Public Perceptions of Social Media Field Experiments

Keywords: field experiments, social media, ethics, research methods, survey

Extended Abstract

Computational social scientists are increasingly conducting field experiments on social media sites to make ecologically valid causal inferences about online behavior [1]. These typically entail administering some treatment to users (participants) and analyzing their online behavior before and after the treatment, with or without cooperation of the social media platform. Treatments have involved privately messaging users (e.g., [2], Study 7), publicly replying to users' posts (e.g., [3]), pushing users to "like" certain content (e.g., [4]), and creating human-like "bot" accounts to interact with users (e.g. [5]). While this methodological approach has generated exciting results that have appeared in high-impact venues such as *Nature*, *PNAS* and *AER*, its novelty means relevant ethical standards remain under-developed and institutional review boards (IRBs) are still ill-equipped to deal with the associated risks [6]. This is especially concerning because it can leave researchers to justify their social media field experiments on their own ad hoc, despite potential conflicts with key pillars of research ethics, such as informed consent. As a result, recent publications have often instigated debate and met public criticism (e.g., [7], [8]). This raises the question: Are new standardized ethical guidelines needed to protect participants in social media field experiments? If so, what must they consider? Here, we present an exploratory survey of social media users' perceptions that speaks to these questions.

We recruited 500 participants aged 18 to 78 ($M = 41.7$, $SD = 13.6$, 41.5% female) via Prolific that were regular users of at least one of Facebook, Twitter, or Reddit. Participants (final $N = 499$) proceeded through three main survey blocks corresponding to three main topics of investigation. In the first block we explored participants' awareness of field experiments on social media. We find that while users are generally aware that social media data is sometimes used by academic researchers (84.8% were at least "slightly aware"), users are less aware of which interactional treatments researchers have administered. For instance, 33.7% of participants indicated that they did not think researchers had "created fake accounts ('bots')", 48.2% did not think they had conducted experiments involving "privately messaging users", and 57.1% were not aware that researchers had "publicly posted on users' profiles" (Fig. 1A). This observation is perhaps unsurprising given the novelty of social media field experiments, yet it underscores the need to consider how such methods should be regulated to avoid potential abuses and subsequent reputational damage to the research community.

In the second survey block we asked whether participants perceive actual studies' procedures to be ethically acceptable—specifically, Hangartner *et al.* [3], Study 7 of Pennycook *et al.* [2], Levy [4], and Mosleh *et al.* [5][1]. Our findings suggest that participants generally viewed the procedures of past studies to be somewhat ethically acceptable. Interestingly, however, we observe that participants who self-identified as politically conservative tended to view the studies as less positive than those who self-identified as politically liberal (Fig. 1B). This observation could be reflective of anti-academic attitudes being more prevalent among conservatives [9].

---

[1]These studies were selected due to their publication in high-profile venues and because their experimental designs involve a range of different treatments (e.g., private messages, public replies, browser extensions, use of "bot" accounts, etc.). The standardized study descriptions presented to participants in our survey were approved by the respective authors for accuracy.

Finally, we explored whether participants judge certain experimental design features to be more important than others in their views of ethical acceptability (Fig. 1C). Here, we find that the primary concern is whether participants have been asked for consent and study details have been disclosed to them after completion of the study. However, an additional observation is that participants place a high importance on the type of intervention (treatment) implemented in experiments (e.g., private messaging vs. publicly replying to posts) but care less about its impact (i.e., whether it changed users' behavior) and how it is administered (e.g., manually by a researcher vs. via an automated account).Taken together, these results provide an empirical point of departure for the development of more standardized guidelines for ethically sound social media field experiments; in line with past surveys [10], they affirm that participant awareness is highly valued and—in contrast to earlier commentaries [11]—is considered more important than research purpose and impact. Yet, they also raise questions about potential trade-offs. For example, are participants more willing to forego informed consent if the experiment uses a specific type of intervention?

References

1. Mosleh, M., Pennycook, G. & Rand, D. G. Field experiments on social media. *Current Directions in Psychological Science* **31,** 69–75 (2022).

2. Pennycook, G. *et al.* Shifting attention to accuracy can reduce misinformation online. *Nature* **592,** 590–595 (2021).

3. Hangartner, D. *et al.* Empathy-based counterspeech can reduce racist hate speech in a social media field experiment. *Proceedings of the National Academy of Sciences* **118,** e2116310118 (2021).

4. Levy, R. Social media, news consumption, and polarization: Evidence from a field experiment. *American Economic Review* **111,** 831–870 (2021).

5. Mosleh, M., Martel, C., Eckles, D. & Rand, D. *Perverse downstream consequences of debunking: Being corrected by another user for posting false political news increases subsequent sharing of low quality, partisan, and toxic content in a Twitter field experiment* in *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (2021), 1–13.

6. Lazer, D. M. *et al.* Computational social science: Obstacles and opportunities. *Science* **369,** 1060–1062 (2020).

7. Hunter, D. & Evans, N. Facebook emotional contagion experiment controversy. *Research Ethics* **12,** 2–3 (2016).

8. Singer, N. *LinkedIn ran social experiments on 20 million users over five years* Sept. 2022. https://www.nytimes.com/2022/09/24/business/linkedin-social-experiments.html.

9. Oreskes, N. & Conway, E. M. From Anti-Government to Anti-Science: Why Conservatives Have Turned Against Science. *Dædalus* **151,** 98–123 (2022).

10. Fiesler, C. & Proferes, N. "Participant" Perceptions of Twitter Research Ethics. *Social Media+ Society* **4,** 1–14 (2018).

11. Kleinsman, J. & Buckley, S. Facebook study: a little bit unethical but worth it? *Journal of Bioethical inquiry* **12,** 179–182 (2015).
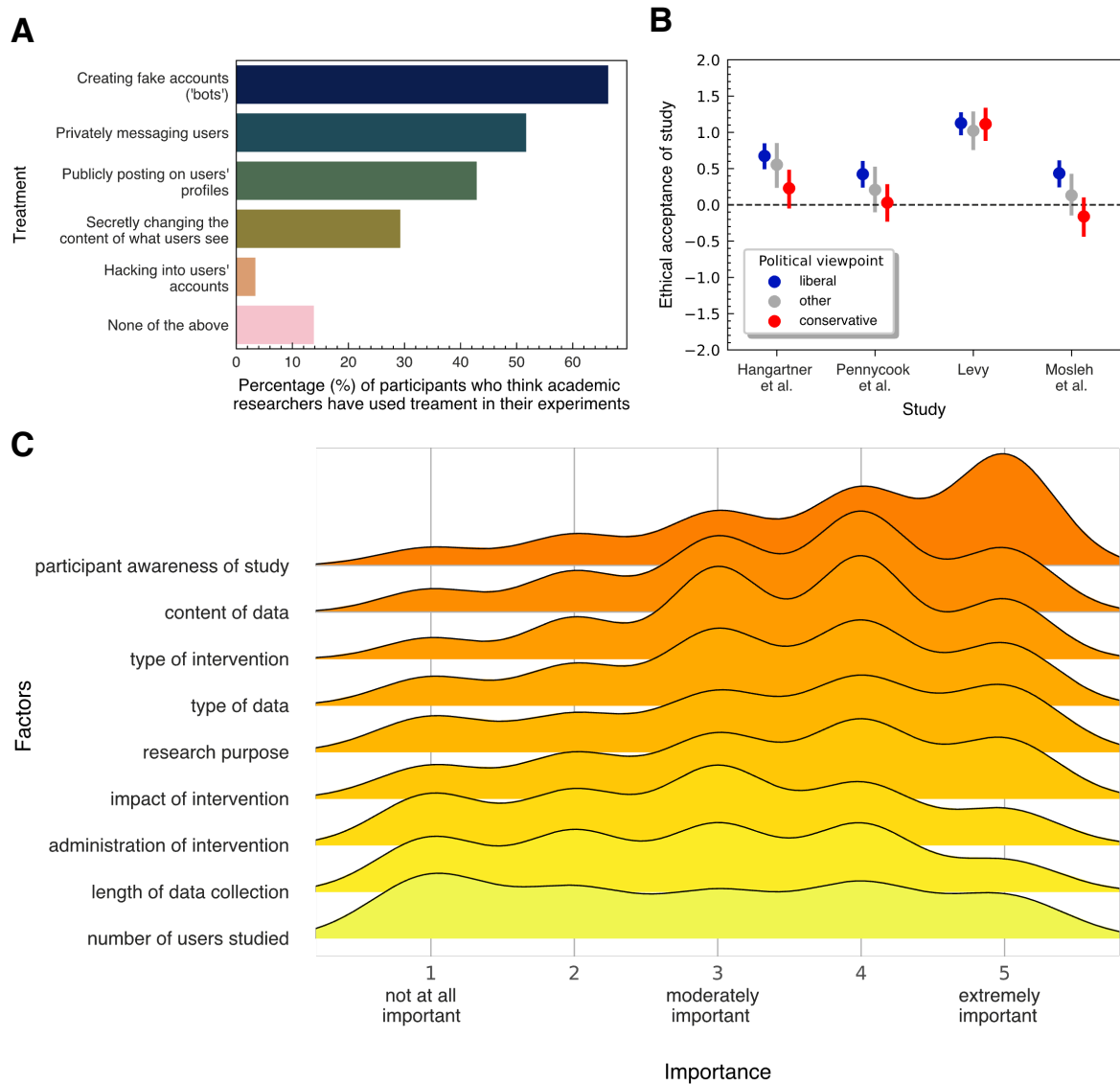
Figure 1: **(A) Participant awareness of interactional treatments administered by researchers**. Participants ($N = 499$) were asked "which of the following ways of interacting on social media do you think academics have used in their experiment? (Select all that apply)". **(B) Ethical acceptability of four published social media field experiments [2–5].** Participants were provided with a brief description of the experiment (checked by the respective authors) and asked "How ethically unacceptable versus acceptable do you find the described study?" using a 5-point rating scale (-2 = completely unacceptable, 2 = completed acceptable). Points represent means and vertical bars represent standard error. Data is split out by participants' political viewpoint, such that "liberal" participants ($N = 276$) indicated that they are either slightly or very liberal, "conservative" participants ($N = 131$) indicated that they are either slightly or very conservative, and "other" participants ($N = 92$) indicated that they are neutral or they preferred not to say. **(C) Participant perceptions of the importance of different study design factors.** Participants responded to the question "How important are the following factors for determining your level of concern with academic research conducted on social media, such as online experiments?" using a 5-point rating scale (1 = not at all important, 5 = extremely important).