



A study on user experience towards smart search self-service systems in E-Commerce

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Abstract

Electronic commerce has changed the way consumers search for and purchase products through digital platforms. Smart search self-service systems play an important role in enhancing user experience by enabling faster, accurate, and personalized product searches using technologies such as artificial intelligence and data analytics. This study analyzes user experience towards smart search self-service systems in e-commerce by examining factors such as search accuracy, speed, personalization effectiveness, and user satisfaction. Primary data were collected through structured questionnaires, supported by secondary data from journals and online sources. The study identifies common challenges faced by users, including irrelevant search results and difficulty in finding exact products. The findings suggest that improving search functionality and user-centered design can enhance customer satisfaction and overall effectiveness of e-commerce platforms.

Keywords: E-commerce, smart search, user experience, personalization, customer satisfaction

Introduction

The rapid growth of electronic commerce has transformed the way consumers search for, evaluate, and purchase products. With the increasing digitalization of retail operations, e-commerce platforms such as Amazon, Flipkart, or Meesho have integrated advanced smart search self-service systems to enhance customer experience. These systems use artificial intelligence (AI), machine learning algorithms, and data analytics to deliver faster, more accurate, and personalized search results. As competition intensifies in the digital marketplace, the effectiveness of these smart search systems plays a crucial role in customer satisfaction, trust, and overall business performance.

Smart search self-service systems allow users to independently find products without direct human assistance. Features such as auto-suggestions, predictive search, voice search, personalized recommendations, and dynamic filtering are designed to reduce search time and improve result relevance. However, despite technological advancements, users may still encounter challenges such as irrelevant results, slow response times, lack of proper filtering options, and privacy concerns related to personalization. These factors directly impact user satisfaction and purchasing decisions.

Objectives of the Study

1. To assess user satisfaction with the accuracy and speed of smart search self-service systems in e-commerce.
2. To evaluate personalization effectiveness and how it influences user trust and perceived relevance.
3. To identify pain points where users struggle to obtain desired results without assistance.
4. To recommend design improvements based on user feedback and analytical data to enhance user experience.

Scope of the Study

The study focuses on understanding how users interact with smart search features on major e-commerce platforms such as Amazon, Flipkart, and Meesho. It is limited to evaluating

key aspects of user experience, including search accuracy, speed, personalization effectiveness, trust, and common user pain points.

- **E-Commerce Platforms:** To optimize search functionalities, enhance user satisfaction, and reduce cart abandonment.
- **UX and Interface Design:** To guide developers in creating more intuitive and user-friendly search systems.
- **Personalization Strategies:** To improve recommendation algorithms, increase relevance, and strengthen customer trust

Limitations of the Study

1. **Sample Size:** The study may be limited by the number of participants available for data collection. A small or non-representative sample may affect the generalizability of the findings.
2. **Geographical Size:** Data may be collected from users in a specific region or country, which may not fully represent global user experiences on platforms like Amazon, Flipkart, or Meesho.
3. **Data Collection Method:** The research may rely on surveys, questionnaires, or online interviews, which are subject to response bias, misinterpretation of questions, or incomplete answers.

Research Methodology

The objective of this study is to analyze user experience towards smart search self-service systems in e-commerce platforms. It involves a systematic and structured approach to collect, analyze, and interpret data in order to understand user behavior, evaluate system effectiveness, and answer research questions or test relevant hypotheses

Method of Data Collection

The sources of data pertaining to the study include both primary data and secondary data.

Primary Data

Primary data has been collected from customers who use e-commerce platforms through questionnaires.

Secondary Data

Secondary data has been collected from published materials such as articles, books, and websites.

Area of the Study

The study was conducted in Coimbatore city.

Sample Size

The study was conducted to analyze user experience towards smart search system in E – Commerce Platforms. The sample size of respondents is 150.

Tools Used

- Simple Percentage
- Chi-square

Simple Percentage

Simple Percentage Analysis refers to a method used to make comparisons between two or more data series. A percentage is used to determine the relationship between the series. One of the most frequent ways to represent statistics is by percentage. Percent simply means “per hundred,” and the symbol used to express percentage is %. Percentage base analysis helps to find which factor is significant among a number of factors

Chi-Square

Data analysis and Interpretation and Simple Percentage

The chi-square test is used to check whether there is any significant difference between the observed value and the expected value

Review of Literature

Turban et al. (2017) [1]: The rapid growth of e-commerce has significantly increased the use of smart search self-service systems to enhance user experience. e-commerce platforms rely heavily on intelligent systems to improve customer interaction and satisfaction. These systems use technologies such as artificial intelligence and machine learning to deliver accurate and relevant search results.

Nielsen (2012): User experience is considered a key factor in the success of e-commerce platforms. emphasized that usability, efficiency, and ease of navigation are critical components that influence user satisfaction. A well-structured search system reduces user effort and improves overall interaction with the platform.

Gefen et al. (2003): Trust and perceived usefulness play a significant role in user acceptance of online systems. When users find search results accurate and relevant, their trust in the platform increases, leading to higher engagement and purchase intention.

Huang and Benyoucef (2013): Smart search features such as personalized recommendations, filtering options, and auto-suggestions enhance user experience by making the search process faster and more efficient. These features help users find products with minimal effort.

Table 1: Showing the demographic profile

S.NO	Demographic	No of Respondents	Percentage	
1	Gender	Male	73	48.7%
		Female	77	51.3%
		TOTAL	150	100%
2	Age	18 – 25	81	57%
		26 – 30	35	23.5%
		31 – 40	23	12.1%
		Above - 40	11	7.4%
		TOTAL	150	100%
3	Educational Qualification	Higher Secondary	11	7.4%
		Under Graduate	81	57%
		Post Graduate	35	23.5%
		Others	23	12.1%
		TOTAL	150	100%
4	Occupation	Student	44	30%
		Working Professional	60	41.3%
		Entrepreneur	27	18%
		Other	19	10.7%
		TOTAL	150	100%
5	Income Level	Less than – 30,000	44	29.3%
		31,000 – 40,000	64	42.7%
		41,000 – 50,000	28	19.3%
		Above – 50,000	14	8.7%
		TOTAL	150	100%
6	Frequency of Usage	Daily	43	27%
		Weekly	56	38.7%
		Monthly	32	21.3%
		Rarely	19	12.7%
		TOTAL	150	100%
7	Features of Specification	Auto – Suggestions	10	6.7%
		Filters(Price, Brand, Rating)	68	46%
		Voice Search	66	43%
		Others	3	2%
		TOTAL	150	100%

Interpretation

Table 1 clearly presents the demographic profile of the sample respondents. Most of the respondents are female. The majority of respondents belong to the 18–25 age group. Most of the respondents are undergraduates in terms of educational qualification. A maximum number of respondents are working professionals, followed by students. The majority of the respondents fall under the income group of ₹31,000–₹40,000 per month. Most respondents use the service on a weekly basis. Regarding preferred features, the majority of respondents prefer filters (price, brand, and rating) followed closely by voice search features.

Chi – Square Test

Relationship Between Gender and most used E – Commerce Platform

The Chi – Square test is done to check if there is any difference between the observed value and expected value.

$$\text{Chi – Square} = \chi^2 = \sum \frac{(O - E)^2}{E}$$

Null Hypothesis

H0: There is no significant relationship between gender and most used E – Commerce Platform.

Alternative Hypothesis

H1: There is significant relationship between gender and most used E – Commerce Platform.

Table 2

Which E- Commerce Platform Do You Use Most?					
Gender	Amazon	Flipkart	Meesho	Other	Grand Total
Male	9	16	11	41	77
Female	20	8	5	39	73
Grand Total	29	24	16	80	150

O	E	O – E	(O – E) 2	(O – E)2/E
9	14.88	5.88	34.57	2.32
16	12.32	3.68	13.54	1.09
11	8.21	2.79	7.78	0.94
41	41.06	0.06	0.003	0.00
20	14.11	5.89	34.69	2.45
8	11.68	3.68	13.54	1.15
5	7.78	2.78	7.72	0.99
39	11.68	27.32	746.3	63.9
			TOTAL	72.84

(Source: Primary Data)

Significant Level = 0.05

Interpretation

The Calculated value of Chi – Square test is 72.84 is more than table value 7.815. Hence, the alternative hypothesis is accepted, indicating that there is a relationship between gender and the most used e-commerce platform.

relationship between age and device used for online shopping

The Chi – Square test is done to check if there is any difference between the observed value and expected value.

$$\text{Chi – Square} = \chi^2 = \sum \frac{(O - E)^2}{E}$$

Null Hypothesis

H0: There is no significant relationship between Age and device used for Online Shopping.

Alternative Hypothesis

H1: There is significant relationship between Age and device used for Online Shopping.

Table 3

Which Device used for Online Shopping?				
Age	Mobile	Laptop/Desktop	Tablet	Grand Total
18- 25	43	30	16	89
26 – 30	17	13	3	33
31 – 40	8	4	5	17
Above - 40	6	5	-	11
Grand Total	74	52	24	150

O	E	(O – E)	(O – E)2	(Oi – Ei)2/E
43	43.90	0.9	0.81	0.01
30	30.85	0.85	0.72	0.02
16	14.24	1.76	3.09	0.21
17	16.28	0.72	0.51	0.03
13	11.44	1.56	2.43	0.21
3	5.28	2.28	5.19	0.98
8	8.38	0.38	0.14	0.01
4	5.89	1.89	3.57	0.60
5	2.72	2.28	5.19	1.90
6	5.42	0.58	0.33	0.06
5	3.81	1.19	1.41	0.37
0	1.76	1.76	3.09	1.75
			TOTAL	5.15

(Source: Primary Data)

Significant Level = 0.05

Interpretation

The Calculated value of Chi – Square test is 5.15 is less than table value 15.507. Hence, the null hypothesis is accepted, indicating that there is no significant relationship between age and device used for online shopping.

Findings

- The majority of (57%) of the respondents are from the age group of 18–25 years.
- The majority of (51.3%) of the respondents are female.
- The majority of (57%) of the respondents are undergraduates.
- The majority of (41.3%) of the respondents are working professionals.
- The majority of (42.7%) of the respondents have an income between 31,000–40,000.
- The majority of (38.7%) of the respondents shop online on a weekly basis.
- The majority of (53.69%) of the respondents prefer other e-commerce platforms apart from major ones.
- The majority of (49.3%) of the respondents are aware of smart search systems.
- The majority of (46%) of the respondents prefer filters (price, brand, rating) as the most useful feature.
- The majority of (72%) of the respondents find products in less than 1 minute using search systems.
- The majority of (49.3%) of the respondents are uncertain (maybe) about failure in finding products using search.
- The majority of (40.7%) of the respondents face difficulty in finding the exact product.
- The majority of (67.3%) of the respondents feel that refining or modifying search is somewhat convenient.
- The majority of (33.5%) of the respondents rate search system efficiency as average.

- The majority of (61.33%) of the respondents would recommend the platform based on search experience.
- The majority of (44.67%) of the respondents are satisfied with smart search features.
- The majority of (58%) of the respondents agree that it is easy to find exact products using search.
- The majority of (45.33%) of the respondents frequently compare multiple products before purchasing.
- The Chi-square test shows that there is a significant relationship between gender and most used e-commerce platform.
- The Chi-square test shows that there is no significant relationship between age and device used for online shopping.

Suggestions

- Improve search accuracy by refining algorithms to reduce irrelevant results and help users find exact products more easily.
- Enhance filtering options by making them more intuitive, user-friendly, and customizable based on user preferences.

Optimize search speed and performance to ensure faster response times and minimize delays during product searches.

Conclusion

The data gathered from respondents can be used to measure the effectiveness of smart search self-service systems in e-commerce platforms. This information provides valuable insights into how search features influence user satisfaction, decision-making, and overall shopping experience. The study shows that while a majority of users are satisfied with the current smart search features, there are still areas that require improvement, particularly in terms of search accuracy, filtering options, and system efficiency.

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