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Investigating Exploration and Belief Change in a Social Media Environment: Toward LLM-Based Cognitive Modeling

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Abstract

This study examines how social media exploration shapes individual belief change and how psychological traits condition this process, with the aim of informing large language model (LLM)-based modeling. Participants explored a simulated social media environment by selecting content options and reading posts about a controversial topic. We focused on confirmation-biased exploration and opinion change. Results showed that the balance between confirmatory and disconfirmatory exploration predicted the magnitude and direction of opinion change. Trait effects were modest as main effects but emerged more clearly in interaction with initial opinion strength, consistent with prior theory. We also conducted an exploratory LLM-based analysis of behavioral prediction. Overall, the findings suggest that belief updating in social-media-like settings depends on interactions among exploration behavior, initial belief states, and individual differences.