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The Impact of a Good UX on E-commerce Platforms: A User-Centered Investigation

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Abstract: This project delves into investigating the differences in user experience (UX) between two major e-commerce platforms, Amazon and Flipkart, through the utilization of heuristic methods and UX audit techniques. Through thorough examination, the study aims to uncover both commendable and deficient UX elements across various facets of the platforms, such as search and navigation, customer reviews, product listings, and payment processes. By soliciting feedback from users and analyzing their experiences, the project seeks to determine which UX features are perceived as easier and more effective on each platform. The results of this investigation will provide insights into which e-commerce platform excels in providing a superior user experience. The project concludes by presenting a list of UX features that user found to be better on one platform over the other, determining which e-commerce platform emerges as the preferred choice based on UX. better customer trust and loyalty.

Keywords: UX Design, E-commerce Platforms, User Trust, User-Centered Design, Trust in E-commerce

1. Introduction

The proliferation of digital technologies has revolutionized the way commerce operates, leading to the emergence and rapid growth of e-commerce platforms. In India, this transformation is particularly notable, with a burgeoning market fuelled by increasing internet penetration, smartphone usage, and a growing preference for online shopping among consumers.

1.1. E-commerce Landscape in India and Market dynamics

India boasts a vibrant e-commerce ecosystem, characterized by fierce competition among numerous platforms vying for consumer attention. Among the top contenders are industry giants like Amazon and Flipkart, which have carved significant market shares through relentless innovation and customer-centric approaches. The Indian e-commerce market has witnessed exponential growth in recent years, fueled by factors such as convenience, a wide array of product offerings, competitive pricing, and the rapid expansion of digital infrastructure. According to recent statistics, the ecommerce market in India is projected to reach 350 billion U.S. dollars by 2030.

1.2. Impact of UX on Homepage

Recent research findings shed light on concerning trends in

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website design and user experience. Shockingly, a mere 6% of websites opt for an exceedingly narrow array of product types directly on their homepage, potentially user engagement by restricting choices. Furthermore, an overwhelming 59% of websites inundate visitors with distracting overly aggressive or advertisements upon landing on the homepage, risking a detrimental impact on user satisfaction and retention. Equally worrisome is the discovery that 22% of websites neglect to prominently showcase the search field on their homepage, potentially frustrating users reliant on efficient search functionality. These revelations underscore the critical importance of prioritizing user-centric design principles to cultivate a seamless browsing experience and foster positive user interactions.

1.3. Impact of UX on Product Page

The latest study uncovers additional challenges in online shopping experiences. Astonishingly, 42% of participants faced difficulty gauging the size of a product, attributing this struggle to the absence of an "In Scale" image, underscoring the importance of visual aids in product comprehension. Moreover, a concerning 43% of websites neglect to furnish essential shipping information on the product page, potentially leaving customers uninformed and hesitant to proceed with their purchase. Additionally, an overwhelming 80% of the analysed sites exhibited a concerning trend of failing to respond to negative reviews, potentially overlooking valuable opportunities to address customer concerns and improve reputation management. These findings accentuate the pressing need for eprioritize commerce platforms transparency, communication, and customer feedback mechanisms to optimize user satisfaction and trust.

1.4. Related Works

In Pathanamthitta district, Kerala, India, Mudambi's customer satisfaction study(2010) compared Amazon and Flipkart, revealing Amazon's superior service [1]. Similarly, Balasubramanian and Isswarya (2017) conducted research within an educational context, finding that Flipkart excelled in delivery efficiency and website usability [3]. Ahuja's investigation in 2018 delved into gender discrepancies in online shopping and the influence of enticing offers on consumer decision-making [4]. DV et al. (2015) suggested enhancements for online retailers, proposing installment payment systems and clearer product displays [5]. Additionally, Goyal's 2014 study unveiled Indian consumers' inclination towards offline purchases despite enticing online deals, highlighting a preference for inspecting products offline before buying online [6]. Since Nielsen's introduction of heuristic evaluation in 1990, it has remained integral for assessing e-commerce platforms' usability and reliability [3,7].

2. Proposed Methodology

This research employs a comprehensive methodology encompassing heuristic evaluation and UX Audit to conduct a nuanced analysis of UX elements on two prominent e-commerce platforms in India – Amazon and Flipkart. The methodology draws inspiration from established UX research practices (Nielsen, 1994) and aligns with the objectives of comparing the user experience and identifying effective UX elements.

2.1. Heuristic Evaluation

The Nielsen-Molich heuristics state that a system should:

- 1. Keep users informed about its status appropriately and promptly.
- 2. Show information in ways users understand from how the real world operates, and in the users' language.
- 3. Offer users control and let them undo errors easily.
- 4. Be consistent so users aren't confused over what different words, icons, etc. mean.
- 5. Prevent errors a system should either avoid conditions where errors arise or warn users before they take risky actions (e.g., "Are you sure you want to do this?" messages).
- 6. Have visible information, instructions, etc. to let users recognize options, actions, etc. instead of forcing them to rely on memory.
- 7. Be flexible so experienced users find faster ways to attain goals.
- 8. Have no clutter, containing only relevant information for current tasks.

- 9. Provide plain-language help regarding errors and solutions.
- 10. List concise steps in lean, searchable documentation for overcoming problems.

In this section, we detail our method for evaluating ecommerce platforms, aiming to pinpoint the most efficient option between Amazon and Flipkart. We utilized an assignment-based assessment method alongside statistical analysis to identify the platform excelling in assignment efficiency within a set timeframe. Our survey involved 14 participants.

Participants were assigned six distinct tasks, including registration and purchasing, on both Amazon and Flipkart. Post-assignment participants were interviewed regarding their experiences, and responses were collected and visualized. A comparative usability analysis was then conducted based on this feedback. Additionally, we recorded the time each participant took to complete these tasks on both sites, calculating the average time per task to determine which platform facilitated more efficient task completion.

2.2. Assignments done by Users

This section outlines the assignments taken up by the 14 users.

Here are the assignments users completed during the ux audit of both e-commerce platforms:

Assignment 1: Registering on both e-commerce websites by completing the signup form.

Assignment 2: Logging in to both websites using their respective credentials.

Assignment 3: Searching for a desired product and adding it to the Wishlist.

Assignment 4: Reviewing recommendations for related products based on previous searches.

Assignment 5: Navigating to the Wishlist and selecting one item to add to the cart.

Assignment 6: Updating personal information as needed.

2.3. Comparison of Efficiency by calculating Average Time

In this section outlines the process of calculating the average time required to complete the designated assignments on both Amazon and Flipkart. Each participant's time for each assignment on both platforms was documented, and the average time for each assignment was computed.

 $Avg.Time\ Taken\ to\ Complete\ Assignment =$

$$\sum\nolimits_{k=1}^{z} \left(\frac{\textit{Time Taken to Complete Assignment}(n) \, \textit{by User}(k)}{\textit{Total Users Participated}(z)} \right) \quad (1)$$

Where n is the nth Assignment, k is the kth User and z is the Number of Total Users Participated. In the comparative analysis, our aim was to identify which e-commerce platform allowed for more efficient completion of tasks within a shorter duration.

2.4. Interviews

During the evaluation process, the participants were interviewed, by us, to gather feedback on their experiences with Amazon and Flipkart. Each question aimed to elicit insights into specific aspects of user interaction and satisfaction with the platforms. We posed the following Questions:

- Q1: How would you compare the account creation process on Amazon and Flipkart to other websites you have used?
- Q 2: Can you share your experience with the suggestions provided during account creation on both platforms?
- Q 3: How clear were the error messages you encountered while logging into Amazon and Flipkart?
- Q 4: Did you find the navigation effective when searching for products on both platforms?
- Q 5: Were the call-to-action buttons clear to you while managing your wish list on Amazon and Flipkart?
- Q 6: How relevant did you find the personalized content after reviewing recommendations on both platforms?
- Q 7: Were the notifications effective after adding a product to your cart on Amazon and Flipkart?
- Q 8: Did you find the assistance and documentation provided helpful in achieving your goals on both platforms?
- Q 9: How would you rate the presentation of your previously provided personal information on Amazon and Flipkart?
- Q 10: How flexible did you find the personal information editing options on both platforms?
- Q 11: Was the content understandable at first glance on both Amazon and Flipkart?

These interview questions aimed to gather comprehensive feedback from participants regarding their experiences with the e-commerce platforms. For questions 11, 12, and 13, a scale ranging from 1 to 5 was utilized for participant responses.

3. Comparative Analysis via UX Audit

3.1. Identifying Effective UX Elements

The results of both heuristic evaluation and user testing for Amazon and Flipkart were be examined side-by-side, by us, to uncover patterns, discrepancies, and notable trends in the implementation of UX elements.

Through UX auditing, specific UX elements consistently contributing to user trust on one platform over the other are pinpointed to encompass traditional and innovative UX elements such as organization, navigation, and other trust-building features.

To conduct this identification, we'll focus on key UX elements:

- · Search and Navigation
- · Filtering and Sorting
- · Customer Reviews
- · Product Listing on Search
- · Seller Ratings
- · Address Validation
- Payment

4. Results and Analysis

This section unveils the outcomes derived from analyzing the total time invested by users in task completion and conducting a survey evaluation. The average time spent per task by users is determined through the methodology outlined in section 2.3 i.e. from (1).

4.1. Assignment 1

Table 1. Total Time taken by the users to perform assignment 1

| Users | Total Time taken to complete assignment-1 in Amazon (in seconds) | Total Time taken to complete assignment-1 in Flipkart (in seconds) |
|---------|--|--|
| User-1 | 180 | 190 |
| User-2 | 150 | 200 |
| User-3 | 190 | 210 |
| User-4 | 170 | 230 |
| User-5 | 195 | 180 |
| User-6 | 180 | 170 |
| User-7 | 190 | 220 |
| User-8 | 150 | 180 |
| User-9 | 170 | 160 |
| User-10 | 180 | 190 |
| User-11 | 190 | 195 |
| User-12 | 170 | 210 |
| User-13 | 200 | 220 |
| User-14 | 180 | 170 |

Total average time taken on Amazon = 178.2 seconds

Total average time taken on Flipkart = 194.6 seconds

Analysis: Amazon's signup process is completed faster than Flipkart's, indicating Amazon's superior efficiency in this assignment.

4.2. Assignment 2

Table 2. Total Time taken by the users to perform assignment 2

| Users | Total Time taken to complete assignment-2 in Amazon (in seconds) | Total Time taken to complete assignment-2 in Flipkart (in seconds) |
|---------|--|--|
| User-1 | 100 | 140 |
| User-2 | 90 | 106 |
| User-3 | 96 | 107 |
| User-4 | 107 | 116 |
| User-5 | 114 | 126 |
| User-6 | 107 | 110 |
| User-7 | 95 | 110 |
| User-8 | 86 | 106 |
| User-9 | 100 | 110 |
| User-10 | 112 | 104 |
| User-11 | 100 | 110 |
| User-12 | 110 | 116 |
| User-13 | 102 | 125 |
| User-14 | 130 | 135 |

Total average time taken on Amazon = 103.5 seconds

Total average time taken on Flipkart = 115.8 seconds

Analysis: Amazon's login process shows quicker completion times compared to Flipkart, suggesting better efficiency on Amazon's platform.

4.3. Assignment 3

Table 3. Total Time taken by the users to perform assignment 3

| Users | Total Time taken to complete assignment-3 in Amazon (in seconds) | Total Time taken to complete assignment-3 in in Flipkart (in seconds) |
|---------|--|---|
| User-1 | 153 | 160 |
| User-2 | 159 | 155 |
| User-3 | 170 | 183 |
| User-4 | 154 | 149 |
| User-5 | 157 | 165 |
| User-6 | 177 | 180 |
| User-7 | 187 | 190 |
| User-8 | 185 | 189 |
| User-9 | 150 | 140 |
| User-10 | 160 | 167 |
| User-11 | 170 | 183 |
| User-12 | 151 | 157 |
| User-13 | 160 | 152 |
| User-14 | 140 | 137 |

Total average time taken on Amazon = 78.5 seconds

Total average time taken on Flipkart = 81 seconds

Analysis: Amazon exhibits faster completion times for managing wishlists, implying smoother user experience compared to Flipkart.

4.4. Assignment 4

Table 4. Total Time taken by the users to perform assignment 4

| Users | Total Time taken to complete assignment-4 in Amazon (in seconds) | Total Time taken to complete assignment- 4 Flipkart (in seconds) |
|---------|--|--|
| User-1 | 60 | 70 |
| User-2 | 75 | 70 |
| User-3 | 67 | 65 |
| User-4 | 70 | 75 |
| User-5 | 76 | 77 |
| User-6 | 80 | 89 |
| User-7 | 80 | 90 |
| User-8 | 90 | 95 |
| User-9 | 98 | 95 |
| User-10 | 78 | 70 |
| User-11 | 88 | 90 |
| User-12 | 89 | 95 |
| User-13 | 67 | 75 |
| User-14 | 76 | 78 |

Total average time taken on Amazon = 78.5 seconds

Total average time taken on Flipkart = 81 seconds

Analysis: Amazon's product search functionality is completed more swiftly than Flipkart's, indicating better efficiency on Amazon's platform.

4.5. Assignment 5

Table 5. Total Time taken by the users to perform assignment 5

| Users | Total Time taken to complete assignment-5 in Amazon (in seconds) | Total Time taken to complete assignment-4 in Flipkart (in seconds) |
|---------|--|--|
| User-1 | 100 | 190 |
| User-2 | 110 | 200 |
| User-3 | 120 | 210 |
| User-4 | 114 | 230 |
| User-5 | 118 | 180 |
| User-6 | 120 | 170 |
| User-7 | 90 | 220 |
| User-8 | 88 | 180 |
| User-9 | 90 | 160 |
| User-10 | 95 | 190 |
| User-11 | 90 | 195 |
| User-12 | 96 | 210 |
| User-13 | 98 | 220 |
| User-14 | 88 | 170 |

Total average time taken on Amazon = 101.2 seconds

Total average time taken on Flipkart = 98.3 seconds

Analysis: Flipkart demonstrates faster completion times for managing the cart, suggesting smoother user experience compared to Amazon.

4.6. Assignment 6

Table 6. Total Time taken by the users to perform assignment 6

| Users | Total Time taken to complete assignment-6 in Amazon (in seconds) | Total Time taken to complete assignment-6 in Flipkart (in seconds) |
|---------|--|--|
| User-1 | 185 | 170 |
| User-2 | 180 | 178 |
| User-3 | 190 | 185 |
| User-4 | 177 | 176 |
| User-5 | 189 | 182 |
| User-6 | 165 | 170 |
| User-7 | 156 | 160 |
| User-8 | 153 | 157 |
| User-9 | 177 | 179 |
| User-10 | 180 | 187 |
| User-11 | 195 | 199 |
| User-12 | 178 | 165 |
| User-13 | 150 | 161 |
| User-14 | 180 | 175 |

Total average time taken on Amazon = 175.3 seconds

Total average time taken on Flipkart = 174.5 seconds

Analysis: Flipkart shows quicker completion times for editing personal information, indicating better efficiency on Flipkart's platform.

4.7. User Responses for the Interview Questions

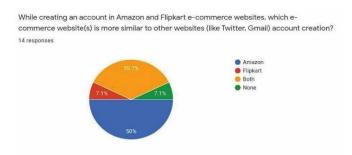


Fig 1. User Responses for Question 1

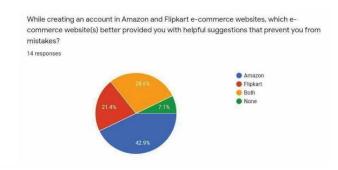


Fig 2. User Responses for Question 2

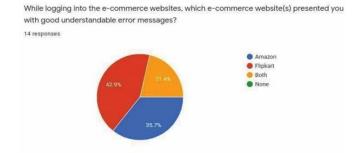


Fig 3. User Responses for Question 3

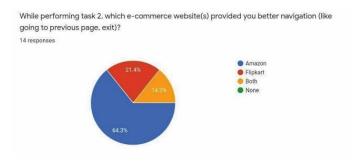


Fig 4. User Responses for Question 4



Fig 5. User Responses for Question 5

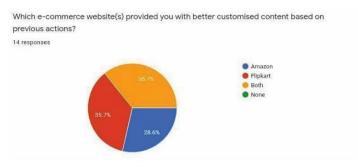


Fig 6. User Responses for Question 6

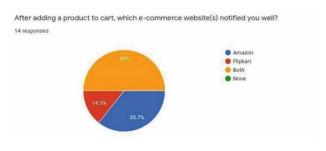


Fig 7. User Responses for Question 7

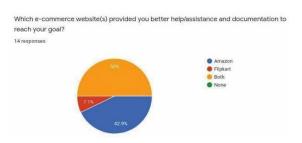


Fig 8. User Responses for Question 8

While you check for the personal information, which e-commerce website(s) better presented the information that you already provided during the creation of account?

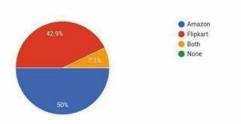


Fig 9. User Responses for Question 9

While checking your personal information, which e-commerce website(s) provided your personal information?

14 responses

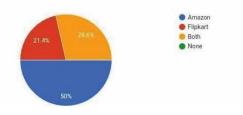


Fig 10. User Responses for Question 10

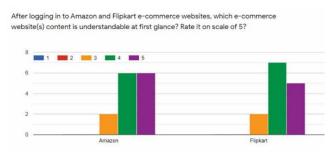


Fig 11. User Responses for Question 11

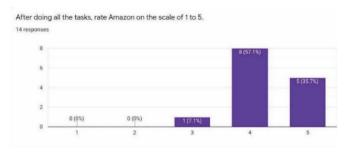


Fig 12. User Responses for Question 12

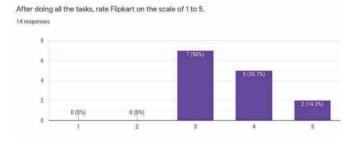


Fig 13. User Responses for Question 13

5. UX Audit Discussion

In this section, we delve into the specifics outlined in section 1.2, providing a comprehensive explanation. The inquiry into efficiency begins with an assessment of each platform's performance in minimizing task completion time. Additionally, we explore user feedback garnered through conducted interviews.

5.1. Payment: Checking Balance reduces failed payment scenarios

Amazon: Simple payment page with additional helpful option to check available balance.

Flipkart: Contrastingly, Flipkart's payment page lacks additional helpful options, emphasizing simplicity.

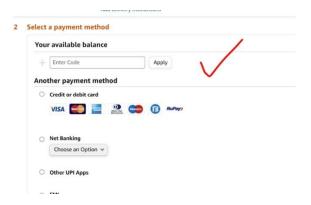


Fig 14. Payment Page on Amazon



Fig 15. Payment Page on Flipkart

5.2. Search and filtering

Amazon: Recommendations during search were found to be helpful due to the auto-complete feature, although making search mandatory after selecting a category was seen as adding complexity.

Flipkart: Search recommendations were concise and satisfactory. Navigation was noted for its clean and minimal cues, with text size deemed adequate for easier navigation. In terms of filtering, Flipkart offered simple options that were less cluttered and more informative, providing better insight into product specifications compared to Amazon.

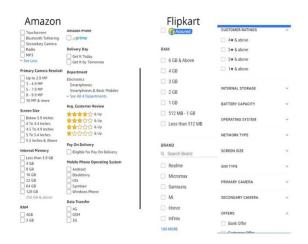


Fig 16. Sorting and Filtering Functionalities on Amazon and Flipkart Respectively

5.3. Customer Ratings and Reviews: First and last trust sign to buy a product

Amazon: Amazon employs advanced AI technology in its review sections to generate tag-based summaries of customer feedback. These tags are color-coded, distinguishing between positive, neutral, and negative aspects for enhanced visual comprehension. Users can click on each tag to access corresponding review summaries, facilitating deeper insights into product experiences. Additionally, instead of cluttering the section with reviewer details, Amazon quotes them, reducing visual clutter. Key words in reviews are highlighted in bold, aiding users in quickly forming impressions about the product.

Flipkart: Offers a satisfactory tag system but lacks the depth and sophistication seen in Amazon's approach.

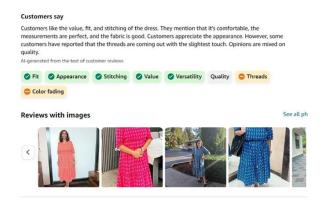


Fig 17. Amazon's AI-Enhanced Reviews Summary

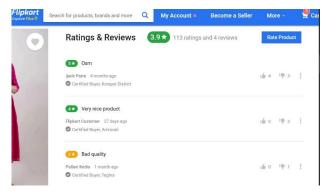


Fig 18. Flipkart's review section

6. Conclusion

In our analysis of the Amazon and Flipkart platforms to discern the impact of user experience (UX) on ecommerce, it is evident that Amazon stands out as the preferred choice among users due to its superior user interface. Amazon consistently received higher ratings, with the majority of users favoring it across various aspects. Delving deeper, it becomes apparent that Amazon's website offers a more seamless and intuitive user experience compared to Flipkart, resulting in increased user traffic and bolstered trust among consumers.

Drawing from the UX strengths where Amazon outperformed Flipkart, several recommendations emerge to further enhance the e-commerce experience:

- 1. Simplify Filtering and Sorting: By streamlining filtering and sorting options, the user interface can be decluttered, leading to a more pleasant browsing experience and improved usability.
- 2. Implement AI-generated Summaries: Integrate AI-generated summaries and visual cues within the review sections to provide users with comprehensive insights into products, aiding in informed decision-making.
- 3. Streamline Product Listings: Simplify product listings to reduce clutter and enhance readability, facilitating easier navigation and quicker decision-making for users.
- 4. Incorporate Visual Trust Signs: Introduce direct visual indicators of trust for sellers to instill confidence and trustworthiness among users, thereby enhancing their shopping experience.
- 5. Enhance Address Validation: Strengthen address validation processes to ensure accurate deliveries, minimizing errors and improving overall customer satisfaction.
- 6. Add Convenient Payment Features: Consider integrating convenient features such as balance checks to streamline payment processes, enhancing user convenience and satisfaction.

By implementing these recommendations, e-commerce platforms can further elevate their user experience,

fostering increased user engagement, trust, and loyalty in the competitive online marketplace.

Author contributions

Hima Satwika Katragadda: Conceptualization, Data Curation, Methodology, Field study K.S.P. Sriram: Data curation, Writing-Original draft preparation, Validation, Field study Dr. T. Adilakshmi: Visualization, Investigation, Writing-Reviewing and Editing. T. Jalaja: Visualization, Investigation, Reviewing and Editing

Conflicts of interest

The authors declare no conflicts of interest.

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