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HOW BELIEFS, KNOWLEDGE, AND INTUITION AFFECT THE WAY WE SEARCH? EXAMINING HOW USERS FORMULATE SEARCH QUERIES ABOUT CLIMATE CHANGE

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Extended Abstract

In a highly saturated media environment, search engines serve as an important gateway to political information. A recent study (Newman et al., 2024) reveals that search engines, together with news aggregators, are the most common means by which users worldwide discover news, surpassing direct visits to journalistic media websites and news discovery through social media. As a result, the quality of information retrieved by search engines and the types of sources they prioritize become of paramount importance for determining how individuals in different parts of the world perceive social reality.

Previous research has extensively examined whether search engine algorithms can lead to biased outputs, resulting in the discriminatory representation of specific social groups, manipulation of public opinion, or isolation of individuals from alternative viewpoints (e.g., Epstein & Robertson, 2015; Makhortykh et al., 2021). However, there has been a research gap in understanding how users interact with these platforms and what specifically they search for. While numerous studies explore how users navigate search results (i.e., click or scroll through the search result page; Ekström et al., 2022; Epstein & Robertson, 2015; Robertson et al., 2023), less research has been done on

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how they formulate search queries to find information on various issues and what drives their query selection. Yet, the choice of a search query is crucial, as it largely determines what information users are exposed to on search engines and whether such information can be systematically skewed towards a certain political perspective.

Earlier research on political information-seeking behavior in online environments has provided extensive evidence that people tend to favor information confirming their beliefs, a phenomenon also known as selective exposure (Chandler & Munday, 2011). Robertson et al. (2023) found that even when presented with relatively balanced political perspectives via search engines, users choose to visit pro-attitudinal websites more often. Selective exposure to information can pose risks to political decision-making, as it has the potential to limit citizens' informedness and amplify societal polarization. However, while there is fairly consistent evidence that users select information aligned with their beliefs (e.g., Ekström et al., 2022; Robertson et al., 2023), the evidence on selective exposure in how individuals search for specific information (e.g., in terms of query formulations) remains fragmented. While some studies suggest that search query formulation is motivated by personal attitudes and beliefs (e.g., Ekström et al., 2024), others provide little to no support for this argument (e.g., van Hoof et al., 2024; Vziatyshva et al., 2024). On the one hand, these discrepancies can be explained by differences in the topics of search queries, with some being highly polarizing (e.g., migration; Ekström et al. 2024) and others less so (retirement policies; Vziatyshva et al. 2024). On the other hand, these studies also employ different measures for selective exposure (e.g., open-ended vs. closed-ended questions), which may affect the results.

To better understand the factors affecting selective exposure through search engines, particularly regarding the selectivity in query choice, we conducted a representative survey of Swiss citizens (N = 1,070). It examines how voters seek information about an environmental-related popular initiative that was voted on in Switzerland in February 2025. With referenda in Switzerland taking place up to four times a year, the way citizens search for political information is especially important, as their exposure to information may have a direct impact on voting decisions (Epstein & Robertson, 2015).

In this study, we test the assumption that users may be less susceptible to selective exposure when formulating search terms themselves than when exposed to a curated list of queries (e.g., as in the case of autocomplete suggestions provided by search engines). To this end, we ask respondents about the search queries they would use to look for information on the initiative, using both open-ended and closed-ended questions. We also investigate how pre-existing knowledge about the initiative, beliefs about climate change, political attitudes, and cognitive factors (in particular, more analytical vs. more intuitive thinking styles) affect selective exposure via search engines.

This study finds only limited signs of selective exposure. Particularly, intention to vote for or against the initiative was not related to the query stance (i.e., pro- or anti-initiative), neither when respondents formulated queries themselves nor when they selected them from a recommended list. However, climate beliefs partially influenced query selection: specifically, respondents more skeptical that humans cause climate

change were more likely to choose anti-initiative queries from the recommended options. This suggests that auto-complete suggestions have the potential to amplify selective information-seeking behavior when presenting attitude-consistent options. Furthermore, we find that respondents who did not have any expectation regarding the majority opinion on the initiative (i.e., the vote outcome) were less likely to formulate or select queries that confirmed their beliefs. This might indicate that citizens with no stronger opinions on the issue are less inclined to engage in selective exposure.

This study will make several contributions to our understanding of how search engines can shape social reality through information-seeking behavior. First, we demonstrate how individual characteristics of citizens (e.g., knowledge, political attitudes, and cognitive factors) can influence selective exposure through search engines and discuss how this may impact democratic decision-making. Second, we provide a detailed account of how selective exposure may manifest itself under different search conditions (i.e., independent search vs. use of recommended queries). Finally, we discuss methodological approaches to and limitations in studying selective exposure on digital platforms.

References

Chandler, D., & Munday, R. (2011). Selective exposure. In *A Dictionary of Media and Communication*. Oxford University Press.

Ekström, A. G., Madison, G., Olsson, E. J., & Tsapos, M. (2024). The search query filter bubble: Effect of user ideology on political leaning of search results through query selection. *Information, Communication & Society*, 27(5), 878–894. <https://doi.org/10.1080/1369118X.2023.2230242>

Ekström, A. G., Niehorster, D. C., & Olsson, E. J. (2022). Self-imposed filter bubbles: Selective attention and exposure in online search. *Computers in Human Behavior Reports*, 7, 100226. <https://doi.org/10.1016/j.chbr.2022.100226>

Epstein, R., & Robertson, R. E. (2015). The search engine manipulation effect (SEME) and its possible impact on the outcomes of elections. *Proceedings of the National Academy of Sciences*, 112(33), E4512–E4521. <https://doi.org/10.1073/pnas.1419828112>

Makhortykh, M., Urman, A., & Ulloa, R. (2021). Detecting race and gender bias in visual representation of AI on web search engines (Vol. 1418, pp. 36–50). https://doi.org/10.1007/978-3-030-78818-6_5

Newman, N., Fletcher, R., Robertson, C. T., Ross Arguedas, A., & Nielsen, R. K. (2024). Reuters Institute digital news report 2024. Reuters Institute for the Study of Journalism. <https://doi.org/10.60625/RISJ-VY6N-4V57>

Robertson, R. E., Green, J., Ruck, D. J., Ognyanova, K., Wilson, C., & Lazer, D. (2023). Users choose to engage with more partisan news than they are exposed to on Google Search. *Nature*, 618(7964), Article 7964. <https://doi.org/10.1038/s41586-023-06078-5>

van Hoof, M., Meppelink, C. S., Moeller, J., & Trilling, D. (2024). Searching differently? How political attitudes impact search queries about political issues. *New Media & Society*, 26(7), 3728–3750. <https://doi.org/10.1177/14614448221104405>

Vziatysheva, V., Makhortykh, M., Sydorova, M., & Jumle, V. (2024). Google, How Should I Vote? How Users Formulate Search Queries to Find Political Information on Search Engines (arXiv:2410.00778). arXiv. <https://doi.org/10.48550/arXiv.2410.00778>