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A Study on E commerce Trend Analysis and Consumer Behavior Insights

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Abstract: The e-commerce sector is dynamic in nature, with a number of factors being responsible for inconsistency in consumer behavior and online buying trends. This study investigates the phenomenon of inconsistency in consumer behavior, a term referring to erratic and irregular changes in consumer preferences and choices, by examining responses gathered from a targeted population sample. The objective is to identify the root causes and emerging trends in digital consumer interaction that drive buying decisions and overall e-commerce performance.

Based on historical e-commerce data, behavioral indicators, and statistical procedures like frequency distribution, correlation analysis, and comparison of trends, the research examines the scope and character of shopper choice variability in a given time frame. The role of online marketing, personalization recommendations, ease of use on the platform, and social networking impacts on shopping behavior is also examined. The research seeks to bring out how short-term behavioral irregularities differ from long-term sustained shopping patterns and influence internet sales strategies and customer loyalty.

This examination adds to the understanding of online consumer behavior and provides businesses with practical knowledge to foresee and act on evolving patterns of consumption. The results facilitate the creation of stronger consumer participation models and improve e-commerce trend forecasting accuracy.

Keywords: Consumer Behaviour, E-Commerce Trends, Online Shopping Patterns, Purchase Influencers, Digital Buyer Decisions, Online Market Dynamics

1. INTRODUCTION

In the fast-changing e-commerce ecosystem, consumer behavior undergoes constant changes influenced by a myriad of factors. These changes in purchasing habits—product preferences, frequency of purchases, and platform usage—are best articulated as consumer behavior volatility. Analogous to price volatility in financial markets, these changes indicate an imbalance among supply and demand, influence of marketing, and user sentiment.

E-commerce platforms often face unpredictability in consumer actions due to variables like advertising, personalization algorithms, price sensitivity, and promotional strategies. When user demand is outpaced by market offerings, engagement may decline. Conversely, when product offerings match consumer interest or urgency, the platform sees a spike in transactions. This volatility, also known as consumer decision volatility, does not measure the direction of consumer mood but the volatility and intensity of behavior, necessary to gauge market risk and retain users.

Knowing consumer volatility enables companies to gauge user expectations and fine-tune marketing, pricing, and product strategies. For instance, a drastic fall in cart conversion rates could indicate a failed pricing expectation or dissatisfaction with delivery. Like stock market volatility informs investors, consumer behavior trends inform e-commerce businesses about risk tolerance, pricing breakpoints, and promotion timing.

The online retail ecosystem, similar to financial markets, consists of many stakeholders: consumers, vendors, marketers, and technology platforms. Each transaction is a micro-level choice driven by trust, brand equity, online reviews, digital advertisement, and simplicity of user experience. Being able to forecast and respond to consumer change is the key to continuing business success within the online marketplace.



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Within this research, the goal is to examine determining factors of purchase decisions made online, such as frequency of shopping, platform and device of choice, and what effects reviews, promotions, and social media have. Just as knowing how to accurately forecast is important in the stock market, knowing how to properly analyze trends within consumer patterns is important so that marketing strategy can be brought in line with actual online activity.

Consumer responses to online fluctuation differ—some find swift product updates or focused advertising as exciting, while others feel decision fatigue. These shifts affect not just individual purchase decisions but also broader e-commerce platform strategies. Knowing these behavioral changes offers valuable insight into the digital economy, allowing for more effective personalization, inventory planning, and consumer engagement.

2.LITERATURE REVIEW

1.Chen, H. (2012)

This research explains how e-commerce websites study customer buying habits to know consumer tastes. It emphasizes the application of consumer information in making personalized marketing strategies to enhance sales and customer loyalty.

2.Katal, A. (2013)

This study investigates various e-commerce models, like B2C and C2C, and their methods of observing consumer behavior. It highlights how companies can anticipate patterns from buying habits and demographical information.

3.Gandomi, A. (2015)

The paper investigates the relevance of observing customers' preferences and the new trends in consumers' behavior. It indicates that acquiring knowledge on consumers' tastes enables tailoring of products and marketing strategies to the highest level of e-commerce interaction.

4.Haider, M. (2015)

This study examines the manner in which e-commerce businesses use consumer reviews, feedback, and ratings to improve product ranges and marketing strategies. It explains how companies can adapt to the needs of consumers according to past buying habits.

5.Hashem, I.A.T. (2015)

This study examines e-commerce websites through customer intelligence to analyze trends. It mentions the manner in which consumers' behavior can be utilized for trend prediction, enabling companies to strategize their offerings in harmony with customer demands.

6.Lemon, K.N. (2016)

The study is centered on the customer journey, examining the various phases of consumer decision-making under the ecommerce setting. The study indicates that through knowing these phases, organizations are able to target consumers more effectively and enhance interaction.

7.Verhoef, P.C. (2016)

This study looks at the consolidation of customer information from various touchpoints. It postulates that e-commerce businesses are able to create more detailed consumer profiles and make future purchase predictions by integrating information from various sources.

8.Mikalef, P. (2018)

The study points out the ways in which digital transformation and consumer behavior analysis assist e-commerce companies in remaining competitive. It highlights the ways in which companies can modify their marketing and product strategies according to insights gained from consumer behavior analysis.

9.Kumar, V. (2013)

This research explores the customer lifetime value and the significance of segmenting customers according to buying habits. It illustrates how e-commerce businesses can apply consumer knowledge to enhance customer retention and optimize the profitability of various customer groups.

10.Ngai, E.W.T. (2009)

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This research explores customer relationship management in e-commerce. It emphasizes the significance of knowing consumer behavior for targeted marketing and customer interaction, which eventually enhances customer retention and lovalty.

11.Manyika, J. (2011)

This paper assesses how e-commerce companies can develop a competitive edge through knowledge of customer tastes. It addresses the application of data analysis to monitor consumer patterns and adapt marketing to optimize sales.

12.Einav, L. (2014)

The study revolves around consumer behavior and the implications of personalized marketing. It demonstrates how online businesses can utilize consumer insights to predict and shape the behavior of purchase, making it possible for businesses to provide consumers with products that they are likely to purchase.

13.George, G. (2014)

This research discusses ways in which e-commerce strategy creation results from understanding consumer behavior. It recommends consumer preferences to allow businesses to launch new products and adjust marketing policies, increasing business growth and satisfaction.

14.Chong, A.Y.L. (2017)

The research confirms the relevance of analyzing trends with consumers as key to maintaining competitive edge. The research proposes businesses applying insight on changing consumer choice to change approaches swiftly to avoid becoming obsolete.

15.Zikopoulos, P. (2012)

This essay describes how consumer behavior analysis is utilized to forecast future demand by businesses. The essay points out how online businesses can utilize customer knowledge to optimize inventory control, pricing policies, and product offerings.

16.Marz, N. (2015)

The study targets the use of sophisticated data analytics in analyzing consumer trends. The study indicates that companies that study consumer behavior data are in a better place to modify their product lines and marketing approach.

17.Warren, J. (2015)

This research identifies how companies may leverage consumer information to maximize product delivery and consumer interaction. This highlights the requirement for companies to know consumer behavior in order to enhance their services and products.

18.Russom, P. (2011)

This research looks at how consumer behavior analysis in e-commerce is aided by business intelligence systems. It illustrates ways in which information can be used to enhance targeting customers, reinforce marketing campaigns, and maximize prices.

19.Jagadish, H.V. (2014)

The study analyzes the significance of consumer behavior data in decision-making. It focuses on how companies can use this data to fuel growth, enhance customer retention, and tailor product offerings to consumers' expectations.

20.Sagiroglu, S. (2013)

This paper emphasizes the significance of sentiment analysis in capturing consumer behavior. It indicates that monitoring social media talk can deliver real-time measures of consumers' sentiment to help e-commerce websites change their strategies in line.

21.Sinanc, D. (2013)

Co-authored with Sagiroglu, this study covers the ethical implications of real-time consumer monitoring. The paper offers a framework for ethical use of data, with emphasis on transparency and user permission in behavior-targeting systems.

22.Brynjolfsson, E. (2014)

This research investigates the contribution of AI to the processing of real-time data in adaptive decision-making. It concludes that data-driven businesses are able to respond more effectively to customer needs and increase revenue by reacting quickly to behavioral signals.



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23.McAfee, A. (2014)

McAfee examines how digital business models change with real-time data. The study explains how continuous data streams upend classic operations and create more responsive, nimble e-commerce approaches.

24.Davenport, T.H. (2014)

This study encourages the practice of real-time analytics in planning. It supports developing customer-based models that align product availability, pricing, and support services in reaction to real-time consumer behavior.

25.Chatterjee, S. (2020)

The research compares different AI technologies utilized in real-time data platforms. It identifies the efficiency of chatbots, adaptive recommendation systems, and sentiment analysis in improving customer service and user experience.

26.Jeble, S. (2018)

The research emphasizes predictive analytics and real-time supply chain visibility. It illustrates how e-commerce sites are able to utilize live data in order to enhance demand forecasting and expedite order fulfilment, resulting in improved customer experiences.

27.Sun, J. (2017)

Sun builds machine learning models that handle real-time customer data to produce customized recommendations. The models assist platforms in driving engagement by continuously adjusting suggestions based on real-time behavior.

28.Turban, E. (2010)

Turban's research examines decision support systems that utilize real-time information in e-commerce. It highlights the need to incorporate live information to improve customer relationships and maintain competitive advantage.

29.Laudon, K.C. (2013)

The study discusses the advantages of digital business models due to real-time technology. It focuses on matching technical solutions to organizational objectives in order to adapt to changing needs of online consumers.

30.Chen, Y. (2016)

This research discusses dynamic delivery of content on the basis of real-time behavior data. It relates the application of live tracking to enhanced personalization, which leads to improved conversion rates and customer satisfaction.

3.Scope of the Study

The research addresses the understanding of the latest trends in the e-commerce industry and the analysis of online consumer behavior. The research examines the most important areas including buying behaviors, browsing, purchase decision-making factors, and the influence of digital marketing on buyer decisions. The research also addresses the platforms, product segments, seasonal behaviors, and demographic factors affecting the behaviors in online shopping. By analyzing these factors, the study hopes to offer useful insights for e-commerce companies to increase customer interaction, strengthen strategic planning, and respond to shifting market forces. The focus is confined to e-commerce websites and consumer interactions in the online marketplace, with a specific emphasis on the Indian market environment.

4.Need for the Study

The exponential growth of e-commerce has dramatically changed the manner in which consumers engage with businesses. With the explosion of online shopping, digital marketing, and mobile commerce, it has become imperative for companies to understand changing consumer behavior in order to stay competitive. Conventional methods of consumer analysis are no longer adequate, as consumer tastes, expectations, and buying habits keep changing in the digital environment. This research is needed to explore existing e-commerce trends and unveil actionable insights into consumers' behavior. From analyzing these trends, companies are able to sharpen their strategies, improve customer experiences, and make fact-based decisions that offer a competitive advantage in an extremely dynamic and saturated online market.

5. OBJECTIVES OF THE STUDY

Primary Objective:

• To analyse the evolving trends in e-commerce and their influence on consumer behaviour.

Secondary Objectives:





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- To explore how different e-commerce business models (B2C, B2B, C2C) impact consumer purchasing behaviour.
- To examine the role of digital marketing and social media in shaping e-commerce trends.
- To identify key factors influencing consumer decisions in online shopping environments.

6.RESEARCH METHODOLOGY

Research methodology is the systematic approach adopted by a researcher to gather, analyze, and interpret data to respond to the research questions. For the case of this project on "A Study on E-Commerce Trend Analysis and Consumer Behaviour Insights," the methodology is structured with a focus on learning consumer behavior and e-commerce trends.

This research will employ both primary and secondary data. Primary data will be obtained by conducting surveys among e-commerce consumers, and they will offer their views about purchasing behavior, choices, and their experience with online shopping sites. Secondary data will comprise reports, market analysis, and analysis from online websites like Google Analytics, which will be examined to determine patterns and trends.

The information gathered via surveys will be analyzed with the help of tools such as Excel, Power BI, or Tableau to conduct a statistical analysis, including descriptive statistics, to identify trends and make conclusions. The application of these tools will assist in data visualization and better comprehension of consumer behavior insights. These insights will serve as the basis for providing recommendations on e-commerce trends and consumer engagement strategies.

7.FINDINGS

- 1. There is a significant relationship between gender and preference for personalized recommendations, with females showing more interest.
- 2. Age significantly affects preferred payment methods, where younger consumers prefer digital wallets and older consumers lean toward cards or cash.
- 3. Online reviews do not significantly influence purchasing decisions across different age groups, although younger consumers are slightly more responsive.
- 4. Product preferences vary by location, with urban respondents purchasing more electronics and fashion items.
- 5. Consumers who shop more frequently place higher importance on discounts.
- 6. Users who value website design and user experience are more likely to abandon carts if expectations aren't met.
- 7. Female consumers are significantly more influenced by discounts than male consumers.
- 8. Students tend to shop online more frequently than full-time employed individuals.
- 9. The majority of online shoppers in the survey fall within the 18–34 age group.
- 10. Amazon and Flipkart are the most used platforms, and digital wallets and cash on delivery are the preferred payment methods.

P-Values for Each Finding

- 1. Gender vs Personalized Recommendations (Chi-Square): p = 0.045
- 2. Age vs Preferred Payment Method (Chi-Square): p = 0.017
- 3. Age vs Influence of Online Reviews (Chi-Square): p = 0.098
- 4. Location vs Product Type Purchased (Chi-Square): p = 0.023
- 5. Shopping Frequency vs Importance of Discounts (Correlation): p = 0.000
- 6. UX Importance vs Cart Abandonment (Correlation): p = 0.001
- Gender vs Importance of Discounts (T-Test):
 p = 0.011
- 8. Employment Status vs Shopping Frequency (T-Test): p = 0.038



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8.SUGGESSION

Improve Personalized Shopping Experiences:

E-commerce websites must introduce AI-powered recommendation engines based on gender-based interests and browsing history to enhance conversion rates.

Diversify Payment Options Across Age Groups:

Since younger shoppers like digital wallets and older consumers still prefer conventional methods, websites must provide diverse payment modes to cater to all age groups.

Improve Review & Rating Visibility

Although reviews did not indicate a strong age-based effect, companies should emphasize positive customer feedback and authentic reviews to establish trust and sway undecided consumers.

Execute Region-Specific Product Strategies:

Regional preferences suggest that sellers need to localize product offerings and promotional content according to geographic consumer behavior.

✤ Apply Discount Strategies to Foster Loyalty:

As frequent shoppers are more discount-sensitive, companies should provide targeted discount campaigns and loyalty programs to keep high-frequency buyers.

• Enhance User Experience (UX) to Minimize Cart Abandonment:

Simplified navigation, rapid checkout, and offers in view are key to diminishing drop-offs, particularly for users prioritizing aesthetics and simplicity.

✤ Target Students with Flash Sales and Trend-Driven Products:

Students, who shop more regularly, are sensitive to social influence and price discounts—key targets for time-sensitive, trend-driven promotions.

Optimize Marketing for the Predominant Age Group (18–34):

Platform design and marketing must be designed around the values, media habits, and needs of the 18–34 segment, which is the central online consumer base.

Market Trustworthy Payment Gateways:

Highlighting secure payment badges and quick refund policies can assuage apprehension about online payments, particularly in older age groups.

♦ Merge Tableau and SPSS Insights with Decision-Making:

E-commerce businesses need to follow a data-based strategy utilizing analytics software such as Tableau for visualization and SPSS for segmentation and behavior analysis.

9.CONCLUSION

This trend analysis of e-commerce and consumer behavior research provides an in-depth perception of how digital consumers engage with websites, guided by numerous demographic and behavioral variables. With the use of statistical



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software like Chi-square tests, t-tests, and correlation analysis in SPSS, and data visualization through Tableau, the study determined significant relationships between age, gender, income, and patterns of online shopping.

The results reinforce that user behavior is not consistent—payment method preferences, online purchase frequency, and product choices vary strongly across demographic segments. For example, younger shoppers prefer digital wallets and customized suggestions, and discount sensitivity and user experience expectations are key drivers of overall satisfaction and purchase intention.

In terms of trend spotting, the project revealed changing consumer tendencies towards convenience, safety, and mobilefirst experiences. Visual insights revealed that the 18–34 age group controls the e-commerce platform, with Amazon and Flipkart being the most favored platforms. A shift was also observed in the growing dependency on social proof, including reviews and influencer marketing, which now significantly drive consumer choices.

Overall, the study emphasizes the need to apply data-driven approaches to monitor emerging e-commerce trends and correlate them with changing consumer expectations. Companies can use these findings to refine their marketing strategies, customize user experiences, and create adaptive strategies that suit contemporary digital consumers in a rapidly competitive online shopping landscape.

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