

Project No.	Project Title	
2021-01-230	The effect of recommender systems on user autonomy in mobile use	
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Abstract

Mobile devices have unique features that distinguish them from PC, such as limited screen size and mobility. These characteristics lead to increased costs in various search activities due to information overload. Consequently, various tasks are affected, leading to a reduction in decision quality. To overcome this problem, recommender systems (RSs) were designed to support users in the process of decision making. Retailers utilize RSs to increase profits by producing individualized recommendations of items. It was found that RSs in the mobile platform reduce users' perceived effort and increase the accuracy of decisions. One of the factors that was found to increase acceptance to recommendation is user's sense of autonomy. To increase user autonomy, the user must feel in control during the process. Undermining this sense of autonomy might lead users to decline the recommendations and alter their consuming behavior. Prior research in this field has been scarce.

In this research, we examine how the RS influences user sense of autonomy, by measuring compliance with the recommendations. Additionally, the research analyzes key differences across the PC and mobile platforms. We hypothesize that there is a positive effect of user autonomy on compliance to RS recommendations. Furthermore, we hypothesize that this effect is smaller in mobile use, due to information overload and cognitive strain. These hypotheses are based on the unique features that distinguish mobile devices from PCs.

The experiment used a two by two between-subjects factorial design. The independent variables were the device and the level of autonomy. The autonomy level was manipulated, creating high and low levels. The levels differed in the number of recommendations the participants were offered, three or one. The dependent variable was binary, indicating whether the participant complied with the RS. To simulate a decision task, an online website was developed, which mimics RS-assisted purchase of a vacation. 240 participants were recruited through Amazon Mechanical Turk.

Data analysis provides partial support for the hypotheses. The effect of user autonomy on compliance was significant. Consequently, higher degree of autonomy resulted in greater compliance. Contrarily, no device effect was found on compliance.

In conclusion, we verified that the degree of user autonomy affects user compliance to recommendations. This signifies that vendors may tweak their already existing RSs with regard to user autonomy instead of overhauling their entire algorithm. Such small changes can increase sales without the need to improve RS algorithm accuracy.

Keywords: Mobile Device, Recommender System, Autonomy, Decision Making