Are Ethically-Robust Experiments Possible with Big Tech?

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Whenever we go online, we might find ourselves part of an experiment – without knowing it. Online platforms regularly track what users do and how they respond to different features. This might seem minor, like whether we are more likely to click on something if it is on the left or right of the screen. But increasingly these tests are having real world consequences for those subjected to experiments.

I've seen this in my own research on the gig economy, studying platforms that offer paid tasks and jobs to skilled freelancers. Platforms experimented with different methods for scoring how successful gig workers were in completing their jobs, where their skills would be listed on their profile page, and how they were evaluated by contractors. The outcomes had implications for how they were rated and ultimately the amount of work they received.

Twenty years ago, experimentation on this particular platform was transparent. Gig workers could opt in or out of such tests. But that's changed. Today, these experiments are hidden. Gig workers waive their rights when they create an account, agreeing to the list of terms and conditions.

Being experimented on is disconcerting and disempowering. Imagine that each time you enter your office something is slightly different. Your desk has temporarily moved or the colour of a door has changed. When you speak to your colleagues, it's apparent that only you can see this. You each have a different view. A door colour might not matter, but if this lack of agency stretches to hidden changes of how your job is evaluated or how you can communicate with your boss, it can have deep ramifications.

Gig workers expressed that, after noticing frequent changes beyond their control, they started to see themselves as 'lab rats' rather than valued users. Blocked by chatbots, they were unable to speak to the platform to complain or opt out. Frustration flared and apathy set in. Their income and wellbeing declined.

This is concerning, not only for gig workers, but because academics are increasingly involved in designing these experiments. While social scientists follow Institutional Review Board (IRB) procedures that govern the ethics of experiments involving people --- such as informing subjects and requiring consent --- these rules don't apply to big tech companies. And that's leading to questionable practices and potentially unreliable results.

Tech companies get around such rules by using their Terms of Service to authorize them to collect data for experiments without any obligation to inform people that they were involved, or any opportunity for them to withdraw. Users provided de-facto informed consent when they created their account. Thus, such experimentation faces virtually no oversight.

Many researchers wanting to get their hands on companies' vast datasets have gone along with this – they see no choice. Given the reach of big tech companies to millions of people, experiments using their data can be informative, providing great opportunities for science to test ideas and generate knowledge.

For example, one 2022 joint study by academic researchers and the career platform LinkedIn answered questions about how people's social networks contribute to job outcomes. The platform varied the algorithm it uses to suggests new contacts that users might want to connect with. But the site's 20 million users were unaware of this, despite it potentially affecting their job prospects.

In another study in 2012, academics in collaboration with Meta adjusted over 600,000 users' Facebook feeds to vary how many positive or negative posts each saw. These experiments generated a backlash for having manipulating people's emotions without their consent.

If strong ethical standards are not upheld, such experiments risk jeopardizing the public's trust in science.

Scientists themselves can also be subject to such hidden practices . For example, in September, the journal Science published a statement (https://www.science.org/doi/10.1126/science.adt2983) acknowledging that studies exploring political polarization using Facebook feeds were compromised by the company changing its algorithm during the study period without scientists' knowledge.

Academics have to be increasingly wary about the data they generate through collaborations with big tech given the self-interest such partners have in portraying a trustworthy image to society. We must rethink how such experiments are carried out.

An ethically robust framework is needed for science-industry collaboration, to ensure experimentation does not unravel in ways that harms society at the expense of human subjects.

First, scholars should engage in a thorough ethics check by auditing potential collaboration partners and making sure that IRB principles extend to those partners as well.

For example, academics can either work with or create intermediary watchdog organizations, such as Fair Work that safeguards gig workers' rights, that can audit experimentation practices and introduce transparency into the mechanisms of data collection. They can diffuse and enforce ethical norms of experimentation, informing industry partners on how to conduct ethically integral experiments and holding them to account.

Second, scholars need to evaluate the social effects of experimentation to study and proactively mitigate any potential harm. This is not trivial given the narrow focus that experiments usually have on testing hypotheses; they rarely consider the wellbeing of experimental subjects. It calls for comprehensive indicators to assess potential unintended consequences.

Industry partners should move towards implementing their own internal review boards, which have the authority to assess and vet experiments. Industry needs to instill a culture of ethically-robust experimentation, which seeks to build an understanding of the potential adverse effects experimental subjects might face.

Regulation plays a crucial role, too. The European Union is a good model. Policies and guidelines such as the EU Artificial Intelligence Act centre consumers' right to data privacy and protection and to establishing "regulatory oversight and a safe and controlled space for experimentation."

Consumers and users should form third-party organizations (such as gig worker unions) that provide ratings and external oversight of companies who use experimentation. They can crowdsource and rate companies on whether they request consent, allow people to opt-out, and how transparent they are.

Driving forward the frontier of science-industry experimentation shouldn't just be about minimizing harm and protecting human subjects but must create a set of practices, rules and regulations that can ensure mutually beneficial outcomes for people, organizations and society.

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