A DEMOGRAPHIC ANALYSIS OF CONSUMER BEHAVIORAL PATTERNS ON DIGITAL E-COMMERCE PLATFORMS

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ABSTRACT

This systematic literature review investigates how demographic variables influence consumer behavior on e-commerce platforms, with a specific focus on shopping patterns. Drawing from peer-reviewed empirical studies published between 2020 and 2025, the review synthesizes findings related to age, gender, income, education, and geographic location in shaping online purchasing behavior. Younger consumers show higher levels of confidence and frequency in digital shopping, while older users express greater concern regarding security and usability. Gender and socioeconomic status further differentiate preferences and buying approaches, while rural-urban disparities affect access and platform engagement. Thematic synthesis reveals distinct patterns in online shopping behavior linked to demographic traits, while bibliometric analysis highlights two dominant research themes: the impact of the COVID-19 pandemic and the rise of user-centered e-commerce models. This study contributes to the literature by offering a comprehensive overview of how consumer demographics interact with digital retail environments. It also provides practical implications for businesses and policymakers aiming to design more inclusive and effective e-commerce strategies.

Keywords*: **consumer behavior, demographics, e-commerce, patterns, shopping***

1. INTRODUCTION

The exponential rise of e-commerce has reshaped the global retail landscape, transforming the ways in which consumers discover, evaluate, and purchase products. Driven by digital innovation and increasing internet penetration, online shopping has become a dominant force in consumer markets worldwide (Yang et al., 2012). This paradigm shift has created immense opportunities for businesses while simultaneously introducing new complexities in understanding consumer behavior. The ease of access to online marketplaces, the availability of extensive product information, and the ability to compare prices instantly have empowered consumers with greater autonomy in their purchasing decisions (Mulyono, Ingriana, et al., 2024; Rahardja et al., 2024). As consumers gravitate toward digital platforms for convenience and control, businesses and researchers are compelled to deepen their understanding of the factors that influence these new patterns of behavior (Purnomo, 2023).

The growing reliance on digital platforms for everyday shopping underscores the critical importance of comprehending the evolving motivations and preferences of online consumers. Unlike traditional brick-and-mortar retail environments, e-commerce platforms allow users to shop at any time and from virtually any location, reducing temporal and spatial constraints (Ramli et al., 2022). These platforms also feature expansive product selections that often exceed those found in physical stores, further enriching the consumer experience. Online reviews and personalized recommendations have become powerful tools that shape consumer choices, enhancing the perceived value and trustworthiness of digital marketplaces (Shobayo et al., 2024); (Constantinides et al., 2009).

Despite this transformation, the diversity of online consumers introduces a new layer of complexity in understanding e-commerce behavior. Demographic variables such as age, gender, income, education, and geographic location play a crucial role in shaping consumer preferences, trust levels, risk perceptions, and technology adoption patterns (Ramli et al., 2022). However, the current body of research remains fragmented, often focusing on isolated factors or limited populations. As a result, there is a need to systematically examine how demographic characteristics influence consumer behavior on e-commerce platforms. This systematic literature review aims to fill that gap by offering a comprehensive synthesis of existing research on the topic, drawing attention to prevailing themes, methodological trends, and unexplored areas.

The central problem addressed in this review lies in the lack of integrated knowledge concerning the demographic determinants of e-commerce behavior. While individual studies have highlighted specific relationships—such as the influence of gender on online trust or the impact of age on website usability—few attempts have been made to aggregate and interpret these findings within a unified framework. This has resulted in inconsistencies in the literature and has hindered the development of robust models that account for demographic diversity (Ingriana, Gianina Prajitno, et al., 2024; Maha et al., 2024; Rahardja et al., 2024). Moreover, with e-commerce rapidly evolving and extending its reach into new markets, it becomes increasingly important to understand how different population segments interact with digital platforms and what factors encourage or inhibit their engagement.

This systematic review is justified on several grounds. It consolidates dispersed empirical findings into a coherent narrative, enabling researchers and practitioners to grasp the broader landscape of demographic influences on e-commerce behavior (Ingriana, Chondro, et al., 2024; Mulyono, Hartanti, et al., 2024; Rolando & Ingriana, 2024). It also identifies critical gaps and inconsistencies in the literature, thereby guiding future research endeavors. Furthermore, the findings offer practical implications for businesses aiming to design inclusive and effective marketing strategies that resonate with diverse consumer groups. As such, this review contributes to both theoretical advancement and practical application in the fields of digital marketing, consumer psychology, and e-commerce strategy.

The specific objectives of this review are to categorize and synthesize existing studies on consumer behavior on e-commerce platforms through a demographic lens; to examine how key demographic variables influence online shopping attitudes and behaviors; to assess the methodologies and analytical approaches employed in these studies; to identify emerging trends and underexplored areas in the literature; and to propose directions for future research that can address current limitations and enrich our understanding of this multifaceted topic. What gaps exist in the literature, and what opportunities do they present for future research?

This review investigates the dominant demographic factors commonly examined in the context of e-commerce, explores how these variables influence consumer behaviors such as trust, satisfaction, perceived risk, and purchase intention, and analyzes the methodological strategies that underpin these findings. It further identifies areas of convergence and divergence within the existing body of literature and discusses the implications of such patterns. Additionally, it outlines major gaps in current knowledge and presents opportunities for advancing future research on digital consumer behavior from a demographic perspective.

The scope of this review is defined by its focus on empirical studies that examine the relationship between demographic characteristics and consumer behavior on e-commerce platforms. The review includes both qualitative and quantitative studies, as well as mixed-methods research, that address factors such as trust formation, risk perception, purchase intention, and platform engagement. Studies that do not directly address demographic variables or that focus exclusively on B2B (business-to-business) contexts are excluded to maintain the integrity and relevance of the review. The temporal boundary encompasses literature published within the past two decades, reflecting the maturation of e-commerce and the increasing availability of digital consumer data. This time frame also allows for the inclusion of recent advancements in data analytics and machine learning, which have significantly enhanced the capacity to model and predict online behaviors (Handoyo, 2024).

In examining these studies, attention is paid not only to their findings but also to the methodologies employed. A review of methodological trends reveals a growing reliance on data-driven approaches, including transactional data analysis, machine learning models, and A/B testing, to capture real-world consumer behavior in digital contexts. At the same time, qualitative approaches such as in-depth interviews and content analysis of user-generated reviews continue to offer rich insights into the motivations and perceptions that underpin consumer choices (Constantinides et al., 2009). The inclusion of both types of studies ensures a holistic understanding of the topic and reflects the increasingly interdisciplinary nature of e-commerce research.

The significance of this review extends to multiple stakeholders. For researchers, it provides a roadmap of the current academic landscape, highlighting fruitful areas for exploration and methodological best practices. For businesses, especially e-commerce firms and digital marketers, the insights derived from this review can inform the design of targeted

marketing campaigns, user-friendly interfaces, and personalized customer experiences that cater to different demographic segments. For policymakers, the review sheds light on digital inclusion challenges, enabling them to craft policies that bridge demographic divides and promote equitable access to online commerce.

Furthermore, the review aligns with the broader academic interest in consumer empowerment and digital transformation. As consumers become more digitally literate and as e-commerce ecosystems grow more sophisticated, the ability to understand and anticipate consumer needs becomes a key differentiator in a highly competitive market (Shaikh & Daddikar, n.d.). This makes the demographic perspective not merely a matter of segmentation, but a critical lens through which the evolution of consumer behavior must be interpreted.

In terms of structure, the remainder of this paper follows the conventional IMRAD format. The Methods section details the systematic approach used to identify, screen, and analyze the literature included in this review. This includes criteria for inclusion and exclusion, database selection, keyword strategies, and data extraction techniques. The Results section presents a synthesis of the findings, organized around key demographic variables and their relationship to consumer behavior metrics. It also discusses methodological patterns and the evolution of research approaches over time. The Discussion section interprets these findings in light of existing theories and practical considerations, identifying theoretical contributions, managerial implications, and research limitations. Finally, the Conclusion summarizes the main insights and outlines a research agenda that addresses the most pressing gaps in the literature.

2. RESEARCH METHOD

A clearly defined and replicable search strategy is fundamental to ensuring the comprehensiveness, transparency, and methodological rigor of a systematic literature review. Accordingly, the present study adhered to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to systematically direct the processes of identification, screening, and selection of relevant academic literature. The primary objective of the search was to locate empirical studies that specifically examined the influence of demographic characteristics—such as age, gender, income, education, and geographic location—on consumer behavior within e-commerce environments.

The literature search was conducted exclusively through the Scopus database, selected for its comprehensive coverage of peer-reviewed journals and its rigorous indexing standards across the fields of business, social sciences, and information systems. Scopus was deemed appropriate due to its credibility, reliability, and extensive reach, thereby ensuring the inclusion of high-quality scholarly articles pertinent to the research scope. The search process took place in March 2025 and was confined to publications from 2020 to 2025. This timeframe was deliberately chosen to capture the most recent developments in consumer behavior, particularly in response to the accelerated adoption of e-commerce technologies and shifting demographic trends following the COVID-19 pandemic.

An effective and focused search strategy was formulated through the use of Boolean operators (AND, OR) and keyword truncation techniques, facilitating the comprehensive retrieval of relevant literature while minimizing the inclusion of irrelevant studies. The search terms were organized into three primary conceptual categories: consumer behavior (consumer behavior, shopping behavior, purchase intention, customer preferences), e-commerce context (e-commerce, online shopping, online retail, digital marketplace), and demographic factors (demographic, age, gender, income, education, geographic location, socioeconomic status). Based on these categories, the final search string employed was: (consumer behavior OR shopping behavior) AND (e-commerce OR online shopping) AND (demographic OR age OR gender OR income OR education OR location).

2.2 Inclusion and Exclusion Criteria

To ensure methodological rigor and alignment with the research objectives, this review applied a predefined set of inclusion and exclusion criteria. Only peer-reviewed journal articles published between 2020 and 2025 were considered, prioritizing recent empirical contributions that reflect the rapid evolution of e-commerce and consumer behavior. Studies were included if they were written in English, provided full-text access, and presented original empirical research employing either qualitative, quantitative, or mixed methods. Crucially, the studies needed to focus on consumer behavior within e-commerce environments, incorporating demographic variables such as age, gender, income, education, or geographic location as a central element of analysis.

Conversely, literature reviews, theoretical or conceptual articles without primary data, editorials, conference papers, theses, dissertations, and other forms of grey literature were excluded. Studies addressing broader topics like digital marketing or social media, without direct emphasis on e-commerce or demographic segmentation, were also omitted. Furthermore, articles not available in English or without full-text access were removed to maintain consistency and facilitate thorough quality assessment.

By carefully applying these criteria, the review ensured the selection of a focused and high-quality of literature, enhancing the transparency and reliability of the findings.

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Publication Year	2020–2025	Before 2020
Language	English	Non-English
Database	Scopus	Any source outside Scopus
Access	Full-text available (Open Access or via institutional access)	Abstract only or inaccessible articles
Publication Type	Peer-reviewed journal articles	Conference papers, books, editorials, reviews, working papers

Empirical Basis	Quantitative, qualitative, or mixed-methods studies	Theoretical or conceptual papers with no primary data
Topical Focus	Studies addressing consumer behavior on e-commerce platforms via demographics	Studies on offline or generalized consumer behavior without demographics

By strictly adhering to these inclusion and exclusion criteria, the review ensured that the final selection of studies was methodologically robust, thematically consistent, and relevant to answering the research questions related to how different demographic groups engage with and behave on e-commerce platforms.

2.3 Study Selection Process

A transparent and systematic study selection process is essential in ensuring the rigor and replicability of a systematic literature review. To uphold these standards, the study selection for this review followed the four-stage framework recommended by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines: identification, screening, eligibility, and inclusion. Each stage was carefully documented and executed with the goal of narrowing down a broad pool of potentially relevant studies to a final set of high-quality, focused articles that directly address the research objectives.

2.3.1 Identification

The identification phase marked the beginning of the systematic literature review process. Conducted in March 2025, this phase utilized the Scopus database exclusively, chosen for its extensive indexing of high-impact, peer-reviewed journals across the fields of social sciences, business, marketing, and information systems — disciplines most relevant to the study's objectives.

To ensure comprehensive retrieval of pertinent literature, a carefully designed search strategy was implemented using Boolean operators and keyword grouping. The final search string was constructed as follows: (consumer behavior OR shopping behavior) AND (e-commerce OR online shopping) AND (demographic OR age OR gender OR income OR education OR location).

This search strategy was deliberately structured to capture studies exploring the intersection of consumer behavior, e-commerce, and demographic factors. As a result, the initial search yielded 1,226 unique records. These records were systematically exported into Microsoft Excel for subsequent organization, duplicate removal, and preparation for the screening phase. By carefully planning the search parameters and using a reputable database, the identification phase laid a solid foundation for the rigor and validity of the systematic review.

2.3.2 Screening

A transparent and systematic study selection process is essential to ensure the rigor and replicability of a systematic literature review. In this study, the selection process adhered

to the four-stage PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework: identification, screening, eligibility, and inclusion.

The initial search, conducted in March 2025, utilized the Scopus database, selected for its comprehensive indexing of high-impact journals across the fields of social sciences, business, marketing, and information systems. Using the predefined search string (consumer behavior OR shopping behavior) AND (e-commerce OR online shopping) AND (demographic OR age OR gender OR income OR education OR location), the search yielded 1,226 unique records. These records were exported into Microsoft Excel for organization and duplicate removal.

Following deduplication, a title and abstract screening was conducted to exclude studies irrelevant to the research scope, such as those outside the e-commerce context or lacking demographic analysis. This stage excluded 1,050 articles, leaving 176 articles for full-text assessment.

During the eligibility phase, the remaining articles were evaluated against predefined inclusion and exclusion criteria, with a focus on methodological rigor and relevance to the research questions. Articles were excluded for reasons such as the absence of demographic analysis, reliance on secondary data without empirical validation, methodological limitations, or the unavailability of full text.

2.3.3 Eligibility

In the eligibility phase, the full texts identified during screening were rigorously reviewed for their alignment with the established inclusion criteria. This evaluation ensured that the studies focused on demographic analysis within e-commerce consumer behavior and adhered to empirical research designs. After this careful assessment, only the studies that met all the criteria were selected for the final synthesis, ensuring the robustness and relevance of the systematic review.

2.3.4 Inclusion

These studies, published between 2020 and 2025, represent a diverse yet thematically cohesive body of research, encompassing a variety of methodological approaches and geographic contexts. Each selected study met all predefined criteria, including a clear focus on demographic factors influencing consumer behavior in e-commerce environments, empirical rigor, and full-text availability. The inclusion of these studies provides a robust foundation for thematic synthesis and critical analysis, offering rich insights into how demographic variables shape online shopping behaviors. To enhance transparency and ensure reproducibility, the entire study selection process is visually summarized in a PRISMA flow diagram (Figure 1), which illustrates the progression from the initial identification of records to the final inclusion of eligible articles.

Figure 1. PRISMA Flow Diagram
Source: Authors' own work
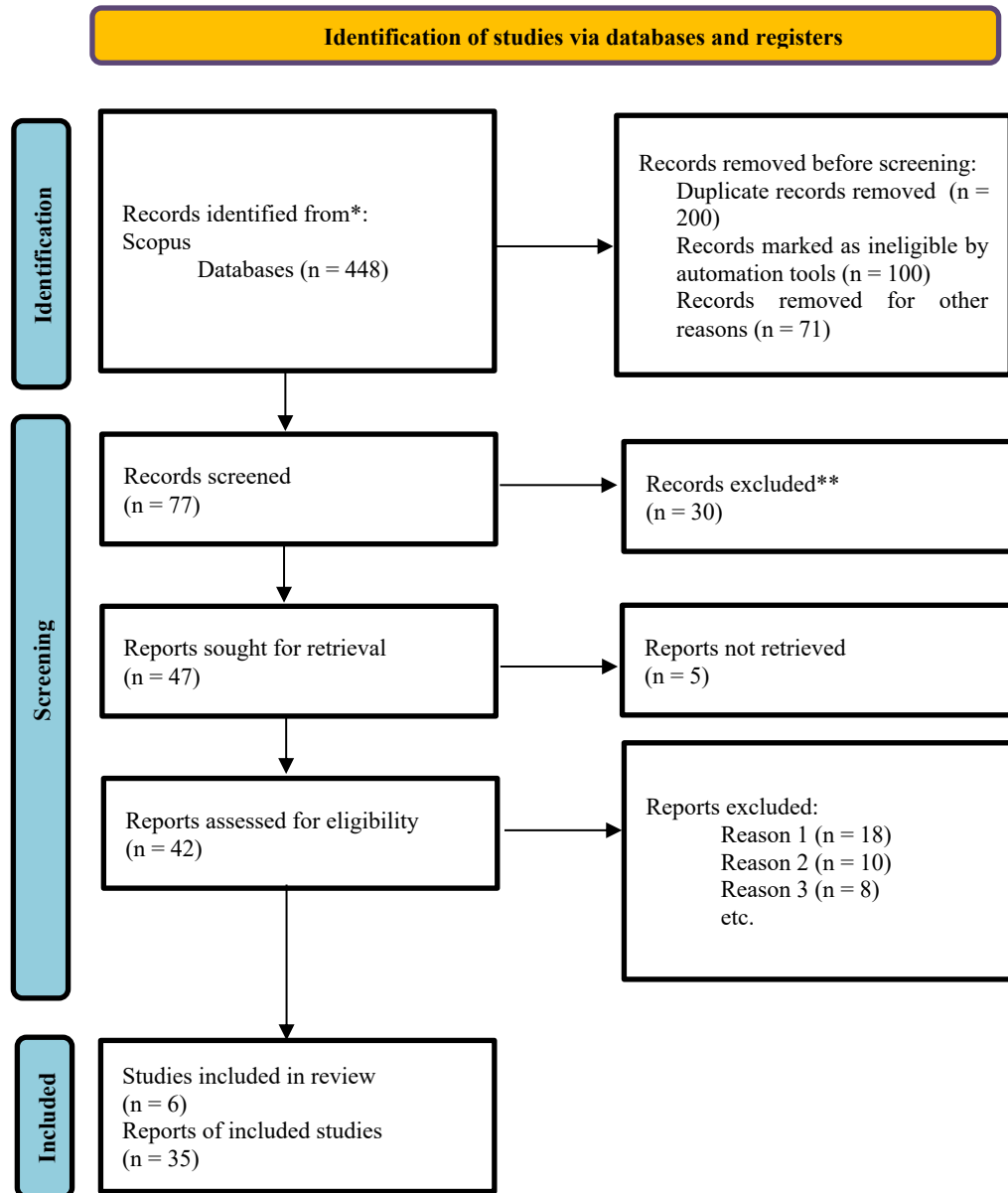
In accordance with the PRISMA 2020 guidelines, the systematic review commenced with the identification of 448 records sourced from the Scopus database. Prior to the screening stage, 200 duplicate records were removed, along with 100 records deemed ineligible through automation tools and an additional 71 records excluded for other reasons. This process resulted in 77 records eligible for initial screening. Following the screening phase, 30 records were excluded based on title and abstract evaluation. A total of 47 full-text reports were then sought for retrieval; however, 5 reports could not be retrieved. Consequently, 42 reports underwent full-text assessment for eligibility. Of these, 36 reports

were excluded due to specific reasons (18 reports for Reason 1, 10 reports for Reason 2, and 8 reports for Reason 3). Ultimately, 6 studies, represented by 39 reports, were included in the final qualitative synthesis. The entire selection process was systematically documented to ensure methodological transparency and reproducibility.

2.4 Data Extraction Process

A systematic and well-structured data extraction process was implemented to ensure consistency, accuracy, and transparency across all selected studies. A standardized data extraction form was developed to capture key characteristics and findings from each article, enabling comprehensive comparison and synthesis. The form included fields such as author(s), publication year, study location, research objectives, sample size, demographic variables examined (e.g., age, gender, income, education, geographic location), methodological approach (quantitative, qualitative, or mixed methods), data collection techniques, analytical tools used, and key results related to consumer behavior on e-commerce platforms. The extraction process was conducted manually by the reviewers to preserve contextual nuances and minimize errors, with regular cross-checking to ensure reliability. Any discrepancies were resolved through discussion and consensus among the reviewers. This meticulous extraction enabled the identification of methodological trends, recurring themes, and knowledge gaps, laying the groundwork for both the thematic synthesis and the bibliometric analysis. By employing a transparent and replicable extraction strategy, the review maintained a high standard of methodological rigor and ensured that each study's contribution was accurately captured and meaningfully integrated into the overall analysis.

2.5 Quality Appraisal

To ensure the credibility and methodological robustness of the studies included in this review, a formal quality appraisal was conducted using an adapted version of the Mixed Methods Appraisal Tool (MMAT). This tool was selected for its flexibility in evaluating a diverse range of research designs, including quantitative, qualitative, and mixed-methods studies. Each study was assessed against five key criteria: the clarity and relevance of the research questions, the appropriateness of the study design, the rigor of data collection methods, the adequacy of data analysis, and the coherence between findings and conclusions. Scores were assigned systematically, and any uncertainties or disagreements among reviewers were resolved through discussion and consensus. This quality assessment not only ensured that only methodologically sound studies contributed to the final synthesis but also provided a basis for interpreting the weight and reliability of individual study findings. The rigorous application of the MMAT helped maintain consistency, reduce bias, and strengthen the overall validity of the review's conclusions.

3. RESULTS AND DISCUSSION

3.1 Thematic Synthesis

This thematic synthesis explores how demographic characteristics shape shopping patterns on e-commerce platforms. Drawing from a selection of relevant studies, key findings were coded and organized into recurring themes that highlight the influence of age, gender, income, education, and geographic location on consumer behavior. One of the central themes identified is the variation in shopping patterns across age groups. Younger consumers, who are generally more digitally literate, tend to exhibit frequent and confident use of e-commerce platforms. In contrast, older consumers often approach online shopping with caution, expressing greater concern over issues like security, privacy, and usability.

Gender differences also play a role in shaping e-commerce behavior. For example, women are often found to engage more in browsing and comparing products, while men may focus more on functionality and quick purchasing. These behavioral patterns influence how each group interacts with product categories, marketing strategies, and user interfaces. Income and education levels strongly influence both the frequency and nature of online shopping. Higher-income and more educated individuals are more likely to engage in regular online shopping, use a wider range of platforms, and feel more comfortable making high-value purchases. Meanwhile, lower-income groups are typically more price-conscious and tend to compare value more thoroughly before completing a transaction.

Geographic location introduces another key theme: access and infrastructure. Urban consumers usually have more exposure to e-commerce platforms and faster internet access, contributing to more seamless shopping experiences. In contrast, rural populations may face limitations due to poor connectivity, delivery challenges, or lack of familiarity with digital tools.

Overall, this synthesis reveals that consumer shopping behavior in e-commerce is not uniform but shaped by intersecting demographic factors. Understanding these patterns is crucial for platform designers, marketers, and policymakers seeking to create more inclusive, effective, and tailored e-commerce experiences for diverse user groups.

3.2 Network & Blibliometric Analysis

To complement the qualitative synthesis, a bibliometric analysis was conducted using VOSviewer (v1.6.18) based on metadata from the selected empirical studies sourced from Scopus. This analysis aimed to identify dominant research themes, trends, and scholarly linkages related to consumer behavior in e-commerce.

The keyword co-occurrence mapping revealed two major clusters. The first, dominated by terms such as covid, impact, and change, reflects a strong focus on the effects of the pandemic on online shopping behavior. These studies emphasize how global disruptions altered consumer patterns and accelerated the adoption of e-commerce platforms. The second cluster included terms like model, transaction, and customer, pointing to a

growing emphasis on behavioral modeling and improving user experience in digital marketplaces.

Overlapping keywords such as time and product indicate the thematic connection between the clusters, suggesting that pandemic-driven changes often intersect with evolving consumer expectations and interaction models. Bibliographic coupling and citation network analysis further highlighted shared theoretical foundations and the most influential works in the field.

Overall, this bibliometric review illustrates the progression of e-commerce research from reactive responses to crisis, toward a more structured understanding of shopping behavior, with demographic diversity emerging as a critical analytical lens.

Figure 2. Network Visualization
Source: Authors' own work

The network visualization presents an integrated view of key research themes in online consumer behavior, particularly shaped by the COVID-19 pandemic. Two primary clusters emerge: the green cluster, emphasizing pandemic-related terms such as COVID, impact, and change, reflects the widespread shift in consumer priorities and behaviors due to global disruptions. This supports findings (Asanprakit & Kraiwanit, 2023) who noted the pandemic's role in accelerating social commerce adoption driven by accessibility and convenience.

The red cluster, focused on keywords such as model, customer, transaction, and service, reflects a strong emphasis on understanding consumer interaction and designing responsive e-commerce models. This is supported by (Hänninen, 2020), who underscores the importance of digital transaction platforms in reshaping consumer engagement and service strategies in the post-pandemic market.

A central node, time, connects both clusters and represents the temporal evolution of consumer behavior. Although demographic variables are not explicitly visualized, they are

embedded in the thematic patterns. For instance, age, income, and location influence the rate of digital adoption and the nature of platform interaction, as shown in prior empirical studies. Overall, the visualization reinforces the significance of demographic diversity in interpreting behavioral shifts in digital commerce. It supports the argument that understanding consumer patterns through a demographic lens is essential for creating inclusive and adaptive e-commerce strategies.

Figure 3. Overlay Visualization
Source: Authors' own work
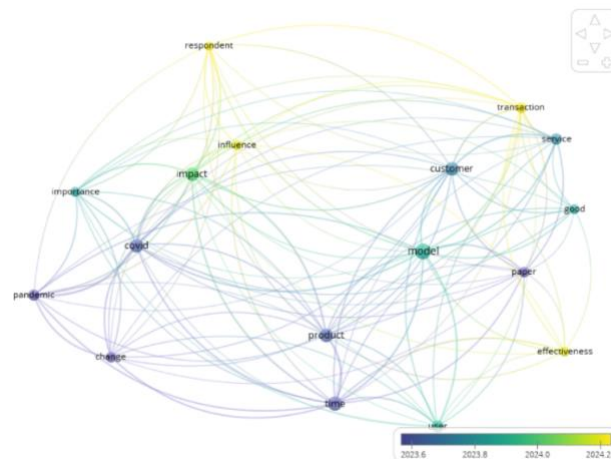
The overlay visualization presented above depicts the temporal evolution of key research themes in the domain of online consumer behavior. The color gradient—ranging from dark blue (2023.6) to bright yellow (2024.2)—illustrates how scholarly attention has shifted over time. Early discussions, as seen in darker nodes like pandemic, covid, and change, concentrated heavily on the immediate impacts of the COVID-19 crisis, reflecting a global research agenda concerned with disruption and adaptation.

As the field progressed, focus transitioned toward lighter-colored nodes such as respondent, transaction, effectiveness, and user, indicating more recent investigations into user-centric metrics and platform performance. This temporal shift mirrors the natural progression from crisis response to long-term optimization in e-commerce systems.

The central placement of nodes like impact, time, and model reveals a sustained interest in how consumer behavior patterns have been shaped over time and how theoretical frameworks are developed to explain these shifts. Notably, the keyword respondent—which appears in the brightest yellow—suggests a recent focus on the role of individual characteristics, particularly demographic factors, in shaping digital purchasing decisions.

This trend aligns with Aris et al. (2021), who found that demographic characteristics such as age, gender, and internet experience significantly influence online shopping preferences among young consumers in Kelantan, Malaysia. Their study reinforces the idea that consumer engagement with e-commerce platforms is not uniform but deeply segmented

across socio-demographic lines—an insight clearly reflected in the growing attention to respondent behavior in recent literature.

Furthermore, the enduring relevance of terms such as transaction, customer, and product supports Doherty and Ellis-Chadwick's (2010) observation that the evolution of internet retailing has moved from mere technological adoption to a consumer-centered model, where understanding user needs and behaviors is essential for competitiveness. This visualization confirms that trend, showing a transition from broad pandemic-driven disruption to more refined inquiries into consumer expectations and transactional efficiency. In conclusion, the overlay visualization not only maps the shifting research priorities over time but also substantiates the increasing academic interest in demographic perspectives within digital consumer behavior. It illustrates that e-commerce research is evolving from reactive adaptation to proactive personalization, grounded in a deeper understanding of who the consumers are and how they behave across time.

Figure 4. Density Visualization
Source: Authors' own work
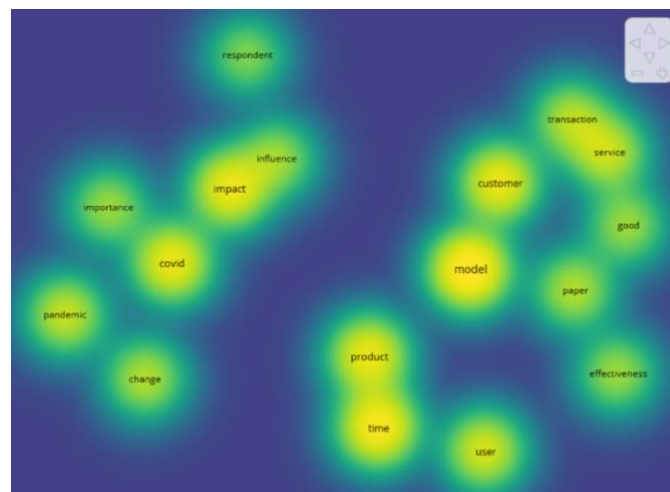
The heatmap visualization complements the network graph by providing a clear and intuitive view of the research density across various keywords. Brighter areas in the heatmap represent the most intensely studied topics, while the darker areas indicate less focus. This visualization allows for an at-a-glance understanding of which research themes have garnered the most attention, making it an invaluable tool for identifying the dominant concerns in digital commerce research, particularly post-pandemic.

Key areas such as COVID, model, customer, and impact are prominently featured in the heatmap with the brightest coloration, signaling that these themes have been the most extensively studied. This aligns with the increasing scholarly focus on trust, security, and consumer behavior in online purchasing, especially following the disruptions of the pandemic. As noted by (Widodo & Utami, 2021), trust and product evaluation are essential

to shaping repurchase intentions, which is crucial in retaining customer loyalty in the evolving e-commerce landscape.

The clustering of keywords such as product, user, and time further highlights the growing interest in understanding time-sensitive purchasing behaviors and overall user experiences. These nodes reflect a shift towards how consumers adapt their decision-making processes, particularly during crisis periods such as the pandemic. (Hindarto, 2023) emphasizes how e-commerce platforms must remain agile, delivering timely and relevant experiences in response to shifting consumer expectations during uncertain times.

Emerging nodes such as effectiveness and good signal a critical phase of evaluation in the research community, focusing on how e-commerce platforms have optimized their marketing strategies to meet evolving consumer needs. This aligns with (Acılar, 2012) who discusses the importance of adapting service models to enhance customer satisfaction and engagement in the online shopping experience. The growing attention to effectiveness underscores the need for continuous strategy refinement in response to changing market dynamics and consumer behavior.

The heatmap thus underscores the importance of an integrated approach to understanding consumer behavior in digital commerce. Researchers continue to focus on trust, security, and user experience, while also addressing the challenges posed by the rapid adoption of digital platforms. The visualization captures the evolving nature of digital commerce, where understanding the dynamic interplay between consumer expectations, trust, and technological innovation is key to thriving in an increasingly digital-first world.

4. CONCLUSION

This systematic literature review provides a comprehensive synthesis of how demographic characteristics—including age, gender, income, education, and geographic location—affect consumer behavior in e-commerce environments. The findings reveal clear behavioral distinctions across demographic groups, highlighting that online shopping is far from a uniform activity. Younger consumers, characterized by digital fluency and openness to technological change, tend to engage in online shopping more frequently and with greater confidence. In contrast, older consumers display heightened sensitivity to issues of trust, usability, and online security, which may serve as barriers to adoption.

Gender differences emerged as another crucial determinant, with women generally showing higher engagement in product comparison and review consultation, whereas men tend to favor functional and time-efficient shopping. Similarly, consumers with higher income and educational attainment were more likely to participate in frequent and higher-value transactions, underlining the role of socio-economic status in shaping not only access but also purchasing power and platform usage patterns. Furthermore, geographic disparities—particularly between urban and rural settings—highlight the infrastructural and technological barriers that affect consumer engagement, with rural consumers often constrained by limited connectivity and logistical challenges.

Through a dual approach that combines thematic synthesis and bibliometric analysis, this review also identifies a broader evolution in the academic discourse. Initially dominated by pandemic-related themes and reactive frameworks, recent studies have shifted toward proactive strategies focused on personalization, user experience optimization, and demographic segmentation. This shift underscores the increasing maturity of the field and the recognition that effective e-commerce strategies must account for the nuanced and evolving needs of diverse consumer segments.

The implications of these findings are multifaceted. For business practitioners, the review offers valuable insights for developing targeted marketing strategies, personalized user experiences, and inclusive platform designs that cater to different demographic groups. For policy-makers, it highlights the need to bridge digital divides by promoting equitable access to infrastructure and fostering digital literacy among underserved populations. For academics, this review provides a roadmap of existing research and illuminates gaps in current knowledge, especially in emerging areas such as cultural dynamics, behavioral shifts over time, and the integration of artificial intelligence in consumer profiling.

Looking forward, future research should adopt a more interdisciplinary approach that incorporates cultural, psychological, and technological dimensions of consumer behavior. Longitudinal studies are especially warranted to examine how consumer preferences evolve over time, particularly in response to technological disruptions and socio-economic shifts. Additionally, there is significant potential in leveraging big data and machine learning techniques to gain deeper insights into behavioral patterns across demographic segments. Such efforts would not only enhance the granularity of demographic analysis but also support the development of adaptive e-commerce systems that can anticipate and respond to consumer needs in real time.

In conclusion, demographic diversity is not merely a segmentation tool—it is a foundational lens through which consumer behavior must be understood in today's digital economy. As the e-commerce landscape continues to evolve, recognizing and accommodating the unique characteristics of each consumer group will be vital in fostering trust, engagement, and satisfaction across the digital marketplace.

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