
Analysis of the Impact of UX (User Experience) Design on E-Commerce Website Conversion

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Abstract:

User Experience (UX) design plays a crucial role in the success of e-commerce websites. This research analyzes the impact of UX design on visitor conversion rates through a literature review of six reference papers. The analysis results show that UX elements such as intuitive navigation, website loading speed, responsive design, content personalization, and ease of checkout significantly positively affect conversion rates. Poor UX, indicated by high bounce rates and high exit rates, hinders conversion, while good UX increases user engagement and encourages repeat purchases. Additionally, the referenced studies emphasize the importance of understanding user demographics and selecting the appropriate e-commerce platform to design a more personalized and effective user experience. These findings provide strong evidence that investment in UX is highly valuable for e-commerce businesses, helping to increase conversions, build stronger customer loyalty, and achieve long-term success in the digital world.

Keywords: *UX Design, User Experience, Conversion, E-Commerce*

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1. Introduction

The Development of Digital Technology Has Brought a Significant Transformation in the Business Landscape, Especially with the Rapid Growth of E-Commerce. E-commerce websites have now become the primary platform for business operators to reach a wide range of consumers and increase sales. However, the success of an e-commerce website is not only dependent on the quality of the products offered but also on the user experience (UX) provided (Muqoddas et al., 2020).

Good UX design is a key factor in creating positive interactions between users and the website. A satisfying user experience can enhance satisfaction levels, and loyalty, and ultimately drive higher conversion rates. Conversely, poor UX design can lead to frustration, confusion, and ultimately prompt users to leave the website without making a purchase (Kemora et al., 2024).

Various studies have shown a strong relationship between UX design and e-commerce website performance. UX elements such as intuitive navigation, fast website loading speed, responsive design compatible with various devices, relevant content personalization, and an easy and secure checkout process have been proven to

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significantly increase conversion rates (Muralidhar & Lakkanna, 2024; Sharma & Tripathi, 2023; Wasilewski, 2024).

This research aims to deeply analyze the impact of UX design on the conversion rates of e-commerce website visitors. Through a comprehensive literature review of several reference papers, this study will identify the most influential UX elements and provide valuable insights for practitioners and researchers in designing effective UX strategies to optimize e-commerce website performance and achieve higher conversion rates.

2. Theoretical Background

The Concept of Customer Journey Illustrates the Stages Customers Go Through When Interacting with an E-Commerce Website, from Awareness to Conversion. Each stage in this journey is influenced by different UX elements. Optimal UX design will facilitate a seamless customer journey, reduce barriers, and increase the likelihood of conversion (Märtn et al., 2023).

The literature emphasizes the importance of user-centered UX design to create a positive and satisfying experience. This involves a deep understanding of user needs, preferences, and behaviors, as well as the application of relevant design principles to meet those needs. Good UX design will enhance user satisfaction, encourage longer interactions, and ultimately increase conversion (Tobing et al., 2023).

UI design plays a crucial role in shaping users' perceptions of an e-commerce website. UI elements such as clear layout, intuitive navigation, attractive visual design, and easy-to-understand information will improve the website's usability. Good UI will reduce user confusion, simplify the purchasing process, and contribute to increased conversion (Tobing et al., 2023).

Other literature has identified various factors influencing UX/UI, including website speed, ease of navigation, visual design, content quality, personalization, trust, and security. These factors can vary in importance depending on the context and user characteristics. This research aims to identify the most influential factors on conversion for a particular e-commerce website (Zacky et al., 2023).

The literature also discusses various metrics for measuring conversion on e-commerce websites. Conversion rate is the most commonly used metric, measuring the percentage of visitors who perform a desired action, such as making a purchase. Other relevant metrics include average order value, cart abandonment rate, and customer retention rate. Understanding these metrics is crucial for evaluating the effectiveness of UX design and identifying areas for improvement (Malik, n.d.).

Research on the impact of UX design on conversion for e-commerce websites can use various methodologies, both qualitative and quantitative. Qualitative methods such as interviews and observations can provide in-depth insights into user experiences and perceptions. Quantitative methods such as surveys and experiments can statistically

test hypotheses and measure the impact of UX design changes on conversion (Astuti et al., 2023; Zacky et al., 2023).

3. Methodology

This Study Utilizes the Systematic Literature Review (SLR) Method. This method is a research approach aimed at identifying, evaluating, and interpreting all relevant research related to a specific research question, topic area, or phenomenon of interest. It is often used to compile existing scientific evidence, providing a comprehensive overview of the state of knowledge in a particular field.

SLR differs from traditional literature reviews by using a more structured and transparent approach in identifying and analyzing relevant literature. The main objective of SLR is to minimize bias by following rigorous methods in the search, selection, and analysis of the literature. This includes defining clear inclusion and exclusion criteria, using comprehensive search methods, and critically assessing the quality of included studies (Nabila & Ramadhan, 2024).

The SLR process involves several stages:

1. **Formulating the Research Question:** As with other research, the first step is to formulate a specific and directed research question. This question will guide the process of searching for and selecting relevant journals.
2. **Literature Search:** Conduct a systematic and structured literature search in various academic databases (e.g., Google Scholar, Scopus, ScienceDirect, etc.) and other relevant sources. Use keywords that match your research topic (e.g., "UX design," "conversion," "e-commerce") to find relevant journals.
3. **Screening and Selection:** Apply clear inclusion and exclusion criteria to screen the journals found. Inclusion criteria determine the characteristics that journals must meet (e.g., publication year, type of research, specific topic), while exclusion criteria determine characteristics that are not suitable (e.g., not empirical research, not relevant to the e-commerce context).
4. **Data Extraction:** From the selected journals, extract information relevant to the research question. This information may include research findings, methodologies used, concept definitions, and more.
5. **Analysis and Synthesis:** Analyze the extracted data to identify patterns, trends, or differences in research findings. Then, synthesize to integrate these findings into a comprehensive conclusion that answers the research question.
6. **Reporting Results:** Compile a report of the research results that includes the research question, methodology used, analysis and synthesis results, and the implications of the research findings. This step is realized in the creation of this paper.

4. Empirical Findings/Result

In accordance with the steps outlined in the SLR method, the first step is the formulation of the research questions. Here are several research questions relevant to

the topic of analyzing the impact of UX design on conversion rates in e-commerce websites:

Main Research Question:

- How does UX (User Experience) design affect the conversion rate on e-commerce websites?

Supporting Research Questions:

- Which UX elements have the most significant impact on increasing conversions on e-commerce websites?
- How does each UX element (e.g., navigation, loading speed, responsive design, personalization, checkout) influence the conversion rate?
- Are there differences in the impact of UX elements on conversion across various types of e-commerce websites (e.g., fashion, electronics, food)?
- How do user characteristics (e.g., demographics, online behavior) affect their perception and response to UX elements on e-commerce websites?
- How can the latest UX design trends be applied to optimize conversions on e-commerce websites?
- How can the effectiveness of UX design in increasing conversions on e-commerce websites be measured?
- What strategies can e-commerce business operators implement to enhance conversion rates through optimal UX design?

The second step is the literature search. In this study, the literature search was conducted through Google Scholar using the keyword "UX design in E-Commerce." The search yielded 13 pieces of literature, consisting of 7 local journals in Indonesian and 6 international journals in English.

The third step is screening and selection. Of the thirteen journals found, 3 international journals and 3 local journals met the determined inclusion and exclusion criteria. The inclusion criteria specified by the researchers are journals published no earlier than 2020 and accredited by SINTA 3 or SINTA 4. The exclusion criteria, based on the research title, are journals that are relevant to the theme of UX design for e-commerce.

The fourth step is data extraction. The first study is titled "From Clicks to Conversions: Analysis of Traffic Sources in E-Commerce" (Muralidhar & Lakkanna, 2024). This study aims to understand how various traffic sources influence conversion rates on e-commerce platforms. Conversion here refers to website visitors making a purchase. The results of this study are as follows:

- a) Bounce Rate & Exit Rate: Some pages have a low bounce rate but a high exit rate, indicating issues in the conversion process.
- b) Devices: The exit rate on mobile devices is higher than on other devices, indicating the need for mobile display optimization.
- c) Browser: The exit rate varies across different browsers, indicating compatibility issues in some browsers.
- d) Conversion Rate: Traffic sources from ads (CPM and CPC) have higher conversion rates than traffic sources from referrals and affiliates.
- e) Conversion Path: Many users view product details but do not complete the purchase, indicating obstacles in the checkout process.

The study concludes that it provides valuable insights for optimizing e-commerce platforms. By understanding user behavior and conversion metrics, businesses can make better decisions to improve their platform performance. Although it does not directly address user experience, the study looks at aspects such as bounce rate, exit rate, and conversion paths, which can provide insights into how users interact with the website and whether they have a positive experience.

The second study is titled “The Importance of Website Usability in Digital Marketing: A Review” (Sharma & Tripathi, 2023). This study highlights the importance of website usability in digital marketing and explores the impact of website usability on user experience and how it can affect key performance indicators such as bounce rate, session duration, and conversion rate. The results of this study are:

- a) Website usability plays a crucial role in digital marketing. Websites that are easy to use, navigate, and provide a good user experience are more likely to attract and retain visitors.
- b) Increased engagement: This can lead to increased engagement, higher conversion rates, and ultimately, higher revenue for businesses.
- c) SEO contributions: Additionally, usability can contribute to search engine optimization (SEO) efforts, as search engines like Google prioritize user-friendly websites that provide a positive user experience.

The third study is titled “Functional Framework for Multivariant E-Commerce User Interfaces” (Wasilewski, 2024). This study aims to identify key components and present a framework to enable different e-commerce user interfaces and address the challenges associated with personalized e-commerce user interfaces. The results of this study are:

- a) Promising implementation results: The pilot implementation results show promising outcomes for solutions catering to various e-commerce user interfaces.
- b) User characteristics: Support for multivariant websites with algorithms facilitating continuous learning.
- c) New metrics: Newly proposed metrics effectively measure changes in user behavior due to the deployment of different interfaces.

This study discusses website visitors in the context of e-commerce. It focuses on designing different user interfaces (UI) for different visitor groups based on their behavior and preferences. The goal is to enhance user experience and ultimately improve the efficiency of online stores by providing interfaces tailored to the needs of each user group. This study underscores the central role of personalized e-commerce user interfaces in optimizing online store efficiency.

Next, the fourth study titled “Perancangan UI/UX Fitur Customer Relationship Management (CRM) Pada Aplikasi ABC Reload Menggunakan Metode Design Thinking” (Gulo et al., 2023). The purpose of this study is to design the UI/UX of the Customer Relationship Management (CRM) features in the ABC Reload application using the Design Thinking method. This is based on the evaluation of the ABC Reload application, which showed that its usability score is below average and requires improvements in terms of UI/UX. The results of this study are as follows:

- a) Initial Usability Evaluation: The initial evaluation using the System Usability Scale (SUS) with 30 respondents showed an average score of 62.833. This score

indicates that the usability of the ABC Reload application is still poor and needs improvement.

- b) Design Thinking: The Design Thinking method was used to redesign the UI/UX of the CRM features. The stages include:
- Empathize: Understanding user needs through interviews with 5 SME (Small and Medium Enterprise) owners.
 - Define: Defining problems based on interview results, including the need for features like money transfer, sales reports, tasks, balance top-ups, and e-tolls.
 - Ideate: Developing solution ideas through brainstorming.
 - Prototype: Creating wireframes and prototypes of the new UI/UX design.
 - Testing: Testing the prototype with 30 respondents using SUS. The results showed an increase in the average score to 80.666, indicating that the new UI/UX design received positive feedback from users.
- c) SUS Testing Results After Improvements: After improving the UI/UX design, the average SUS score increased to 80.666, showing a significant improvement in the application's usability.

This study successfully designed the UI/UX of the CRM features in the ABC Reload application using the Design Thinking method. The testing results indicate that the new design is more intuitive and satisfactory for users. Therefore, the ABC Reload application can be more effective in managing customer relationships, attracting more customers, and building higher customer loyalty, especially for SMEs.

Next, the fifth study titled “Information Systems Perspective: The Impact Of User Interface On Consumer Purchase Intentions Based On A Systematic Review Of User Experience ” (Zacky et al., 2023). The purpose of this study is to identify and analyze trends in UI evaluation methods used in studies related to the Shopee application; present trends in factors influencing Shopee's user interface and changes in features affecting user experience and consumer purchasing behavior; and identify critical UI factors affecting consumer purchase intentions, helping to reveal the design elements most influential in users' purchasing decisions. The results of this study are as follows:

- a) Methods Used:
- 90% of the reviewed studies used quantitative methods for data collection.
 - 10% used qualitative methods or a combination of both.
- b) Factors Influencing Shopee's UI:
- The most influential factor on Shopee's UI is service quality.
 - Other less influential factors include ease of use, product quality, security, pricing/discounts, advertising, and free shipping.
- c) UI Factors Affecting Consumer Purchase Intentions:
- The most influential factor affecting consumer purchase intentions is user-friendliness.
 - Other factors, though less influential, include connectivity, personalization, guidance, informativeness, convenience, and continuity.

Research on the impact of the user interface on Shopee consumers mostly uses quantitative methods. Service quality is the main factor affecting Shopee's UI. User-friendliness is the most influential UI factor on consumer purchase intentions.

Finally, the study titled berjudul "Literature Review: The Influence of Demographics, User Experience and ECommerce Platforms in The Digital Business World " (Astuti et al., 2023). This study aims to understand how demographics, user experience, and platforms influence the digital business world, particularly in the context of e-commerce. It seeks to understand how these factors interact and contribute to the success of online businesses. The results of this study are as follows:

- a) The Influence of Demographics on E-commerce: Demographics, such as age, gender, income, education, and geographical location, significantly affect consumer behavior in e-commerce. These factors influence purchasing patterns, product preferences, consumer trust levels, and responses to promotions.
- b) The Influence of User Experience on E-commerce: Good user experience (UX) is crucial in e-commerce. Positive UX, which includes intuitive navigation, responsive design, site speed, easy and secure payment processes, personalization, efficient customer support, user reviews, and adaptability to changing consumer behavior, can increase customer trust, encourage repeat purchases, and strengthen brand image.
- c) The Influence of Platforms on E-commerce: The chosen e-commerce platform significantly impacts online business success. Attractive and navigable interface, site performance and speed, scalability, transaction security, integration with various payment methods, efficient inventory management, analytics and tracking tools, effective content management, integration with third-party services, personalization capabilities, and good technical support are crucial factors to consider when choosing an e-commerce platform.

This study concludes that demographics and user experience significantly impact e-commerce. These three variables—demographics, user experience, and platform—greatly influence customer purchasing decisions. A deep understanding of these factors can help e-commerce companies design more effective strategies, enhance user experience, and ultimately achieve success in the digital business world.

5. Discussion

Returning to the SLR step, the fifth is analysis and synthesis. These six studies highlight the importance of user experience (UX) in the context of digital business, especially e-commerce.

- The first and second studies emphasize the importance of metrics such as bounce rate, exit rate, and conversion rate as indicators of good UX and how poor UX can hinder conversion.
- The third and fourth studies focus on UI/UX design. The third study highlights the importance of UI/UX personalization to enhance efficiency, while the fourth study demonstrates how the Design Thinking methodology can be used to significantly improve system usability scores (SUS).
- The fifth study delves deeper into the factors influencing UI/UX, emphasizing service quality and user-friendliness as the most influential factors.
- The sixth study expands the analysis by including demographic factors and e-commerce platforms as additional variables that affect customer purchasing decisions.

From this analysis, it can be synthesized that good UX is a key factor in the success of digital businesses, especially e-commerce. Good UX not only improves conversion and revenue but also contributes to better SEO, higher customer loyalty, and a stronger brand image.

These studies also show that effective UI/UX design must consider various factors, including:

- Personalization: UI/UX should be tailored to the needs and preferences of different users.
- Design Methodology: Methods such as Design Thinking can aid in designing better UI/UX.
- Influencing Factors: Service quality, user-friendliness, demographics, and platforms are some of the factors that need to be considered.

In addition, the integration of UX design with emerging technologies such as artificial intelligence (AI) and machine learning (ML) can further enhance the personalization and adaptability of e-commerce platforms. By leveraging AI and ML, businesses can provide real-time, data-driven insights and recommendations that cater to individual user preferences, thereby creating a more engaging and seamless shopping experience. This technological integration not only optimizes user satisfaction but also drives innovation and competitiveness in the digital marketplace

6. Conclusions

The studies in this literature collectively emphasize the importance of a positive user experience (UX) in enhancing conversion rates for e-commerce websites. Factors such as ease of navigation, attractive interface design, site speed, and personalization play crucial roles in shaping UX. Research shows that poor UX, characterized by metrics like high bounce rates and high exit rates, can hinder conversions. Conversely, good UX can enhance user engagement, encourage repeat purchases, and ultimately increase business revenue. Additionally, these studies highlight the importance of understanding user demographics and selecting the right e-commerce platform. By understanding the diverse needs and preferences of users, businesses can design more personalized and effective user experiences, ultimately improving conversion rates. Overall, these studies provide strong evidence that investing in UX is a highly valuable investment for e-commerce businesses. By optimizing UX, businesses can not only improve conversions but also build stronger customer loyalty and achieve long-term success in the digital world.

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