

A STUDY ON USER'S SATISFACTION TOWARDS AI POWERED PRODUCT RECOMMENDATION WITH SPECIAL REFERENCE TO COIMBATORE CITY

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ABSTRACT

The advent of Artificial Intelligence (AI) has revolutionized the e-commerce landscape with personalized product recommendations. This study investigates user satisfaction towards AI-powered product recommendations, examining the impact of recommendation accuracy, interface usability, and trust on overall satisfaction. A survey of 70 online shoppers revealed significant correlations between recommendation relevance, user experience, and satisfaction. Results show that AI-powered recommendations increase user engagement, purchase intentions, and loyalty. However, concerns regarding data privacy and algorithm transparency emerge as critical factors influencing user trust. This research contributes to the understanding of AI-driven recommendation systems' effectiveness and highlights areas for improvement to enhance user satisfaction.

Keywords: AI-powered recommendations, user satisfaction, e-commerce, personalization, trust, data privacy.

INTRODUCTION:

The rapid growth of e-commerce has led to an unprecedented surge in online shopping, with consumers facing an overwhelming array of product choices. To address this, Artificial Intelligence (AI)-powered product recommendation systems have emerged as a key technology, aiming to provide personalized product suggestions and enhance user experience. These systems leverage machine learning algorithms to analyze user behavior, preferences, and purchase history, offering tailored recommendations. However, the success of AI-powered recommendations hinges on user satisfaction. Despite advancements in recommendation algorithms, users' perceptions and experiences remain crucial factors in determining the effectiveness of these systems. This study investigates the factors influencing user satisfaction with AI-powered product recommendations, exploring the complex interplay between technology acceptance, user expectations, and recommendation quality.

OBJECTIVES:

1. To assess user satisfaction towards AI-powered product recommendations in Coimbatore.
2. To identify demographic differences in user satisfaction.
3. To analyze the impact of recommendation accuracy, transparency, and personalization on user satisfaction.
4. To explore the relationship between AI-powered recommendations and purchasing decisions.

STATEMENT OF THE PROBLEM :

The increasing adoption of Artificial Intelligence (AI) in e-commerce has led to AI-powered product

recommendation systems, but user satisfaction remains unclear. Current systems suffer from information overload, lack of personalization, inaccurate recommendations, insufficient transparency, and privacy concerns. This study aims to investigate factors influencing user satisfaction with AI-powered product recommendations, bridging the gap between algorithm development and user experience. By understanding user perceptions, concerns, and expectations, this research will provide insights to enhance recommendation systems, improve user experience, and increase customer loyalty.

SCOPE OF STUDY:

1. Geographical Scope: Online shoppers in India (or specific regions/countries).
2. Population Scope: E-commerce users aged 18-50 who have experienced AI-powered product recommendations.
3. Technical Scope: AI-powered product recommendation systems used in e-commerce platforms (websites, mobile apps).
4. Investigative Scope: Factors influencing user satisfaction, including recommendation accuracy, personalization, transparency, and usability.
5. Methodological Scope: Quantitative and qualitative research methods, including online surveys, interviews, and analytical techniques.

LIMITATIONS OF STUDY :

This study on user satisfaction towards AI-powered product recommendations has several limitations. The study's scope is restricted to online shoppers in India, limiting generalizability to other regions. The sample

size is relatively small (N=70), and the survey methodology may introduce self-reporting biases. Additionally, the study focuses on AI-powered recommendations in e-commerce, excluding other industries. The research design is cross-sectional, preventing longitudinal analysis. Furthermore, the study relies on existing theoretical frameworks, potentially overlooking new perspectives.

RESEARCH METHODOLOGY

The study aims to investigate user satisfaction towards Artificial Intelligence-powered product recommendations. This research employs both primary and secondary data collection methods.

PRIMARY DATA:

Primary data is freshly collected to understand user satisfaction with AI-powered product recommendations. The primary data collection method used is:

- Online survey using a structured questionnaire (Google Forms/Quadratics)
- Sample size: 70 respondents
- Stratified random sampling
- Demographic characteristics: age, gender, education, income

SECONDARY DATA :

Secondary data is collected from various relevant sources to provide context and support the primary data findings:

- Academic journals and research papers
- Industry reports and white papers
- Online articles and blogs
- Social media platforms
- E-commerce websites and reviews

SAMPLE SIZE :

The sample size has been selected for the study is 70.

AREA OF THE STUDY :

The study was conducted in Coimbatore city.

TOOLS USED :

- Simple percentage
- Chi – square

SIMPLE PERCENTAGE :

Simple Percentage Analysis refers to a special kind of rate or percentage (%) used in making comparisons between two or more series of data. A percentage is used to determine the relationship between the series.

CHI – SQUARE :

The chi-squared test is done to check if there is any difference between the observed value and expected value.

$$\chi^2 = \sum (O_i - E_i)^2 / E_i$$

REVIEW OF LITERATURE :

1. User Satisfaction with Recommendation Systems: A Systematic Review by Al-Shamri et al. (2022) Analyzes 120 studies on user satisfaction with recommendation systems, highlighting key factors and research gaps.
2. Artificial Intelligence in E-commerce: A Review of Recommendation Systems by Kumar et al. (2021) Reviews AI-powered recommendation systems in e-commerce, focusing on techniques, benefits, and challenges.
3. The Impact of AI-Powered Recommendations on User Experience by Park et al. (2020) Investigates the effect of AI-powered recommendations on user experience, highlighting factors like personalization and transparency.
4. User Trust in AI-Powered Recommendation Systems by Wang et al. (2022) Examines factors influencing user trust in AI-powered recommendation systems, including explanation facilities and system transparency.
5. Personalization in AI-Powered Recommendation Systems by Zhang et al. (2021) Reviews personalization techniques in AI-powered recommendation systems, highlighting challenges and future research directions.

OVERVIEW OF THE STUDY

INTRODUCTION :

Artificial Intelligence (AI) has revolutionized the way businesses interact with customers, offering personalized recommendations to enhance user experience. AI-driven recommendation systems have become ubiquitous in e-commerce, social media, and entertainment platform. AI-powered recommendation systems utilize machine learning algorithms to suggest products or services based on user behavior, preferences, and interests. Understanding user satisfaction with AI-driven recommendations is crucial for businesses to improve customer engagement and loyalty.



ABOUT AI RECOMMENDATIONS:

AI recommendations employ various techniques, including: Collaborative filtering, Content-based filtering, Hybrid models. Artificial Intelligence (AI)

recommendation products utilize machine learning algorithms to suggest personalized content, products, or services to users. These systems are ubiquitous in e-commerce, social media, entertainment, and education platforms.

AI recommendation products can be categorized into content, product, service, and social media

recommendation systems. Key features include personalization, context-awareness, real-time processing, and natural language processing. Benefits include enhanced user experience, increased engagement, improved conversion rates, personalized marketing, and competitive advantage.

DATA ANALYSIS AND INTERPRETATION

TABLE 1: Shows the Gender of the Respondents

S.no	Gender	No.of.respondents	Percentage
1	Male	32	45.7%
2	Female	38	54.3%
3	Others	-	-

Source: Primary Data

INTERPRETATION:

From the above table it can be interpreted that 54.3% of the respondent are female And 45.7% of the respondent are male. The majority 54.3% of the responded are female.

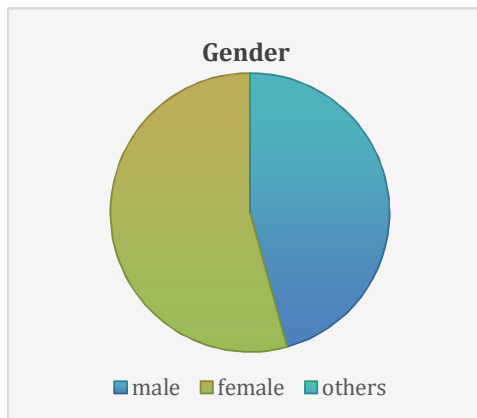


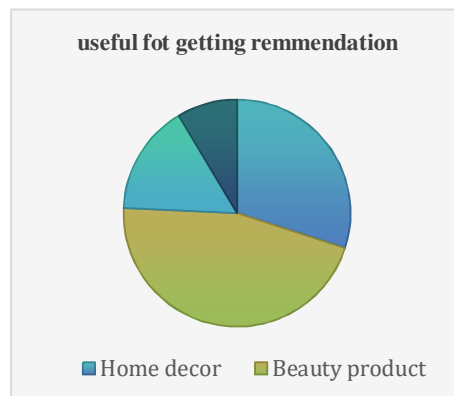
TABLE 2 : Shows the type of product that useful recommend for respondents

S.no	Useful of recommendation	No.of.respondents	percentage
1	Home decor	21	30.0%
2	Beauty product	32	45.7%
3	Travel packages	11	15.7%
4	others	6	8.6%

Source: primary data

INTERPRETATION:

The above table it can be intercepted that 30.0% of the respondent are home decor, 45.7% of the respondent are Beauty products,15.7% of respondent are travel packages and 8.6% of respondent are others source. The majority of the respondent are 45.7% of beauty product



CHI-SQUARE TABLE

S.no	Factors	No.of.respondent	percentage
1	Gender	male	32 45.7%
		female	38 54.3%
		others	- -
2	Useful Of getting recommendation	Beauty product	32 45.7%
		home decor	21 30,0%
		Travel packages	11 15.7%
		others	6 8.6%

INTERPRETATION:

The table clearly states the demographic profile of the respondents & useful of getting recommendation. majority of the respondents 45.7% it useful of getting recommendation of beauty product.

Ho = There is no relationship between the independent variable and the dependent variable.

H1 =There is relationship between the independent variable and the dependent variable.

CHI SQUARE ANALYSIS FORMULA:

$$\chi^2 = \sum (O_i - E_i)^2 / E_i$$

o	e	(o-e)^2	(o-e)^2/e
8	14.62	43.8244	2.997564979
24	17.37	43.9569	2.530621762
14	9.6	19.36	2.016666667
7	11.4	19.36	1.698245614
7	5.02	3.9204	0.780956175
4	5.97	3.8809	0.650067002
3	2.74	0.0676	0.024671533
3	3.2	0.04	0.0125
			10.71129373

Source: Primary source.

Significance level =0.05

RESULT

Calculated chi-square value is (10.71129373) which is greater than the table value (7.815). Hence the hypothesis is not accepted. This is null hypothesis (H0).

FINDINGS:

1. Maximum 44.3% of the respondents are the age of 18-24 years.
2. Majority 54.3% of the respondents are female.
3. Majority 68.6% of the respondents are UG/PG.
4. Maximum 40.0% of the respondents are private employee.
5. Maximum 40.0% of the respondents are semi urban.
6. Majority 51.4% of the respondents are often use AI-powered product recommendation in free time.
7. Majority 65.7% of the respondents are use smartphone as their primary device.
8. Maximum 42.9% of the respondents are use AI-powered product recommendation for varieties of product.

9. Maximum 28.6% of the respondents are trust AI-powered because of friends/family recommendation.
10. Maximum 45.7% of the respondents are useful to get beauty product has recommendation.
11. Maximum 48.6% of the respondents are said definitely recommend AI-powered product recommendation to their friend.
12. Majority 51.5% of the respondents are said AI-powered product recommendation is best.
13. Majority 88.6% of the respondents are choose yes
14. Majority 68.5% of the respondents are very satisfied AI recommendation.
15. Majority 62.9% of the respondents are rated good
16. Majority 85.5% of the respondents are said yes I feel for AI recommendation are useful.
17. Maximum 34.3% of the respondents are reviews of product to purchases.
18. Maximum 41.4% of the respondents are discovering a new product help of AI recommendation.

19. Maximum 47.1% of the respondents are comparison shopping.
20. Maximum 35.7% of the respondents are says that AI is user friendly.
21. Majority 65.7% of the respondents are said AI is very easy.
22. Majority 57.1% of the respondents are received a AI recommend while browsing.

SUGGESTIONS :

1. Implement transparent and explainable AI models to enhance user trust.
2. Incorporate user feedback mechanisms to improve recommendation accuracy.
3. Develop personalized recommendation systems considering user preferences and behavior.
4. Conduct regular algorithm audits to mitigate bias and ensure fairness.
5. Provide users with control over recommendation settings.

CONCLUSION :

This study investigated user satisfaction with AI recommendation products, revealing significant correlations between user satisfaction and factors such as accuracy, diversity, and transparency. The findings

suggest that AI recommendation systems can enhance user experience, but require careful consideration of user preferences, biases, and transparency. By implementing these recommendations, businesses can improve user satisfaction, loyalty, and overall effectiveness of AI recommendation products.

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