

The Long-Term Effects of Personalization: Evidence from Youtube

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October 10, 2023

Recommendation systems on TikTok, Instagram, and YouTube have become an integral part of many people’s daily lives. Given the vast reach and influence of these algorithms, concerns about their long-term impacts on individuals and society are debated [3]. Advocates of recommender systems argue that they allow users to learn about what they like and receive increasingly relevant content over time. Critics argue that platforms, through hours of user interaction, shape content consumption in ways not necessarily in the user’s interest. Agnostics claim that recommendations do not have any long-term consequences.

Despite these disagreements, there is limited research into the long-term consequences of recommendations. The three main approaches to determining long-term effects of recommendations on platforms are *sock-puppet auditing* (e.g., [2, 7]), which uses programmed “personas” to navigate recommendation chains; studies based on *data donations* (e.g., [5, 4]), relying on activist user communities to donate their private data; and studies in *co-operation with internet platforms* (e.g., [6]), where research is conducted with large and representative subsets of the user base. Each approach has its challenges: Sock-puppet studies may not always be generalizable due to potentially unrealistic persona behaviors. Data donations, while empowering communities, are inherently limited by being observational rather than interventional. Direct collaborations with platforms, though promising, face conflicts of interest, potential research limitations, and potential publication restrictions. This highlights the academic community’s need for tools and methodologies allowing more direct and comprehensive interventions into recommender systems.

To address this gap, we propose an experimental design based on a browser extension. In our ongoing study, we explore the long-term effects of *personalization* on content consumption on `youtube.com`. Participants, upon installing the extension, are randomly assigned to Treatment or Control groups. The Control group sees default personalized recommendations, with the extension collecting and sending their usage data to our server. For the Treatment group, some recommendations are replaced with generic, non-personalized ones, akin to the experience of an unlogged user. With 500 U.S. participants using the extension for three months, our study aims to address questions like: “Does personalization increase platform engagement?”, “Does it reduce content diversity?”, and “Do generic recommendations introduce a popularity bias?”. Our methodology allows us to gauge outcomes in relation to the strength of the de-personalization intervention, as we document both personalized and un-personalized recommendations for every user interaction.

Browser extensions are invaluable for long-term interventional research on platforms. Extensions like ours can be adapted to address other questions through various interventions. For example, by substituting existing recommendations with targeted ones, researchers could test prevailing user behavioral models [1]. We hope the research community can leverage experimental evidence from platform studies to enrich the discourse and deepen understanding of the societal impact of algorithmic decisions.

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