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Unpacking the Dimensions of Augmented Reality, Digital Influencers and Brand Loyalty: Hybrid Approach of Bibliometric Analysis and Systematic Literature Review

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ABSTRACT

This research highlights the dimensions involved in each variable that emerged from previous studies and identifies the indicators associated with the dimensions of augmented reality, digital influencers, and brand loyalty. It employs Publish or Perish and VOSviewer software for bibliometric analysis. The data sources include Scopus, ScienceDirect, Emerald Insight, Sage, and SpringerLink. The findings reveal similar and distinct dimensions and indicators for augmented reality, digital influencers, and brand loyalty. Similarities appear in the augmented reality dimensions related to experience, effect, interactivity, and vividness. Digital influencers relate to effectiveness, characteristics, attractiveness, authenticity, credibility, parasocial relationships, sponsorship, original value, persuasiveness, power, trust, and uniqueness. Brand loyalty relates to indicators such as willingness and purchase intention. The bibliometric maps reveal new variables and indicators for measuring augmented reality, digital influencers, and brand loyalty. This research model can be extended by combining variables, dimensions, and indicators as recommendations for future studies, with implications for researchers and practitioners in marketing. These findings offer practical implications for researchers developing comprehensive measurement instruments and for practitioners designing integrated marketing strategies that leverage augmented reality technology and digital influencer engagement to enhance brand loyalty.

KEYWORDS *Augmented Reality; Brand Loyalty; Digital Influencer; Literature review; Consumer Behavior*

INTRODUCTION

Research on augmented reality is currently attracting the attention of researchers from various industries. This research is associated with numerous variables, such as those examined by Tarafdar et al. (2024) in product presentation, Butt et al. (2024) in new digital banking, Khan et al. (2024) in mobile technology acceptance, Jalilvand and Ghasemi (2024) in tourism and hospitality, Tom Dieck et al. (2024) in tourism and hospitality, Xi et al. (2024) in virtual shopping, Alam et al. (2024) in travel and tour operators, Mkwizu and Bordoloi (2024) in education, Kim and Manoli (2024) in sport consumption, Joshi et al. (2025) in hotel industry, Attri et al. (2024) in customer perception and behavior, Arghashi (2022) in shopping, and Zhang (2022) in K–12 education.

The development of the role of digital influencers has also been researched in association with various variables, including those studied by Rodrigues et al. (2024) on characteristics and purchase intention, Settou and Aomari (2024) on para-social interaction, Silva and da Costa (2021) on purchasing intention, Caiado et al. (2023) on purchase decision making, Wang and Huang (2023) on social power and consumer engagement, Pereira et al. (2023) on characteristics and purchase intention, Crisafulli et al. (2022) on buying decision, Jiménez-Castillo and Sánchez-Fernández (2019) on brand recommendation, and Wang et al. (2020) on social commerce intention, social power, and customer satisfaction.

Despite the growing body of literature on these individual topics, a critical gap exists in understanding the multidimensional nature of these constructs and their interconnections. Previous studies have examined augmented reality, digital influencers, and brand loyalty separately or in limited combinations, but few have systematically analyzed the underlying dimensions and indicators that define each construct. Furthermore, the integration of these three elements—augmented reality as a technological enabler, digital influencers as mediating agents, and brand loyalty as an outcome variable—remains underexplored in the current literature. Referring to the research mentioned above, studies that examine the deep dimensions of augmented reality, digital influencers, and brand loyalty remain rare. This research is based on established theory and literature. Building on stakeholder theory and the technology acceptance model, this study employs a hybrid approach combining bibliometric analysis and systematic literature review to provide a comprehensive mapping of research trends and dimensional structures. The main objective of this study is to understand the dimensions of augmented reality, digital influencers, and brand loyalty as new approaches and perspectives.

METHOD

This study employed a hybrid approach combining bibliometric analysis and systematic literature review (SLR). Bibliometric analysis identified patterns, influential works, and key contributors, while the SLR provided in-depth thematic analysis of augmented reality, digital influencers, and brand loyalty, thereby revealing research gaps. The bibliometric component utilized quantitative techniques to map publication trends, citation networks, and co-occurrence patterns, while the SLR enabled systematic extraction and synthesis of dimensional frameworks from selected literature. This complementary approach ensured both breadth (through bibliometric mapping) and depth (through systematic thematic analysis) in understanding the research landscape.

This research analyzed journal articles published between 2019 and 2024, sourced from Scopus, Google Scholar, Sage Journals, Springer Link, ScienceDirect, and Emerald. The bibliometric tools used were VOSviewer (Eck & Waltman, 2017) and Publish or Perish. This SLR followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (revised 2021; Rethlefsen et al., 2021).

The literature selection process followed a rigorous multi-stage screening protocol. Initially, 310 articles were retrieved from multiple databases. After removing 69 duplicates, the remaining 241 articles were screened for relevance, excluding 184 that fell outside the study scope. The remaining 57 articles underwent title, abstract, and keyword evaluation; 27 were eliminated due to incomplete content. This yielded 30 articles as the primary sources. During dimensional analysis, two articles were excluded due to methodological issues, leaving 28 articles analyzed for dimensions related to "augmented reality," "digital influencers," "influencers," and "brand loyalty." Each selected article was systematically coded to extract dimensional constructs, indicators, and theoretical foundations, with independent coding by researchers followed by consensus discussions to ensure reliability and consistency.

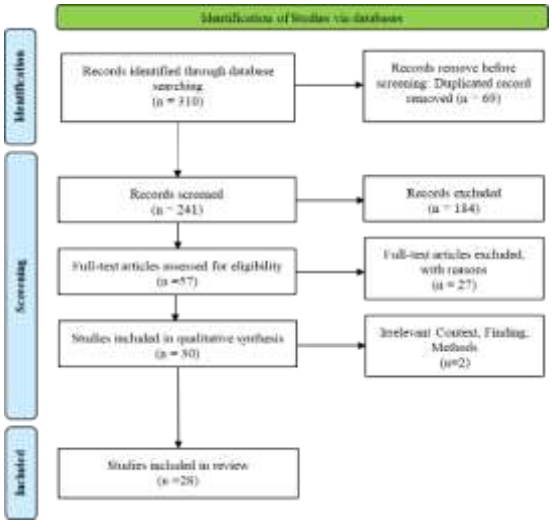

Figure 1. Prisma Model Flow

The initial step in creating a bibliometric map is to search for articles on Google Scholar using Publish or Perish with the keyword "augmented reality." digital influencer", and “brand loyalty” respectively. The search results are then saved as RIS files, and the data is filtered by selecting journal sources from Science Direct, Emerald Insight, Sage, and E-Springer. The journal data is then saved in RIS format. Next, the RIS files are imported into VoSViewer with a threshold of ten and four for further analysis. The research mapping results, which include co-word networks, overlays, and density using VoSViewer, present a visualization of clusters related to augmented reality with four identified clusters. In the following section, the results of the cluster analysis for augmented reality, digital influencer, and brand loyalty are presented.

RESULT AND DISCUSSION

Variable Dimensions from Previous Research

The results of the literature analysis produced scientific insights into the dimensions of augmented reality, digital influencers and brand loyalty.

Table 1. The Dimensions of Augmented Reality

Authors	Dimensions
Arghashi (2022)	novelty, wow-effect, inspiration, information overload, distraction
Chen & Lin (2022)	perceived augmented realism, perceived technology fluidity, perceived flow (control, concentration, interest, curiosity)
Fan et al. (2020)	environmental embedding, simulated physical control
Faqih & Jaradat (2021)	Technology characteristics, task-technology fit, task characteristic,
Gabriel et al. (2023)	AR characteristic (interactivity, vividness, novelty, system quality, product informativeness).
Gong & Park (2023)	AR technology characteristics (interactivity, vividness, novelty).
Nawres et al. (2024)	AR application experience (pleasure, emotional involvement, flow).
Nikhashemi et al. (2021)	AR quality, AR novelty, AR interactivity, AR customization, AR vividness.
Tarafdar et al. (2024)	testing using laboratory experiments, testing using natural experiment.

The analysis of literature studies in Table 1 above shows that augmented reality's dimensions include novelty and emotional impact, perceived realism and flow state, environmental embedding and simulation control, task-technology fit and augmented reality characteristics, customization and quality augmented reality, and balancing positive and negative effects. Some studies that emphasize the importance of the novelty of augmented reality and the emotional impact on users mean that the ability of augmented reality to provide unique and novel experiences plays a vital role in attracting attention from users and can increase user engagement (Arghashi, 2022; Tarafdar et al., 2024). The exploration of the concept of augmented reality realism and technological fluidity provides an understanding of how users perceive augmented reality realism and technological fluidity to increase the state of 'flow'; this condition is related to psychological focus and immersion, characterized by control, concentration, interest, and curiosity (Chen & Lin, 2022). The same thing is also conveyed by other researchers about how augmented reality applications can facilitate users in terms of pleasure, emotional involvement, and flow, where flow is not only limited to cognitive experiences but also related to users' emotional involvement in augmented reality (Nawres et al., 2024).

This dimension explains how applications from virtual environments can interact dynamically with physical space, thus increasing realism and control over the user's experience of using augmented reality (Fan et al., 2020). Then, in task-technology fit and augmented reality characteristics, adopting this technology-fit approach aims to evaluate and examine the attributes of augmented reality technology to match its task or work requirements (Faqih & Jaradat, 2021). Meanwhile, the functional aspects of augmented reality are clarified by explaining the main characteristics, such as the dimensions of interactivity and vividness (Gabriel et al., 2023; Gong & Park, 2023). Furthermore, introducing the other dimensions of system quality and product informativeness shows that the technical quality of augmented reality and the informativeness of augmented reality content significantly contribute to the user experience (Gabriel et al., 2023). It reinforces the importance of interactivity and vividness, which are essential in creating augmented reality environments (Gong & Park, 2023).

The focus on the customization and quality aspects of augmented reality, balancing positive and negative effects, involves a comprehensive examination of augmented reality through the dimensions of augmented reality quality, customization, and interactivity (Nikhashemi et al., 2021). The balance between positive and negative effects lies in the perspective of user experience, including the potential for disadvantages such as information overload and distraction as two common problems, especially if augmented reality users are exposed to excessive or complex digital content (Arghashi, 2022; Tarafdar et al., 2024). This finding clarifies other impacts of using augmented reality, so while it provides an engaging, interactive, and immersive experience, users must carefully consider its effects to avoid excessive use. Based on this analysis, there are similarities in the dimensions that form augmented reality: novelty, vividness, interactivity, and technology characteristics.

Table 2. The Dimension of Digital Influencer

Author	Dimensions
Crisafulli et al. (2022)	digital influencer control, digital influencer warmth, digital influencer competences

Author	Dimensions
Caiado et al. (2023)	influencer credibility, influencer's opinion and external factors, sponsorship disclosure.
Castillo &Fernández (2019)	perceived influence of digital influencer
Hu et al. (2020)	identity characteristics of digital influencer (identity similarity, identity distinctiveness, identity prestige)
Ki et al (2022)	perceived attractiveness, perceived credibility, perceived closeness, perceived interactivity.
Pereira et al. (2023)	attitude homophily, physical attractiveness, social attractiveness.
Panggati et al. (2023)	trust to digital influencer
Settou & Aomari (2024)	source attributes, credibility and its level, para-social interaction, perceived homophily, trust, authenticity, the persuasive attributes of shared content, the informative quality and argumentative force of share content, the uniqueness and originality of shared content
Wang & Huang (2023)	social power (expert power, referent power, reciprocity power)
Wang & Huang (2020)	social power (expert power, informational power, referent power, legitimate reciprocity power).

Further, table 2 above describes the dimensions of digital influencers categorized into four aspects: social power and influence, credibility and trust, attractiveness, homophily, para-social interaction, content sharing, and identity characteristics. Social power is related to how digital influencers gain various forms of power in terms of expertise power, referral power, information power, and reciprocal power (Wang et al., 2020; Wang & Huang, 2023); these types of power enable digital influencers to significantly influence their audiences by establishing them as credible sources of information by building relationships of trust and reciprocity with their followers. It can be achieved through their warmth and competence in a particular area of expertise (Crisafulli et al., 2022). These competencies allow digital influencers to establish and maintain their authority and position as someone who can be trusted and whose opinion matters and is valued.

In terms of credibility and trust, both are considered essential to the effectiveness of digital influencers, where influencers who are considered credible can shape consumer attitudes and behaviors more effectively. Influencer credibility is influenced by external factors such as sponsorship disclosure (Caiado et al., 2023), where digital influencers who transparently disclose that their content is sponsored are considered more trustworthy than those who do not honestly reveal the sponsorship of their content, thus increasing their credibility. Influencers' ability to influence consumer decisions depends on their trustworthiness and expertise (Castillo & Fernández, 2019). Furthermore, regarding authenticity and trust, it suggests that digital influencers who are authentic in their communications and maintain consistent and persuasive interactions with their followers are more successful in increasing audience trust in digital influencers (Settou & Aomari, 2024).

In the context of attractiveness and social factors that also significantly contribute to the success of digital influencers, one of which is related to studies on attractiveness, homophily, and para-social interaction. Homophily is the tendency for others to be more influenced by those they perceive as similar to themselves (Ki et al., 2022; Pereira et al., 2023). Specifically, the importance of social attraction goes beyond physical appearance as a characteristic of a digital influencer's personality. (Pereira et al., 2023). Then, the perceived

attractiveness and closeness indicates that digital influencers can foster a sense of intimacy with their audience, often through more engaging and impactful interpersonal interactions. Meanwhile, para-social interaction is a dimension that helps explain the dynamics between influencers and their followers, where this interaction is a one-sided relationship in which followers feel a connection with the influencer, allowing digital influencers to replicate real-world social interactions in the digital world (Settou & Aomari, 2024). This sense of familiarity and interaction strengthens the impact of digital influencers in making their messages more persuasive and influential.

Regarding content sharing and identity characteristics that discuss the shared content's informative quality and argumentative strength, this emphasizes that digital influencers who produce informative and well-argued content will be more persuasive. (Settou & Aomari, 2024). Additionally, influencers' identity characteristics that indicate identity similarity, uniqueness, and prestige as critical factors in distinguishing themselves from others can strengthen their influence over their followers (Hu et al., 2020). Based on the analysis results above, there are similarities in dimensions of social power, characteristics, credibility, and competency as the forming elements of a digital influencer.

Table 3. The Dimension of Brand Loyalty

Authors	Dimensions
Ali et al. (2024)	No. dimension/unidimensional (indicator used: preferent, choice, loyal)
Aljuhmani et al. (2023)	No. dimension/ unidimensional (indicator used: positive feeling, happiness, feeling good, proud)
Atukar, S (2020)	No. dimension/ unidimensional (indicator used: loyal, positive perception, emotional attachment)
Sun et al. (2024)	No. dimension/ unidimensional (indicator used: recommendation, consideration, repeat purchase, buying)
Gao & Shen (2024)	No. dimension/ unidimensional (indicator used: consideration, choice, buying, suggestion)
Le, M.T. (2021)	No. dimension/ unidimensional (indicator used: repeat purchase, intention, commitment, willingness to pay higher price)
Masud et al. (2024)	No. dimension/ unidimensional (indicator used: impression, interesting, buying decision, comfort, loyal)
Shetty & Fitzsimmons (2022)	Behavioral (rebuy, commitment), attitudinal (brand preference, emotional affiliation), emotionally loyal (brand recall, spend more, advocated, promote)
Wang et al. (2024)	No. dimension/ unidimensional (indicator used: perceived value and brand personality of brand association)

Table 3 above is brand loyalty dimension research, most of them are a unidimensional approach which only focuses on specific behavioral indicators that reflect consumer loyalty through repeated actions or preferences toward a brand. This perspective simplifies the concept of brand loyalty by emphasizing observable behavior rather than the underlying emotional or psychological factors. Several vital indicators underline brand loyalty, including preferential choice and loyalty, recommendation and repeat purchase, consideration and choice, commitment, and financial willingness.

Brand loyalty is primarily seen through consumer preferences, where repeated brand selection indicates loyalty (Ali et al., 2024). This indicator signifies how consumer choices are

influenced by their liking or interest in the brand over time. Then, recommendations, repeat purchases, and purchase consideration are pending indicators for forming brand loyalty (Sun et al., 2024). Here, brand loyalty can be illustrated through repeat purchases and positive word-of-mouth promotion, indicating sustained consumer engagement with the brand. Next is consideration and choice, where the focus of this indicator assesses the extent to which consumers repeatedly consider and choose the same brand during the purchasing decision. (Gao & Shen, 2024). Additionally, commitment and financial willingness emphasize the ability to pay as an essential component of brand loyalty (Le, M.T., 2021). This indicates that loyal consumers are engaged in repeat transactions and show a higher financial commitment to that brand choice.

The multidimensional approach to brand loyalty includes emotional attachment, personality, and positive perception (Atulkar, 2020). This perspective shows that emotional bonds influence consumer loyalty beyond mere transactional behavior. Behavioral and attitudinal dimensions include commitment, repurchase intention, emotional affiliation, and loyalty (Shetty & Fitzsimmons, 2022). Next, positive feelings explain positive emotions such as happiness and pride as drivers of brand loyalty (Aljuhmani et al., 2023). Lastly, perceived values and brand personality assess the perceived value message and brand personality in fostering emotional loyalty. This reinforces the idea that brand loyalty involves an emotional connection to advocate for the brand. Based on the analysis above, the indicators of choice, commitment, repeat purchase, and advocacy/recommendation/promotion are like indicators of brand loyalty.

Dimensions of Variables from Bibliometric Map Research

Cluster Analysis of Augmented Reality

Cluster 1 discusses the concept of technology usage, with particular emphasis on the application of augmented reality. Research in this cluster focuses on critical themes such as behavioral intention, consumer experience, and product perception to identify which components drive users to adopt augmented reality. Using terms like consumer, ease, influence, and intention, this cluster demonstrates that they investigate the cognitive and emotional aspects affecting customers' decisions to use augmented reality-based goods or services. Using terms like shopping, retailer, and product also indicates the cluster's relevance in the retail industry, where augmented reality applications can enhance ease of use, interaction, and sales of goods and services.

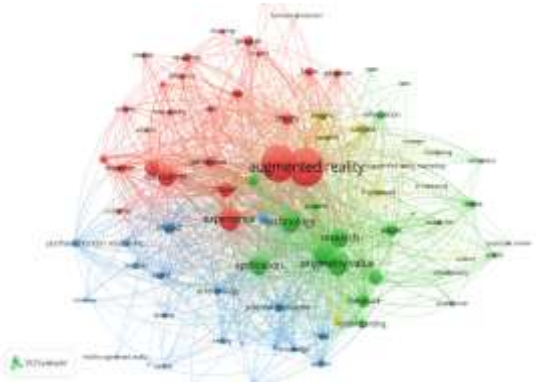

Figure 2. Network Visualization Analysis Augmented Reality

Table 4. Cluster of Augmented Reality

Cluster	Augmented Reality
Cluster 1	adoption, AR app, augmented reality, behavioral intention, benefit, consumer, ease, effect, experience, factor, influence, intention, interactivity, model, perception, product, response, retailer, role, shopping, usefulness, user, value
Cluster 2	analysis, conceptual, data, education, information, original value, practitioner, review, technology, time, virtual reality
Cluster 3	AR technology, brand, feature, field, future research, impact, knowledge, marketer, mobile AR, practical implication, purchase intention, reality, relationship, research implication, service, use, vividness, way
Cluster 4	AR marketing, context, gap, insight, manager, marketing, tourism, variable.

Cluster 2 differs from the previous cluster because it focuses on the conceptual analysis framework, particularly related to the use of technology and its applications in the education industry. Key terms such as systematic review, data, and information emphasize research methodology and structured analysis of existing knowledge applied in education and research. Other terms, such as practitioners and virtual reality, have significance in education, particularly in assessing the pedagogical impact of VR and augmented reality technology, which is believed to create new dimensions in future educational methods. Adding new elements to this cluster demonstrates a commitment to enhancing academic discourse by providing structured and evidence-based insights through a systematic review. Further research can discuss how augmented reality is used in education and how practitioners use it to improve learning outcomes. The augmented reality cluster can help expand theoretical knowledge. Insights into the prospects of further research include creating and applying a conceptual framework for augmented reality in education and the role of augmented reality as a medium and training tool.

Cluster 3 focuses on marketing strategies that use augmented reality, specifically how augmented reality impacts brand interaction, consumer relationships, and purchase interest. Phrases like augmented reality, brand, marketing, and purchase interest indicate that this field provides information on how augmented reality makes customer experiences more interactive and immersive, which affects their purchasing decisions. Mobile augmented reality, practical consequences, and clarity are discussed (vividness). This shows that research in this field can explore how augmented reality can be more engaging, effectively enhance the clarity of marketing content, and increase customer engagement. It emphasizes future research and the limitations of this field to demonstrate that this area is continuously evolving and has excellent potential for further study. This field of research can encompass aspects such as how augmented reality technology can enhance interactions between brands and customers, how augmented reality marketing impacts customer interest and loyalty, and how AR can be used in future marketing contexts.

Cluster 4, the use of terms such as augmented reality marketing, context, and framework indicates that the last cluster focuses on using augmented reality in strategic and contextual contexts, particularly in the tourism industry. This cluster discusses how integrating augmented reality into tourism marketing strategies can enhance the experiences of travelers and tourists. This cluster identifies research areas focused on using contextual augmented reality to provide

innovative and immersive experiences that can increase customer satisfaction and engagement in the tourism industry. It offers managers recommendations to leverage contextual augmented reality to enhance customer experience.

Cluster Analysis of Digital Influencer

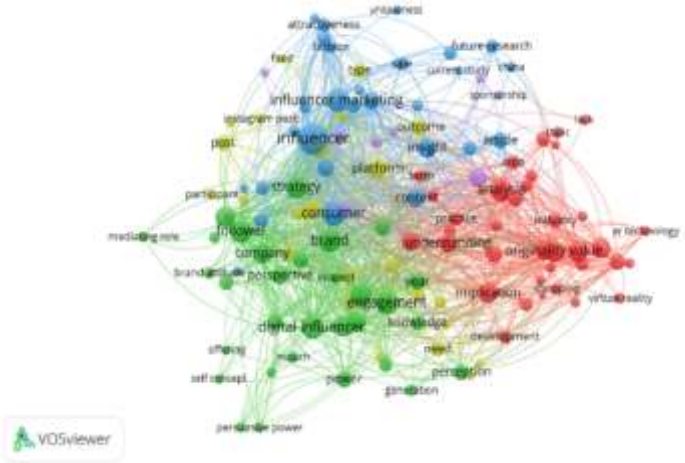

Figure 3. Network Visualization Analysis Digital Influencer

Table 5. Cluster Digital Influencer

Cluster	Digital Influencer
Cluster 1	analysis, application, AR technology, artificial intelligence, attention, augmented reality, design application, development, effectiveness, element, experience, field, gap, implementation, industry, lack, originality value, popularity, practical implication, practice, shopping, social influence, stage, technology, virtual reality.
Cluster 2	attitude, behavioral intention, characteristics, company, digital influencer, electronic word, engagement, follower, generation, individual, information, intention, interest, knowledge, moderating effect, mouth, offering, perception, perspective, persuasive power, power, purchase intention, quality, role, self-concept, strategy.
Cluster 3	antecedent, attractiveness, audience, beauty, China, connection, consumer, current study, fashion, influencer, influencer marketing, managerial implication, marketer, marketing, para-social interaction, practitioner, sale, significant, social media influencer, trust, uniqueness.
Cluster 4	account, aspect, authenticity, consumer behaviour, credibility, digitalization, era, food, influencer capabilities, Instagram, Instagram post, participant, platform, product, rise, social media flatform, social media user, type.
Cluster 5	content, digital influencer, digital marketing, organization, para-social relationships, service, sponsorship, use.

Table 5 above illustrates cluster 1, which explains the influence of digital technology on engagement and marketing through the presence of digital influencers. Terms such as virtual reality, augmented reality, artificial intelligence, and virtual technology indicate technological advancements, particularly in how digital influencers use augmented reality and artificial intelligence. Additional elements, such as shopping experiences and social impact, demonstrate how this continuously evolving technology influences the strategies of digital influencers in interacting with consumers, as well as in experience-based marketing in the digital domain or social media.

Cluster 2 emphasizes digital implications, brand image, and social media engagement. This cluster examines how digital influence affects customer perception in enhancing brand engagement. Theories such as brand attitude, persuasive appeal, and moderation effects indicate the research potential on consumer perception and its impact on the brand in digital media marketing campaigns. Other terms such as individual, intention, and self-image indicate a relationship between consumer psychological factors and consumer behavior related to digital influence engagement.

In general, cluster 3 focuses on influencer marketing and how digital influencers are used in various industries, such as fashion and beauty, by leveraging consumer identity and perception to enhance marketing effectiveness. Other factors such as audience, consumers, and trust indicate that trust in digital influencers affect the level of perception and relationship with consumers.

The next cluster 4 discusses user behavior on social media platforms, particularly digitalization and credibility. Using the terms digitalization, credibility, and authenticity shows how users assess the authenticity aspects of content on social media, especially those posted by digital influencers. The analysis of how digitalization has affected interactions between customers and brands, as well as the role of digital influencers on social media platforms, is also discussed in this cluster. References to products and food indicate this cluster's focus on specific industry studies, such as marketing food products on social media, where the influence of digital influencers is significant on customer preferences and behavior. Factors such as influencer capability, platform, and Instagram demonstrate the considerable impact of social media presence, like Instagram, in influencing consumer behavior and purchasing decisions.

Finally, in cluster 5, the analysis focused on the dynamics of the relationship between digital influencers and factors such as parasocial relationships, sponsorship, and digital marketing strategies. Parasocial relationships refer to the one-sided attachment between consumers, digital figures, or media influencers. In the context of sponsorship, using the terms "sponsorship" and "content" indicates a collaboration between digital marketing and influencers to reach their target audience.

Cluster Analysis of Brand Loyalty

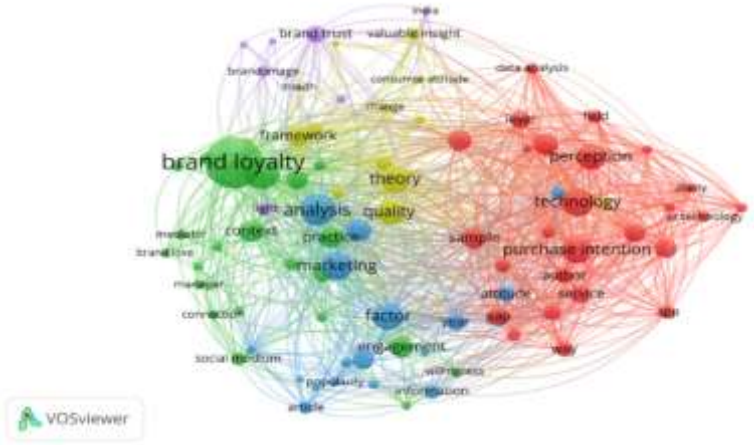

Figure 4. Network Visualization Analysis Brand Loyalty

Table 6. Cluster Brand Loyalty

Cluster	Brand Loyalty
Cluster 1	application, AR technology, characteristics, consumer behavior, data analysis, feature, field, gaps, intention, interactivity, level, perception, purchase intention, service, technology, vividness.
Cluster 2	antecedent, brand experience, brand love, brand loyalty, brand manager, company, context, customer engagement, engagement, loyalty, mediating effect, mediating role, practice, self-brand connection, social media, willingness.
Cluster 3	advertising, analysis, attitude, digital influencer, factor, follower, influencer, influence marketing, information, insight, marketing, popularity, retailer, team.
Cluster 4	AR application, brand attitude, change, Chinese consumer, consumer attitude, current study, framework, mechanism, mouth, quality, trust, valuable insight.
Cluster 5	brand equity, brand image, brand trust, India.

Cluster 1, at the beginning of this brand loyalty cluster, mentions terms related to augmented reality and consumer behavior. The presence of purchase intention and features indicates consumer behavior and psychological responses toward brand loyalty. Meanwhile, augmented reality technology serves as supporting technological infrastructure. This cluster provides insights into how augmented reality technology can influence customer experience and purchasing decisions, impacting brand loyalty.

Next is cluster 2, which focuses on branding, mainly how customers interact, build engagement, and create brand loyalty. Consumers have emotional bonds and experiences with certain brands, as evidenced by the emergence of terms like brand experience and brand love in shaping brand loyalty. Other factors such as customer engagement, social media, and self-brand connection have shown how vital interactive and tailored marketing strategies are in building strong attachment relationships between brands and their customers.

Cluster 3 specifically discusses marketing strategies in the retail sector, consumer perception, and brand loyalty. This cluster examines the influence of marketing strategies and the emergence of terms such as digital influencer, follower, and popularity, indicating how influencers can enhance brand popularity and brand loyalty in the retail industry.

Cluster 4 define the presence of Chinese consumers indicates cultural and geographical differences that can influence consumer perceptions and beliefs regarding brand loyalty. This cluster studies how consumers view and trust a brand. Terms such as brand attitude, consumer attitude, trust, and quality are identified as elements that affect consumer behavior and perceptions of brand loyalty.

Cluster 5, the final cluster, discusses the relationship between brand loyalty and regional focus. The presence of terms such as brand equity, brand image, and brand trust indicates the elements that shape the brand's overall perception of the market.

The results of previous literature research and bibliometric analysis indicate the presence of evidence of dimensional similarities in the context of augmented reality variables, digital influencers, and brand loyalty. This similarity is seen in the augmented reality variables, for example, related to experience, effect, interactivity, and vividness. Digital influencers are related to effectiveness, characteristics, attractiveness, authenticity, credibility, para-social relationship, sponsorship, originality value, persuasiveness, power, trust, and uniqueness. Brand loyalty is related to indicators such as willingness and purchase intention.

The cluster analysis highlights the relevance of the research in several industrial sectors, such as retail, food, beauty, fashion, tourism, airlines, and education, where the application of augmented reality can enhance user convenience, increase interaction, and boost sales of both goods and services. This finding allows for further research recommendations on the role of augmented reality in other industrial sectors and its impact on brand growth and loyalty. The role of digital influencers as mediators can be explored in greater depth regarding the impact of digital influencers as part of influencer marketing campaign strategies and their managerial implications in building significant relationships with their audience, serving as drivers in creating brand loyalty, supported by the utilization of augmented reality technology. Added cultural and geographical factors in creating brand loyalty can influence consumer perceptions and beliefs about brand loyalty, meaning trust and brand equity analysis are essential in this geographical context.

The research has stated that augmented reality moderate's user engagement and is the future of social media influencer marketing (Sinha & Srivastava, 2023). The results of this study indicate that augmented reality positively moderates social media influencer value in enhancing user engagement. Then, the role of augmented reality in influencing brand loyalty is stated in the study that the intention to continue using augmented reality has significantly increased, with satisfaction towards augmented reality applications acting as a direct catalyst for the increase in brand loyalty (Butt et al., 2024). The results of this study indicate that augmented reality applications positively impact brand loyalty, mediated by the intention to continue using augmented reality applications. The findings of this study suggest that social media influencers and follower engagement, also known as social appeal, play a crucial role in building brand loyalty (Ahmed et al., 2024). Whether augmented reality influences brand loyalty through digital influencers as mediators, both the literature and bibliometric analyses show that research is needed to address the impact of augmented reality mediated by digital influencers on brand loyalty.

Based on the above, this study has successfully highlighted the multifaceted nature of augmented reality, digital influencers, and brand loyalty, offering valuable insights as future research opportunities and practical applications in the marketing field. It is evident from the identified research gaps, including exploring trends in new variables and indicators in augmented reality, digital influencers, and brand loyalty research in current technology applications such as artificial intelligence and virtual reality. Then, there is collaboration between researchers and marketing practitioners to enhance the understanding and implementation of innovative marketing strategies and the integration of social media and technology applications. On the other hand, improving research methodology approaches can refine strategies in studying the relationship between augmented reality, digital influencers, and brand loyalty, which drives positive outcomes in the digital marketing landscape, including by leveraging artificial intelligence and machine learning technology.

CONCLUSION

The literature analysis revealed overlapping dimensions and constructs across prior studies and bibliometric results, identifying key variables for augmented reality (e.g., adoption, experience, usefulness, values, perception, knowledge, virtual reality, mobile AR, features, digital influencers, brand loyalty, AR marketing), digital influencers (e.g., role, intention,

uniqueness, popularity, followers, generation, social media, digital platform, digital marketing, artificial intelligence, augmented reality, virtual reality), and brand loyalty (e.g., information, behavioral change, culture, interactivity, vividness, popularity, social media, digital influencers, influencer marketing, artificial intelligence). This study highlights augmented reality's positive moderation of social media influencer value on user engagement, the critical role of influencers and follower engagement in fostering brand loyalty, and the mediating impact of digital influencers on AR-brand loyalty relationships, offering practitioners actionable insights for digital marketing strategies that leverage technology, influencer engagement, and consumer behavior monitoring to expand market share. Despite its contributions to conceptual understanding and strategy implementation, the study is limited by its focus on 2019–2024 literature. For future research, scholars should expand the temporal scope to include pre-2019 studies, incorporate longitudinal empirical data on AR-influencer interactions across diverse cultural contexts, and test causal models integrating emerging AI-driven influencers.

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