Metaverse fashion council-2022.

for the first time for intangible products. This study advanced the Social Presence Theory (SPT), enhanced by Hollebeek et al. (2020), in the context of consumers' brand engagement on social media platforms. The engagement with the brands in the Metaverse is unique and different from experiencing the brand on social media platforms. Here, immersive touch and feel give users more confidence and add a theoretical contribution to Social Presence Theory (SPT). This study adds theoretical insight to the potential of brands' intangible products in the Metaverse as a substitute for tangible products and in-store experiences consumers are having. This virtual "touch" and "feeling" of intangible products in the Metaverse is based on two concepts: autotelic and instrumental (Peck & Childers, 2003, 2006). Here, users' desire for entertainment, interest in feeling items virtually, sensory experience, and excitement and arousal is associated with the autotelic need for touch, and the application of virtual touch focuses on attributes of intangible products associated with the instrumental need for touch (Jha et al., 2019). This also syncs with the studies by Wongkitrungrueng & Suprawan, 2023 and Kozinets, 2023) which focus on unifying the users' immersive experience on the Metaverse with the real world to deepen their understanding and love for the brand.

The exploration of XR-based gamification activities are not limited to the digitalization of the presentation of product or services (Kannan & Li, 2017) but add value to the consumers' virtual experience in the Metaverse. The immersive experience provided by the Metaverse and its impact on consumers has been studied from many perspectives an ecosystem (Dwivedi et al., 2022), marketing strategy (Wanick & Stallwood, 2023), novel experience (Habil et al., 2023),

limited studies have discussed the consumers' behaviour towards the brand in the context of XR-based gamification marketing activities (Pour et al., 2021). To the best of our knowledge, this study is the first to investigate the consumers' behaviour towards consumers' virtual brand experiences in the Metaverse. Considering the SPT theory, first, the research findings support the contribution of this study and the theoretical aspect is aligned with the reflective-formative higher-order construct "gamification marketing activities in the Metaverse", which was measured with five sub-constructs, namely entertainment, interaction, trendiness, intimacy, and novelty. Second, the importance of providing the experience of XR-based gamification marketing activities in the Metaverse (GMAM) to consumers triggers consumer-based brand equity.

Third, this study explored the mediating role of consumers' virtual brand engagement and consumers' brand love to understand how these constructs impact consumer-based brand equity in the Metaverse. Fourth, the current study extends the knowledge about brand authenticity as a moderator to influence the consumer's behaviour and provides an insightful theoretical lens for future research in the Metaverse. And finally, the empirical analysis using an artificial neural network (ANN) was done to extend Neuhofer et al. (2014) experience hierarchy framework to establish the rank of importance of predictors which can affect consumers' experiences and influence their purchase intentions along with the resistance to negative information in the Metaverse. This analysis reveals the importance of consumer-based brand equity to influence consumer behavioural purchase intention for both Indian and Moroccan consumers, and the consumer's resistance to negative information has an antecedent to consumer's-based

brand equity (India sample) and gamification marketing activities in the Metaverse (Morocco sample) that affect it most. Overall, this study provides reliable knowledge about how the experience of gamification marketing activities can create value with customers and identifies the processes that can facilitate virtual engagement with new technology to match customers' expectations and need in the Metaverse.

8 | MANAGERIAL CONTRIBUTION

The Metaverse, which gives users immersive virtual experience, persistent, and three-dimensional experiences, offers perspective and implies that practitioners should invest in and re-design brand-sponsored unique virtual experiences (substantive, immersive) for their consumers via intangible products known as non-fungible tokens (NFTs). This virtual experience in the Metaverse has usability for consumers related to official work, tourism, entertainment, event invitations, and academic culture (Anand et al., 2022; Kshetri & Dwivedi, 2023). It gives a thrilling experience using intangible products for the first time. The Metaverse offers access where users can enjoy special memberships and monetization rights for virtual land, architecture, and digital assets, which could give creative expressions to brands and businesses (Balis, 2022; Dwivedi et al., 2023).

The significant findings of the current research provide the following practical contributions. First, the findings show that the experience of gamification marketing activities in the Metaverse reliably influences consumer-based brand equity. This result is in sync with the results of Cedrola & Giovannetti, 2023 and Bloomberg, 2021 which highlighted the translation of the investment in the Metaverse into profit by luxury brands like Balenciaga, Nike and Gucci in the Metaverse. Suppose a conceptual model is to be introduced to a heterogeneous market to get high consumer-based brand equity from consumers. In that case, the brand must focus on the experience delivered through entertainment, interaction, trendiness, intimacy, and novelty to engage consumers in the Metaverse. Second, the consumers' virtual brand engagement and brand love act as positive and complimentary mediators between the experience of gamification marketing activities in the Metaverse and consumer-based brand equity. This result is supported by the research by Wongkitrungrueng and Suprawan (2023) and Zhang et al. (2023) which highlighted the influence of media richness, trust and values (symbolic and utilitarian) on brand engagement and purchase intention, which can further be translated into brand equity.

Hence, the proposed research model establishes much-needed direction about using virtual brand engagement activities in the Metaverse and brand love to get the desirable consumer behaviours, such as consumers' behavioural intention to purchase the virtually wearable assets (intangible products) offered by various brands in the Metaverse. Also, this would positively affect consumers' resistance to negative information about the brand. Third, consideration of consumers' perceptions about a brand's authenticity to get high brand love is a more critical factor to consider while designing the marketing strategy

in the context of the Metaverse. Therefore, it is recommended that practitioners frame the brand authenticity precisely so that consumers' perceptions towards brand love would get moderate positivity and hence the improvement in consumer-based brand equity. Fourth, marketers must use advanced gamification marketing activities in the Metaverse to engage consumers with the brand and have more virtual brand engagement and brand love to gain more consumer-based brand equity. Similar results have been reported by Dwivedi (2023) and Kozinets (2023) who have highlighted the need to extend the physical world to consumers using extended, augmented, and virtual reality technologies.

Global brands like Gucci (Italy), Nike, Inc (US), and Hyundai Motor Company (South Korea) are already using the Metaverse to gamify the way they engage their consumers virtually with unique experiences. To give the gamified experience to their users, Louis Vuitton moved to the next level, where they have created a game where players can earn NFTs by unlocking the story which describes the journey of Louis and his family. Another example from the beverages industry is Coca-Cola, which also launched its first digital apparel collection as a virtually wearable product & non-fungible token (NFT), which users can wear in the virtual world of Decentraland. Global brands invest in the Metaverse to improve promotions, brand visibility, and consumer attention. They are also developing comprehensive plans to extend their presence into a hybrid reality to keep their users engaged in the virtual world.

Further, the practitioners can follow a three-level plan to get consumers' desirable behaviour in the Metaverse. In the first stage, a brand manager should pay considerable attention to increasing consumers' experiences in the Metaverse using gamification marketing activities aligned with their entertainment, interaction, trendiness, intimacy, and novelty variables. This would directly affect consumer-based brand equity. Second, luxury brand managers should consider using consumers' virtual brand engagement in the Metaverse and brand love as a strong marketing strategy to encourage consumers to mould their decisions in favour of the brand. Therefore, the consumers will engage with the luxury brand more passionately. In return, the brand will get more data and information, giving deep insight into the consumer's consumption patterns and other related information in the Metaverse. With the help of advanced data, extensive analysis, and artificial intelligence, companies can refine their marketing and brand strategy-related policies to tailor their offerings in the Metaverse. Third, the XR-based gamification marketing activities should embed immersive interaction, a sense of communication and building communities, and quality control of intangible products so that the brand should be considered as authentic as it can be because these basic principles encourage consumers to have more trust and association with the brand.

Luxury brands are keen to grow their business model in the Metaverse via non-fungible tokens (NFTs) from fringe experimentation to mass adoption, to provide immersive experiences to their users, which would increase the revenue for brands and i-commerce (Metaverse immersive-commerce) would emerge in importance as capabilities scale (Lee et al., 2023). Brands in the Metaverse would trade for

virtual clothes, virtual showrooms, events, fashion shows, tourism, virtual offices, cafés, and houses, and intangible products like dresses, watch bags, and shoes using secured platforms on a blockchain (Malik et al., 2022). For example, see Figure 15, where Metaverse Fashion Week was organized, and Avatar, with the number of intangible assets, was allowed to enter the show. Dealing with the Metaverse world, i-commerce (immersive Metaverse commerce) will be the new normal soon, where physical and virtual goods will be on sale in a virtual world. This digital landscape in the Metaverse would trigger intellectual curiosity in both brands and consumers. This unique virtual experience would be the next iteration of how consumers connect, communicate, and transact with brands in the virtual world.

9 | LIMITATION AND FUTURE SCOPE

This is the first attempt where luxury consumers' experiences in the Metaverse are explored to frame consumer-based brand equity. This study has some limitations as the Metaverse is developing new user experiences every day. This study was conducted for the users with Metaverse experience in the retail area only and those representing the developing country too. Also, this study was quantitative and focused on two countries' respondents only. It would be suggested to explore the study in the context of the Metaverse in different domains, such as users' Metaverse experiences in sports and entertainment; virtual meetings and official communication in the Metaverse; manufacturing and designing virtual dresses and gadgets; and virtual tourism in the Metaverse. The study is focused on the consumer's experience, and future research can explore the challenges, marketing strategy, and Metaverse ecosystem from the perspective of brands, intermediaries, developers and virtual platform providers. An experimental study could add more insights into developing the immersive presence theory, which could cover up the limitation of this study to add new insight for the researcher.

Also, several limitations could be addressed further. First, brands have acknowledged that AVATAR in Metaverse and virtually wearable products available on i-commerce are rapidly evolving, often leapfrogging over traditional luxury sales in showrooms and e-commerce platforms. What kind of cognitive process is used to opt the virtual gadgets for AVATAR, and how is the human-AVATR relationship being developed and working for brands? Whether this AVATR-human relationship will work for the B-2-B context too. And, will intentions to use AVATR hide their original identity or is AVATAR an opportunity to frame the voice against inequality at the workplace, events, or tourist places? To answer these questions, it will be interesting to continue exploring the role of AVATR in embedded environments and generalizing the Metaverse-based gamified practices for luxury brands. As such, it would be interesting to see if our study, conducted on a global dataset, would establish the acceptance of our study at a large level, where Metaverse-based gamified exercise would enhance user experience not only in the retail industry but other domains such as automobile, education, tourism, entertainment, etc. Future research would also focus on applying luxury branded apps

and their integration with XR-based technology embedded within the Metaverse.

On the other hand, one of the important limitations of this paper that opens future research relates to brands' need to show more empathy towards users' AVATAR in a 3-D environment, as users' expectations and absorptive capacity of using AVATAR in a virtual world is at its nurturing stage as of now. The Metaverse can take this interaction to the next level, where brands will use the Metaverse for consumer-brand interaction and improve the productivity and usability of their NFTs in the Metaverse. This study should be replicated in the future when AVATAR has social points where misbehaving with some in the virtual world would reduce some social points from the AVATAR social account as a punishment. In this way, brands can ensure AVATAR's behaviour in a ubiquitous way in a virtual world. Lastly, beyond the current novelty, AVATAR in Metaverse need to be designed to serve the hospitality industry, where they can address the specific need of visitors when there is an issue related to sensitivity, decorum, legal and official status.

Further study could explore how companies would use the Metaverse for efficient communication between cross-border employees to deal with inequality-related issues and best practices in HR within the organization, where employees' well-being will be monitored based on their Metaverse performance. Education, especially the engineering and medical fields, will explore the potential role of Augmented Reality/Virtual Reality through the lens of the Metaverse. Future research that explores the usability of the Metaverse in the various emerging domains will have a short and long-term impact on consumers' experiences. Also, the pre-ownership experience of having luxury brands could boost users' purchase intention. The social status of having virtually wearable assets like NFTs would trigger luxury brand revenue, which needs to be addressed by future researchers. This will change how consumers perceive the brand and influence the users to change their loyalty in a fraction of the time because of the brands' adaptability and synchronization concerning technological advancement.

10 | CONCLUSION

This study provides several insightful results into the consumer-based brand equity and its relationship with the Metaverse to understand the consumer perception towards the immersive experience provided by luxury brands.

This study established the 'gamification marketing activities in Metaverse' adopted by luxury brands as a higher-order reflective formative construct that impacts consumer-based brand equity. This study also explored luxury brand engagement and brand love as serial mediators and the antecedents of behavioural intention to purchase and consumer resistance to negative information in the Metaverse. The study also explored the factors influencing gamification of marketing activities, namely entertainment, interaction, trendiness, intimacy and novelty and their influence on the gamification marketing activities in the Metaverse (GMAM). The study also focussed on the

initiatives by the brands to ensure a different experience surpassing the real world is provided to the consumer to ensure brand equity.

The study also revealed the relationship between consumer-based brand equity (CBBE) with the behavioural intention to purchase virtually wearable products (e.g., NFTs) for AVATAR and resistance to negative information in the context of the Metaverse. Suppose the consumer is able to enjoy an immersive 3-D experience provided by the luxury brand. In that case, they can resist the negative information regarding it and have more intention to purchase the brand for their immersive needs in the embedded environment. This process is highly mediated by brand love and the type of immersive engagement provided on the immersive platform. The findings also contribute to the knowledge of brand authenticity of the virtually wearable products in Metaverse, which is an essential factor to explore for the virtually wearable products for the users' AVATAR. It's the extent of customization and the personalization of the AVATAR as per individual culture provided by the brands which help customers to live an alternative self which is anonymous and more powerful. Understanding each AVATAR through its virtual skin, interaction, and behaviour can help brands to segment, reach, and influence each customer directly. Thereby, improving the product/service provided to the users through i-commerce in Metaverse would add value to the consumers' cognitive process and create a high brand value overall.

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Data is confidential. Authors elect not to share data. The data that support the findings of this study are available from the corresponding author upon reasonable request.

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APPENDIX A: List of items used in scale

Construct	Items
Customer engagement (Kumar & Pansari, 2016)	<p>I am willing to recommend the virtually wearable product(s) of [brand X] to their visit to Metaverse</p> <p>I am willing to try the newly launched virtually wearable product(s) of [brand X] in Metaverse</p> <p>I would not want to stop using the virtually wearable product(s) of [brand X] in Metaverse</p> <p>I am motivated to keep using the virtually wearable product(s) of [brand X] in Metaverse</p>
Entertainment Kim and Ko (2012)	<p>Participating in the Metaverse activities and exploring the Metaverse world (e.g., visiting in Virtual world, creating my own AVTAR, meeting/seeing people in the virtual world) using a virtually wearable product(s) of [brand X] is fun.</p> <p>Activities attending in the Metaverse world using the virtually wearable product(s) of [brand X] seem interesting.</p>
Interaction Kim and Ko (2012)	<p>The virtually wearable product(s) of [brand X] in the Metaverse world enable to showcase of the virtually wearable product(s) of [brand X] with others easily.</p> <p>The pictorial impression about the virtually wearable product(s) of [brand X] with others is possible through the Metaverse.</p> <p>It is easy to show my choice of selection of virtually wearable product(s) of [brand X] with others in Metaverse.</p>
Trendiness Kim and Ko (2012)	<p>Style of the virtually wearable product(s) of [brand X] (e.g., product color & design, theme) shown in the shop in the Metaverse are the latest information about the [brand X].</p> <p>The virtually wearable product(s) of the [brand X] available to purchase in the Metaverse is very trendy.</p>
Intimacy Chelune and Waring (1984) and Tomasi (2007)	<p>I enjoy my AVTAR with the virtually wearable product(s) of [brand X] in Metaverse and feel at ease.</p> <p>I think of my AVTAR in Metaverse as a friend while wearing the virtual product(s) of [brand X] in any way.</p> <p>I choose to visit the Metaverse without any hesitation for purchasing the virtually wearable product(s) from [brand X] in the virtual world.</p> <p>I feel a sense of intimacy in the Metaverse world while wearing the virtual product of [brand X] in the Virtual world.</p> <p>I feel purchasing & wearing the virtually wearable product(s) from the [brand X] in the Metaverse world is a very important part of my AVTAR in the virtual world.</p>
Novelty Huang (2003)	<p>The virtually wearable product(s) of [brand X] in the Metaverse is imaginative.</p> <p>The virtually wearable product(s) of [brand X] in the Metaverse is surprising.</p> <p>The virtually wearable product(s) of [brand X] in the Metaverse is innovative.</p> <p>The virtually wearable product(s) of [brand X] in the Metaverse is new.</p>
Brand love Carroll and Ahuvia (2006)	<p>This is wonderful to visit Metaverse with a virtually wearable product of [Brand X].</p> <p>To visit Metaverse in a virtual world with a virtually wearable product of [Brand X] makes me feel good.</p> <p>The virtual engagement with virtually wearable products of [Brand X] in Metaverse is totally awesome.</p> <p>I have strong feelings about the virtually wearable products of [Brand X] in Metaverse.</p> <p>The engagement with the virtually wearable products of [Brand X] in Metaverse makes me very happy.</p> <p>I love wearing the virtually wearable products of [Brand X] in Metaverse.</p> <p>The engagement with virtually wearable products of [Brand X] in Metaverse is a pure delight.</p> <p>I am passionate about the interaction with the virtually wearable products of [Brand X] in Metaverse.</p> <p>I'm very attached to the virtually wearable products of [Brand X] in Metaverse.</p>
Resistance to negative information Eisingerich et al. (2011)	<p>Negative information about the virtually wearable products of [Brand X] in Metaverse does not change my general view of the [Brand X].</p> <p>I readily change my view of the virtually wearable products of [Brand X] in Metaverse based on negative information about it.</p> <p>Negative information about the virtually wearable products of [Brand X] in Metaverse has no effect on me.</p> <p>Negative information about the virtually wearable products of [Brand X] in Metaverse changes the way I think of the [Brand X]. (–)</p>
Consumer-based brand equity Yoo, Donthu, and Lee (2001)	<p>It makes sense to buy virtually wearable products of [Brand X] in Metaverse instead of any other brand, even if they are the same in Metaverse.</p>

(Continues)

Construct	Items
	<p>Even if the virtually wearable products of [Brand Y] in the Metaverse has the same features as the virtually wearable products of [Brand X] in Metaverse, I would prefer to buy virtually wearable products of [Brand X] in Metaverse.</p> <p>If there is virtually wearable products of [Brand Y] Metaverse as good as the virtually wearable products of [Brand X] I prefer to buy virtually wearable products of [Brand x] only.</p> <p>If virtually wearable products of [Brand Y] in Metaverse are not different from the virtually wearable products of [Brand X] in any way, it seems smarter to purchase the virtually wearable products of [Brand X] only in Metaverse.</p>
Behavioral intention to purchase Hsu et al. (2016)	<p>I may buy virtually wearable products of [Brand X] in the future too in Metaverse.</p> <p>I will seriously consider purchasing virtually wearable products of [Brand X] in Metaverse.</p> <p>I will likely buy virtually wearable products of [Brand X] again in Metaverse.</p> <p>I will decide to buy virtually wearable products of [Brand X] in the future in Metaverse.</p>
Brand authenticity (Moulard et al., 2015; Moulard et al., 2016)	<p>The virtually wearable products of [Brand X] used in Metaverse are genuine.</p> <p>The virtually wearable products of [Brand X] used in Metaverse seem real to me.</p> <p>The virtually wearable products of [Brand X] used in Metaverse are authentic to me.</p> <p>The virtually wearable products of [Brand X] used in Metaverse are devoted to what it does.</p>

Source: Published articles.