



How Serendipity Improves User Satisfaction with Recommendations? A Large-Scale User Evaluation

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OBJECTIVES

- 1. To identify the causal relationships from novelty, unexpectedness, relevance, and timeliness to serendipity, and from serendipity to user satisfaction and purchase intention.
- 2. To reveal the moderating effects of user curiosity on the relationships from novelty to serendipity and from serendipity to satisfaction.
- 3. To compare four algorithms for recommending e-commerce products in terms of user perceptions.



HIGHLIGHTS

- A large-scale online user survey on an industrial mobile e-۲ commerce setting (*Mobile Taobao*), involving over 3,000 participants
- A validated path model that reveals the significant causal • relationships among observed variables
- Multi-group comparison between high and low curiosity groups



Subjective variable and assessment question

Relevance: Q1. "The item recommended to me matches my interests." Novelty: Q2. "The item recommended to me is novel." **Pur_diversity:** Q3. "The item recommended to me is different from the types of products I bought before." **Rec_diversity:** Q4. "The item recommended to me is similar to the system's prior recommendations." (reversed) Unexpectedness: Q5. "The item recommended to me is unexpected." **Serendipity:** Q6. "The item recommended to me is a pleasant surprise." **Timeliness:** Q7. "The item recommended to me is very timely." User satisfaction: Q8. "I am satisfied with this recommendation." **Purchase intention:** Q9. "I would buy the item recommended, given the opportunity." Curiosity: Curiosity and Exploration Inventory-II (CEI-II) with a 10-item self-report scale [16]



Algorithm Comparison in terms of user perceptions

- A popularity based approach as the baseline, and three variants of the collaborative filtering (CF) based method that are ۲ tailored to respectively highlight relevance, novelty, and serendipity of the recommendation
- Kruskal-Wallis 1-way ANOVA test to compare the algorithms



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