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Article

Mapping the landscape of avatar marketing: a bibliometric analysis of trends and future directions

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Mapping the landscape of avatar marketing: a bibliometric analysis of trends and future directions

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ABSTRACT

This research aims to synthesize a contemporary understanding of avatar marketing by employing advanced bibliometric analysis and data visualization techniques. It addresses existing gaps in the literature and delineates a clear path for future research. By systematically reviewing 185 research publications from the Scopus database, spanning 2004 to 2024, the study evaluates global trends in research output, identifying key contributors such as authors, journals, countries, and leading institutions. Utilizing Biblioshiny and VOSviewer, the analysis uncovers emerging patterns, thematic evolutions, and collaboration networks within the field. Findings highlight the geographical distribution of research activities and the development of new subfields over time. The study provides a detailed map of the current state of avatar marketing research, suggesting areas for further exploration, including interdisciplinary studies and examining cultural differences. This comprehensive review offers valuable insights and a robust framework for future research, contributing significantly to the field by enhancing our understanding and proposing a trajectory for future investigations.

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KEYWORDS

Avatar marketing; avatars; bibliometric analysis; marketing; VOSviewer; Biblioshiny

SUBJECT CLASSIFICATION CODES

Consumer Behavior;
Digital Marketing; Virtual Analysis; Virtual World;
Online Marketing;
Interactive Marketing;
Metaverse Marketing

SUBJECTS

Business, Management and Accounting;
Economics; Visual Communication;
Psychological Science; Marketing; Internet / Digital Marketing / e-Marketing; Marketing Communications;
Marketing Management; Marketing Research; Relationship Marketing

1. Introduction

Technology integration has always been a part of human life (Kumalasari et al., 2024), it is said to influence the development of knowledge, ways of communicating, working and other activities that become easier and faster (Mele & Russo-Spena, 2023). This technological progress allows for the development of virtual beings with an anthropomorphic appearance that can be manipulated by either people or software. These entities, commonly referred to as avatars, can interact with their surroundings (Miao et al., 2022). Avatar marketing refers to a thriving digital platform that effectively engages consumers within the marketing framework, allowing for easy recognition and strengthening relationships (Silva & Campos, 2024). In line with several other researchers (Holzwarth et al., 2006; Silva & Campos, 2024) explain that avatars are considered as representations of organizations that carry out digital transactions with the aim of increasing consumer satisfaction because the process is considered quite effective.

This research differs from others (Park et al., 2021) which revealed that customers exhibit a low level of satisfaction when interacting with artificial intelligence (AI) systems that lack human-like qualities.

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Table 1. Comparison the literature studies regarding avatar marketing.

Basis of comparison	Silva and Campos (2024)	Szolin et al. (2023)	Yadav et al. (2024)	Byun et al. (2023)	Cowan and Ketron (2019)
Year range	2005–2022	2007–2022	2013–2022	2015–2022	2003–2018
Number of studies reviewed	103	17	35	44	129
Methodology	PRISMA	PRISMA	PRISMA	A Systematic Review	A Systematic Review
Focus of the study	This study reviews the history and development of the theme of avatar marketing, both theoretically and methodologically and identifying, studying, and utilizing the process.	This study analyze the existing literature on the impact of Proteus Effect (PE) in the context of video games, specifically focusing on its influence on the avatar component of marketing.	This study investigates the importance of deep metaverse in marketing practice, specifically focusing on avatar marketing.	This study explores the concept of human influencers versus virtual influencers, which are digital avatars that engage with consumers.	This article presents a framework for approaching virtual reality in research and marketing. Within this proposed paradigm, the avatar is regarded as a pivotal idea that amplifies the in-app experience of virtual reality.

Source: Developed by Authors (2024).

According to Goel et al. (2023) the primary purpose of avatar marketing is to use advanced technologies like AI, AR, VR, and others to provide consumers with immersive experiences. Supported by the opinion of Perret (2021) this type of marketing is currently trending because it can expand strategies and develop company progress. Therefore, it can be said that although technological advances and the use of avatars continue to increase, their effectiveness varies significantly between companies (Miao et al., 2022).

Although there is some extensive research in the field of avatars, such as the characteristics of avatars in attracting consumers (Mrad et al., 2022), as personalization in expression through virtual worlds (Arya et al., 2024), it influences users, particularly in terms of self-awareness and behaviors within the Metaverse (Zhu & Yi, 2024). However, there is a lack of discourse on advancing marketing literature, particularly about avatars. This is especially true when employing quantitative methodologies, making it challenging to establish a solid foundation for the avatar notion within the marketing domain. (Silva & Campos, 2024). Avatar marketing is a topic that is extensively examined in various research, such as narrative reviews (Ishigaki & Madhabika, 2024), systematic literature review (Dahiya & Banerji, 2024) and several other literature reviews depicted in Table 1. Hence, the primary aim of this study is to identify and address the knowledge gaps in avatar marketing through a comprehensive bibliometric analysis, thereby enhancing comprehension of this topic and gauging the extent of existing literature in this domain.

Several researchers (Donthu et al., 2021; Goel et al., 2023; Singh & Bashar, 2023) explain that bibliometric analysis is an acceptable method and is able to provide up-to-date review results. In line with the opinion of researchers Muritala and Maria-Victoria (2020) that bibliometric analysis can enhance knowledge and comprehensively address literature deficiencies. On the other hand, other researchers (Minh et al., 2023) argue that this approach incorporates co-citation analysis, which facilitates the identification of knowledge structures through scientific mapping.

This systematic literature review aims to critically evaluate the role of avatars in marketing, identifying key themes, research gaps, and future directions (Rammal, 2023). The study seeks to enhance the existing body of literature by comprehensively analyzing avatar marketing. It bridges the knowledge gap regarding the role of virtual identities in shaping marketing outcomes by examining current trends and proposing a framework for integrating avatars into marketing strategies. This review offers well-structured insights into the latest patterns in avatar marketing and provides actionable recommendations. It also analyzes theoretical and empirical studies on the relationship between avatar marketing, focusing on how these digital representations foster personalization and immersive experiences across various platforms, such as virtual stores, social media, gaming environments, and the metaverse. Therefore, the purpose of this study is to use bibliometric analysis to thoroughly synthesize the literature on avatar marketing in order to address the following research questions:

RQ1: What is the current state-of-the-art profile of avatar marketing?

RQ2: What are the main trends that avatar marketing studies have been following recently?

RQ3: What are the key variables in the avatar marketing field?

RQ4: What are the implications and potential areas for future research in avatar marketing?

This synthesis also signifies a comprehensive advancement for scholars in furthering the literature in the future. The study is organized in the following manner: [Section 2](#) presents a comprehensive review of the existing literature, whereas [Section 3](#) delineates the specific research methodology employed. The following section provides a summary of the results and analysis derived from the comprehensive findings and the final section explores potential avenues for further research and highlights the limitations of the study.

2. Literature review

2.1 Avatar marketing

According to Silva and Campos (2024), Avatars are a tool for examining how individuals portray themselves in the virtual realm, exploring their psychological tendencies, perceptions, and behavioral reactions. Additionally, the context in which avatars exist is recognized as a means of communication and gaining user approval. Furthermore, alternative viewpoints from experts suggest that avatars are a contemporary marketing tactic that is evolving gradually. However, their efficacy in reaching desired outcomes varies significantly in practice (Miao et al., 2022). Supported by the opinion of Elsharnouby et al. (2023) stated that communication strategies provide visual information to consumers through online media. In alternative studies, avatar marketing is described as a strategic tool or a means to promote innovative company strategies (Davis & Moscato, 2018; Zhang et al., 2020). Other studies also highlight that the avatar marketing strategy successfully provides instructions for offering goods and services to consumers (Bidler et al., 2020; Silva & Campos, 2024). The opinion of other researchers (Jessica et al., 2022; Perret, 2021) said that avatar marketing is a component of influencer marketing that uses social media to influence potential consumers and engages endorsers to advocate certain products or companies.

Meanwhile, in the business environment, avatar marketing can be employed as a unique marketing technique to prevent unfavorable controversies within the firm and establish a positive image by harmonizing avatar marketing strategies (Thomas & Fowler, 2021). In alternative studies, avatar marketing is described as a strategic tool or a means of promoting innovative company strategies. (Davis & Moscato, 2018; Zhang et al., 2020). Other studies also highlight that the avatar marketing strategy is successful in providing instructions for offering goods and services to consumers (Bidler et al., 2020; Silva & Campos, 2024). The opinion of other researchers (Jessica et al., 2022; Perret, 2021) said that avatar marketing is a component of influencer marketing that uses social media to influence potential consumers and engages endorsers to advocate certain products or companies. Meanwhile, in the business environment, avatar marketing can be employed as a unique marketing technique to prevent unfavorable controversies within the firm and establish a positive image by harmonizing avatar marketing strategies. (Thomas & Fowler, 2021).

Over the years, avatars have become increasingly common across various domains, including e-commerce websites, product and brand marketing advertisements, social media platforms, and online intelligent service providers (Chattaraman et al., 2019; Lin et al., 2021; Tan et al., 2021). The origin of avatars can be linked to the concept of conversational agents (Kang et al., 2024). These conversational assistants are artificial systems designed to mimic human conversation through multiple communication methods such as text, gestures, speech, and facial expressions (Chen et al., 2024; Kang et al., 2024). Conversational agents can be categorized into three types (Van Pinxteren et al., 2020): voice assistants without avatars, digital avatars, and physical robots.

2.2 Bibliometric analysis

There is a lot of useful information in literature reviews that summarizes the subject and points out areas that need more study in the future (Rammal, 2023). Bibliometric analysis uses statistical and

mathematical methods to convey information and employ arithmetic approaches for analysis and communication (Goel et al., 2023; Pritchard, 1969). Bibliometric analysis illustrates the most recent research patterns within a specific research framework (Kacprzak & Hensel, 2023). Bibliometric research can demonstrate the visualization of intellectual structures using network mapping specific to a research field with important themes which can then help to clarify and discover future research related to a particular research field (Ramos et al., 2023).

Several previous researchers have carried out bibliometric analysis in the context of avatars, such as avatars in the context of video games (Berberović et al., 2023), the implications of avatars in the consumer perspective (Dahiya & Banerji, 2024), avatars that are implicitly part of business development in the metaverse (Mehta et al., 2023). Furthermore, most of research conducted a systematic evaluation of the literature, concentrating primarily on identifying and evaluating the progression of themes and clusters within the emerging area through bibliometric methodologies (Jayaswal & Parida, 2023). No researcher has examined avatar marketing using a bibliometric analytic approach. This study thoroughly concludes and elucidates the context of avatar marketing while also offering recommendations for future research directions utilizing this approach.

3. Methods

This study is conducted through a bibliometric analysis of avatar marketing. This research aims to provide a detailed analysis of the scientific framework and the development of themes related to avatar marketing. The main goal of bibliometric analysis is structural and clearer scientific mapping (Goel et al., 2023). Supported by the opinion of Mehta et al. (2023) who said that the study design used bibliometric analysis because this approach is very constructive for measuring the contribution of publications was evaluated through statistical examination.

This technique aims to comprehend the interrelationships among journal citations, condensing the primary subjects in the present research and potentially recognizing novel emergent concerns (Jia & Mustafa, 2022). The procedural stages of this method involve assessing research literature in the avatar marketing domain. This process involves identifying acceptable keywords to select relevant research papers, followed by collecting the initial findings through a series of criteria. The purpose of these filters is to guarantee that only relevant research is included. After careful consideration, the decision was made to utilize bibliometric and network visualization methods for academic projects (Aria & Cuccurullo, 2017).

Step 1: Identify and select the database

The bibliometric analysis in this study commenced by identifying the databases employed to look for studies in the domain of avatar marketing. The database selected for this research is Scopus. It encompasses more than 20,000 journals are published by highly esteemed publishers, including Inderscience, Elsevier, Emerald, Sage, Taylor and Francis, Springer, and other peer-reviewed research collections in humanities, science and technology, social sciences, and arts. According to Goel et al. (2023), said that Scopus database is extensively utilized by several academics for conducting studies, particularly in bibliometrics. It offers the convenience of exporting data sets for bibliometric research and network mapping.

This study also used the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Flow Diagram (as seen in Figure 1) a tool that enhances the comprehensiveness of systematic literature reviews and meta-analyses. The PRISMA statement offers a comprehensive checklist and flow diagram that facilitate the reporting and documentation of systematic reviews. This diagram also helps researchers in tracking and organizing other study selection processes clearly and systematically (Page et al., 2021). The checklist provides that all crucial components of a systematic review are sufficiently documented, encompassing the search method, criteria for study selection, data extraction, bias risk assessment, and findings synthesis. The PRISMA flow diagram offers a standardized and visually transparent depiction of the process of searching and screening literature (Berberović et al., 2023). It enables users to readily comprehend the progression of information and the number of studies that were either included or rejected at each stage.

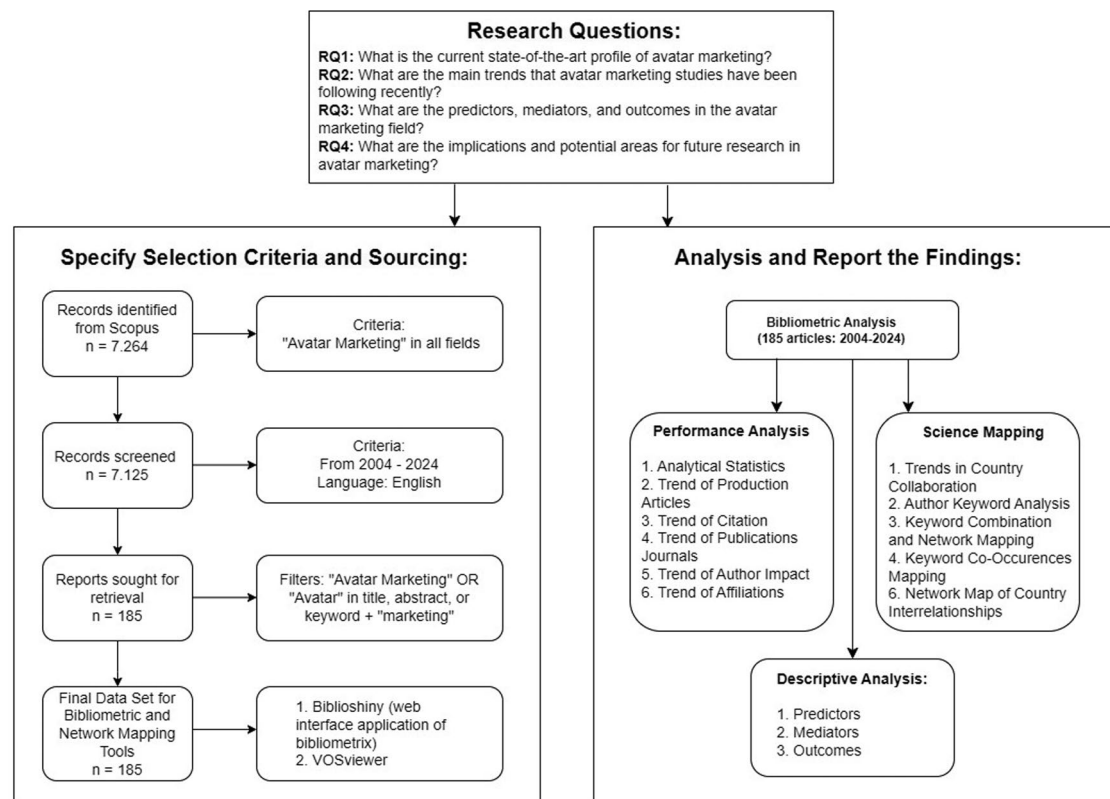


Figure 1. Research design and study methodology.
Source: Developed by Authors (2024).

Step 2: Finding the keyword

Keyword identification is a critical phase of bibliometric analysis. A comprehensive list of keywords will facilitate comprehensive and integrated queries, guaranteeing that the search exercise encompasses all research articles within the designated knowledge domain. In this study, the filters for search time, file type, and terms/keywords have been organized systematically based on the publishing platforms described earlier. Research published between 2004 and 2024, on academic platforms (excluding books or chapters, proceedings, book chapters, research reports, reference work entries, and conference papers, for example), and containing the term "Avatar Marketing" must be present in all areas, or the term "Avatar" must be present in the title, abstract, or keywords, together with the term "marketing" in all fields. In addition, articles written in languages other than English were eliminated.

Step 3: Preliminary findings from the literature search

Initially, the search produced a total of 7,264 articles. Subsequently, papers were chosen according to specific exclusion criteria, yielding 7,125 articles. Additionally, papers were assessed by filter in the step 1, leading to 185 articles as a final data set for bibliometric and network mapping tools as seen in Figure 1.

Step 4: Utilize tools for network mapping and bibliometrics

Bibliometric evaluation entails the utilization of multiple software tools. The final stage of this study's research methodology involves selecting software for bibliometric and network visualization purposes. A bibliometric study was conducted utilizing "Bibliometrix—an R-tool for extensive science mapping analysis" (Aria & Cuccurullo, 2017).

Bibliometrix is a software program written in the R language that facilitates comprehensive bibliometric analysis (Goel et al., 2023). It empowers academics to do thorough analyses from a bibliometric

standpoint. The Biblioshiny app, designed specifically for individuals without coding experience, was utilized for bibliometric analysis. This software is included in the Bibliometrix package. Biblioshiny enables uploading data sets obtained from Scopus in either CSV formats or BibTex. The network visualization research utilized VOSviewer, an open-source software designed to visualize different networks inside a research dataset (van Eck & Waltman, 2010). The process was conducted by analyzing the co-occurrence of keywords, specifically focusing on the most often cited author terms. Furthermore, the study also examined connections between co-authorships among the countries engaged in this field.

4. Finding and analysis

4.1 Performance analysis and science mapping

4.1.1 Performance analysis

This study employed bibliometric analysis of 185 research publications to assess and characterize the quantitative and qualitative contributions of avatar marketing in apparel. Table 2 presents a concise overview of the descriptive statistics for this final dataset. A total of 185 research articles were published on 153 different scholarly platforms between 2004 and 2024. These articles were written by 523 contributors, most of which were co-authored by multiple authors. The mean number of authors per scientific article is approximately 3. There is a notable degree of interest among scholars in this topic and a frequent occurrence of collaboration among them. In addition, these 185 research pieces have garnered a total of 26.34 citations per article.

4.1.2 Trend in the production of research articles

The quantity of research articles published in avatar marketing from 2004 to 2024 is depicted in Figure 2. Trend analysis helps identify how research in avatar marketing has evolved over time (Miao et al.,

Table 2. Analytical Statistics.

Overview	Results
Research publications	185
Sources	153
Author's keywords	585
Timeframe of analysis	2004–2024
Average citations per publication	2634
Author	523
Author of single-authored articles	41
International co-authorships per article %	2216
Co-Authors per articles	3.17

Source: Developed by Authors using Biblioshiny (2024).

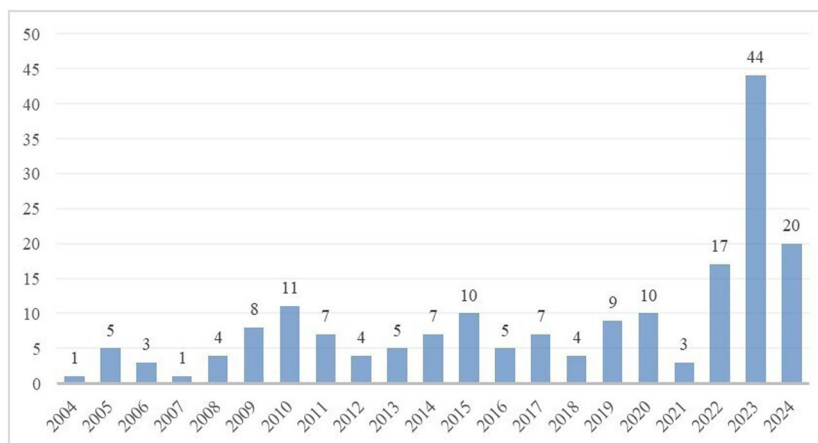


Figure 2. Trends in the production of research articles.

Source: Developed by Authors using Biblioshiny (2024).

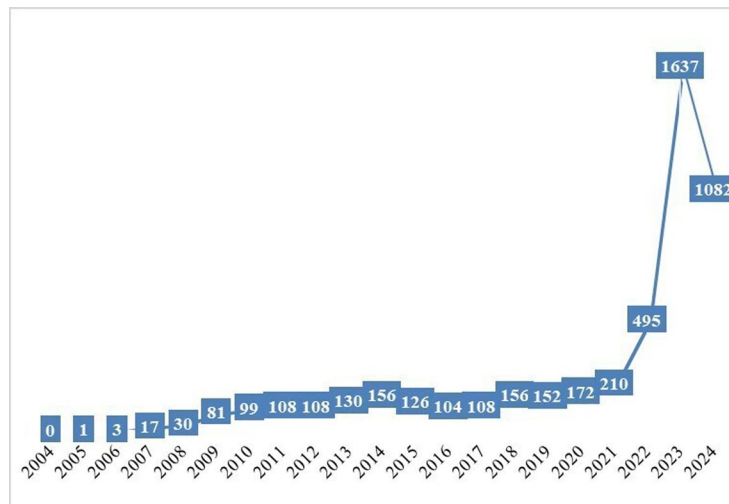


Figure 3. Citation Trend.

Source: Developed by Authors using Scopus database (2024).

2022). This is particularly relevant for understanding shifts in academic interest, emerging themes (Giang Barrera & Shah, 2023).

Although there have been occasional declines due to a limited quantity of research publications, there has been a consistent and significant rise in this research field, particularly after 2021. This tendency could be attributed to the general acceptance of new technologies in the marketing sector in recent times. This recent surge suggests growing academic interest, likely driven by emerging technologies, evolving industry practices, or new opportunities within the field. The trend points to the increasing relevance of the topic and a potential for further research.

4.1.3 Trend in citation

Figure 3 illustrates the trajectory of citation counts from 2004 to 2024. It enables the examination of a gradual rise in the number of references in this area of research. In addition, there has been a notable and consistent rise in the number of citations since 2005.

The research paper titled "Metaverse Beyond the Hype: Multidisciplinary Perspectives on Emerging Challenges, opportunities, and Agenda for Research, Practice and Policy", produced by Dwivedi et al. (2022) has received the highest number of citations (761) in this particular research field. This study comprehensively examines these themes by combining the informed narrative and multi-perspective approach of experts from many academic fields. It explores various facets of the metaverse and how individuals engage with actual and virtual surroundings through avatars and holograms. The research paper authored by Sang-Min Park (2022) titled "A Metaverse: Taxonomy, Components, Applications, and Open Challenges" achieved the second position in terms of citations in this particular topic, with a total of 697 citations. This study emphasizes the crucial significance of avatars in the Metaverse, as they serve as the user's other identity and engaged participant in the virtual environment.

Avatars are essential in the Metaverse as they function as the user's other identity and active participant in the virtual realm. Holzwarth et al. (2006) wrote a paper titled "The Influence of Avatars on Online Consumer Shopping Behavior" which has been cited 516 times, making it the third most cited paper. This study examines A possible resolution to this issue, which is to employ an avatar to convey product information. An avatar is a visual depiction that may be animated using computer technology. The top ten highly cited articles are shown in Table 3.

4.1.4 Publications performance

The following list presents the ten most prominent journals, ranked according to the number of research papers published from 2004 to 2024. The Journal of Marketing tops the list with an h-index score of 284

Table 3. Highest ten research articles according to global citations received.

No	Article	Author/s (year)	Citations
1	Metaverse beyond the hype: Multidisciplinary perspective on emerging challenges, opportunities, and agenda for research and policy	Dwivedi et al. (2022)	761
2.	A metaverse: Taxonomy, Components, Applications, and Open Challenges	Min and Kim (2022)	697
3	The Influence of avatars on online consumer shopping behavior	Holzwarth et al. (2006)	516
4	Can a retail Web Site be social?	Wang et al. (2007)	486
5	Metaverse marketing: How the metaverse will shape the future of consumer research and practice	Dwivedi et al. (2023)	235
6	Avatar-based marketing	Hemp (2006)	223
7	Metaverse: The new marketing universe	Hollensen et al. (2023)	165
8	An Emerging Theory of Avatar Marketing	Miao et al. (2022)	158
9	How avatar customizability affects children's arousal and subjective presence during junk food-sponsored online video games	Bailey et al. (2009)	144
10	Creating e-shopping multisensory flow experience through augmented-reality interactive technology	Huang and Liao (2017)	123

Source: Developed by Authors using Biblioshiny.

Table 4. Top ten publications performance.

Journals	H-index	Scopus Cite Score
Asia Pacific Journal of Marketing and Logistics	63	7.4
Journal Of Marketing	284	22.1
Journal Of Research in Interactive Marketing	59	12.6
Computers In Human Behavior	251	17.8
Journal Of Business Research	265	16.0
Journal Of Service Research	148	17.2
Journal Of Retailing and Consumer Services	143	16.1
Journal Of Interactive Advertising	19	11.5
Cyberpsychology And Behavior	180	8.7
European Journal of Marketing	8.1	154

Source: Developed by Authors using Biblioshiny.

and a Scopus cite score of 22.1. Subsequent publications include the Journal of Business Research and Computers in Human Behavior, with h-indexes of 265 and 251 and Scopus citation scores of 16.0 and 17.8, respectively. For a more detailed discussion, as summarized in Table 4.

4.1.5 Publications performance

Figure 4 displays the top 10 authors who have made significant contributions to research on avatar marketing based on the number of publications. Dwivedi, Y.K. is the top contributors to the list of published publications from 2004 to 2024, with five articles, respectively. Following distantly are Dillenberge, Hughes, and Johnson, Mitchell, J.L., till Ward, D each three articles. Furthermore, Ahn, S.J, Alalwan, A.A., Arai, K., and Balakrishnan, J., are contributors with two articles.

4.1.6 Trend on affiliations and countries

Figure 5 presents the top ten countries that produced the most research articles on avatar marketing from 2004 to 2024, and also Figure 6 illustrates the country collaboration map in the field of avatar marketing. This map visualizes the international cooperation and partnerships between countries in research related to avatar marketing. By identifying and mapping these collaborations, the figure highlights which countries are leading in this research domain and how they are interconnected with other nations. Such a visualization helps understand the global landscape of avatar marketing research and pinpoint potential areas for further international collaboration. As illustrated in Figure 5, the United States is the chart leader in terms of the maximum number of articles, with 120. China is nearby, with 60 articles. India and the United Kingdom are ranked third, with 47 articles each.

The top 10 affiliating institutions are delineated in Table 5 according to the number of articles published on this subject. Among the six research articles in the Avatar Marketing domain, Symbiosis International Deemed University and Symbiosis Institute of Business Management from India are positioned at the top. Swansea University of the United Kingdom and The Hong Kong Polytechnic University are the second-ranked institutions, with five articles each. Four additional universities, two of which are located in the United Kingdom and one in the United States and Hong Kong, are followed by the

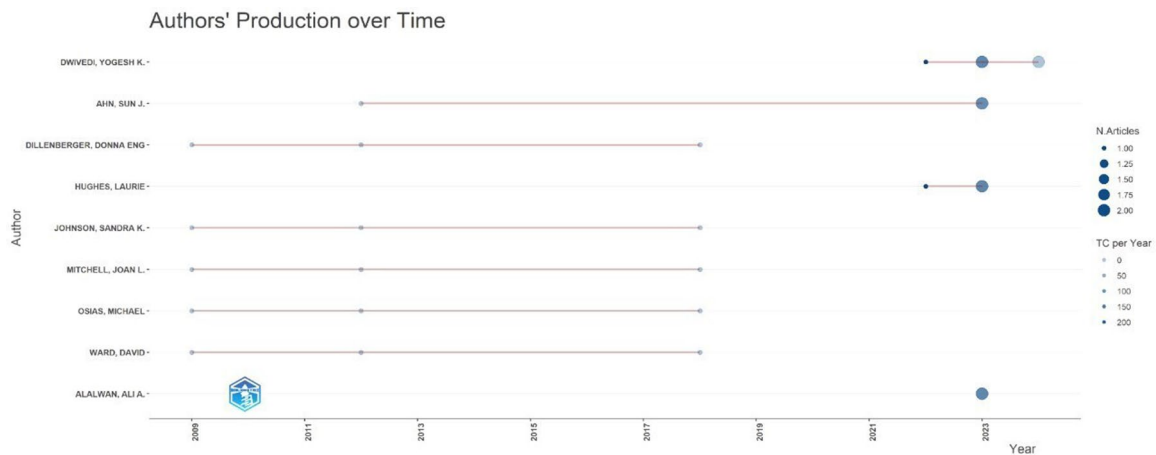


Figure 4. Author impact.
Source: Developed by Authors using Biblioshiny.

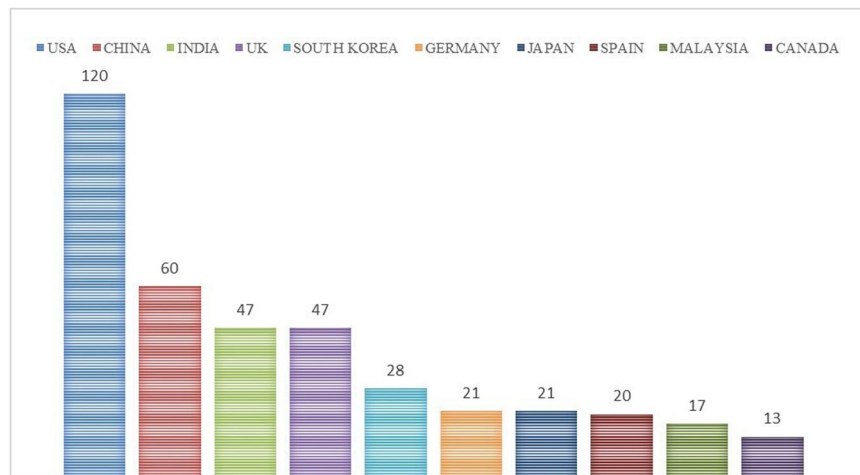


Figure 5. Statistics on countries and affiliations.
Source: Developed by Authors using Biblioshiny.

University of Southampton and School of Management in the United Kingdom and the University of Georgia and School of Hotel and Tourism Management in Hong Kong, respectively.

4.1.7 Author keyword analysis

The Biblioshiny tool was utilized to evaluate the most commonly used author keywords in this research field. These keywords aid in determining the current popular themes and subjects within a specific field of study and present a summary of the top 20 author keywords, displayed in the shape of a word tree map. Among the top 20 author keywords in the topic of avatar marketing, the terms "marketing," "virtual reality," and "avatar" are the most commonly used. The next most frequently used author keywords are "interactive computer graphics" and "commerce." This word treemap (as seen in Figure 7) reveals key research areas in the field of avatar marketing.

4.1.8 Network visualization for graphical analysis

This part aims to expand the bibliometric findings by including network visualization techniques for graphical analysis. The analysis was conducted using the VOSviewer software, which uses clustering and network layout techniques to depict networks and links within a given literature dataset visually (van Eck & Waltman, 2010). Previously, many researchers (Muritala & Maria-Victoria, 2020; Nurlatifah et al., 2021;

Country Collaboration Map

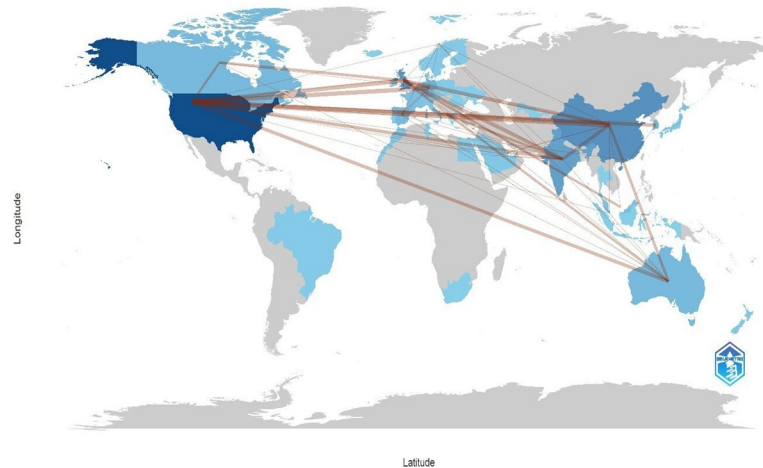


Figure 6. Country collaboration map.
 Source: Developed by Authors using Biblioshiny.

Table 5. Top ten affiliating institutions.

Organization	No. of articles	Country
Symbiosis International Deemed University	6	India
Symbiosis Institute of Business Management	6	India
Swansea University	5	UK
The Hong Kong Polytechnic University	5	Hong Kong
University of Southampton	4	UK
University of Georgia	4	USA
School of Hotel and Tourism Management	4	Hong Kong
School of Management	4	UK
Korea University	3	South Korea
The University of Toledo	3	USA

Source: Developed by Authors using Biblioshiny.

Singh & Bashar, (2023) have utilized VOSviewer software to analyze the connections between research articles from various angles. These viewpoints primarily include the association of organizations or institutions, collaborative authorship, countries, and the occurrence of author search terms, among other variables. Analyzing these network visualization graphs using graphical analytic techniques enables the identification of significant patterns and insights in the study material. This analysis has the potential to identify valuable directions for future exploration and potential research collaboration opportunities.

4.1.9 Analysis of keyword combination and network mapping

The primary objective of analyzing keyword co-occurrence using network visualization is to explore the interconnectedness of terms scholars use in a specific research field. This investigation aims to understand the whole knowledge framework of this topic. The VOSviewer software was employed to generate a network graph to conduct a graphical analysis of term co-occurrence. In this graph, only keywords that appeared at least three times were assessed. Sixty-five keywords exceeded these criteria. Figure 8 illustrates the keyword co-occurrence map.

The current state of the co-keyword network suggests that the avatar marketing theme has received little scholarly attention, as it remains scarce. It suggests that research on this topic is still limited, with few studies focusing on it. The lack of extensive research presents substantial opportunities for further exploration and contributions to the field, potentially paving the way for new and innovative studies in the future. Figure 8 illustrates that the author keyword "marketing" has the greatest co-occurrences and robust associations with the other keywords. This is represented by the larger size of the circle and the relatively larger font size. Furthermore, "avatar" is the second with high co-occurrences and a strong connection with the other keywords. Similarly, the terms "virtual reality" and "interactive computer

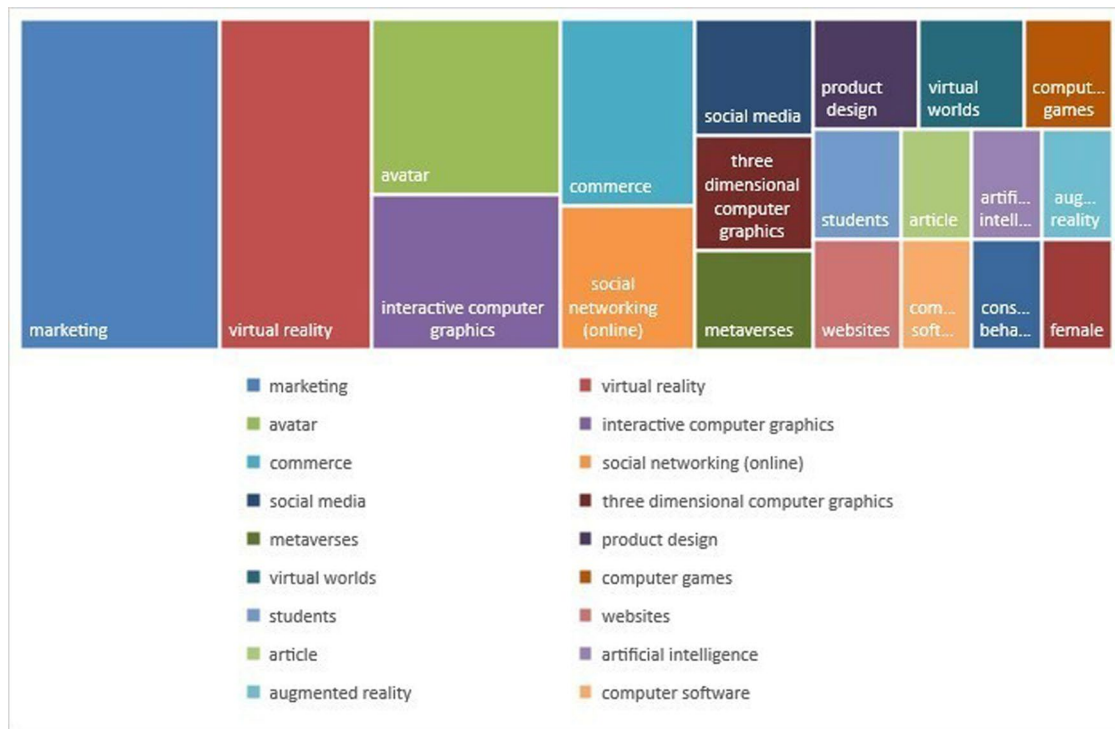


Figure 7. Treemap of most frequently used author keywords.

Source: Developed by authors using Biblioshiny.

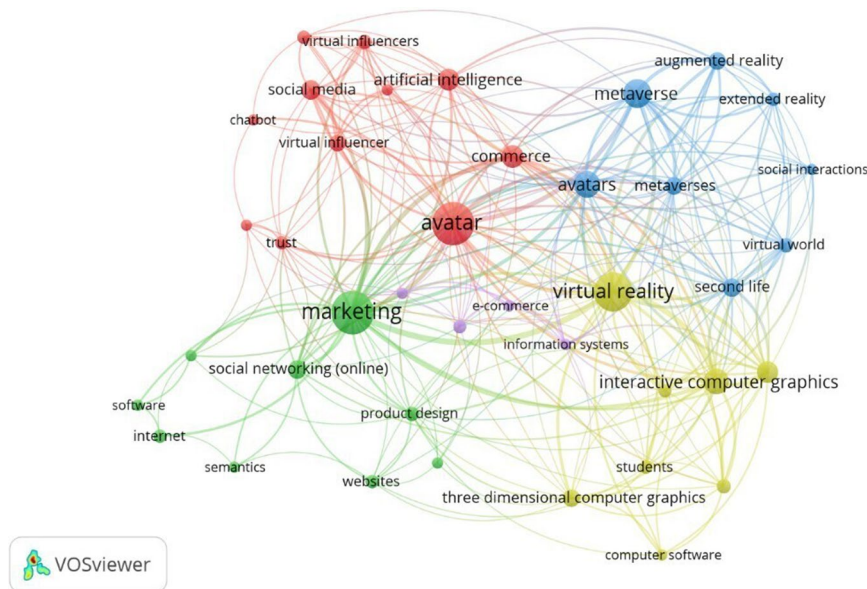


Figure 8. Keyword co-occurrence network.

Source: Developed by authors using Biblioshiny.

graphics" had better connections compared to the other keywords. Additionally, it may be noted that the avatar is associated with several terms, including commerce, artificial intelligence, virtual influencer, chatbot, virtual world, metaverse, etc. Likewise, marketing is associated with a range of keywords such as online social networking, avatars, software, and the internet, among others. Therefore, the significance of avatar marketing may be observed.

The keyword co-occurrence analysis using VOSviewer reveals key trends and research gaps. Marketing is currently the dominant topic, highly integrated with online social networking and digital tools, while

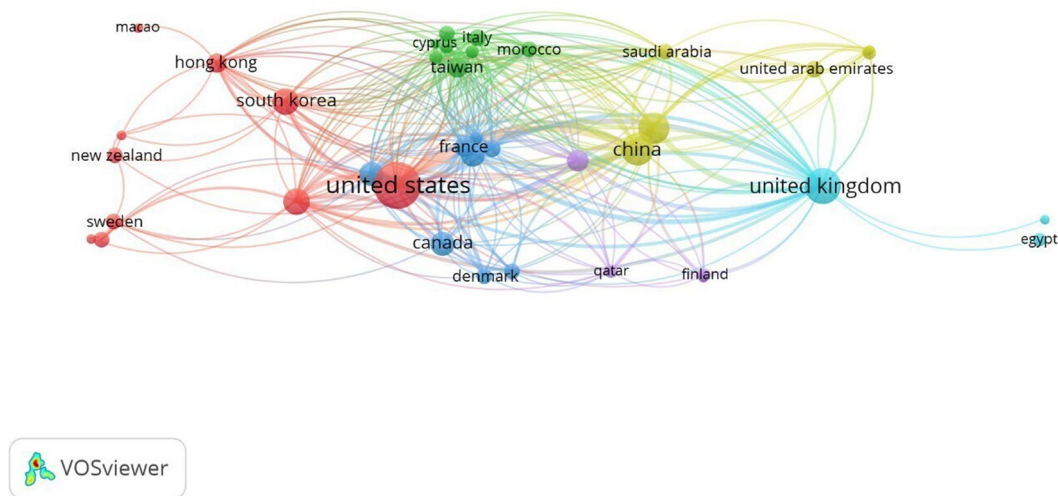


Figure 9. Network map of authorship collaboration between countries.
Source: Developed by Authors using Biblioshiny.

avatar research is emerging, connected to both commerce and AI technologies. The lack of extensive research in avatar marketing suggests a wide-open opportunity for scholars to delve deeper into this innovative field.

4.1.10 International collaboration in authorship

Figure 9 depicts the collaborative partnerships in co-authorship among authors from different countries. During the execution of this network map, the initial filtering process involved applying the criterion of having a maximum of 25 countries for each study paper. This criterion was used to filter the articles from the entire dataset of 185. In addition, a minimum of two articles per country were created. Strong significant collaboration was observed among the targeted countries for avatar marketing. This network-based analysis offers an advanced analytical technique, as it visually maps interconnections, identifies key contributors (e.g., the United States and the United Kingdom as central nodes), and reveals regional or cross-national trends in collaborative research. Furthermore, it provides insights into collaboration patterns that might influence the quality and diversity of research findings.

The network map displayed distinct clusters, each represented by a certain colour. These clusters included the USA and South Korea, Hong Kong, Macao, New Zealand, and Sweden; the United Kingdom and Egypt; and France, Canada, and Denmark; as well as Taiwan, Morocco, Cyprus, and Italy. While the strength of collaborative ties was reported to be higher within the clusters, researchers from other clusters collaborated to publish research material in this field.

5. Key variables analysis

Avatar marketing operates at the intersection of consumer psychology (Dwivedi et al., 2023; Huang et al., 2024; Lee & Shin, 2004), technology (Liu et al., 2024; Mennecke & Peters, 2013), and brand strategy (Chen et al., 2024; Cowan & Ketron, 2019; Park & Lim, 2023), with various interconnected variables influencing its effectiveness. One critical consumer behavior variable is emotional engagement (Akhtar et al., 2024; Ben Saad & Choura, 2024; El-Deeb, 2024), where avatars foster deeper connections through personalized interactions (Blum & Clarke, 2011; Idrees et al., 2023), such as tailored greetings (Siemon & Aittamaa, 2023) or product recommendations (Wei et al., 2017). These encounters enhance brand attachment (Yu et al., 2023) and consumer loyalty (Guo et al., 2023) by tapping into emotions and stimulating parasocial relationships—one-sided but impactful connections between users and virtual figures, often mimicking real social interactions (Chen et al., 2024; Johnston, 2011). When consumers identify with an avatar that reflects their values or aspirations, it strengthens psychological ownership, increasing brand advocacy and purchase intention (Guo et al., 2023; Kim et al., 2024; Wu et al., 2023).

From a strategic marketing perspective, personalization is a key driver of success in avatar marketing (Berthon et al., 2010). AI-powered avatars can improve customer satisfaction (Holzwarth et al., 2006) and driving conversions (Esmark Jones et al., 2022). Gamification elements further enhance this effect (Bidler et al., 2020; Wanick & Stallwood, 2023), incorporating avatars into interactive experiences (Hollensen et al., 2023), such as reward systems or competitions (Gattig et al., 2017; McGrath & Trentadue, 2015), which boost consumer engagement (Kamaruddin et al., 2023). Moreover, maintaining brand consistency across avatars ensures that these virtual agents align with the company's identity (Park et al., 2021), enhancing credibility and trust (Gonzales-Chávez & Vila-Lopez, 2020). The growing popularity of virtual influencers—AI-driven avatars acting as brand ambassadors on platforms like Instagram, YouTube and TikTok—further demonstrates how avatars can build social proof and drive brand interaction (Foster et al., 2022; Hansal & Pruthi, 2023; Mennecke & Peters, 2013; Sakuma et al., 2023).

The role of technology is crucial in avatar marketing, with artificial intelligence (AI) (Mende et al., 2024; Miao et al., 2022) and natural language processing (NLP) enabling avatars to deliver meaningful (Ishigaki et al., 2024), real-time interactions, NLP allows avatars to respond effectively to consumer inquiries, improving customer service through chatbots and virtual assistants (Oh et al., 2024). Furthermore, augmented and virtual reality (AR/VR) technologies create immersive environments where avatars enhance experiential marketing (Blum & Clarke, 2011; Shin et al., 2023), offering memorable consumer-brand interactions (Elsharnouby et al., 2023). These technological advancements position avatars as not just interaction tools but immersive brand experience facilitators (Peng et al., 2024).

Operationally, avatars contribute to scalability and cost efficiency by automating routine tasks, reducing the need for human labor while maintaining service quality (Mörk, 2023; Park et al., 2021). This enables businesses to handle large volumes of customer interactions without proportionate increases in operational costs (Yadav et al., 2024). Additionally, avatars collect behavioral data on customer preferences and frequently asked questions, offering valuable insights to refine marketing strategies and improve customer service (Paul et al., 2022; Yao et al., 2023).

Lastly, sociocultural and ethical considerations play an essential role (Casas, 2022). Avatars must adapt to cultural norms to ensure acceptance across different markets (Gonzales-Chávez & Vila-Lopez, 2020). At the same time, businesses must address ethical issues, such as data privacy and transparency, to foster trust and ensure long-term brand sustainability in compliance with regulations (Yang et al., 2023). Avatar marketing is a complex ecosystem shaped by consumer engagement, advanced technology, strategic design, operational efficiency, and cultural awareness. The interplay of these variables allows firms to implement effective, scalable, and data-driven marketing strategies, positioning avatars as transformative agents in the evolving digital marketing landscape.

6. Theoretical implication

Avatar marketing introduces a transformative framework that reshapes traditional consumer-brand relationships and parasocial interactions, offering substantial opportunities for theoretical advancement (Tsai & Chuan, 2023). Unlike conventional influencer marketing (Sakuma et al., 2023), avatar marketing leverages virtual (Liu et al., 2024), anthropomorphic figures to act as brand ambassadors (H. H. Wang et al., 2021), prompting the need to explore how consumers form emotional bonds and trust with these non-human agents (Miao et al., 2022). This phenomenon challenges existing paradigms of relationship marketing by examining the psychological and behavioral mechanisms that underpin consumers' feelings of attachment, engagement, and loyalty toward avatars (Sabine et al., 2012; Tan et al., 2023).

From a theoretical standpoint, the study of avatar marketing extends the understanding of anthropomorphism, where consumers attribute human traits, personalities, and emotions to avatars (Huang & Liao, 2017; Yu et al., 2023). Research into this area can enrich theories such as social identity theory (Chen et al., 2024) and parasocial interaction theory (Tsai & Chuan, 2023) by offering new insights into how consumers relate to virtual agents compared to human influencers. Further investigation can also deepen knowledge on trust-building mechanisms in virtual environments, analyzing how perceived authenticity and credibility are constructed without human presence (Esmark Jones et al., 2022). Additionally, avatar marketing offers a novel lens through which to understand immersive brand interactions (Siemon & Aittamaa, 2023). With the integration of augmented reality (AR) and virtual reality (VR),

avatars enhance brand engagement through multi-sensory experiences, creating a new form of interaction beyond traditional digital marketing (Cowan & Ketron, 2019; Petit et al., 2015). This provides an opportunity to contribute to experiential marketing theories by studying how immersive environments facilitate deeper consumer-brand connections. Furthermore, it invites researchers to explore how avatars influence consumer behavior at multiple stages of the decision-making process, from awareness to post-purchase loyalty.

7. Practical contribution

The integration of avatars within marketing presents a transformative approach by fostering personalized, immersive consumer engagement (Blum & Clarke, 2011; Zhu & Yi, 2024). Avatars provide tailored product recommendations, customized greetings, and dynamic instructions, cultivating deeper emotional bonds between consumers and brands (Shin et al., 2024). These personalized interactions enhance customer loyalty and brand advocacy, aligning with theories that emphasize emotional attachment as a driver of long-term consumer behavior (Eggenschwiler et al., 2024; Elsharnouby et al., 2023). Additionally, avatars ensure continuous, real-time support, which meets consumer expectations for instant service, enhancing customer satisfaction and building trust through consistent, responsive interactions (Sabine et al., 2012).

From an operational standpoint, avatars offer cost efficiencies by automating routine tasks and reducing dependence on human labor (Lin et al., 2021). Their ability to scale seamlessly enables businesses to manage high interaction volumes while controlling operational costs (Yadav et al., 2024). Furthermore, the data collected from avatar interactions provides actionable insights into consumer preferences and behaviors, guiding firms to refine targeted marketing strategies and enhance customer relationship management (CRM) efforts (Park & Kim, 2024; Taylor, 2010). These findings demonstrate how avatars serve as pivotal tools in creating engaging, scalable, and data-driven marketing models, contributing to both theoretical advancements and practical innovation in marketing practices.

8. Future research directions

The present evaluation has afforded us a thorough comprehension of the advancements in avatar marketing applications research. This analysis also helped us identify deficiencies in earlier research conducted in this field and the resulting findings. The following sections outline our suggested future research agenda. The descriptive study clarifies the current pattern in the utilization of avatar marketing, as shown in Figure 2. The increasing quantity of scientific articles after 2022 clearly indicates the ongoing evolution of this topic.

Nevertheless, the number of publications on avatar marketing in other areas, such as retailing, websites, extended reality, impact to purchase intention and information systems, far exceeds the current count. Therefore, in order to enhance the intellectual resources of the avatar marketing, we recommend that scholars investigate this field in the future. Additionally, the authors stated that the majority of existing research is conducted from the standpoint of e-commerce, virtual reality and consumer behavior (Chen et al., 2024; Cowan & Ketron, 2019; Dwivedi et al., 2023; Jessica et al., 2022). Therefore, it is crucial to conduct further investigation from the viewpoint of public or regulatory entities. Furthermore, future research can investigate the participation of other prominent stakeholders who possess authority and a vested interest in avatar marketing. Besides that, exploring ethical and privacy considerations: As avatar marketing becomes more prevalent, researchers may need to address ethical and privacy concerns related to the collection and use of user data, the representation of avatars, and the potential for deception or manipulation through avatar-based interactions. Moreover, when considering production by nation, indicates that, except for China and India, the majority of academic inquiries are concentrated in Europe and North America. Despite being the largest users of the internet, many Asian countries, like Indonesia and Japan, are lagging in terms of academic focus on this subject.

Therefore, scholars should make a point of acknowledging this. Despite originating from multiple nations, the authors have undertaken just a few studies in this field. However, there is a lack of strong collaboration between continents, as seen in Figure 6. Enhancing cooperation between continents and

researchers is necessary to lower the cost of research by facilitating the unrestricted exchange of information. Hence, cross-national research is viable for discerning the commonalities and disparities between countries.

9. Conclusion and limitations

The trends of global research production in avatar marketing were examined in this study. Over more than 20 years, research on this subject has improved since it began around the second half-2000s. The study utilized bibliometric approaches to analyze 185 scientific publications published between 2004 and 2024. The data indicates that research in this sector is continuously and regularly growing. The United States leads in research in this field, producing the most significant contribution in the quantity of research articles. Conversely, the United Kingdom has obtained the maximum number of citations. The top ten journals account for 22.16% of the research in this field, indicating a greater volume of research published in these journals. The active collaboration among academics in this field is apparent, as the number of papers co-authored by multiple scholars exceeds the number of articles published by an individual researcher.

While this work significantly contributes to the current body of information, it is important to recognize several limitations. For data extraction, this study primarily utilized the Scopus database, which includes prominent research databases such as Emerald, Elsevier, Inderscience, Springer, Sage, and others. Therefore, certain research studies may have been overlooked in our review. In addition, because of the language barrier, researchers have focused on publications published in English, thereby allowing the possibility of future studies to examine the literature accessible in other languages.

Authors' contributions

Professor Andriani Kusumawati, S.Sos., M.Si., DBA. analyzed the dataset, conducted validation and visualization, and supervised this paper. Sartika, S.AB performed the conceptualization, methodology, data collection, and writing the original of the draft. Dr. Anni Rahimah, S.AB., M.AB., Ph.D performed the analysis, review, visualization, and validation. Yusri Abdillah, S.Sos., M.Si., Ph.D analyzed, reviewed, and validated the work. All authors have read and approved the final manuscript.

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Data availability statement

The datasets generated during and analyzed during the current study are available from the corresponding author upon reasonable request.

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