

# Avatar-mediated Interactions in the Metaverse: A Systematic Review and Future Research Agenda

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# **Avatar-mediated Interactions in the Metaverse: A Systematic Review and Future Research Agenda**

**Abstract:** The metaverse is becoming increasingly popular in recent years. As a mixed-reality media platform, the metaverse is essentially a shared virtual environment where consumers can interact synchronously through their avatars with other agents and objects. In the metaverse, digital avatars, instead of physical human beings, become the main interaction entities, which will shift the current digital marketing paradigm. So far, literature on consumer-embodied avatars and avatar-mediated interactions is highly fragmented and still sits in its primitive stage of development. To synthesise the current knowledge and shed light on future research on metaverse marketing, the authors conduct a systematic review of the extant literature on avatars and avatar-mediated communications in marketing domains. Three research themes are identified from the reviewed literature, and a theme-based research agenda is provided for future marketing researchers.

**Keywords:** *Metaverse, Avatar, Avatar-mediated Interaction*

**Submission Track:** *Digital Marketing*

## 1. Introduction

The metaverse has been drawing attention from practitioners and researchers in recent years. Although the metaverse is not fully realised yet, researchers from various disciplines anticipate that it will bring significant changes to the existing paradigm of research in marketing, information system, psychology and many others (see Dwivedi et al., 2022 for a review).

In marketing, specifically, the metaverse is provisionally conceptualised as ‘an interoperated persistent network of shared virtual environments (SVEs) where people can interact synchronously through their avatars with other agents and objects’ (Kim, 2021). While the definition of the metaverse may vary across the literature in detail, one thing that has been generally agreed on is that digital avatars, instead of physical human beings, will be the main residents in the metaverse (Taylor, 2022). In other words, consumers need to create a digital representation of themselves, an avatar, to enter, experience and interact with the metaverse. Against this background, many questions arise. What are the connections between consumers and their avatars? Do these avatar-embodied consumers think and act the same way as they do in the physical world? What strategies should marketers use in order to effectively approach these avatar-based consumers? And how do consumer avatars interact with other avatars? The answers to these questions possess huge implications for future marketing research in the metaverse (Barrera & Shah, 2022).

To address the aforementioned questions, the current paper presents a systematic and thematic review of the extant literature featuring the usage of avatars in marketing domains. So far, this body of literature is highly fragmented (Miao et al., 2022), with individual research streams in fields such as advertising (Gammoh, Jiménez and Wergin, 2018), consumer behaviour (Kim et al., 2022), consumer psychology (Butt et al., 2021) and information management (Zhang et al., 2017), etc. To summarise ‘what we know’ and shed light on ‘what we need to know’ about avatars in metaverse marketing, the authors synthesise the existing literature from a multidisciplinary perspective and identify three themes that underline the avatar-mediated interactions between consumers and marketers. A future research agenda is also developed based on the synthesis of the systematic review.

## 2. Method

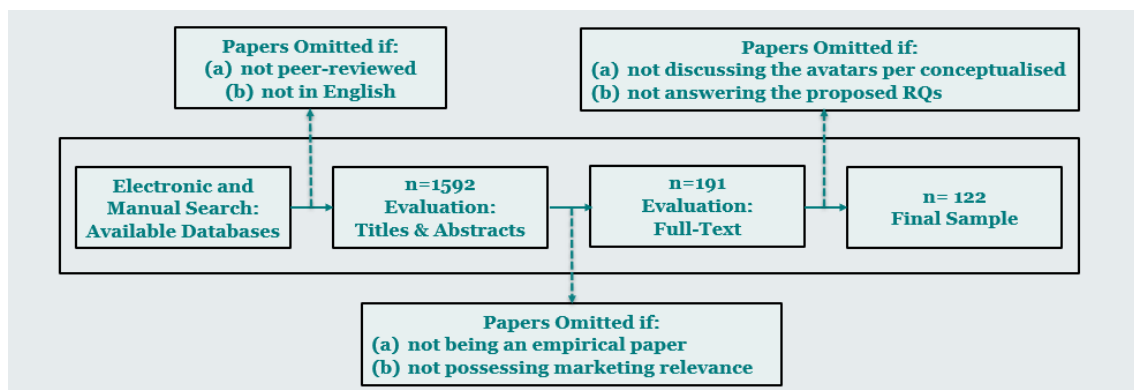
The current study adopts the systematic review principles developed by Paul and Criado (2020) and follows a suggested five-step review process: (1) Propose research questions; (2) Search literature; (3) Evaluate studies; (4) Synthesise studies (5) Report findings.

After an initial assessment of the literature, three research questions were formulated. RQ1: What are the connections between consumers and their own embodied self-avatars? RQ2: How do consumers interact with marketing avatars? and RQ3: How do consumers' avatars interact with other people's avatars in SVEs?

Guided by the proposed research questions, the authors searched online databases such as EBSCO Host, Science Direct, Springer, Emerald Insights, and Scopus to locate relevant studies. The keywords used across the database search were 'avatar', 'avatar AND marketing' and 'avatar AND consumer'. The initial article search covers multiple disciplines. However, only empirical papers that possess marketing relevance will be included in the final sample.

In the current study, the avatar definition by Miao et al. (2022) is adopted, as they define avatars as 'digital entities with anthropomorphic appearance, controlled by a human or software, that have the ability to interact'. This definition fits well with the focal research questions and the characteristics of avatars described in the metaverse literature (Dwivedi et al., 2022). Therefore, research featuring avatars that are inconsistent with our definition will not be included.

In the end, a total of 122 papers are included in the final sample. More details of the literature search and selection procedure are presented in Figure 1.



**Figure 1.** Visualisation of systematic literature search and selection procedure

### 3. Thematic Analysis and Systematic Review Findings

After a detailed review of the final sample, three research themes were identified by the authors. The first theme focuses on understanding the connection between consumers and their avatars in the virtual environment, which is noted as  $C \times A(C)$  interaction – C stands for Consumer; A stands for Avatar; the letter in the bracket stands for the entity behind the avatar. The second theme highlights the avatar-mediated interaction between marketers and consumers, which is noted as  $C \times A(M)$  interaction – M stands for Marketers. The third theme features the interactions between consumer avatar and other avatars within SVEs, which is noted as  $A(C) \times A(C')$  interaction – C' stands for users other C. Table 1 provides an overview of the identified themes and their weighted citations in the final selected articles.

**Table 1.** Weighted citations of research themes in the reviewed literature.

Identified Theme	Notation	Number of Citations	Weight %
Consumer's Interaction with Self-Avatar	$C \times A(C)$	40	32.79%
Consumer's Interaction with Marketing-Avatars	$C \times A(M)$	61	50.00%
Consumer's Avatar-mediated Interaction with Other Avatars	$A(C) \times A(C')$	21	17.21%

The three identified themes closely resonate with the three research questions proposed by the current study. Under the first theme, research on  $C \times A(C)$  interaction mainly examines the relationship between consumers and their digital representations (self-avatars) and investigates why consumers think and act in certain ways when experiencing the virtual world through their own avatars (RQ1). For example, from the extended self and self-presentation perspective, several studies conclude that consumers tend to project both their real selves and their ideal selves into their embodied avatars (e.g., Chen & Chen, 2020; Messinger et al., 2019). Therefore, avatar identity partially represents the actual identity of the consumer controlling the avatar, but can also be influenced by social cues such as assigned avatar roles and community norms within the SVEs (Costa Pinto et al., 2015). Table 2 presents more selected articles under the theme  $C \times A(C)$  that investigate the interaction between consumers and their self-avatars.

**Table 2.** Illustrative research on  $C \times A(C)$  interaction

Identified Theme	Illustrative Research	Avatar in Research	Research Focus	Theoretical Perspective	Key Findings	Implications for Metaverse Marketing
$C \times A(C)$	Bélisle & Bodur, 2010	Consumer Avatars in <i>Second Life</i>	To understand the link between consumers and their avatars in SVEs	The Brunswik Lens Model	Avatars serve as a proxy for consumers' personality and lifestyles	Consumer insight discovery via avatar targeting in the metaverse is feasible
$C \times A(C)$	Teng, 2019	Player Avatars in Online Games	To examine the relationship between avatar identification and online gamer loyalty	Self-affirmation Theory	Unique and positive images of an avatar (as perceived by the user) are positively related to avatar identification, and further to online gamer loyalty.	Avatars with high customisation and positive identification can potentially encourage consumers' initial adoption and acceptance of the metaverse
$C \times A(C)$	Costa Pinto et al., 2015	Player Avatars in <i>World of Warcraft</i>	To explore how consumers redefine their identity in experiential online communities	Extended Self; Aggregated Self	Players tend to extend their real and ideal selves to their avatars in games; They also aggregate their sense of self through community partisanship.	Avatars possess both personal and social cues of consumers, which provide more possibilities for consumer targeting in the metaverse
$C \times A(C)$	Messinger et al., 2019	Consumer Avatars in SVEs	To examine the relationship between avatars in virtual environments and the people they represent.	Self-presentation Theory; Self-enhancement Theory; Self-verification Theory	Consumers design their avatars to be similar to their real selves, but with some enhancements to make their avatars more physically attractive	Avatars in the metaverse are not equal to consumers in the physical world, as consumers tend to include both their real selves and their ideal selves in their avatars
$C \times A(C)$	Sylvia, King & Morse, 2014	Player Avatars in Video Games	To investigate whether idealised avatars have a negative effect on consumers' self-esteem	Proteus Effect; Presence	Compared to avatars with average body builds, avatars with exaggerated muscularity significantly lower the self-body satisfaction of men	While consumers tend to project their ideal selves to their avatars, overly idealised avatars in the metaverse may have a negative influence on consumer wellbeings

The second research theme focuses on consumers' interaction with marketing avatars. Studies on  $C \times A(M)$  interaction highlight various types of marketing avatars used by marketers in multiple contexts and examines the effectiveness of these avatar-mediated marketing approaches (RQ2). For example, adopting the social presence theory, several studies have established that in a digital service context, the perceived humanness of AI chatbots is positively related to consumer trust and consumer satisfaction (Jiang, Yang & Zheng, 2023; Söderlund & Oikarinen, 2021). Other characteristics such as the congruence between the sales avatar and promoted product (Beldad, Hegner & Hoppen, 2016), avatar identification (Hua & Xiao, 2023) and avatar's real-time interactivity (Etemad-Sajadi, 2016) are also examined as influencing factors of avatar-based marketing effectiveness. Table 3 shows more selected articles under the  $C \times A(M)$  theme.

**Table 3.** Illustrative research on  $C \times A(M)$  interaction

Identified Theme	Illustrative Research	Avatar in Research	Research Focus	Theoretical Perspective	Key Findings	Implications for Future Research
$C \times A(M)$	Söderlund & Oikarinen, 2021	Virtual Agents (VAs) in Consumer Service	To examine the impact of perceived humanness of VAs on customer satisfaction	Social Perception; Humanness	Attributions of agency, emotionality and morality to VAs contribute positively to VAs' perceived humanness, which is also positively related to customer satisfaction	In a virtual service context, consumers' social perception of a marketing service avatar has an essential impact on the effectiveness of that service avatar
$C \times A(M)$	Kim, Schmitt & Thalmann, 2019	Consumer Service Robots	To explore how a service robot's anthropomorphism degree influences consumers' judgement and attitude toward the robot	The Uncanny Valley; Humanness	Making a consumer robot more human-like increases perceptions of warmth but decreases favorable attitudes toward that robot.	Marketing avatars with a high level of humanness are not always good, as they may trigger the uncanny valley during avatar-mediated interactions.
$C \times A(M)$	Jiang, Yang & Zheng, 2023	AI Chatbots	To determine which aspects enhance the adaptation of chatbots and how they interactively affect human trust	Task-technology Fit Theory; Social Presence	Perceived task-solving competence and social presence mediate the pathway from conversational cues to human trust	For marketing avatars, social cues and functional cues are equally important in building consumer trust
$C \times A(M)$	Keeling, McGoldrick & Beatty, 2010	Sales Avatars	To investigate whether avatars with social- or task-oriented communication styles contribute to user trust and patronage intentions	Social Presence	Task-oriented style is more effective in trust building for search goods/services, while social-oriented style excels in credence goods/services	For marketing avatars to gain consumer trust, marketers need to carefully consider the appropriate appearance, social role, interaction style and the assigned task content of their avatars
$C \times A(M)$	Kim et al., 2022	Non-human Agents	To examine how the use of AI-based, non-human agents in service industries influences consumers' unethical behaviour tendency.	Anticipatory Guilt	When interacting with non-human (vs. human) agents, consumers' unethical behaviours tendency increases due to reduced anticipatory guilt.	Marketers need to evaluate the benefits and risks of both AI-based and human-based avatars before engaging consumers in an avatar-mediated virtual environment

The third research theme highlights consumers' avatar-mediated interaction with other avatars. Despite its limited number, this body of research accumulated important implications on fully avatar-mediated consumer interactions in various contexts (RQ3). Specifically, the study by Moon et al. (2013) suggests that social presence serves as an important underlying mechanism that supports avatar-mediated consumer interactions in SVEs. Moreover, other studies discovered that avatar behaviours are determined not only by individual factors of its controller but also by its own characteristics, such as the avatar's age, gender and social role (Zhang et al., 2017). More selected article under the third theme is presented in Table 4.

**Table 4.** Illustrative research on  $A(C) \times A(C')$  interaction

Identified Theme	Illustrative Research	Avatar in Research	Research Focus	Theoretical Perspective	Key Findings	Implications for Future Research
$A(C) \times A(C')$	Moon et al., 2013	Consumer Avatars in Virtual Shopping Environment	To investigate how consumers' avatar-mediated interactions with a salesperson and a peer shopper influence their shopping experiences and brand evaluations.	Social Presence	A consumer's avatar-mediated social interaction with a salesperson and a peer shopper enhances his/her social presence, enjoyment, brand attitude, and purchase intention.	In future avatar-mediated communications, social presence serves as one of the key factors that stimulate positive consumer experiences
$A(C) \times A(C')$	Zhang et al., 2017	Avatar Residents in <i>Second Life</i>	To examine the impacts of avatar gender, avatar age, and location (region theme) on avatars' physical activity.	Media Richness; Media Synchronicity; Social Presence; Social Role; and Gender Role Theories	Male avatars, young avatars, and commercial region avatars are more physically active than female avatars, old avatars, and help-supporting region avatars.	Set aside individual characteristics of consumers, demographic and geographic factors of avatars also have a direct impact on avatar behaviours in the metaverse
$A(C) \times A(C')$	Zahedi et al., 2022	Real Patient Avatars in Virtual Hospital	To explore factors that influence patient satisfaction toward a virtual hospital, where real patients receive medical care via their avatars.	Theory of Affordance	Patients' perceived affordance of telepresence, trust and real avatar are all positively related to their satisfactions toward the virtual hospital	The virtual and the physical world may be able to connect via the metaverse, bringing different kinds of opportunities and challenges to marketers and business developers
$A(C) \times A(C')$	Machneva, Evans & Stavrova, 2021	Consumer Avatars in SVEs	To investigate whether consumers are able to accurately judge trustworthiness in avatar-mediated interactions.	Trustworthiness	In SVEs, consumers are not able to accurately identify the actual trustworthiness of avatar creators from avatar appearance	While avatars create more space for falsity, it may be even harder for marketers to gain trust from consumers in the metaverse than in the physical world
$A(C) \times A(C')$	Butt et al., 2021	Consumer Avatar and AI-powered Avatar in Games	To explore the roles of various avatar characteristics in forming the gamers' intention to play with AI-powered avatars.	Innovation Diffusion Theory; Technology Acceptance Model; Flow Theory	Consumers enjoy playing with AI-powered avatars that enable customisation, collaboration, and interaction	AI-based avatars and human-controlled avatars have the potential to co-create a unique parasocial interactions in the metaverse

#### 4. Future Research Agenda

The current paper synthesises the fragmented avatar literature in marketing domains and establishes state-of-the-art knowledge on avatar-mediated interactions under three identified research themes. Based on the findings of our thematic analysis, each theme possesses unique implications for future research on the topic of metaverse marketing.

The most demanding research direction inspired by the  $C \times A(C)$  theme would be avatar-based consumer targeting in the metaverse. The metaverse can potentially create and integrate highly immersive virtual experiences, which will generate an enormous amount of consumer data with high granularity. However, it is very likely that such data will be collected by tracking the digital touchpoints of consumer avatars (Hollensen, Kotler & Opresnik, 2022). The extant literature indicates a trackable but complicated connection between consumers'

physical selves and their digital avatars. Therefore, how to accurately target consumers via their avatar data will be an essential question for marketers to consider in the future.

Research on the C × A(M) theme highlights avatar as a marketing tool to approach consumers. Based on our systematic review, most marketing avatars, such as AI chatbots or virtual sales agents (VSAs), are controlled by software or computer algorithms. The non-human nature of these avatars brings huge risks and limitations for marketers to achieve better marketing effectiveness (Kim et al., 2022). However, in the metaverse, where almost all communications are avatar-mediated, marketers have the opportunity to approach consumers via their own human-controlled marketing avatars (Dwivedi et al., 2022). In this context, fully avatar-based marketing communications will be available and demand further thorough investigations. Yet so far, to our best knowledge, no research has examined this newly emerged marketing channel in the metaverse. Therefore, future research could try to expand the existing paradigm of digital marketing into the metaverse and shed light on new strategies for avatar-mediated marketing.

Studies under the third theme mainly investigate avatar-to-avatar interactions between consumers and other entities. Based on our systematic review, the extant research on avatar-mediated consumer interactions sits at a relatively premature stage and calls for further theoretical and empirical contributions. One possible research direction could be examining consumers' perspective taking in various virtual contexts. Specifically, past literature suggests that avatar embodiment may create identity discrepancy (Jin, 2009; Jin, 2012), which in turn raises many unanswered questions. One possible research question could be 'if there is a significant difference between consumers' true identity and their digital avatars' identity, whose perspective will consumers take when they engage in avatar-mediated interactions with other avatars?' Future research could also investigate unique avatar-related factors, such as identity anonymity, psychological distance shift, confidence boost, etc., and their potential impact on avatar-based consumer behaviours in the metaverse.



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