

Social Media Experiments

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Today

- The Facebook and OkCupid experiments
- The Common Rule: regulated “research,” informed consent, and IRB oversight
- Recommendations

The Facebook and OkCupid Experiments



Experimental evidence of massive-scale emotional contagion through social networks

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Emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness. Emotional contagion is well established in laboratory experiments, with people transferring positive and negative emotions to others. Data from a large real-world social network, collected over a 20-y period suggests that longer-lasting moods (e.g., depression, happiness) can be transferred through networks [Fowler JH, Christakis NA (2008) *BMJ* 337:a2338], although the results are controversial. In an experiment with people who use Facebook, we test whether emotional contagion occurs outside of in-person interaction between individuals by reducing the amount of emotional content in the News Feed. When positive expressions were reduced, people produced fewer positive posts and more negative posts; when negative expressions were reduced, the opposite pattern occurred. These results indicate that emotions expressed by others on Facebook influence our own emotions, constituting experimental evidence for massive-scale contagion via social networks. This work also suggests that, in contrast to prevailing assumptions, in-person interaction and non-

demonstrated that (i) emotional contagion occurs via text-based computer-mediated communication (7); (ii) contagion of psychological and physiological qualities has been suggested based on correlational data for social networks generally (7, 8); and (iii) people's emotional expressions on Facebook predict friends' emotional expressions, even days later (7) (although some shared experiences may in fact last several days). To date, however, there is no experimental evidence that emotions or moods are contagious in the absence of direct interaction between experiencer and target.

On Facebook, people frequently express emotions, which are later seen by their friends via Facebook's "News Feed" product (8). Because people's friends frequently produce much more content than one person can view, the News Feed filters posts, stories, and activities undertaken by friends. News Feed is the primary manner by which people see content that friends share. Which content is shown or omitted in the News Feed is determined via a ranking algorithm that Facebook continually develops and tests in the interest of showing viewers the content they will find most relevant and engaging. One such test is

Emotional contagion

- Positive and negative emotional valences in Facebook posts identified using LIWC system
- 10-90% reduction in [positive/negative] posts shown to users in experimental groups
- Users' own posts then analyzed for emotional valence using same classification
- Small but statistically significant (N=689,003) emotional contagion effects

We Experiment On Human Beings!

July 28th, 2014 by [Christian Rudder](#)

Tweet

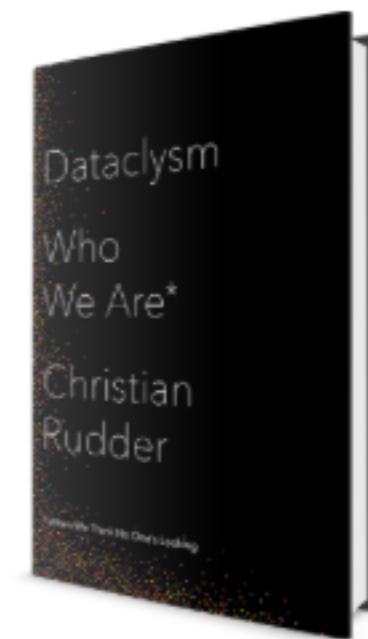
 Share 10k

I'm the first to admit it: we might be popular, we might create a lot of great relationships, we might blah blah blah. But OkCupid doesn't really know what it's doing. Neither does any other website. It's not like people have been building these things for very long, or you can go look up a blueprint or something. Most ideas are bad. Even good ideas could be better. Experiments are how you sort all this out. Like this young buck, trying to get a potato to cry.



Dataclysm

Welcome to OkTrends! If you like this blog, you'll love this book: *Dataclysm*. It's a look at the human side of so-called Big Data, and brings in stuff from Twitter, Reddit, Facebook, Google, in addition to lots of data from OkCupid. Order a copy!



[Buy Now](#)

Mismatching

Odds of a single message turning into a conversation

		number DISPLAYED to them		
		30% match	60% match	90% match
ACTUAL compatibility of users	30% match	10%	16%	17%
	60% match	13%	13%	16%
	90% match	16%	17%	20%

OkCupid “took pairs of bad matches (actual 30% match) and told them they were exceptionally good for each other (displaying a 90% match)” and vice versa

Consent and oversight

- Neither Facebook nor OkCupid obtained specific consent for the experiments
- The Facebook study was presented to the Cornell IRB, which held that the Cornell co-authors were not engaged in research
- No IRB reviewed the OkCupid study

The Common Rule

Three questions

- When do social media experiments constitute human subjects research?
- What does it take to obtain the informed consent of users?
- What institutions are responsible for reviewing such experiments?

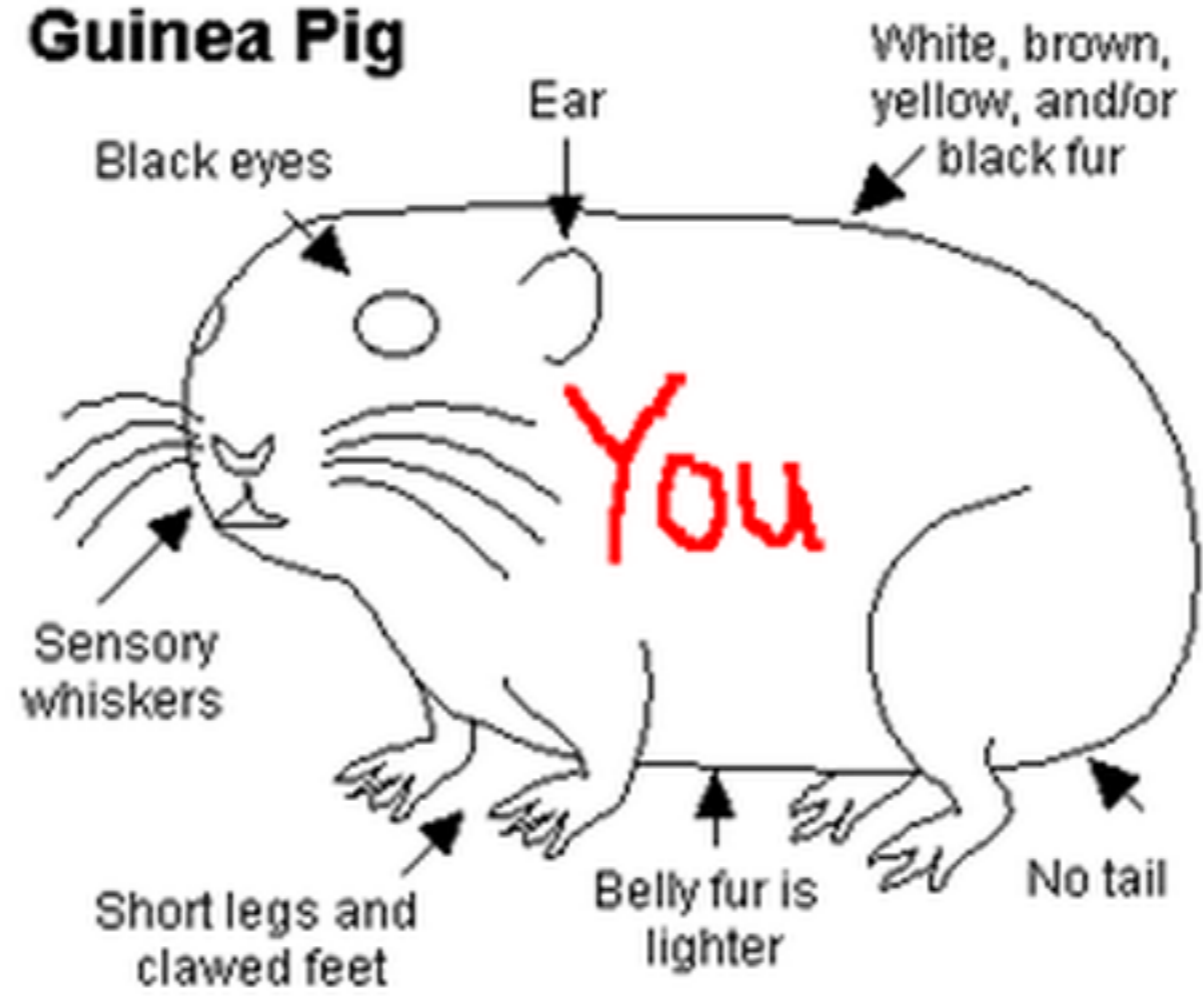
1. Research

“research ...”

Facebook: “We appreciate your interest in Facebook’s internal product development *research* The PNAS study is an example of such *research*. ... We believed it was important to *research* this claim, and we elected to share the findings with the academic community. ...”

OkCupid: “But guess what, everybody: if you use the Internet, you’re the subject of hundreds of experiments at any given time, on every site. That’s how websites work.”

Guinea Pig



“... involving human subjects”

- Facebook and OkCupid users are “living individual[s]”
- Their posts and conversations are “data” “about” them obtained through “intervention” – i.e., “manipulations of ... the subject’s environment”
- These manipulations were “performed for research purposes”

Applicable law

- The Common Rule does not apply of its own force: Facebook and OkCupid are private, and Cornell has unchecked the box
- But Maryland House Bill 917, which applies the Common Rule to all research in Maryland, contains no funding nexus
- Statistically, it is overwhelmingly likely that both experiments included Maryland residents

Engagement

- Cornell's IRB disclaimed jurisdiction because Cornell affiliates “did not participate in data collection and did not have access to user data”
- But the emotional contagion dataset was not “existing data,” even under OHRP's loose interpretation for ongoing experiments
- The dataset did not exist *independently* of the Cornell affiliates; they caused it to exist

2. Informed Consent

Missing elements

- No description of research
- No disclosure of foreseeable risks or discomforts
- No point of contact
- No opportunity to opt out
- No signed consent forms
- No consent from minors' guardians (Facebook)



messages and anyone in a message conversation can reply to it.

How we use the information we receive

We use the information we receive about you in connection with the services and features we provide to you and other users like your friends, our partners, the advertisers that purchase ads on the site, and the developers that build the games, applications, and websites you use. For example, in addition to helping people see and find things that you do and share, we may use the information we receive about you:

- as part of our efforts to keep Facebook products, services and integrations safe and secure;
- to protect Facebook's or others' rights or property;
- to provide you with location features and services, like telling you and your friends when something is going on nearby;
- to measure or understand the effectiveness of ads you and others see, including to deliver relevant ads to you;
- to make suggestions to you and other users on Facebook, such as: suggesting that your friend use our contact importer because you found friends using it, suggesting that another user add you as a friend because the user imported the same email address as you did, or suggesting that your friend tag you in a picture they have uploaded with you in it; and
- for internal operations, including troubleshooting, data analysis, testing, research and service improvement.

Granting us permission to use your information not only allows us to provide Facebook as it exists today, but it also allows us to provide you with innovative features and services we develop in the future that use the information we receive about you in new ways.

While you are allowing us to use the information we receive about you, you always own all of your information. Your trust is important to us, which is why we don't share information we receive about you with others unless we have:

- received your permission;
- given you notice, such as by telling you about it in this policy; or
- removed your name and any other personally identifying information from it.

Of course, for information others share about you, they control how it is shared.

Terms of service

- Terms of service are binding, but not because the law thinks people actually read them
- This “charade of consent” is a fiction based on notice, an opportunity to review, and the opportunity to say no
- This falls far short of the Common Rule standard of *informed* consent

Waiver or alteration

- These studies are probably minimal-risk
- Full consent might be impracticable, but modified consent would not: e.g., disclosure on signup at a higher level of generality
- There are no good arguments against debriefing affected users

3. IRB Review

Double-checking

- MD House Bill 917 requires IRBs to make their minutes available for public inspection
- Leslie Meltzer Henry and I sent certified letters to Facebook and OkCupid making formal demands to see their IRB minutes
- Facebook refused and OkCupid never replied
- Both had informal internal review; Facebook has since adopted an “enhanced review process”

Cornell and *PNAS*

- *PNAS* requires that all human subjects research be “approved by the author’s [IRB]”
- The Cornell IRB did not “approve” the Facebook study, nor did it conclude that the study was not human subjects research
- This was not the type of IRB approval contemplated by the *PNAS* policies

Moving Forward

IRB laundering

- Stonewall University researchers design a study to hit people with bricks. A colleague at Brickbook throws the bricks. They jointly author a paper.
- The Cornell IRB would have concluded its affiliates were not “engaged” in this research.
- *PNAS* would have published the paper.
- Any rule for social media experiments needs a limiting principle to prevent such IRB laundering.

Toward a framework for social media experiments

- There are fine lines between academic and corporate research, and between experimentation and manipulation
- Informed consent ought to be easier online; at the very least, debriefing should be routine
- If you do research, you need some kind of research oversight (not necessarily an IRB)

Closing thoughts

- The Facebook and OkCupid experiments illustrate the cultural disconnect between academic science and Internet business
- Terms of service provide thin and formalistic “consent”; research ethics strives – at least in theory – for something more meaningful

Discussion