INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
www.ijprems.com
editor@ijprems.com
Vol. 05, Issue 06, June 2025, pp : 1480-1482
e-ISSN : 2583-1062
Impact Factor : 7.001

# HOW ONLINE SHOPPING APPS USE DATA ANALYTICS

**Uday Kumar**[*1]

[*1]Final Year Student, Department Of Business, Galgotias University, Greater Noida, UP, India.

## ABSTRACT

In the data-centric world of e-commerce, online shopping platforms increasingly depend on data analytics to refine user experiences, enhance operational efficiency, and boost sales. In India, where mobile internet penetration is growing rapidly, apps like Amazon, Flipkart, Meesho, and Myntra are reshaping how consumers shop by using data analytics to track behavior, personalize content, and predict demand. This paper investigates how these shopping apps leverage data analytics and evaluates its impact on customer engagement, satisfaction, and behavior.

Primary data was collected from 150 users through structured questionnaires. The study examines personalization, user awareness of data practices, and the behavioral and ethical implications of analytics usage. The results show that most users respond positively to personalization but lack clarity on how much of their data is being used. The study recommends greater transparency, ethical data handling, and digital literacy initiatives. These insights aim to guide e-commerce platforms, policymakers, and researchers in shaping future data-driven strategies for digital commerce.

**Keywords:** Data Analytics, E-Commerce, Personalization, Consumer Behavior, Digital Retail, India, Trust, AI In Retail, User Perception.

## 1. INTRODUCTION

### 1.1 Background

Over the past decade, e-commerce has emerged as a dominant force in India's retail sector. With the proliferation of smartphones, increasing internet accessibility, and widespread digital payment adoption, consumer behavior is rapidly shifting toward online platforms. Central to this transformation is the strategic use of data analytics by online retailers.

Platforms like Amazon, Flipkart, and Meesho use analytics to track every user interaction—from clicks and searches to cart abandonments and past purchases. These data points help generate personalized recommendations, optimize pricing, and target users with tailored offers. Artificial intelligence and machine learning models are deployed to recognize patterns and adjust strategies in real time.

### 1.2 Purpose of the Study

This study aims to explore the techniques and tools that online shopping apps in India employ to gather, process, and use consumer data. It also investigates how analytics-driven personalization affects consumer behavior, including buying frequency, trust levels, and satisfaction.

Another objective is to assess user awareness about data tracking and their perceptions of privacy, transparency, and control. The paper also aims to offer strategic recommendations for ethical data use and improved consumer communication.

## 2. METHODOLOGY

### 2.1 Research Design

This research is based on a **descriptive research design** that seeks to observe and describe patterns in consumer behavior without manipulating variables. Descriptive designs are ideal for understanding perceptions, satisfaction levels, and behavioral outcomes of a population at a specific time.

### 2.2 Sample Selection and Size

A **convenience sampling** method was used to gather responses from 150 individuals across India. The inclusion criteria were:

- Age 18 and above
- Active users of online shopping apps (minimum once/month usage)
- Ability to respond via mobile or computer

Among the 150 responses, 136 were deemed complete and valid for analysis.

**Demographic spread:**

- **Age groups:** 63% (18–25), 31% (26–35), 6% (>35)
- **Gender:** 53% Male, 45% Female, 2% Other
- **Location:** 70% Urban, 30% Semi-Urban

### 2.3 Data Collection Tools

A structured Google Form was used to gather responses. The questionnaire contained:

- **Demographics** (age, gender, location, education)
- **Behavioral Data** (frequency of shopping, platforms used)
- **Perception** (trust in platforms, awareness of analytics)
- **Behavioral Impact** (influence of personalization on purchases)

The questions used Likert scales (1 to 5), multiple-choice, and ranking options.

### 2.4 Data Analysis

The data was analyzed using **Microsoft Excel**:

- **Descriptive statistics:** Mean, frequency, and percentages
- **Visualization tools:** Bar graphs, pie charts, and line charts
- **Cross-tabulations:** To analyze patterns across age, gender, and awareness

## 3. RESULTS AND DISCUSSION

### 3.1 Awareness and Personalization

- 66% of users confirmed that they regularly receive product recommendations.
- Only 54% were aware that these are generated through data analytics.
- 72% rated these suggestions as “accurate” or “highly relevant.”
- A large number (63%) appreciated flash sales triggered by their browsing behavior.

These results indicate that personalization works—users like what is being shown to them—but many don’t understand how it works or what data is being used behind the scenes.

### 3.2 Impact on Consumer Behavior

- Impulse Buying: 69% admitted to making unplanned purchases due to targeted ads.
- Repeat Purchases: 51% said recommendations often influence repeat buying.
- Platform Loyalty: 42% chose apps based on quality of personalization.

These trends show that analytics-driven personalization not only influences one-time behavior but fosters habitual usage, app loyalty, and longer session durations.

### 3.3 Platform Preferences

- Amazon: Most used (48%); perceived as most reliable and best in personalization
- Flipkart: Second (38%); known for pricing-based personalization
- Meesho: Gaining popularity for tier-2 and women users (14%)

This aligns with industry data showing Amazon’s dominance in AI-driven recommendation systems in India.

### 3.4 Trust and Data Ethics

- Only 24% of users fully trusted shopping apps with their data.
- 48% trusted apps "sometimes."
- 31% raised concerns about privacy and unauthorized tracking.
- 63% wanted more transparency about what data is collected and why.

Despite high satisfaction, users remain concerned about ethical usage, showing the importance of improving trust and communication.

## 4. CONCLUSION

This study affirms that data analytics has transformed the Indian online shopping experience. Platforms use algorithms not just to recommend products but to influence behavior at every stage of the shopping journey. Personalization, when done right, boosts engagement, satisfaction, and revenue.

However, there exists a critical awareness and ethics gap. Many users are unaware of how their data is being used or are uncomfortable with opaque policies. To retain long-term trust and loyalty, platforms must prioritize transparency, ethical data usage, and user empowerment.

As India embraces a digital-first economy, the way businesses collect and use data will define their reputation, consumer trust, and long-term sustainability.

## ACKNOWLEDGEMENTS

I take this opportunity to express my deepest gratitude to all those who supported and guided me throughout the completion of this research project titled "How Online Shopping Apps Use Data Analytics."

First and foremost, I would like to express my sincere thanks to Mr. Dr. Ilyas Khan, Assistant Professor, Department of Business Administration, for his/her valuable insights, encouragement, and continuous support at every stage of the research. Her expertise and suggestions helped refine my work and provided direction whenever needed.

I am also thankful to the Department of Business Administration, Galgotias University, for providing the platform and resources required for carrying out this study. My heartfelt thanks go to all the faculty members who indirectly contributed through their teachings and guidance.

I would also like to acknowledge the cooperation of all the respondents who took the time to participate in the survey. Without their valuable responses, this research would not have been possible.

Finally, I am grateful to my family and friends for their moral support and encouragement throughout the course of this project.

Uday Kumar

BBA Semester VI

Galgotias University

## 5. REFERENCES

[1] Davenport, T. H., & Harris, J. G. (2007). Competing on Analytics: The New Science of Winning. Harvard Business Press.
[2] McKinsey & Company. (2020). State of AI and Data Analytics in Retail.
[3] Deloitte. (2019). Enhancing Customer Experience through Data-Driven Insights.
[4] Statista. (2023). India's Online Shopping Behavior and Trends.
[5] Narang, A., & Sharma, R. (2021). Impact of Personalization on E-commerce Behavior, International Journal of Business Research.
[6] IAMAI. (2023). Digital Consumer Usage and Trends in India.
[7] Flipkart. (2023). Personalization Using Big Data.
[8] Amazon. (2022). How We Use AI to Improve Customer Experience.
[9] PwC India. (2022). Future of Retail and Consumer Business in India.
[10] Ministry of Electronics and Information Technology (MeitY). (2023). Digital India Initiatives and Policies.