Spring 3-16-2024

Algorithmic Nudging, Transparency and Platform Trust: An Investigation of User Decision Quality In Online Recommendation

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ALGORITHMIC NUDGING, TRANSPARENCY AND PLATFORM TRUST: AN INVESTIGATION OF USER DECISION QUALITY IN ONLINE RECOMMENDATION

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ABSTRACT

Algorithmic nudges have been widely deployed to influence individuals and collective behaviors including unintended results. Drawing on literature of nudging, trust, and cognitive theory, this study focuses on two characteristics of recommendation badges in the world's largest e-commerce platform and its small-scale counterpart. We conduct two randomized experiments to test two hypotheses: (1) users will have higher decision quality with transparent badge than with non-transparent badge and this effect is more salient when the recommendation preference does not match the user preference, (2) users will have higher decision quality on a platform which they have higher trust compared to one they have less trust in and this effect is more salient when the recommendation preference does not match the user preference. This study will contribute to the literature on nudge, recommendation agent/systems and bring ethical implications to the use of AI in IS research.

Keywords

Algorithmic nudging, transparency, online badge recommendation, cognitive theory, behavioral decision making, AI ethics.

EXTENDED ABSTRACT

Online recommendation badge is a digital nudging technique that utilizes user interface (UI) elements to guide people's behavior in the digital environment, such as *Amazon's Choice/Best Seller* on Amazon.com, *Super host/Guest favorite* on Airbnb.com, and *Flash pick of the day* on Walmart.com (Mirsch et al. 2017). These recommendation badges are text-based nudges that can alter customers' purchase decisions while preserving all the available options and maintaining the same product/service price in the choice architecture (Schneider et al. 2018). With the rapid development of artificial intelligence/machine learning (AI/ML), algorithm-driven recommendation badge, also deemed as algorithmic nudging, has become prevalent whereas its unintended effect on user decision-making remains unexplored (Schmauder et al. 2023). For example, *Amazon's Choice* is generated by a "black-box" algorithm emphasizing highly rated and well-priced products available to ship immediately and considered non-transparent because its generation mechanism is not fully disclosed (Bauer et al. 2023). Compared to that, *Best Seller* is considered transparent because it is generated by fetching the product with the highest sales amount in a specific category and the information source is easily traceable on Amazon.com. As the controversy of *Amazon's Choice* keeps growing in social media and academics call for an interdisciplinary oversight on algorithmically personalized nudging, this study investigates the impact of online recommendation badge on user's decision quality in the online shopping context (Luo et al. 2023; Schmauder et al. 2023).

Drawing on literature of nudging, trust, cognitive theory, and online recommendation (Adomavicius et al. 2013; Hansen and Jespersen 2013; Kahneman 2011; Thaler and Sunstein 2009; Wang et al. 2018; Xiao and Benbasat 2018), we focus on two characteristics of algorithmic nudging (transparency and platform trust) and propose two hypotheses: (1) users will have higher decision quality with transparent badge than with non-transparent badge and this effect is more salient when the recommendation preference does not match the user preference, (2) users will have higher decision quality on a platform which they have higher trust compared to one they have less trust in and this effect is more salient when the recommendation preference does not match the user preference. To examine these hypotheses, we conduct two randomized experiments: (1) we employ a 2 (transparent and non-transparent) x 2 (preference mismatch: yes or no) factorial design and focus on the different impacts of *Amazon's Choice* and *Best Seller* on user decisions. (2) we employ a 2 (platform trust: high or low) x 2 (preference

mismatch: yes or no) factorial design and compare the results in two ecommerce platforms: one is the world's largest online shopping website, and the other is a small-scale counterpart (using platform size as a proxy of user's trust in the platform).

This study is the first empirical work examining the impact of algorithmic nudging on user decision quality and will contribute to the literature of nudging, human decision making, and recommendation agent/systems in IS. Moreover, the results will bring ethical implication to the literature of Explainable AI and algorithm transparency in IS as well as the use of AI/ML model in practice.

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