Enhancing User Experience in E-commerce through Personalization Algorithms A Study on Information System Design

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Enhancing User Experience in E-commerce through Personalization Algorithms A Study on Information System Design

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ABSTRACT

This research aims to improve user experience in e-commerce through the use of personalization algorithms in information system design. The research methods used involve literature analysis, prototype development, and user testing. Literature analysis was conducted to understand the concept of personalization, relevant algorithms, and factors influencing user experience in e-commerce. Based on this understanding, a prototype e-commerce information system with personalization features was implemented. User testing is carried out to collect data about user experiences before and after implementing a personalization algorithm. The research results show that the use of personalization algorithms significantly improves user experience in e-commerce. Users report feeling more engaged, increased relevance of content, and ease in finding products that match their preferences. Apart from that, this research also identifies several important factors that need to be considered in the design of e-commerce information systems that use personalization algorithms, such as data privacy, transparency, and user control. In conclusion, the use of personalization algorithms can effectively improve user experience in e-commerce, with the important note of considering relevant factors.

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1. INTRODUCTION

In an increasingly advanced digital era, e-commerce has become a rapidly growing sector. In this increasingly competitive environment, good user experience is a crucial factor in the success of an e-commerce platform. Satisfied users are more likely to make repeat purchases, recommend to others, and build brand loyalty [1]. In an effort to improve user experience, effective and innovative information system design becomes essential.

One promising approach is the use of personalization algorithms in e-commerce. Personalization algorithms enable e-commerce platforms to provide individually tailored experiences based on user preferences, behavior and history. By leveraging information collected from users, personalization algorithms can provide more relevant product recommendations, organize page views based on user preferences, and provide a more interactive and satisfying experience.

However, implementing personalization algorithms in e-commerce information system design is not a simple task [2]. There are several factors to consider, such as user data privacy, transparency, and user control. Additionally, a deep understanding of personalization concepts and relevant algorithms is necessary to build effective systems.

In this context, this research aims to improve user experience in e-commerce through the use of personalization algorithms in information system design. Through literature analysis, prototype development, and user testing, this research will investigate the impact of using personalization algorithms on user experience in e-commerce. Apart from that, this research will also identify important factors that need to be considered in the design of e-commerce information systems that use personalization algorithms.

By gaining a deeper understanding of how personalization algorithms can improve user experience in e-commerce, it is hoped that this research can provide a valuable contribution to the development of e-commerce and the design of information systems involving personalization.

2. THEORETICAL BASIS

1. User Experience in E-commerce:

User experience in the context of e-commerce refers to users' perceptions, emotions and responses to their interactions with e-commerce platforms [3]. Positive user experience includes factors such as usability, satisfaction, engagement and trust. Good user experience in e-commerce is associated with increased conversions, user loyalty and customer satisfaction.

2. Personalization in E-commerce:

Personalization is an approach that aims to provide an individually tailored experience based on user preferences, behavior, and history. Personalization in e-commerce involves using user data to provide product recommendations, customize page displays, and provide relevant content. Personalization aims to increase relevance, engagement and user satisfaction.

3. Personalization Algorithm:

Personalization algorithms are methods used to analyze user data and provide customized recommendations or actions [4]. These algorithms can include techniques such as collaborative filtering, content-based filtering, and the use of predictive modeling. Personalization algorithms aim to understand user preferences and provide relevant and accurate recommendations.

4. E-commerce Information System Design:

E-commerce information system design involves developing user interfaces, information structures, and system functionality that allow users to interact with the e-commerce platform. Factors that need to be considered in e-commerce information system design include usability, attractive appearance, speed, security, and personalization. Good information system design can improve user experience and efficiency in online shopping.

In this research, these theories will be used as a basis for understanding the relationship between the use of personalization algorithms in e-commerce information system design and user experience [5]. By combining these concepts, it is hoped that this research can provide better insight into how personalization can improve user experience in an e-commerce context, as well as important factors that need to be considered in the design of information systems that involve personalization.

3. RESEARCH METHODOLOGY

1. Research Approach:

This research uses a mixed approach that combines literature analysis, prototype development, and user testing. A mixed approach enables comprehensive data collection and a deep understanding of user experiences in e-commerce through a combination of quantitative and qualitative data.

2. Development Method:

The development method used in this research is the system development life cycle method. This approach involves the stages of requirements analysis, system design, prototype development, testing, and implementation. In the analysis stage, user needs and system requirements are collected and analyzed. Next, a prototype e-commerce information system with personalization features was developed and tested.

3. Research Variables:

The research variables in this study consist of:

a. User Experience: Includes user satisfaction, user engagement, content relevance, product discovery, and user trust.
b. Personalization Algorithms: Covers the types of personalization algorithms used in e-commerce information systems.

4. Data Collection:

Data is collected via two methods:

a. Literature Analysis: Data was obtained through a literature study involving searching and analyzing relevant reference sources, including journal articles, books and publications related to personalization in e-commerce.
b. User Testing: User experience data is collected through user testing using a prototype of the e-commerce information system that has been developed. Testing was carried out involving users who represented the target e-commerce users.

5. Data Processing and Verification Techniques:

Quantitative data obtained from user testing will be analyzed using statistical techniques, such as descriptive analysis and hypothesis testing. Qualitative data obtained from user testing will be analyzed thematically, identifying patterns, themes and conclusions that emerge from user responses. The validity of the data will be verified through data triangulation, namely comparing and combining data from various different sources to ensure the validity of the research results.

By using the research methods described above, it is hoped that this research can provide a comprehensive understanding of the influence of the use of personalization algorithms in e-commerce information system design on user experience.

4. RESULTS AND DISCUSSION

Results:

1. User Testing Before Implementing Personalization Algorithms:

Before the implementation of personalization algorithms, users reported varying user experiences in e-commerce. Some users have difficulty finding products relevant to their preferences. The content displayed is considered less relevant and does not take into account individual preferences. This causes some users to feel disengaged and less satisfied with their shopping experience.

2. User Testing After Implementation of Personalization Algorithms:

After the implementation of personalization algorithms in e-commerce information system design, user experience is significantly improved. Users report feeling more involved and higher engagement with the content displayed. Content relevance increases, with product recommendations that better match user preferences. Users also reported improvements in the ease of finding the products they were looking for, thereby increasing user satisfaction.

Discussion:

1. Impact of Personalization Algorithms on User Experience:

The results of this research show that the use of personalization algorithms in e-commerce information system design significantly improves user experience. By capturing data from users, personalization algorithms can provide more relevant product recommendations, organize page views based on user preferences, and create a more engaged experience. This leads to increased user satisfaction, higher engagement, and more efficient product discovery.

2. Important Factors in E-commerce Information System Design with Personalization:

This research also identifies several important factors that need to be considered in the design of e-commerce information systems that use personalization algorithms. One of them is user data privacy. Users should feel safe and confident that their personal data will not be misused. Therefore, system design must pay attention to privacy policies and give users control over their data.

3. Transparency is also an important factor in designing e-commerce information systems with personalization. Users need to understand how personalization algorithms work and how their data is used to provide recommendations. Therefore, transparency in explaining algorithm logic and data use must be considered in system design.

Conclusion:

This research concludes that the use of personalization algorithms in e-commerce information system design significantly improves user experience. Users report feeling more engaged, increased relevance of content, and ease in finding products that match their preferences. Important factors such as data privacy and transparency must also be considered in the design of e-commerce information systems that use personalization algorithms. Thus, the results of this research provide valuable insights for e-commerce development and information system design involving personalization.

5. CLOSURE

In this research, we have conducted a study aimed at improving user experience in e-commerce through the use of personalization algorithms in information system design. The research results show that the use of personalization algorithms can significantly improve user experience and improve e-commerce performance. In this research, we also highlight several important factors that need to be considered in designing information systems that are effective and responsive to user preferences. The implication of this research is that the use of personalization algorithms in e-commerce can be an effective strategy for increasing user satisfaction and driving increased sales. We recommend that developers and e-commerce business owners adopt this approach in their efforts to improve the user experience and success of their businesses. Future research could involve further experiments to validate our findings and dig deeper into the impact of personalization algorithms on e-commerce.

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