Do You Trust My Recommendations? Impact of Recommendation Agents' Filtering Method and Presentation Style on Consumers' Trust and Decision-Making

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Problem. Recommendation agents (RAs) are artificial intelligence algorithms that capture consumers' preferences and interests to give them personalized recommendations during online shopping (Xiao & Benbasat, 2007). Online retail websites use RAs to help consumer decision-making by reducing the alternative filtering complexity and information overload (Häubl & Trifts, 2000). According to Xiao and Benbasat (2007), RAs may form their recommendations by employing two types of *filtering methods*-- (a) *content filtering* (recommendations based on product similarity) or (b) *collaborative filtering* (recommendations based on other customers' purchases) and display them in two *presentation styles*-- (a) *vertical listings* or (b) side-by-side *comparative charts*. However, little is known about the impact of specific RA filtering methods and presentation styles on the consumer decision-making process. This research sought to examine whether RA filtering methods and presentation styles elicit different levels of consumer trust in the RA, perceived decision effort (PDE), and perceived decision quality (PDQ).

Literature Review and Hypotheses. Wang and Benbasat (2005) suggested that the likelihood of consumers utilizing RAs when shopping depends on their perceived trust in the system. The social action theory asserts that people are persuaded to take actions based on the general community perception that the action is safe (Cooper, 2003). Thus, when consumers notice that a RA uses the collaborative filtering method (captured as "customers who viewed this item purchased"), it has a tendency of eliciting a sense of community in online shoppers, which would make them trust the popular choice among the community of shoppers. According to Saleh (2022), 88% of consumers trust online reviews. Therefore, (H1) consumers are more likely to trust collaborative filtering RAs than content filtering RAs.

Kappel (2019) was of the view that information transparency is a mechanism for building trust, and that transparent organizations do not hide information. Hence, because comparative presentation style presents attribute information about recommended products in a tabular form, which enables easier side-by-side comparisons of alternatives on varying attributes, it would be deemed more transparent. Therefore, (H2) a comparative presentation style elicits higher trust in the RA than a listed presentation style.

The risk compensation theory asserts that people take more risks when they feel a sense of security (Vrolix, 2006). Therefore, when online shoppers have high trust in the RA, they are less likely to exert a lot of effort in scrutinizing the attributes of the recommended products (PDE). Again, based on the three dimensions of trust which are ability, integrity, and benevolence (Gefen, 2002), high trust in the RA reflects the consumer's beliefs that the RA is competent to generate good recommendations with honesty and good intentions for the consumer. Consumers would therefore perceive that choosing a product recommended by the trusted RA would be a quality decision (PDQ). Therefore, we predict that high trust in recommendations would (H3) reduce PDE and (H4) increase PDQ.

Method. An online experiment was conducted employing a 2 (RA Filtering Method: collaborative vs. content filtering) × 2 (Presentation Style: comparative vs. listed) between-subjects design. Four videos of an online shopper going through smartwatch recommendations on a fictitious retailer's website were created to manipulate the four experimental conditions. In the videos, the recommendations were shown under the caption of either "items other customers bought after viewing this item" (collaborative filtering) or "items inspired by this item" (content filtering) and displayed either in a side-by-side comparison chart (comparative style) or in a vertical listing (listed style), depending on the experimental condition. A convenience sample of 306 students from a Southeastern university in the USA participated in the main experiment. Participants were randomly assigned to one of the four conditions and watched the video corresponding to their assigned condition while imagining themselves as the shopper in the video. Then, they answered measures for manipulation check and dependent variables, including trust (ability, integrity, and benevolence) (adapted from Wen & Benbasat, 2005); PDE and PDQ (developed by the researchers).

Results. The manipulation was successful; participants perceived collaborative filtering to be more about products other customers purchased (M_{collab} = 4.17, $M_{content}$ = 3.70) than content filtering (ps < .01); and perceived comparative style to be more shown side by side (M_{comp} = 4.25, M_{list} = 2.66) than the listed style (p < .001). Confirmatory factor analysis results showed a good model fit (CFI = .966, RMSEA = .051) with convergent and discriminant validity (AVE > .50; all AVEs < all SVs) and internal consistency (α > .75) for all measures. Structural equation modeling results (CFI = .946, RMSEA = .052) revealed that consumers trusted content filtering RAs and comparative presentation style more than collaborative filtering and listing presentation style, respectively (ps < .05), rejecting H1 but supporting H2. Further, trust negatively influenced PDE (β = - .71, p < .001) and positively influenced PDQ (β = .93, p < .001), supporting both H3 and H4. Although not hypothesized, we also found that both the filtering method and presentation style of RAs had significant indirect effects on PDE and PDQ through consumer trust (IE = .40, p < .05).

Discussion and Implications. Manipulation check success indicates that online shoppers pay attention to the filtering method and presentation style used in recommendations. Consistent with information transparency theory, the findings of this study show that consumers trust the RA displaying recommendations using the comparative (vs. listed) presentation style. Further, this trust impacts consumers' PDE and PDQ as predicted by the risk compensation theory.

However, our findings do not conform to the prediction by the social action theory because participants did not trust the RA recommending based on other customers' purchase history (collaborative filtering) more than the RA recommending based on product similarities (content filtering). This result may be explained by the congruity theory (Osgood & Tannenbaum, 1955), which suggests that an individual's attitude toward an object changes depending on their attitude toward another who praises or disparages the object. In other words, consumers' trust in collaboratively filtered recommendations would be affected by their trust in other shoppers. For purchasing technical products, such as smartwatches, consumers may like to evaluate recommendations based on the product's attributes rather than relying on other shoppers

who are not experts. This phenomenon might be reversed when dealing with products mainly purchased for social values (e.g., fashion, luxury products). Thus, future research is recommended to examine the potential moderation of product type for the RA filtering method effect.

The findings of this research illuminate the importance of RA filtering methods and presentation styles on consumer decision-making efficiency. Our findings suggest that for online retailers to effectively support consumers in their alternative evaluation process with RAs, they should focus on gaining consumers' trust in the recommendations first. These findings offer brands new insights into a better way of suggesting recommendations to consumers on e-tailing websites to aid consumer decision-making efficiency. Our findings also provide empirical support for risk compensation theory and information transparency and stimulate thinking on how congruity theory can be applied in the online retailing context, especially for RA research.

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