

Communication Patterns and User Behavior in the Digital Marketplace: A Bibliometric Review

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Abstract

Advances in digital technology have reshaped mediated communication patterns between brands and audiences, particularly through the convergence of e-commerce platforms like Shopee and video-based social media platforms like TikTok, which now serve as interactive communication ecosystems where persuasive narratives and social meanings are negotiated. This study aims to map the development of scientific research on communication patterns and user behavior on both platforms between 2021 and 2025 using a bibliometric approach. Through analysis of Scopus data filtered with PRISMA flowcharts and visualized using RStudio (Biblioshiny) and VOSviewer, a significant surge in publications was found, from 42 articles in 2021 to 188 articles in 2024. The dominance of keywords such as social media engagement, digital persuasion, and audience behavior indicates that communicative processes are central to shaping user responses. Conceptual mapping reveals that this study increasingly intersects with new communication technologies such as artificial intelligence and algorithms, signaling a shift towards data-driven, personalized communication strategies. From a communication science perspective, this study asserts that Shopee and TikTok operate as mediated spaces that redefine the construction of trust, identity, and digital rhetoric in the contemporary media ecosystem.

Keywords: *Computer Mediated Communication, Digital Persuasion, Social Commerce, Media Ecosystems, Bibliometric*

1. Introduction

The development of digital technology has drastically changed the interaction patterns between users and brands, particularly on e-commerce and social media platforms. Shopee, the leading online shopping platform in Southeast Asia, and TikTok, the highly popular short-video social media platform, have now become two key platforms in pattern communication strategies. Both play a crucial role in shaping modern user behavior, where purchasing decisions are influenced not only by product price and quality but also by digital experiences, social interactions, and influencer recommendations.

This transformation presents new challenges and opportunities in digital communication research. Therefore, it is necessary to scientifically map trends, topic developments, and scientific contributions in this field using a bibliometric approach. This study aims to identify research trends, dominant keyword networks, and the most influential authors and journals on the topic of user behavior and pattern communication on two platforms, Shopee and TikTok.

The development of digital technology has brought about fundamental changes in the way users interact with products, brands, and services (De Veirman et al., 2017; Gerdenitsch et al., 2020; Gursoy et al., 2019; Hou & Sarigöllü, 2022; Hua & Yuan, 2022; Jung & Yoo, 2019, 2019; H. Lee & Cho, 2017; J. E. Lee & Watkins, 2016; Nasiri et al., 2021, 2021; Page et al., 2018; Rosenbaum et al., 2017; Wiegand & Imschloss, 2021). In today's digital era, user behavior is no longer solely influenced by traditional factors such as functional needs or price, but also by psychological, social, and technological factors (Afshar-Nadjafi, 2016; Belk, 2013; Gursoy et al., 2019; Hou & Sarigöllü, 2022; Nasiri et al., 2021; Page et al., 2018; Rosenbaum et al., 2017). User behavior explains that purchasing decisions are influenced by attitudes, social norms, and perceived control, as well as how users respond to environmental stimuli, including digital advertising, influencers, and interactive content (Ajzen, 1991).

The theoretical framework of this study is grounded in the Theory of Planned Behavior, which explains user behavior as a function of attitudes, subjective norms, and perceived behavioral control in shaping behavioral intentions (Ajzen, 1991). Within the digital commerce context, particularly on Shopee and TikTok, the theory provides a robust foundation for understanding how users form purchase intentions in response to pattern communication stimuli. Attitudes are shaped by users' evaluations of promotional content, product information, and perceived value, while subjective norms are strongly influenced by social interactions, influencer endorsements, user-generated content, and peer recommendations that are

highly visible on social and video-based platforms. Perceived behavioral control, in turn, is reinforced by platform affordances such as ease of use, payment convenience, algorithmic recommendations, and seamless integration between content discovery and transaction processes.

To strengthen this framework, the Theory of Planned Behavior is integrated with complementary theories, including the Technology Acceptance Model (Davis, 1989) and Integrated Pattern Communications theory (Belch & Belch, 2012). The Technology Acceptance Model extends the Theory of Planned Behavior by emphasizing perceived usefulness and perceived ease of use as key determinants of technology-enabled user behavior, which is particularly relevant in platform-based environments like Shopee and TikTok that rely heavily on interface design and personalization algorithms. Meanwhile, Pattern Communications provides a strategic communication perspective by explaining how consistent and integrated messaging across multiple digital touchpoints enhances brand coherence and user trust. Together, these theoretical perspectives allow this study to conceptualize user behavior as the outcome of a complex interaction between psychological intention formation, technology acceptance, and strategic communication processes. This integrated theoretical framework offers a comprehensive lens for mapping how pattern communication practices on Shopee and TikTok influence user behavior, thereby strengthening the conceptual foundation of the bibliometric analysis and its contribution to digital communication research.

In this context, Shopee and TikTok are two platforms that have significantly influenced the formation and transformation of user behavior (Song et al., 2018; Zhang et al., 2019). Shopee, as an e-commerce platform, offers features such as vouchers, gamification, live streaming, and personalization algorithms. These features create a shopping experience that is not only functional but also emotional and social. Meanwhile, TikTok, with its short video format and algorithm-based approach, is highly effective in generating user engagement through entertaining, informative, and viral content. The concept of the user experience is now shifting from linear to non-linear, where users can discover products through entertaining videos and then directly make purchases through e-commerce integration (Elia et al., 2021; Gerdenitsch et al., 2020; Hua & Yuan, 2022; Jonker, 2019; Miyashita, 2014).

The selection of Shopee and TikTok as the primary platforms in this study is justified by their dominant presence in both practical digital ecosystems and scholarly literature on user behavior and pattern communications. Bibliometric evidence from Scopus-indexed publications

indicates that Shopee and TikTok are among the most frequently examined platforms in studies related to e-commerce engagement, social commerce, influencer, and algorithm-driven user decision-making during the 2021–2025 period. Compared to other platforms such as Amazon, Lazada, Instagram, or Facebook, Shopee and TikTok exhibit a stronger interdisciplinary appeal, as they are simultaneously discussed within communication studies, information systems, and data analytics literature.

Shopee is often highlighted as a leading case of mobile-first e-commerce innovation in Southeast Asia, while TikTok dominates the literature on short-form video, virality, and influencer-driven consumption. The high frequency of keywords, citations, and co-occurrence networks related to these two platforms demonstrates their centrality in contemporary academic discourse, making them empirically and theoretically relevant objects of analysis. Therefore, focusing on Shopee and TikTok allows this study to capture the most influential and rapidly evolving research streams in digital user behavior and pattern communications.

Pattern communication on the Shopee and TikTok platforms has evolved from simply product promotion to a form of two-way communication involving user-generated content, influencer patterns, and personalized advertising (Davis, 1989; He et al., 2019; Hua & Yuan, 2022; Venkatesh et al., 2003). Current pattern communication strategies leverage the power of big data and artificial intelligence (AI) to predict user preferences and deliver timely and relevant content. Such practices, such as Integrated Pattern Communications (IMC), emphasize the importance of consistent messaging across multiple platforms, which has successfully created an ecosystem that supports integrated pattern communication practices (Belch & Belch, 2012; E. Belch & A. Belch, 2020).

This phenomenon has fueled growing academic interest in the study of user behavior and pattern communication, particularly with a focus on the Shopee and TikTok platforms. However, to date, few studies have systematically mapped trends, key topics, and scholarly contributions in this field.

The selection of the 2021–2025 period in this study is based on several substantive and methodological considerations. First, this timeframe represents a critical phase of accelerated digital transformation triggered by the COVID-19 pandemic, which fundamentally reshaped user behavior, communication patterns, and platform-based commerce worldwide. During this period, Shopee and TikTok experienced rapid growth in user adoption, feature innovation, and platform integration, such as live commerce, influencer-driven patterns, and algorithm-based personalization, making them central arenas for digital consumption and

communication. Second, from an academic perspective, 2021 marks the beginning of a significant surge in scholarly attention toward platform-based user behavior, artificial intelligence-driven patterns, and data-oriented communication strategies, as reflected in the sharp increase in Scopus-indexed publications. Finally, limiting the analysis to 2025 ensures the inclusion of the most recent and relevant research trends while maintaining data stability and completeness for bibliometric mapping. Therefore, the 2021–2025 timeframe provides a robust and timely basis for capturing both the structural evolution and emerging directions of user behavior and pattern communication research in the context of Shopee and TikTok.

This study, using a bibliometric approach, aims to understand the development of scholarly studies on user behavior and pattern communication on the Shopee and TikTok platforms in recent years. The results of this analysis are expected to serve as an important reference for digital communication strategy developers, pattern practitioners, and researchers seeking to explore this field more broadly and comprehensively.

Based on the theoretical framing and empirical context discussed above, this study is guided by a set of explicit research questions aimed at clarifying its specific contribution to the literature.

1. What keywords are formed, and how is the development of the focus of user behavior research and pattern communications on the Shopee and TikTok platforms?
2. How does the collaboration and contribution map between countries contribute to the scientific discourse on user behavior and pattern communications on the Shopee and TikTok platforms?
3. How do reputable journals influence the theoretical foundations of user behavior and pattern communications on the Shopee and TikTok platforms?
4. What are the dynamics and growth patterns of scientific publications on user behavior and pattern communications on the Shopee and TikTok platforms during the 2021–2025 period?

Despite a significant surge in the use of platforms like Shopee and TikTok, a major challenge remains the complexity of mapping how digital pattern communication stimuli, such as personalization algorithms, live streaming, and influencer influence, collectively transform user purchase intentions into non-linear decisions. Much of the existing literature remains fragmented, focusing on a single platform or psychological variable, creating a knowledge gap regarding holistic and integrated scientific development patterns during the post-pandemic digital

transformation period (2021–2025). The lack of systematic mapping of topical trends, interrelationships between concepts such as the integration of AI into user behavior, and global scientific contributions makes it difficult to determine the future direction of research in this field.

This research is crucial for several strategic reasons. First, academically, it provides a strong theoretical foundation by integrating the Theory of Planned Behavior and the Technology Acceptance Model within the Shopee and TikTok ecosystems. This helps researchers understand the dynamics of digital consumption more deeply. Second, the bibliometric approach used allows for the identification of new technology clusters, such as machine learning and predictive analytics, which are now beginning to dominate user behavior discourse. Finally, the results of this mapping provide practical guidance for pattern practitioners to develop adaptive and data-driven communication strategies amidst highly dynamic changes in user interaction patterns.

2. Methode

This study used a bibliometric approach to analyze scientific literature related to user behavior and pattern communication on the Shopee and TikTok platforms. Data was collected from the Scopus database using the keywords "user behavior" and "pattern communication" with publication dates ranging from 2021 to 2025. The data collection process followed the PRISMA model to filter relevant articles, avoid duplication, and ensure content aligned with the research topic.

The analysis was conducted using RStudio software through Biblioshiny and VOSviewer to visually map keyword networks, annual publication trends, relationships between countries and authors, and identify the most cited journal sources and articles.

To ensure the robustness and methodological rigor of the bibliometric analysis, several validation techniques were employed. First, reliability was addressed through the use of standardized and widely accepted bibliometric tools that apply consistent algorithms for data cleaning, keyword normalization, and network construction. The reproducibility of the analysis was enhanced by maintaining identical search strings, inclusion criteria, and parameter settings across multiple analytical runs. Second, a sensitivity analysis was conducted by varying key thresholds, such as minimum keyword occurrence, citation cut-off points, and clustering resolution parameters, to examine the stability of network structures and thematic patterns. The results showed that core clusters and dominant keywords remained consistent across different parameter settings, indicating a high level of analytical robustness. Finally, cross-

validation between software outputs was performed by comparing keyword co-occurrence and clustering results generated by Biblioshiny and VOSviewer. The convergence of findings across these tools strengthens the validity of the bibliometric mapping and ensures that the identified trends and relationships are not artifacts of a single analytical technique.

Primary data was obtained from the Scopus database, one of the largest and most trusted bibliographic indexes in the academic world. The researchers used a combination of the keywords "user behavior" and "pattern communication" along with additional filters targeting the Shopee and TikTok platforms. The search period was limited to 2021 to 2025 to reflect research trends in recent years. The article search and selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) model, which consists of identification, screening, eligibility, and inclusion. Articles that were irrelevant, duplicate, or off-topic were excluded from the analysis.

After the articles were collected, the data were exported in CSV format from Scopus and then entered into RStudio via Biblioshiny, a web-based module of the Bibliometrix library package. Biblioshiny facilitates bibliometric analysis without the need for manual R scripting (Aria & Cuccurullo, 2017; Donthu et al., 2021; Mondal, 2025).

Prior to analysis, a systematic data cleaning and preprocessing procedure was conducted to ensure the accuracy and consistency of the bibliometric dataset. Author name disambiguation was performed in RStudio using the Bibliometric framework by standardizing variations in author names arising from differences in initials, spelling, or ordering (Dwivedi et al., 2021, 2023). This process minimized fragmentation in authorship analysis and improved the reliability of citation and collaboration networks. In addition, keyword normalization was applied to merge synonymous and semantically equivalent terms. Variations such as "user behaviour" and "user behavior," "e-commerce" and "electronic commerce," as well as plural and singular forms, were unified using manual thesaurus editing and automated cleaning functions in Biblioshiny.

Furthermore, VOSviewer's thesaurus file was utilized to refine keyword co-occurrence analysis by explicitly defining synonym relationships and excluding irrelevant or overly generic terms. This step ensured that concept clusters reflected substantive thematic relationships rather than lexical inconsistencies. The combined use of RStudio and VOSviewer in the data cleaning stage enhanced the precision of network visualization and thematic mapping, allowing for a more valid interpretation of dominant research trends in user behavior and pattern communication on the Shopee and TikTok platforms.

Previous research has also conducted a bibliometric analysis on the issue of gender-based violence (Zuhdi et al., 2024), the trend of Islamic fashion in the ChatGPT discussion (Pradana et al., 2023b, 2023a). The analysis included an analysis of annual scientific production to identify trends in the number of publications each year, an analysis of the most relevant journal sources based on the number of publications and citations, an analysis of the most cited references to identify the most influential articles, and an analysis of keyword frequency and co-occurrence to identify the most dominant concepts in the literature.

To complete the analysis and provide a visual representation of the scientific network, the VOSviewer software was used (Mondal, 2025; van Eck & Waltman, 2010). The application is used to analyze and visualize keyword co-occurrence networks that show the relationships between concepts in articles, Bibliographic coupling between countries and authors, to understand international collaborations and main actors in the field, and clustering of knowledge based on co-occurrence of terms or citations.

The exclusion criteria applied during the PRISMA screening process were defined to ensure thematic relevance, methodological consistency, and analytical rigor. Reason 1 refers to articles that discussed user behavior or pattern communication in general but did not explicitly relate to digital platforms, e-commerce, or social media contexts, thereby lacking alignment with the focus of this study. Reason 2 includes publications that mentioned Shopee or TikTok only marginally, such as passing examples or contextual references, without empirical or conceptual engagement with these platforms. Reason 3 consists of studies whose primary focus was technical or computational (e.g., pure algorithm development or system architecture) without substantive discussion of user behavior or pattern communication constructs. Reason 4 covers articles that were not research-based, such as editorials, book reviews, notes, or opinion papers, which do not meet the inclusion criteria for bibliometric analysis. Reason 5 includes publications with incomplete metadata (e.g., missing author, keyword, or reference information), which could compromise network analysis and citation mapping accuracy. Finally, Reason 6 refers to articles written in languages other than English or not accessible in full text, which limited reliable content verification and consistent bibliometric processing. The application of these exclusion criteria ensured that the final dataset comprised high-quality, relevant, and methodologically comparable studies suitable for robust bibliometric analysis.

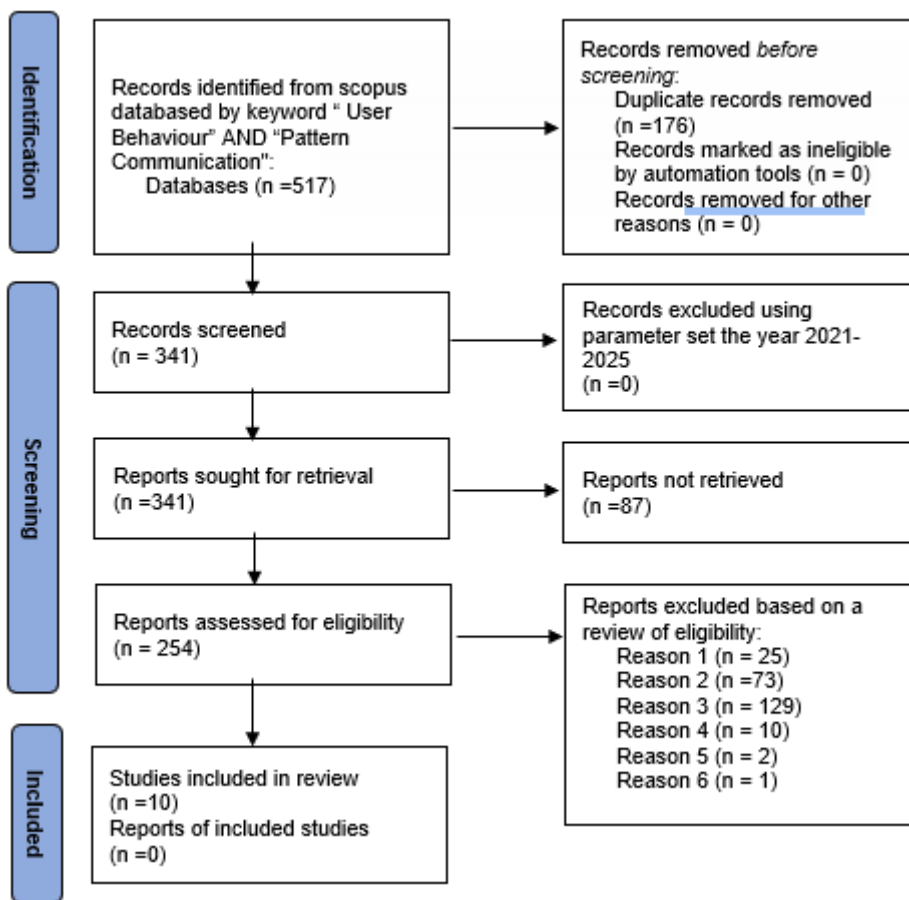


Figure 1. Data Collection with The PRISMA Model

The data collection and selection process for this study was conducted systematically following the PRISMA model, which is divided into four main stages: identification, screening, eligibility, and inclusion. In the identification stage, a search of the Scopus database was conducted using a combination of the keywords "user behavior" and "pattern communication" with additional filters for the platforms "Shopee" and "TikTok," resulting in a total of 517 records. Of these, 176 records were removed due to duplicate data, leaving 341 articles for the screening stage.

In the screening stage, all 341 articles were filtered based on the publication year parameters of 2021–2025. Although all articles met the criteria, 87 reports were not fully accessible, leaving 254 articles for the eligibility assessment stage. In the eligibility assessment, articles were evaluated based on six strict exclusion criteria, including articles that only marginally discussed platforms, purely technical studies without

discussion of user behavior, and articles with incomplete metadata. After going through a rigorous screening process, this study finally included the most relevant and high-quality articles for further analysis using the tools RStudio (Biblioshiny) and VOSviewer to map trends and intellectual networks in the literature.

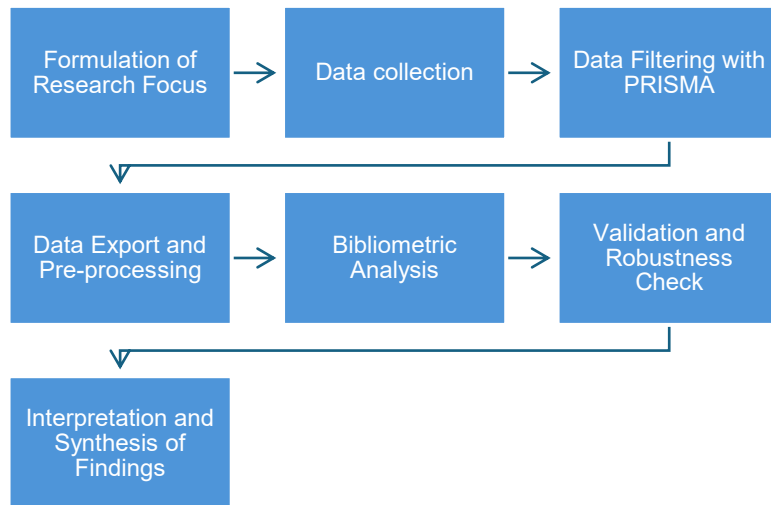


Figure 2. Research Flow Diagram

This research begins with the formulation of the focus and scope of the study, emphasizing a bibliometric analysis of scientific literature on user behavior and pattern communication in the context of digital platforms, specifically Shopee and TikTok. This topic was chosen based on the rapid growth of e-commerce and social media as primary pattern communication channels and changes in user behavior patterns within the digital ecosystem. The publication period was set from 2021 to 2025 to capture the latest research developments and cutting-edge trends in the field.

At this stage, research data was collected from the Scopus database, selected for its reputation as one of the largest and most trusted bibliographic indexes in academia. The search process was conducted using a combination of the keywords "user behavior" and "pattern communication," along with additional filters targeting the platforms Shopee and TikTok. Initial inclusion criteria included English-language research articles with complete metadata, ensuring data quality and consistency for subsequent bibliometric analysis.

Following data collection, article selection was conducted systematically using the Preferred Reporting Items for Systematic Reviews

and Meta-Analyses (PRISMA) model. This stage included initial identification of all retrieved articles, removal of duplicate data, screening by publication year, and assessing article eligibility based on established exclusion criteria. The application of the PRISMA model ensured a transparent, structured, and replicable selection process.

Articles that passed the PRISMA stage were then exported from Scopus in CSV format for further processing using RStudio via the Biblioshiny module. In the pre-processing stage, systematic data cleaning was performed, including author name disambiguation to avoid fragmentation of academic identities and keyword normalization to unify terms with similar semantic meaning. This stage plays a crucial role in improving the accuracy of network and citation analysis.

The primary analysis was conducted using two bibliometric software tools: Biblioshiny and VOSviewer. Biblioshiny was used to analyze annual publication trends, the most relevant journals, the most influential articles and authors, and citation distribution. Meanwhile, VOSviewer was used to visualize keyword co-occurrence networks, collaborations between authors and countries, and the formation of thematic clusters that reflect the intellectual structure of the field of study.

To ensure methodological reliability and rigor, the validation phase was conducted using several approaches. Sensitivity analysis was applied by varying the keyword occurrence threshold, minimum citation count, and cluster resolution to test the stability of thematic patterns. Furthermore, cross-validation between the results obtained from Biblioshiny and VOSviewer was performed to ensure consistency of findings. The agreement between the results from both software tools demonstrates a high level of robustness in the bibliometric analysis.

The final stage of the research focused on interpreting and synthesizing the results of the bibliometric analysis. The findings were used to identify key research trends, dominant themes, and patterns of scholarly collaboration in the study of user behavior and pattern communications on the Shopee and TikTok platforms. These interpretations were then synthesized to provide a comprehensive understanding of the direction of research development, remaining research gaps, and theoretical and practical implications for further research.

3. Results

A bibliometric analysis of scholarly publication trends related to user behavior and pattern communication on the Shopee and TikTok platforms shows a significant increase over the past five years.

3.1 Keyword Network Analysis

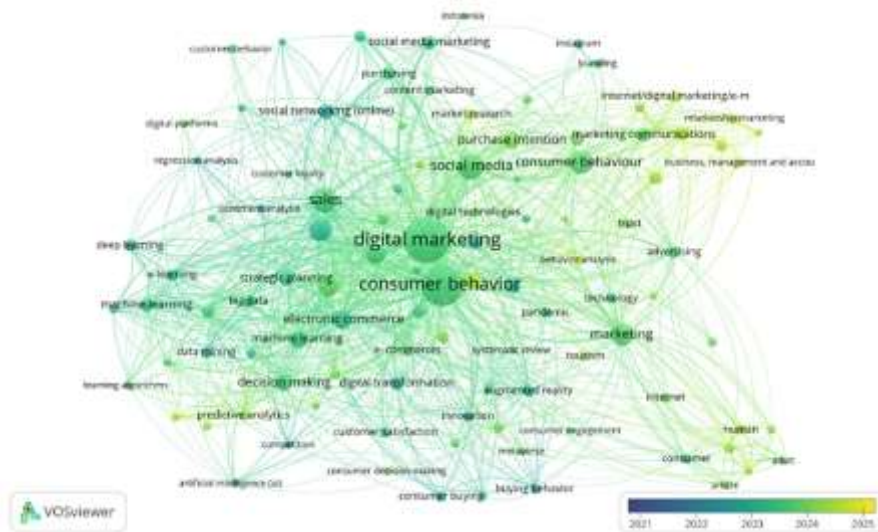


Figure 3. Keyword Occurrence Visualization

Figure 3 shows that the research's primary focus is centered on three major pillars: digital communication, user behavior, and social media. The large node sizes for the keywords "digital marketing" and "consumer behavior" indicate that these two topics are fundamental to the digital marketplace literature. The close relationship between these nodes reflects communication patterns in the digital marketplace, which are no longer unidirectional but rather interactive through digital platforms and social media, directly influencing users' decision-making processes.

Regarding communication patterns, a cluster is evident that emphasizes the role of social media, digital communications, and branding. The use of digital technologies such as artificial intelligence (AI), machine learning, and big data, seen in the bottom left corner, indicates that communication patterns in today's digital marketplace rely heavily on algorithms for message personalization. This illustrates how big data is used to understand user sentiment and behavior in real time, a core component of the bibliometric review in this study.

Regarding user behavior, the map highlights important variables such as purchase intention, loyalty, trust, and satisfaction. The trend toward yellow in 2024-2025, with keywords like "metaverse," "augmented reality," and "innovation," indicates a shift in user behavior in the future. Recent research has begun to explore how immersive experiences and cutting-edge technologies are changing the way consumers interact and transact in

digital markets. Overall, this figure demonstrates that the bibliometric review encompasses the evolution from traditional digital marketing to a more intelligent, data-driven, and user-experience-centric ecosystem.

3.2 Analysis of Intercountry Relations

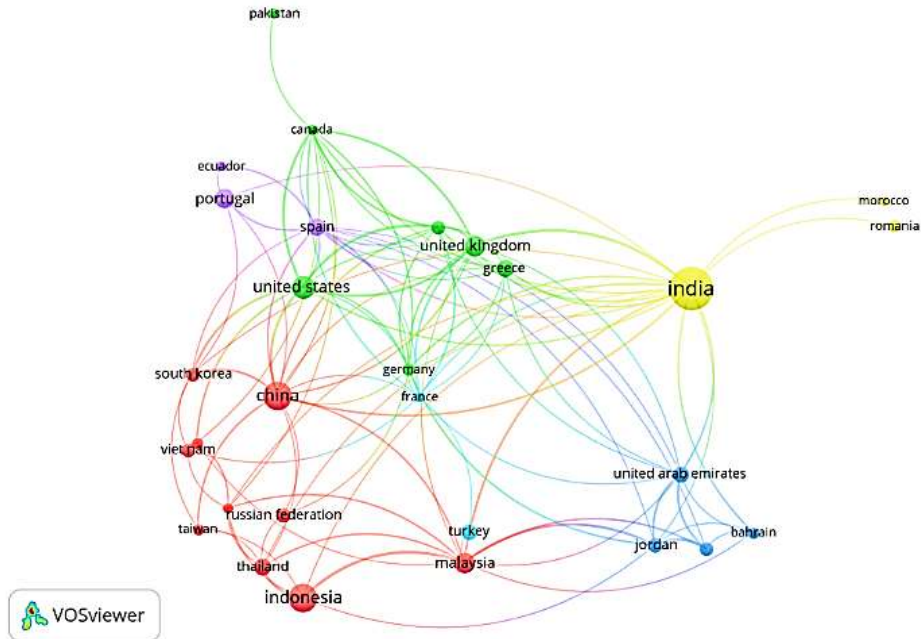


Figure 4. Visualization of Bibliographic Coupling Countries

Figure 4 shows a map of global collaboration on related research topics. India emerges as the most dominant and prominent node, indicating that the country has a significant publication volume and influence within this network. In addition to India, countries such as China, the United States, the United Kingdom, and Indonesia also make significant contributions, as evidenced by the relatively large size of their circles compared to other countries.

The country network is divided into several color clusters, indicating the closeness of academic collaboration, such as red, green, purple, and blue clusters.

The red cluster indicates close collaboration in Asia and the surrounding region, involving Indonesia, China, Malaysia, Thailand, and South Korea. Indonesia appears to have a strong position within this cluster, with intense ties to neighboring countries. Furthermore, the green and purple clusters are dominated by Western countries such as the United States, the United Kingdom, Canada, and Spain, indicating a bloc of research collaboration between North America and Europe. The blue

cluster covers the Middle East, showing a collaborative network between the United Arab Emirates, Jordan, and Bahrain.

The lines connecting the countries illustrate the strength of cross-border collaboration. India and China appear to act as important bridges connecting various clusters, both with Western countries and developing countries in Southeast Asia and the Middle East. This indicates that research in this field is highly international and multidimensional, with developing Asian countries now playing a key role in the development of global science.

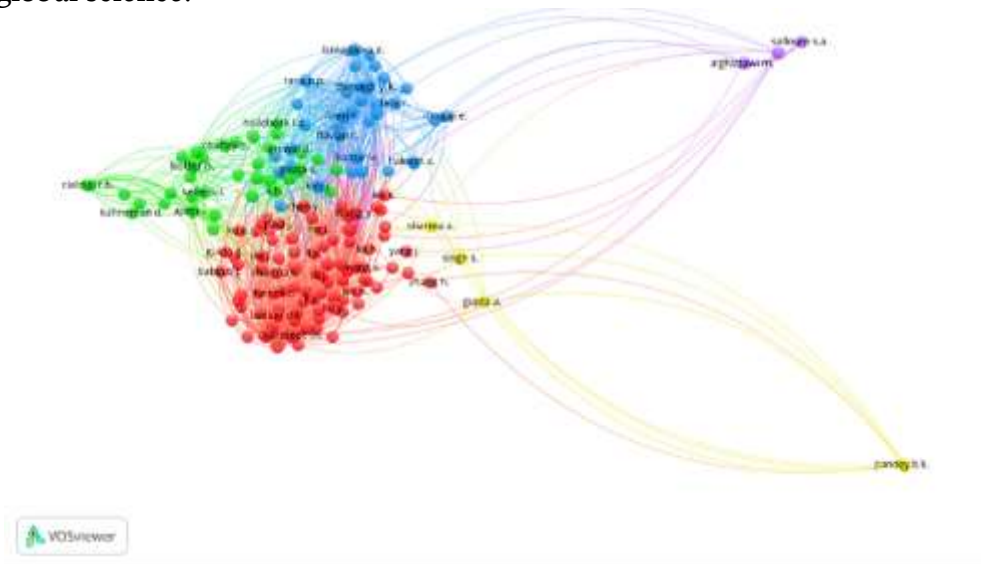


Figure 5. Visualization of Bibliographic Coupling Authors

Figure 5 is a visualization of the bibliographic coupling network between authors generated using VOSviewer. This visualization depicts bibliographic relationships between researchers based on the frequency and similarity of references used in scientific publications on user behavior and pattern communication, specifically in the context of the Shopee and TikTok platforms, from 2021 to 2025.

In the visualization in Figure 6, each node represents a researcher, and the node size indicates the researcher's level of influence or frequency of connection within the dataset. Cluster colors indicate groups of authors with close referential links, meaning they reference the same literature or are frequently cited together. The relationships between nodes, depicted as lines, indicate the strength of bibliographic connections between researchers.

There are at least five main clusters, each with a different color, indicating distinct scientific groups or thematic focuses in user behavior and pattern communication research on the Shopee and TikTok platforms. Among the most prominent authors are Dwivedi et al. (2021), Kotler (1972), Ajzen (1991), Keller (1993), and Cialdini et al. (. These authors have large nodes and are strategically positioned in the network, indicating that they are widely used as primary references or central to theories in pattern communication and user behavior studies.

(Dwivedi et al., 2021) and (Rana et al., 2022) dominate the blue cluster, which appears to focus on technology and digital transformation studies in a pattern context. (Kotler, 1972) and (Ajzen, 1991) are in the green cluster, which likely represents classical and theoretical approaches such as the theory of planned behavior, persuasion theory, and the pattern mix. Finally, (Ittner & Larcker, 1998) The red cluster tends to represent quantitative approaches, structural analysis, and measurement models in user behavior and customer satisfaction research.

Interestingly, several authors such as (Akour et al., 2022) and (Alghzawi et al., 2020) They are located outside the main network but are still connected to several large clusters. This indicates that, despite their contributions being distinct in focus, their work resonates and is cited by researchers from various clusters. These authors may represent recent research or more specific approaches, such as AI, e-commerce in developing countries, or applications on specific platforms like TikTok.

3.3 Analysis of Top 10 Cited References

First, the most cited articles by (Dwivedi et al., 2021) and (Dwivedi et al., 2023) focused on the future of pattern communication and social media, as well as the implications of the metaverse for pattern. These studies demonstrate a shift toward more immersive and data-driven user experiences. The article, "Setting the future of digital and social media pattern research: Perspectives and research propositions," published by Elsevier in 2021, ranked first with 1,256 citations. This article provides a crucial foundation for formulating new directions in pattern communication and social media, including the use of data and technology to understand user behavior more predictively. Second, another article by the same author, titled "Metaverse Pattern: How the Metaverse Will Shape the Future of User Research and Practice," received 544 citations in 2023, indicating growing attention to the metaverse's role in shaping user experiences in the digital age.

Furthermore, an article by (Chintalapati & Pandey, 2022) titled "Artificial Intelligence in Pattern: A Systematic Literature Review," received 235 citations, emphasizing the importance of AI as a driver of

pattern communication efficiency. The article discusses the use of AI technology in pattern campaign automation, purchase intent prediction, and digital content optimization.

Furthermore, articles by (Munsch, 2021) and (Pittman & Abell, 2021) Each with 151 citations, demonstrates that the effectiveness of pattern communications for millennials and Generation Z, as well as the role of social media influencers, are key concerns in the context of generational and social value-based patterns.

Other research that also contributed significantly is (Vinerean et al., 2022) who explored post-pandemic m-commerce adoption using the UTAUT2 approach, and Shameem A, who reviewed the role of AI in improving digital advertising efficiency in developing countries. While (Grandhi et al., 2021) The article highlights the importance of data-driven patterns for business growth.

Table 1. List of Top 10 Citations

| First Author | Country | Publisher | Publication Year | Total Citation | Source |
|---------------------|--------------------------|------------------|-------------------------|-----------------------|---|
| Dwivedi, YK | United Kingdom | Elsevier | 2021 | 1256 | International Journal of Information Management |
| Dwivedi, YK | United Kingdom | Wiley | 2023 | 544 | Psychology of Pattern |
| Chintalapati S | India | Sage | 2022 | 235 | International Journal of Market Research |
| Munsch A | United States of America | Taylor & Francis | 2021 | 151 | Journal of Global Scholars of Pattern Science |
| Pittman M | United States of America | Sage | 2021 | 151 | Journal of Interactive Pattern |
| Vinerean S | Romania | MDPI | 2022 | 109 | Electronics |

| First Author | Country | Publisher | Publication Year | Total Citation | Source |
|---------------------|----------------------|------------------|-------------------------|-----------------------|---|
| Shameem A | India | IEEE | 2023 | 65 | International Conference on Advanced Computing and Innovative Technologies in Engineering (ICACITE) |
| Sun Y | United Kingdom | Emerald Insight | 2022 | 64 | Journal of Fashion Pattern and Management |
| Grandhi B | United Arab Emirates | Emerald Insight | 2021 | 61 | EuroMed Journal of Business |
| Singh B | India | Taylor & Francis | 2024 | 58 | Revolutionizing the AI-Digital Landscape |

Table 1 lists the ten most highly cited publications, demonstrating that the primary focus of global research on user behavior and pattern communication revolves around three broad themes: the integration of technologies such as AI and the metaverse, effective digital communication strategies for the younger generation, and the importance of a data-driven approach to pattern personalization. These findings demonstrate that developments in user behavior and pattern communication are driven not only by innovations in platforms like Shopee and TikTok but also by technological advances that enable more precise prediction and adaptation to user behavior.

An analysis of the most frequently cited references indicates that the works of Dwivedi et al., Kotler, Ajzen, and Keller serve as the intellectual anchor for this research. From a Communication Studies perspective, this dominant reference base indicates the strong foundation of persuasion, attitude, and decision-making theories in digital pattern communication studies. The integration of classical communication and psychology

theories with the context of digital platforms demonstrates the adaptation of communication theory to new media.

The high number of citations to studies on the metaverse and AI also reflects a focus on immersive and predictive forms of communication. This suggests that communication is no longer understood simply as the exchange of messages, but as a media experience shaped by technology and data.

3.4 Growth Analysis of User Behaviour and Pattern Communication Research

Table 2. Annual Scientific Production

| Year | Article |
|-------------|----------------|
| 2021 | 42 |
| 2022 | 64 |
| 2023 | 87 |
| 2024 | 188 |
| 2025 | 136 |

Table 2 shows a significant year-over-year increase in the number of publications on this topic, from 42 articles in 2021 to 136 articles by mid-2025. This indicates that user behavior and pattern communication, particularly on the Shopee and TikTok platforms, have become a major focus for interdisciplinary research.

Bibliometric analysis results show a significant increase in the number of scholarly publications discussing user behavior and pattern communications in the context of the Shopee and TikTok platforms during the 2021–2025 period. From a Communication Studies perspective, this trend reflects growing academic attention to digital platforms as interactive communication spaces that mediate symbolic relationships between brands and audiences. This growth in publications not only demonstrates the practical relevance of the topic but also signals a shift in the focus of communication studies toward algorithm-based media and user participation.

The increase in the number of articles from 42 publications in 2021 to a peak of 188 publications in 2024 demonstrates that digital pattern communications on e-commerce platforms and short-form video social media platforms have become a crucial focus in contemporary communication studies. This surge is closely related to the post-pandemic digital acceleration, where persuasive communication practices, digital storytelling, live shopping, and influencer patterns have become increasingly integrated into users' daily lives. Thus, Shopee and TikTok are

no longer understood solely as product distribution channels, but rather as strategic communication mediums.

The statistical growth analysis, which shows a consistent upward pattern, reinforces the interpretation that this field is developing structurally and sustainably. From a Communication Studies perspective, this confirms that the study of user behavior and digital pattern communications has transformed into a well-established subdiscipline, intersecting with new media studies, strategic communications, and data-driven communications.

4. Discussion

Bibliometric analysis shows that pattern communication and user behavior remain central to discussions, but research is shifting strongly toward technology integration, particularly AI, machine learning, and predictive analytics (Barbot & Kaufman, 2020; Gillath et al., 2021; Gursoy et al., 2019; Hou & Sarigöllü, 2022). This indicates a paradigm shift from traditional communication studies to a data-driven approach, where personalization and algorithm-based recommendations play a significant role in influencing purchase intention on platforms like Shopee and TikTok (Dwivedi et al., 2023; Hou & Sarigöllü, 2022; J. E. Lee & Watkins, 2016). Shopee and TikTok serve different but complementary roles in the digital ecosystem. Shopee focuses more on transaction experiences, such as live shopping, vouchers, gamification, and product recommendations (Crivellari et al., 2022; Gursoy et al., 2019). Meanwhile, TikTok encourages discovery based on short-form content and virality, such as influencer patterns and user-generated content (Alalwan, 2018; Bazzaz Abkenar et al., 2021; Lau, 2017; Metz et al., 2022). The combination of engaging content on TikTok with a seamless transaction path on Shopee creates a discovery-to-engagement-to-purchase loop, triggering increased purchase intention. The influencer pattern has emerged as a powerful link between social media engagement and purchase intention. In addition to effective reach, this study shows that influencer credibility, message type, and audience suitability determine campaign success. In the TikTok context, authentic narrative styles and interactivity, such as commenting or collaboration features, increase trust and purchase intention.

Overall, these bibliometric findings indicate that pattern communication and user behavior have evolved into strategic communication studies centered on technological mediation. Shopee and TikTok function as digital communication infrastructures that combine persuasive messages, social interactions, and algorithmic systems. From a Communication Studies perspective, this confirms the need for

contemporary communication studies to view digital platforms as complex spaces for the production of meaning, where messages are not only delivered but also continuously negotiated and personalized.

This research enriches Communication Studies studies by demonstrating that digital pattern communication is cross-platform, cross-technological, and cross-disciplinary. By positioning Shopee and TikTok as strategic communication mediums, this study confirms the relevance of Communication Studies in explaining how narrative, credibility, and interactivity shape user decisions in the era of algorithmic communication.

5. Conclusion

Overall, this bibliometric study demonstrates that research on user behavior and pattern communication in the context of Shopee and TikTok has experienced a substantial and systematic expansion between 2021 and 2025, reflecting the growing strategic importance of platform-based digital ecosystems. The findings reveal a well-structured and increasingly mature research field characterized by clear thematic clusters, strong theoretical foundations anchored in user behavior and communication theories, and an expanding integration of advanced technologies such as artificial intelligence and data analytics. The central positioning of Shopee and TikTok within keyword networks and collaboration structures confirms their role as focal platforms through which contemporary digital consumption, social influence, and transactional processes are examined. Moreover, patterns of citation impact and scholarly collaboration indicate a healthy balance between exploratory innovation and theoretical consolidation, suggesting that this domain has moved beyond an emerging phase toward sustained academic relevance. Collectively, these results provide a coherent and evidence-based overview of the intellectual landscape, offering a solid foundation for future theoretical development, methodological refinement, and practical application in the study of digital user behavior and pattern communication.

Future research on user behavior and pattern communication in the context of Shopee and TikTok should move beyond descriptive trend mapping toward more theory-driven and methodologically integrated approaches. Scholars are encouraged to conduct longitudinal and cross-platform comparative studies to examine how user attitudes, subjective norms, and perceived behavioral control evolve over time within algorithm-mediated environments. Methodologically, future studies should combine bibliometric techniques with systematic literature reviews, meta-analyses, or mixed-method designs to deepen theoretical interpretation and reduce reliance on frequency-based indicators alone.

Incorporating advanced network metrics, such as centrality measures, thematic evolution analysis, and dynamic citation modeling, would further enhance analytical precision. In addition, greater transparency in data cleaning procedures, parameter reporting, and replication protocols is recommended to improve reliability and comparability across bibliometric studies. By addressing these directions and methodological refinements, future research can contribute to a more mature, cumulative, and theoretically grounded understanding of digital user behavior and pattern communication in platform-based ecosystems.

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