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Effects of Product Recommendations on Customer Behavior in e-Commerce

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Abstract

We live in an age flooded with information from various sources. In e-Commerce, various efforts have been attempted to help efficient customer decision-making by suggesting the information and products users may like. E-Storefronts have expected to increase sales by cross-selling and improve customer royalty by reducing the search efforts of customers through the recommendations [8][11].

Product recommendations are generally executed by the phases that understand customers, deliver recommendations, and measure recommendation effect [1]. The phase of customer understanding is a step of collecting in-depth information about customers and building consumer preference profiles; the phase of delivery is the step that makes recommendations through algorithms and selects the items (products, advertisements, etc.) to be presented. This phase also presents the selected items to customers in diverse ways and places. The phase of measuring the recommendation effect is the step that provides feedback to the previous steps by assessing satisfaction to recommended products or by understanding how they can be used practically by customer. A large number of technical studies on product recommendations up until now have been focused on how to improve the algorithms used in the delivery phase [1][2]. Although the studies on the recommendation result based on customer behavior have not been carried out much as compared to technical studies, they have been performed in a form of behavioral study through surveys and experiments [3][9][10].

The empirical analysis and study on the change of browsing and purchase pattern of actual site users by recommendations are not common and the study on a change in the customer browsing pattern according to the difference in the recommendation level on a site has not been made previously. For the analysis of customer behavior according to the practical recommendation, it is necessary to study on a change in the browsing pattern through the analysis of clickstream data that is the actual visiting logs of customers. Since the browsing pattern between web pages and duration that has visited a site and products can be found through the clickstream data, various studies have been performed either to support the decision-making of customer by understanding the browsing behavior of customer within the site or to improve the browsing route of the site [4][5][6][7].

The principal objective of this research is to assess the effects of product recommendation on customer behavior in e-Commerce, using actual clickstream data. This study, instead of making a web site for the experiment, has analyzed the influence made on the attention, elaboration and purchase of recommended products by analyzing the clickstream data of the actual online bookstore. The target site for analysis is K (pseudonym) online bookstore and this study has compared the clickstream data of customer visit prior to the structural change of the site in the middle of the year 2006 with the clickstream data of customer visit after the site renovation. Although access to products through search and category still takes a large ratio, this can be considered as the cases for the product and information search of purpose-oriented customers. Followed by search and category, a large number of visits have been made on new products through sales promotion and product recommendation. Unlike search and category, the elements of information search and fun seem to be closely related to these pages.

This study could induce that more attention to the recommended products from customer can be garnered through the relevant product recommendation. The result of this study tells that the frequency of visits by clicking the related products has increased more after the site change than before the change. For the products visited by clicking the suggested product, customers have spent more time in information search after the change than before the change and the frequency of revisit has increased after the initial visit. The visit time and frequency of revisiting the product page could be regarded as the behavior of considering the product. The cases of putting the initially visited product through recommendation in the shopping cart after information gathering and revisiting have further increased and the cases that these products were included in the order transaction have not shown a difference before and after the structural change. While it has shown a significant difference in the phases of attention and elaboration, the cases of purchasing the products visited through a purpose-oriented route have taken more weight in the phases of decision-making and action like purchase. However, the ratio that the products visited through recommendation are included in the order

transaction has increased.

Keywords: Customer Behavior, Clickstream data, Product Recommendation, e-Commerce

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