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Analysing Consumer Experience in Retail App: A Bibliometric Approach

Anchal Sharma and Ajay Kumar***

ABSTRACT

This study aims to examine the structure of customer shopping experiences within the retail app context. Scientific articles were searched from the Scopus database. Using VOSviewer software, keyword analysis and bibliometric coupling were conducted to map the scientific landscape of the published literature. The findings indicate a significant increase in research output, with over 50% of relevant articles published in the past three years. A notable portion of these studies appeared in leading academic journals. Commonly occurring keywords included e-commerce, augmented reality, user experience, retail, mobile shopping, mobile apps, and artificial intelligence. Additionally, emerging keywords such as machine learning, deep learning, Internet of Things, and smart trolleys highlight the expanding influence of AI and IoT in retail environments. Seven distinct clusters were identified through bibliometric coupling analysis.

Keywords: *Shopping experience; Retail app; Bibliometric analysis.*

1.0 Introduction

The rapid growth of technology and global adoption of smartphones have significantly transformed the retail industry. Retail apps have emerged as vital tools for businesses to engage with customers, streamline processes, and optimize customer experience. As consumers increasingly use retail apps for shopping, product exploration, and recommendations, it is essential to understand the dynamics of consumer experience in this digital space (Molinillo *et al.*, 2022). Retail apps create a seamless, personalized, and interactive shopping experience that has tremendous implications for consumer behavior and

**Ph.D. Scholar, Department of Management, Sharda School of Business Studies, Sharda University, Greater Noida, Uttar Pradesh, India (E-mail: anchal0796@gmail.com)*
***Corresponding author; Assistant Professor, Department of Management, Sharda School of Business Studies, Sharda University, Greater Noida, Uttar Pradesh, India (E-mail: ajayschlr@gmail.com)*

brand engagement (Ghazali *et al.*, 2022). Firms need to create consumer experiences while using retail apps to enhance the level of customer satisfaction, enhance the level of users' retention, and justify app capability (Kim *et al.*, 2021). During the last ten years, a significant amount of research has been conducted on many different aspects of consumer experience in retail apps, such as usability, personalization, gamification, and security. Nonetheless, the current literature is scattered and calls for a systematic bibliometric review to trace the intellectual structure of this research field. The online shopping experience of mobile applications has changed customers' behavior by providing convenience, personalization, and ease. Shopping experiences within applications are accompanied by intuitive interfaces in the form of personalized product recommendations, seamless checkouts, and real-time order tracking (Kim *et al.*, 2021). Secure payment interfaces such as digital wallets and biometric verification have heightened consumer trust and in-app payment usage (Ghazali *et al.*, 2022).

The relationship between the in-app purchasing experience and buyer behavior is central to this theme because it instantly influences buying decisions, brand liking, and overall customer satisfaction. Smooth and captivating in-app shopping increases convenience, diminishes purchasing process friction, and builds enduring consumer trust (Kim *et al.*, 2021). As mobile commerce has increased, personalized recommendations, AI-based interactions, and payment security have become prerequisites for framing consumer attitudes and interactions (Ghazali *et al.*, 2022). The literature suggests that a well-tuned shopping app experience can boost conversion rates, as users feel more inclined to finalize a purchase when navigation is easy and transactions are convenient (Pantano & Vannucci, 2019). Furthermore, gamification and social commerce integration have enhanced user participation, with users being incentivized to make repeated purchases through benefits, such as discount offers, rewards, and game-like elements (Wang *et al.*, 2020). With increased competition in e-commerce, companies focusing on app shopping experiences have become competitively superior, as they build brand loyalty and enhance customer retention (Hajli, 2015). Hence, knowledge of and improvement in the shopping experience through apps is critical for maintaining growth in the digital retail world. This study addressed the following questions:

RQ 1. What is the increasing trend in publications on retail app experiences worldwide?

RQ 2. Which journals/s have published the most articles on customer retail app experience?

RQ 3. Which customer retail app experience keywords have been researched most often and gathered the most attention?

RQ 4. Which authors contributed the most to the knowledge of customer retail app experience?

RQ 5. What are the dominant themes concerning the customer retail app experience?

Bibliometric analysis is a widely used method to evaluate and visualize academic research trends, key contributors, influential publications, and emerging themes in a specific

field. By analyzing citation networks, co-authorship patterns, keyword trends, and bibliometric coupling, this study aims to portray scientific research published on customer retail experience. This study provides valuable insights into how research article publications have evolved, highlights critical theoretical frameworks, and identifies gaps for future studies. By addressing these research questions, this study contributes to the growing body of knowledge on consumer experience in digital retail environments, offers strategic implications for researchers, and provides directions for future research.

2.0 Literature Review

Consumer experience in retail mobile apps is significantly shaped by technological advances, strategic marketing and consumer understanding. Security and trust are pivotal elements of mobile commerce, where strong security components are imperative for establishing consumer confidence and maintaining a good experience (Smith and Johnson, 2021). Retail apps increase consumer trust and stimulate purchase decisions by emphasizing social commerce structures and consumer interactions such as reviews, ratings, and recommendations. Artificial Intelligence (AI) plays a pivotal role in enhancing shopping app experiences, which brings personalization, user satisfaction, and customer loyalty (Lee and Kim (2022). Augmented Reality (AR) has also optimized the shopping experience by offering virtual try-ons, which minimizes doubt and boosts consumer confidence in making buying decisions, as illustrated by Miller *et al.* (2023).

E-commerce gamification through rewards and loyalty programs has been found to increase user interactions and loyalty. Lopes et al. (2023) highlighted that gamification provides a more interactive and enjoyable shopping experience. Digital marketing strategies are essential for engaging consumers through retail applications. Figueiredo *et al.* (2025) acknowledged the significance of data-driven tactics in analyzing consumer behavior and adapting marketing strategies to improve the shopping process. Tracing the development of online shopping, Gonzalez and Rodriguez (2024) presented perspectives on international study trends and narratives from 2020 to 2024, reflecting major considerations for online consumer behavior. Kumar and Kashyap (2016) highlighted the utilitarian shopping motivations of online shopping, such as accessibility, information availability, product availability, searchability, and convenience. Smith *et al.* (2024) also highlight the notion of online buying experience, in which user interfaces and personalized experiences are highlighted as key factors influencing consumers' perceptions and motivating their purchase decisions. The use of chatbots in retail mobile applications has gained popularity as a way to improve customer service and interactions. Williams and Brown (2023) conducted a bibliometric review, demonstrating the increase and cooperation in chatbot studies and their contribution to the shopping experience. Chen and Wong (2023) systematically reviewed the

effect of gamification on the online shopping experience and concluded that gamified features contribute significantly to user engagement and satisfaction. Garcia *et al.* (2023) evaluated the digital adaptation of shopping malls, including strategies utilized to integrate digital technologies and create an improved overall shopping experience for consumers.

3.0 Research Methodology

The research began with the identification of the keywords "customer experience" AND "retail app" which are parallel to the study goal and offer correct information for the purpose of analysis (Sharma *et al.*, 2018). A quotation mark was used to create correct results from the database (Liu *et al.*, 2013). The keywords "customer experience" AND "retail app" were searched. Articles were searched on the Scopus database, which is relatively popular and known in the social science and management discipline. Scopus is the largest global citation database. To study peer-reviewed literature, scientific journals, conference proceedings, and books, researchers were dependent on these databases. Scopus contains lengthy documents compared to other databases (Sweileh *et al.*, 2017), and database selection was established based on the same type of studies performed in previous years (Ruiz-Real et a., 2021; Salgado Sequeiros *et al.*, 2022; Sousa *et al.*, 2022; Ochoa Jiménez *et al.*, 2022; Melese *et al.* 2024).

While searching for keywords, 182 articles in Scopus were obtained on January 27, 2022. In total, 179 articles were included in the bibliometric analysis. The publication year range in the database was from 2012 to 2025. In addition, the search for scientific research articles in the Scopus database was limited to business management and accounting, economics, econometrics and finance, social science, and decision science. The publications under consideration for the study are articles, book chapters, review papers, and conference papers listed in the Scopus database. All English-language publications are under consideration. In addition, the year of publication, author/s information, field of study, article source, country, and language were exported to the downloaded files. The information was assessed in terms of world trends in publication, citation counts, and contribution of the rising nations, author/s, journals, and respective institutions.

4.0 Data Analysis Strategies

Bibliometric analysis is utilized to obtain publication trend information (Hall, 2011), author details, keyword frequency, and citations (Rusly *et al.*, 2019). Two major methods, performance analysis and science mapping, were proposed by Donthu *et al.* (2021) to perform bibliometric analysis. Considering the research objective and research question, these two bibliometric methods were ideal for this study. Performance analysis measures the extent to

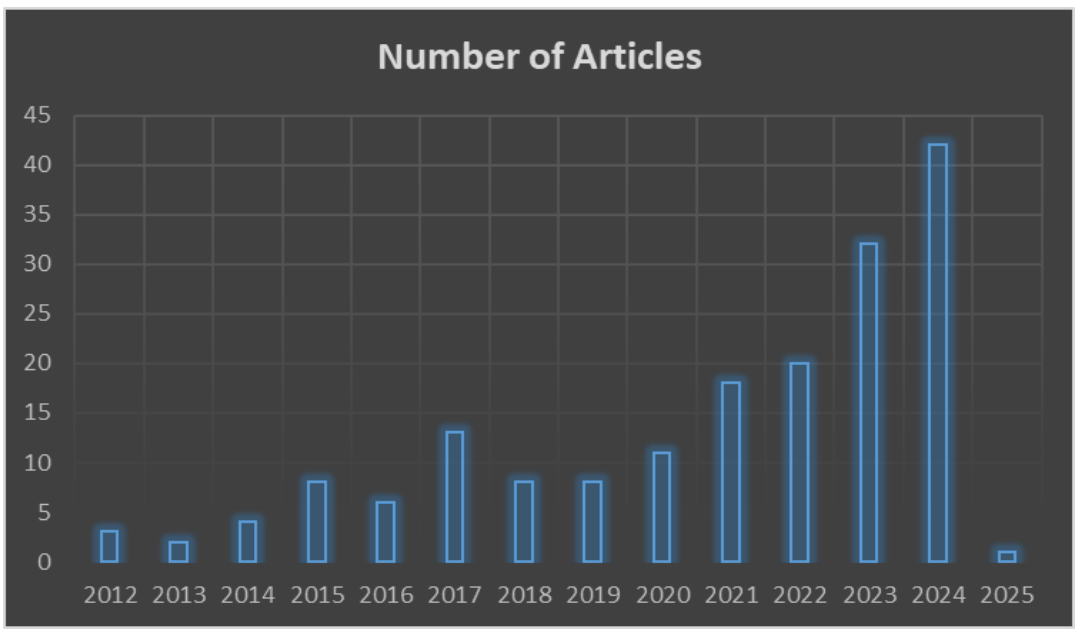
which research actors have contributed to a particular domain (Cobo *et al.* 2011; Ramos-Rodrígue & Ruíz-Navarro, 2004), whereas science mapping examines the relationships between research constituents (Baker *et al.*, 2021; Cobo *et al.*, 2011; Ramos Rodrigue & Ruz-Navarro, 2004). Additionally, new research on bibliometric analysis encourages the use of science mapping. Hence, publication matrix-related, citation matrix-related, citation analysis, and bibliometric coupling were conducted in this research. The VOSviewer software developed by Van Eck and Waltman was used to conduct the analysis. VOSviewer uses mapping methods to utilize graphic elements. Mapping methods can be employed to transform CSV published data into diagrams or clusters to present new information (Ahmi and Mohamad, 2019). Further, the mapping strategy assisted scholars in exploring data derived from articles, such as author/s, place, institution, citation, and co-citation analysis, and other elements that require adjustment.

5.0 Results

5.1 Publication trends

Figure 1 indicates a consistent rise in publication volume from 2012 to 2019, followed by a more stable increase from 2020 onwards.

Figure 1: Publication Trends of Articles

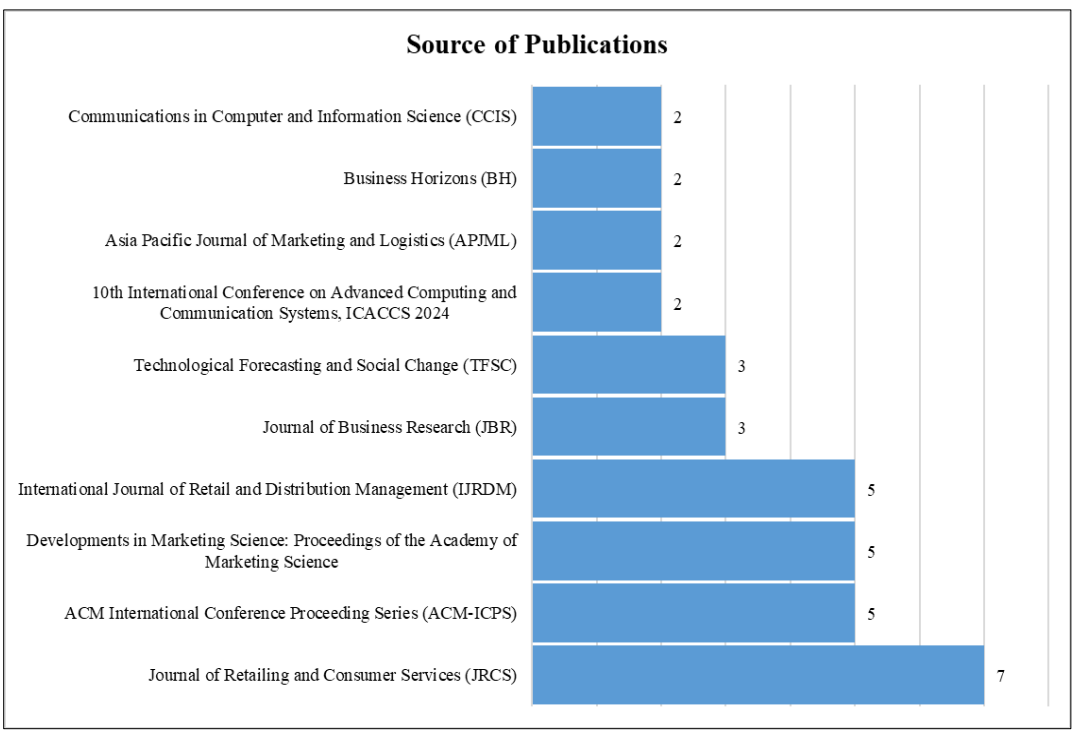


Source: Created by authors

There is a large spike in 2023 and 2024, reflecting the highest publication volume and marking an apex in research output. This increasing pattern indicates growing academic interest and investment in the discipline over time. The consistency after 2020 may suggest a mature research field with steady contributions. The steep peaks in 2023 and 2024 could be attributed to innovations in technology or emerging global issues that are driving enhanced scholarly attention. Scholars are likely responding to the evolving needs of the field. This trend supports the dynamic nature of the research landscape.

Figure 2 shows the top ten sources of publications and the number of articles published in each source. JRCS has the highest number of articles (seven), reflecting its dominance in the research output. Two proceedings ACM-ICPS and DMS along with IJRDM, each contain five articles, indicating a concentration in marketing and retail studies. JBR and TFSC each include three articles, highlighting contributions to business and technological forecasting. Other sources, such as the 10th International Conference–ICACCS 2024, APJML, BH, and CCIS, each had two articles, suggesting a more diverse distribution across different categories.

Figure 2: Top 10 Contributing Journals

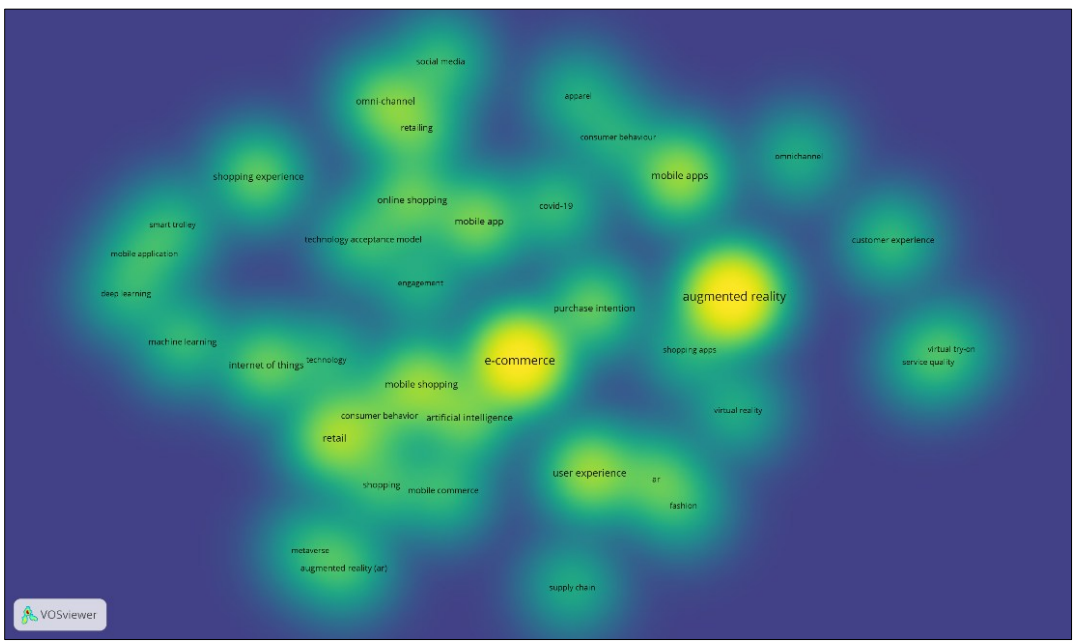


Source: Created by authors

5.2 Keywords analysis

The VOSviewer-produced bibliometric visualization map identifies the keywords used by authors in their studies and highlights their relationships within the domains of e-commerce, retail applications, and consumer experience. The heatmap-style visualization is based on keyword co-occurrence analysis, where more intensely colored areas indicate stronger scholarly focus. This heatmap reveals prominent research areas in digital retail and e-commerce, with particular emphasis on AI, AR, customer experience, and omnichannel retailing. These patterns underline the role of emerging technologies and shifting consumer trends in shaping the online shopping landscape.

Figure 3: Keywords Analysis

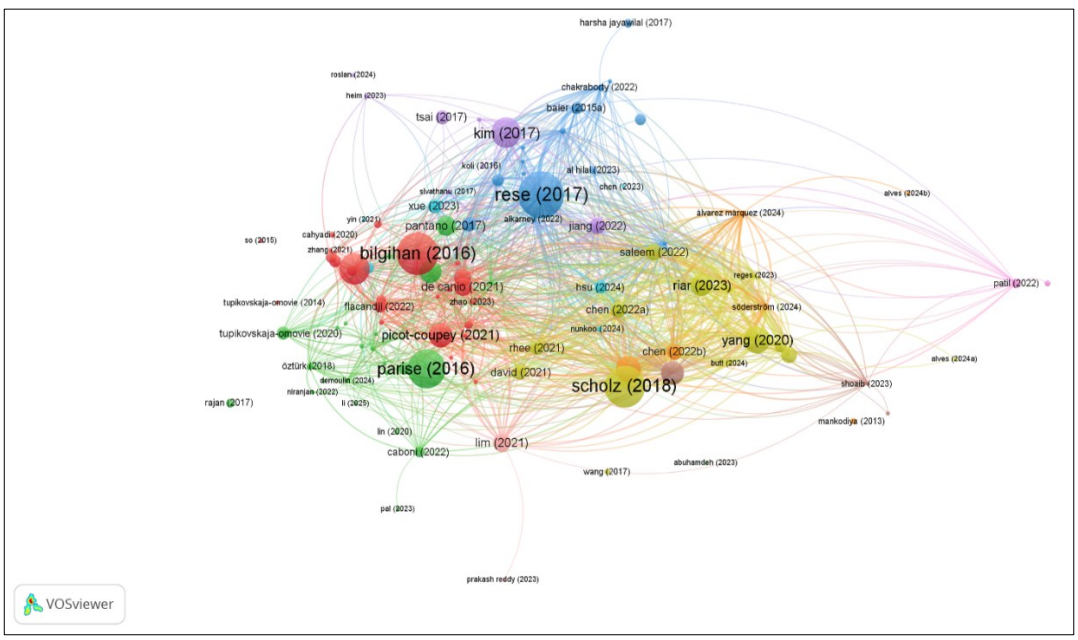


Source: Created by authors using VoSviewer

This resulted from four segments of keywords: central themes, emerging trends, user experience and engagement, and retail innovation (Figure 3). "*Central Themes"* emphasized in bright yellow, are e-commerce, augmented reality, and user experience, showing high research interest in these themes. Retail, mobile shopping, mobile apps, and artificial intelligence also come up regularly, indicating their close link with e-commerce and digital retail. Second theme "e*merging trend"* included keywords like machine learning, deep learning, internet of things, and smart trolley reflect the growing role of AI and IoT in

shopping. Covid-19 is also included, indicating the effects of the pandemic on online shopping behavior. The third segment of keywords is "u*ser experience & engagement"* which covers terms such as customer experience, shopping experience, service quality, and purchase intention. This indicates that user engagement is an important area of interest in digital commerce studies. The occurrence of omni-channels, mobile commerce, and online shopping indicates a transition to a cohesive digital-physical retail experience. Fourth is "*retail innovations"* is technologies like augmented reality (AR), virtual reality, and mobile applications are on the rise, demonstrating how immersive technology is changing the future of shopping.

Figure 4: Clusters



Source: Created by authors using VoSviewer

5.3 Bibliometric coupling

When two disparate documents from two unique sources cite a third document, there is bibliographic coupling (Gipp, 2014; Ahlgren, and Colliander, 2009). It utilizes the number of common sources and citations that two unique documents share as a means to evaluate how similar their literary compositions are. Mapping the current research front is an important part of bibliometric research. This picture is a visualization of a citation network created by VOSviewer and signifies significant scholarly contributions in just one specific research field. Researchers and articles were represented as nodes in the network, and the edges represented

citation relations among the authors/articles. The size of each node indicates a paper's influence, with larger sizes indicating papers that received numerous citations. Different colors represent clusters of closely related studies separated by citation type.

This study identified seven clustered through bibliometric coupling. These clusters with the authors' total link strengths are presented in Table 1. The clusters' theme "consumer behavior in online and mobile shopping environments", "impact of mobile technology and digital tools on consumer behavior", "consumer adoption and acceptance of mobile apps", "enhanced consumer Confidence and satisfaction through AR in Shopping", "interactivity, intrinsic value, engagement", "augmented reality, consumer engagement, shopping experience," and "future of spatial computing in e-commerce." Bilgihan (2016), Rese *et al.* (2017), and Kim (2017) positioned themselves as central nodes, suggesting their pioneering role in the field. In Figure 4, the red cluster, led by Bilgihan (2016), focuses on topics such as consumer behavior, e-commerce, and technology adoption. The green cluster, comprising Scholz (2018) and Yang (2020), likely explores augmented reality, artificial intelligence, and mobile apps. The blue cluster, which has been centered around Parise *et al.* (2016), seems to have an interest in data analytics as well as in omnichannel retailing. Furthermore, recent documents (2023–2024), such as Kumar (2024) and Hsu *et al.* (2024), reflect ongoing advancement and emerging trends. Similarly other clusters are mentioned in Figure 4.

Table 1: Summary of Clusters

Cluster	**Cluster's theme**	**Author (s) respective to total link strength**
Cluster 1 (Red)	Consumer behavior in online and mobile shopping environment	Flacandji and Vlad (2022), De Canio *et al.* (2021), Bilgihan *et al.* (2016), Wagner *et al.* (2020), Picot-Coupey *et al.* (2021), Barta *et al.* (2021)
Cluster 2 (Green)	Impact of mobile technology and digital tools on consumer behavior	Herold and Tabari (2024), Pop *et al.* (2023), Demoulin and De Kerviler (2026), Tupikovskaja-Omovie and Tyler (2022), Caboni and Pizzichini (2022), Pantano and Gandini (2017), Tupikovskaja-Omovie and Tyler (2020), Parise *et al.* (2016)
Cluster 3 (Blue)	Consumer adoption and acceptance of mobile apps	Chakraborty *et al.* (2022), Salamzadeh *et al.* (2022), Nur and Azzahra (2023), Baier *et al.* (2015), Soni *et al.* (2019), Rese *et al.* (2017), Tang *et al.* (2020), Baier *et al.* (2015)
Cluster 4 (Yellow)	Consumer Confidence and satisfaction through AR in Shopping	Reges and Costa (2023), Chen *et al.* (2022), Recalde *et al.* (2024), Saleem *et al.* (2022), Alves *et al.* (2024), Riar *et al.* (2023), Berman and Pollack (2021), Butt *et al.* (2024), Davis and Aslam (2024), Scholz and Duffy (2018), David *et al.* (2021), Yang *et al.* (2020), Rhee and Lee (2021), Wang *et al.* (2017)
Cluster 5 (Purple)	Interactivity, intrinsic value, engagement	Jiang *et al.* (2021), Heim (2023), Roslan and Haron (2024), Koli *et al.* (2016), Tsai *et al.* (2017), Peng and Al-Sayegh (2014), Kim *et al.* (2017)

Cluster 6 (Sky Blue)	Augmented reality, consumer engagement, shopping experience	Xue *et al.* (2023), Nunkoo *et al.* (2024), Chen and Zhai (2023), Bonfanti et al. (2023), Hsu et al. (2024), Yin (2021)
Cluster 7 (Gold)	Future of spatial computing in e-commerce	Alves *et al.* (2024), Wang *et al.* (2022), Chen and Lin (2022), Álvarez Márquez and Ziegler (2024), Mankodiya et al. (2013)

Source: Created by author referring to Figure 4

This visualization provides an organized overview of the foundational literature, emphasizing key intellectual debates, cornerstone works, and research trajectories within the field. It also maps areas to be explored in future research based on anticipated clusters and overlooked connections.

6.0 Conclusion

As this literature review portraits, the structure of research on how retail apps enhance the customer shopping experience. After the screening, 144 relevant articles were retrieved from the Scopus database. Trends, keywords, and bibliometric analyses are employed to portray the structure of scientific articles, and the number of scientific articles has been increasing exponentially globally, as is evident from the increasing number of studies. The prominent journals JRCS, JRDM, TFSC, and JBR published the highest number of articles in this domain and contributed to knowledge development in this field.

E-commerce, augmented reality, and user experience keywords showed a high research interest in these themes. Other keywords, such as retail, mobile shopping, mobile apps, and artificial intelligence, also appear regularly, which indicates their close connections with e-commerce and digital retail. Emerging keywords such as machine learning, deep learning, Internet of Things, and smart trolley reflect the growing role of AI and IoT in shopping. Seven clusters are identified through the bibliometric coupling; “consumer behavior in online and mobile shopping environments”, “impact of mobile technology and digital tools on consumer behavior”, “consumer adoption and acceptance of mobile apps”, “enhanced consumer Confidence and satisfaction through AR in Shopping”, “interactivity, intrinsic value, engagement”, “augmented reality, consumer engagement, shopping experience,” and “future of spatial computing in e-commerce.”

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