

Why Is the Search Engine Manipulation Effect (SEME) So Large? Testing an Operant Conditioning Hypothesis

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Abstract: Epstein and Robertson (2015, *Proceedings of the National Academy of Sciences*) showed in five experiments with 4,556 subjects in two countries that search rankings favoring one political candidate can easily shift the voting preferences of undecided voters with no awareness on their part that they are being manipulated, a phenomenon they labeled the search engine manipulation effect (SEME). SEME is one of the largest behavioral effects ever discovered, but why is it so big? We hypothesize that routine searches for simple facts – by far the most common types of searches – teach people to believe that what’s higher in search rankings is truer. This daily regimen of conditioning makes people vulnerable to adopting opinions, attitudes, and beliefs that are supported by higher-ranked search items when they are conducting searches on issues on which they are as yet undecided. We tested this hypothesis in a controlled experiment with 168 eligible U.S. voters, half assigned to a high-trust group and half to a low-trust group. In the former, on practice trials before the political opinion study began, subjects conducted a series of routine searches; on each, the correct answer was always available in the highest-ranking result (just as it is with any good search engine). In the low-trust group, the correct answer could appear in any search position other than the first two. A dramatic difference emerged between the groups when they were subsequently asked to search for information on political candidates. 44.2% ($p < 0.001$) of subjects in the high-trust group shifted their preferences toward the candidate who was favored in higher search rankings, compared with only 17.1% (NS) of subjects in the low-trust group. Four other measures of voter preference also shifted along these lines. The results support the idea that SEME is a unique list effect – one supported by a daily conditioning regimen that teaches people to believe almost blindly in higher-ranked search results. Decisions large and small (about health, politics, parenting, etc.) are probably now being impacted by algorithm-generated search rankings, the validity of which are uncertain.