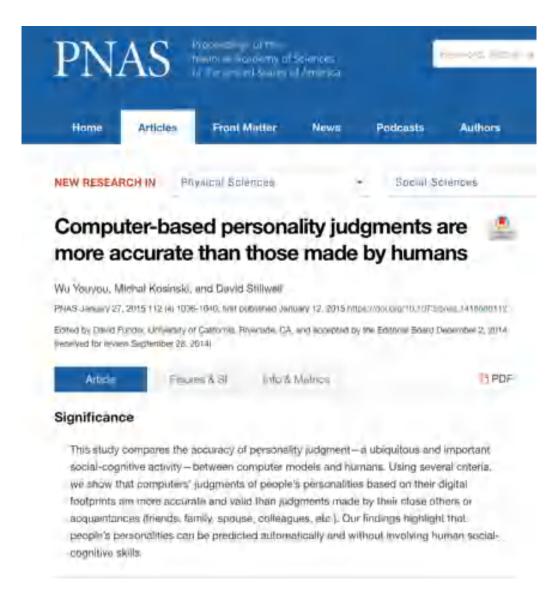


WHY MICRO TARGETING DOES NOT WORK AND NEVERTHELESS DISRUPTS THE PUBLIC SPHERE

Prof. dr. Mireille Hildebrandt Vrije Universiteit Brussel, Radboud University Nijmegen HOME " TECHNOLOGY " FACEBOOK

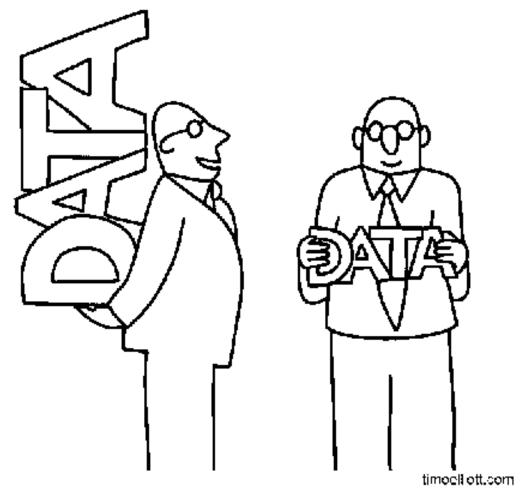
This online tool reveals your personality based on Facebook 'likes'

University of Cambridge tool estimates key psychological traits, religious and political views, intelligence and happiness using Facebook like data



The belief
that commercial and political micro-targeting 'works'
is just that:
a belief

This belief
is in the realm of
alchemy and astrology



"I think you'll find that mine is bigger..."

There is no proof

The burden of proof is on those who make the claims

Who can make such claims?
Those who have the data:
Big Tech Platforms

p-Hacking and False Discovery in A/B Testing

Ron Berman*

Leonid Pekelis[†]

Aisling Scott[‡]

Christophe Van den Bulte§

December 11, 2018

Abstract

We investigate to what extent online A/B experimenters "p-hack" by stopping their experiments based on the p-value of the treatment effect, and how such behavior impacts the value of the experimental results. Our data contains 2,101 commercial experiments

The advertising eco-system:

- Advertisers (e.g. Procter & Gambler)
- Web publishers (e.g. NYT)
- Intermediaries (e.g. platforms)
- Consumers

MOBILE

When Procter & Gamble Cut \$200 Million in Digital Ad Spend, It Increased Its Reach 10%

Unilever is also reevaluating its budget

By Lauren Johnson | March 1, 2018



DIGIDAY UK



After GDPR, The New York Times cut off ad exchanges in Europe — and kept growing ad revenue

JANUARY 16, 2019 by Jessica Davies

PolicyBlog

COMMENTARY

Behavioral Advertising's Benefits To Puhlishers Are Overstated, New Study Suggests

by Wendy Davis, Staff Writer @wendyridavis, May 30, 2019

For years, the ad industry has argued that free content online is fueled by online behavioral advertising, or tracking users across the web in order to deduce their interests and serve them with targeted ads.

The argument turns on the assumption that advertisers will pay more for targeted ads than generic ones, and that publishers will therefore garner more money from behaviorally targeted ads.

The claims – which make some intuitive sense – appear to have been widely accepted, even making their way into official policy docoments. Last year, the Pederal Trade Commission suggested in a **staff report** that publishers would be harmed by privacy rules that limited online tracking.

What's next?

- 1. Assumptions of microtargeting
- 2. Pitfalls of behaviourism and psychometrics
- 3. Reproducibility crisis in psychology and science
- 4. Why microtargeting does not work
- 5. How it nevertheless disrupts the public sphere

- What is micro-targeting?
- Let's check the common sense (in marketing parlance): https://www.cleverism.com/what-is-microtargeting/

WHAT IS MICROTARGETING?

Microtargeting is one of the latest marketing techniques you can employ to promote your business. It helps organizations identify consumers' behaviors and tastes. It has already seen many different uses outside the marketing world.

It is a practice of collecting user's data, including what they buy, their demographics, what they like and what they are most connected to.

Subsequently, companies use this data to segment them into different groups for the sake of content or product marketing.

The basic purpose of microtargeting is to create a marketing strategy which delivers advertisements to a specific faction of society.

It predicts your interests, influences, opinions, and purchasing habits based on your behavioral, geographic, psychographic and demographic data.

- If you can measure behavioural types at population level
- And measure significant correlations
- You can target individuals based on those correlations?

OBJECTIVES OF MICROTARGETING

Different people have different motivational triggers, opinions, and interests.

Microtargeting aims at creating a more comprehensive advertisement strategy.

The strategy is based on predictive analyses along with the consumer data collected through different sources.

It is a proven fact that the campaigns that target a certain section of society are much more effective than unrelated advertisements.

- Proven, or is it?
- Urban myth

Let's check The Correspondent:

https://thecorrespondent.com/100/t
he-new-dot-com-bubble-is-here-its-called-online-advertising/80216261400-7e597058





In 2018 \$273bn was spent on digital ads globally. We delve into the world of clicks, banners and keywords to find out if any of it is real. What do we really know about the effectiveness of digital advertising?

The new dot com bubble is here: it's called online advertising

But is any of it real? What do we really know about the effectiveness of digital advertising? Are advertising platforms any good at manipulating us?

You'd be forgiven for thinking the answer to that last question is: yes, extremely good. After all, the market is huge. The amount of money spent on internet ads goes up each year. In 2018, more than \$273bu dollars was spent on digital ads globally, according to research firm eMarketer. Most of those ads were purchased from two companies: Google (\$116bn in 2018) and Facebook (\$54.5bu in 2018).

A former Facebook engineer once said (and he's been quoted a thousand times over):
"The best minds of my generation are thinking about how to make people click on ads."
I spoke to some of those best minds: economists employed and formerly employed by the most powerful companies in Silicon Valley: Yahoo!, Google, Microsoft, eBay, Facebook, Netflix, Pandora and Amazon.

"Proprietary transformation functions," one of the consultants had said on the phone when Tadelis reached out. They used proprietary transformation functions, had 25 years of experience, and a long list of prominent clients.

When Tadelis pressed them he realised that "proprietary transformation functions" was only a clever disguise for your garden-variety statistics. You take the weekly expenditure on ads, combine it with the weekly sales, and voila! Fold the mixture into a scatter plot and see what happens. Easy as that! *

"This is garbage," Tadelis thought.

Correlation, as any Statistics 101 class will inform you, is not causation. What do these impressive numbers mean if the people who see your ad are the exact same people who were going to use eBay anyway? eBay is no small fry. Surely lots of people looking for shoes end up on the online auction site all by themselves, whether they see an ad or not?

- So, does is work?
- Well, who knows?

Are sales due to the selection effect?

Targeting people who were already buying?

Or due to the advertising effect?

Targeting people who would not be buying otherwise?

- Guess what: nobody knows
- Guess what: it is NOT at all 'a proven fact that the campaigns that target a certain section of society are much more effective than unrelated advertisements'

Why not?

- We don't know which 'certain section of society' should be targeted
- We have problems measuring effect:
 - Pay per impression (proves nothing)
 - Pay per click (relevant?)
 - Pay per conversion (selection effect?)

So what?

- Goodhart effect
- "If you use a measure as a target, it is no longer a good measure"

Lucas critique Campbell effect Goodhart effect

If you use a measure as a target, it is no longer a good measure

- Those using the measure to target change their behaviour
- Those targeted change their behaviour

Pitfalls of behaviourism and psychometrics

Behaviourism can describe this

But not in other terms than 'gaming the system'

Pitfalls of behaviourism and psychometrics

Human behaviour is far more complex

- Better described in terms of agency
- Mutual double anticipation
- Explains foundational unpredictability of human action
- Feature not a bug

Pitfalls of behaviourism and psychometrics

The Big Five: OCEAN

- Opennes
- Conscientiousness
- Extraversion
- Agreeableness
- Neuroticism

Open-Source Psychometrics Project

This website provides a collection of interactive personality tests with detailed results that can be taken for personal entertainment or to learn more about personality assessment. These tests range from very serious and widely used scientific instruments popular psychology to self produced quizzes. A special focus is given to the strengths, weaknesses and validity of the various systems.

Recommended test for scientific validity

Big Five Personality Test: The general consensus in academic psychology is that there are five fundamental personality traits. This model is assumed in most personality research, and is the basis of many of the most well regarded tests employed by psychologists who maintin close connections with academia. The "big five" tend to not be popular in consumer focused personality assessment or self-help because to many people the feedback of the model seems relatively basic. This test uses public domain scales from the International Personality Item Pool.

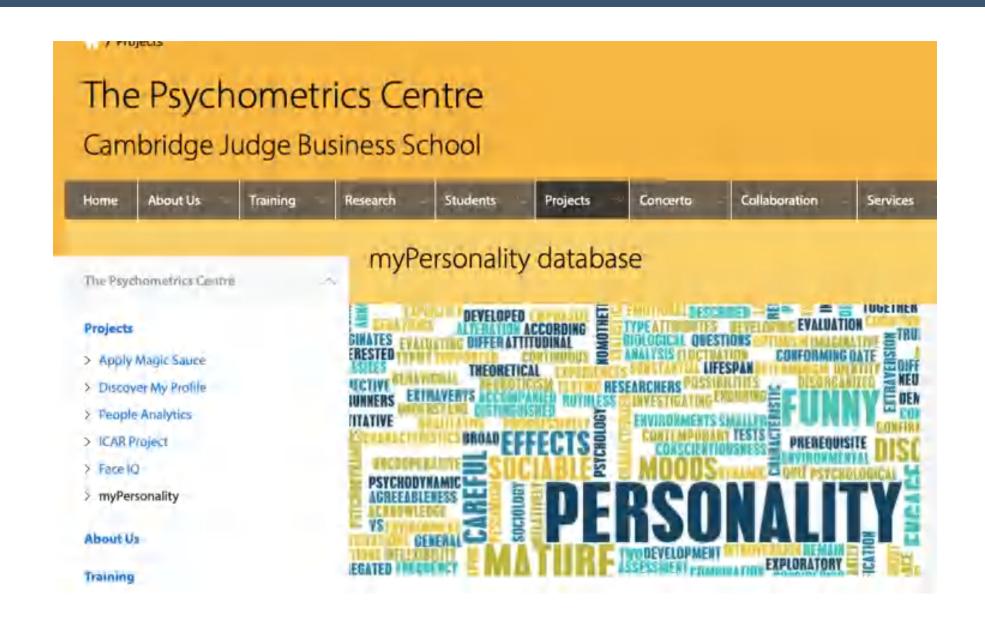
Recommended test for personal enjoyment

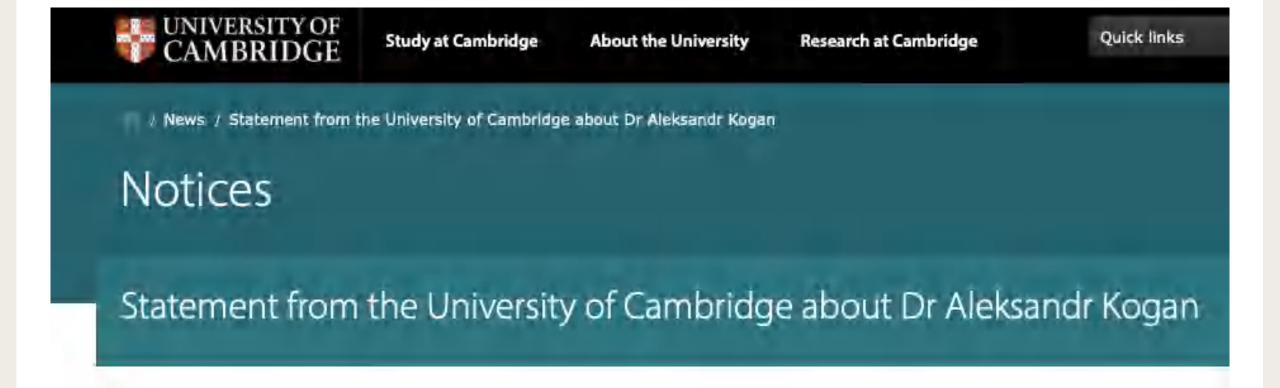
Open Extended Jungian Type Scales: The system of personality types proposed by Carl Jung (1921) and later refined by C. Myers and I. M. Briggs has become an extremely widely used personality theory in self-help, business management, counselling and spiritual development contexts, but it is not commonly used in academic research where, like all type theories, it is treated sceptically. The system produces 16 personality types on the basis of four dichotomies and is the system used in the Myers Briggs Type Indicator and Keirsey Temperament Sorter instruments, among many others. The OEJS is a free and open source measure of the four dichotomies which yields an equivalent result to the usual tests.

myPersonality was a popular Facebook application created by David Stillwell in 2007 that allowed users to take real psychometric tests and obtain their results instantly. As well as the data from the tests, around 40% of the respondents also opted in to share data from their Facebook profile, resulting in one of the largest social science research databases in history. The application was active until 2012 and collected data from over 6 million volunteers during this time. This data was anonymised and samples of it were shared with registered academic collaborators around the world through the myPersonality project, resulting in over 45 scientific publications in peer-reviewed journals.

Respondents came from various age groups, backgrounds and cultures. They were highly motivated to answer honestly and carefully, as the only gratification they received for their participation was feedback on their results. Their scores are combined with additional information from those who opted in to sharing it with us, including detailed demographic profiles, a record of their social media behaviour, their interests, preferences, opinions, etc.

If you are interested to learn more about the myPersonality project, please contact David Stillwell.





We understand from Dr Kogan that he originally created a Facehook app for acedemic research; however, he states that when the app was repurposed for use hy GSR, it was rebranded and released with new terms and cenditions, and it was made clear that this was commercial, not academic, research.

Facehook has made a series of allegations surrounding Dr Kogan's use of data. The University of Camhridge takes matters of research intogrity and date pretection extremely seriously. We have to date found no evidence to centradict Dr Kogan's previous assurances; nevertheless, we have written to Facehook to request all relevant evidence in their possession.

In 2015, Dr Kogan applied to the University for ethical appreval to use data cellected on behalf of GSR for his academic research. His application was reviewed and subsequently rejected. Dr Kogan was in the process of re-applying when Facehook requested deletion of the date; hence the application was withdrawn.

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DOI: 10.1080/10478401003648740



Jack Block, the Big Five, and Personality From the Standpoints of Actor, Agent, and Author

Dan P. McAdams and Keegan Walden

Department of Psychology, Northwestern University, Evanston, Illinois

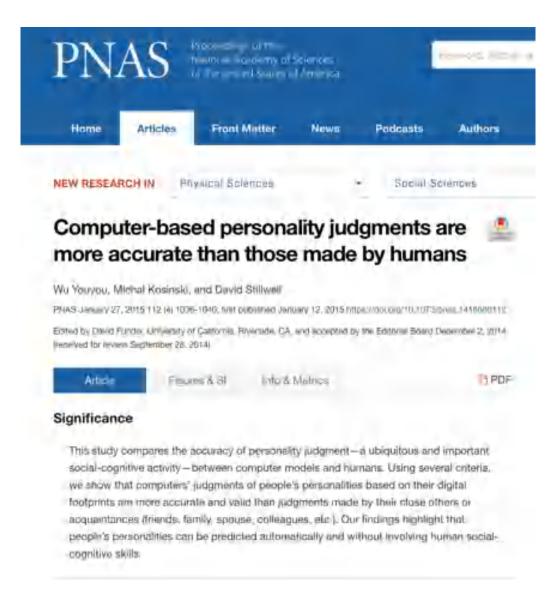
Jack Block died before his target article could be published. Submitted to *Psychological Inquiry* by his son while Jack was in the hospital, the paper shows many of the earmarks of Jack Block's long and brilliant career as a personality psychologist. Passionate, contrarian, and doggedly analytical, the paper's traits reflect the man's. Jack Block wanted to construct a scientifically rigorous psychology of personality that fully captures the complexity and coherence of human lives as they develop over time. To do so was his life-

ments he has made before. There is nothing elegant or simple about it. It may be that Jack Block did not have time to iron out the paper's rough edges before his life was cut off. But more likely, Jack's swan song, like so many of the influential articles he wrote in his career, was always going to be a gritty and restless communiqué from the battlefield. Jack Block was a fighter. He fought against the accepted truths and the conventional fashions of the discipline. Over the past 15 years, he fought against the Big Five.

Block enumerated five broad criticisms of the fivefactor model of personality. He argued that the model:

- a. is lacking in theory,
- b. relies too much on factor analysis,
- c. leaves out important traits,
- d. fails to take into consideration critical developments in trait measurement, and
- e. may be superseded by a two factor approach.

- "From our own contrarian point of view, a full accounting of personality requires analysis from the standpoints of actor, agent, and author.
- By focusing most of their attention on the first of these three, personality psychologists continue to shrink away from the field's historical mandate to study the full gamut of human personality, in all of its richness and complexity."



Personality traits, like many other psychological dimensions, are latent and cannot be measured directly; various perspectives exist regarding the evaluation criteria of judgmental accuracy (3, 5). We adopted the realistic approach, which assumes that personality traits represent real individual characteristics, and the accuracy of personality judgments may be benchmarked using three key criteria: self-other agreement, interjudge agreement, and external validity (1, 5, 7). We apply those benchmarks to a sample of 86,220 volunteers,* who filled in the 100-item International Personality Item Pool (IPIP) Five-Factor Model of personality (14) questionnaire (15), measuring traits of openness, conscientiousness, extraversion, agreeableness, and neuroticism.

Algorithmic psychometrics and the scalable subject

Social Studies of Science 2018, Vol. 48(2) 204-231 The Author(s) 2018 Reprints and permissions: sagaputi.co.uk/journalsPermissions.nav DOI: 10.1177/0304212718772094 journals.sagepub.com/home/sss

(\$)SAGE

Luke Stark

Department of Sociology, Dartmouth College, Hanover, NH, USA

Abstract

Recent public controversies, ranging from the 2014 Facebook 'emotional contagion' study to psychographic data profiling by Cambridge Analytica in the 2016 American presidential election, Brexit referendum and elsewhere, signal watershed moments in which the intersecting trajectories of psychology and computer science have become matters of public concern. The entangled history of these two fields grounds the application of applied psychological techniques to digital technologies, and an investment in applying calculability to human subjectivity. Today, a quantifiable psychological subject position has been translated, via 'big data' sets and algorithmic analysis, into a model subject amenable to classification through digital media platforms. I term this position the 'scalable subject', arguing it has been shaped and made legible by algorithmic psychometrics — a broad set of affordances in digital platforms shaped by psychology and the behavioral sciences. In describing the contours of this 'scalable subject', this paper highlights the urgent need for renewed attention from STS scholars on the psy sciences, and on a computational politics attentive to psychology, emotional expression, and sociality via digital media.

Keywords

affect, big data, emotion, Facebook, platforms, psychology, psychometrics, scale, social media, subjectivity

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DATA FALLACIES TO AVOID



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DANGER OF SUMMARY METRICS

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Stand more or data-literacy pechaboard.com

Relationships in data:

- mere correlations (the more data, the more spurious correlations)
- causal relationships (mathematical and empirical verification)
- conceptual relationships (analytical and performative)

Analytical:

- correlation between bachelors and unmarried men
- correlation between danger and risk (conceptual overlap)
- correlation between fear and danger (conceptual overlap)

Performative:

- 'I declare you husband and wife'
- This (whatever linked variables)
 'counts as' an emotion of fear
- This (whatever linked variables)
 'counts as' a PhD in law (in Canada)

Performative:

- This (whatever linked variables)
 'counts as' a pedestrian crossing
 - Qualification (performative speech act) precedes quantification

Reproducibility crisis in psychology and science

- Reproducibility crisis is related to problematic use of statistics
- ML applications are very vulnerable to data fallacies, p-hacking, data dredging, null-hypothesis delusion
- This goes even more for behavioural targeting

Reproducibility crisis in psychology and science

- Micro-targeting imports the horrors of that crisis:
 - False claims
 - Irresponsible trade-offs
 - Unreliable applications

Statistical Rituals: The Replication Delusion and How We Got There

Gard Gegerenzer

First Published June 11, 2018 Research Article https://doi.org/10.1177/2515245016771329

Article information > (African attribute attribute

Abstract

The "replication crisis" has been attributed to misguided external incentives gamed by researchers (the strategic-game hypothesis). Here, I want to draw attention to a complementary internal factor, namely, researchers' widespread faith in a statistical ritual and associated delusions (the statistical-ritual hypothesis). The "null ritual," unknown in statistics proper, eliminates judgment precisely at points where statistical theories demand II. The crucial delusion is that the p value specifies the probability of a successful replication (i.e., $1-\rho$), which makes replication studies appear to be superfluous. A review of studies with 839 academic psychologists and 991 students shows that the replication delusion existed among 20% of the faculty teaching statistics in psychology, 39% of the professors and lecturers, and 66% of the students. Two further beliefs, the illusion of certainty (e.g., that statistical significance proves that an effect exists) and Bayesian wishful thinking (e.g., that the probability of the alternative hypothesis being true is 1-p), also make successful replication appear to be certain or almost certain, respectively. In every study reviewed, the majority of researchers (56%-97%) exhibited one or more of these delusions, Psychology departments need to begin teaching statistical thinking, not rituals, and journal editors should no longer accept manuscripts that report results as "significant" or "not significant."

Keywords

replication, p-hacking, illusion of certainty, p value, null ritual

The essence of this hybrid theory is the null ritual (Gigerenzer, 2004):

- Set up a null hypothesis of "no mean difference" or "zero correlation." Do not specify the predictions of your own research hypothesis.
- Use 5% as a convention for rejecting the null hypothesis. If the test is significant, accept your research hypothesis. Report the test result as p < .05, p < .01, or p < .001, whichever level is met by the obtained p value.
- 3. Always perform this procedure.

The null ritual does not exist in statistics proper. This point is not always understood; even its critics sometimes confuse it with Fisher's theory of null-hypothesis testing and call it "null-hypothesis significance testing." In fact, the ritual is an incoherent mishmash of ideas from Fisher on the one hand and Neyman and Pearson on the other, spiked with a characteristically novel contribution: the elimination of researchers' judgment.

The Earth Is Round (p < .05)

Jacob Cohen

After 4 decades of severe criticism, the ritual of null hypothesis significance testing-mechanical dichotomous decisions around a sacred .05 criterion—still persists. This article reviews the problems with this practice, including its near-universal misinterpretation of p as the probability that Ho is false, the misinterpretation that its complement is the probability of successful replication, and the mistaken assumption that if one rejects Ho one thereby affirms the theory that led to the test. Exploratory data analysis and the use of graphic methods, a steady improvement in and a movement toward standardization in measurement, an emphasis on estimating effect sizes using confidence intervals, and the informed use of available statistical methods is suggested. For generalization, psychologists must finally rely; as has been done in all the older sciences, on replication.

sure how to test H_0 , chi-square with Yates's (1951) correction or the Fisher exact test, and wonders whether he has enough power. Would you believe it? And would you believe that if he tried to publish this result without a significance test, one or more reviewers might complain? It could happen.

Almost a quarter of a century ago, a couple of sociologists, D. E. Morrison and R. E. Henkel (1970), edited a book entitled *The Significance Test Controversy*. Among the contributors were Bill Rozeboom (1960), Paul Meehl (1967), David Bakan (1966), and David Lykken (1968). Without exception, they damned NHST. For example, Meehl described NHST as "a potent but sterile intellectual rake who leaves in his merry path a long train of ravished maidens but no viable scientific offspring" (p. 265). They were, however, by no means the first to do so. Joseph Berkson attacked NHST in 1938, even before it sank its deep roots in psychology. Lancelot Hogben's *******

What's wrong with NHST? Well, among many other things, it does not tell us what we want to know, and we so much want to know what we want to know that, out of desperation, we nevertheless believe that it does! What we want to know is "Given these data, what is the probability that H_0 is true?" But as most of us know, what it tells us is "Given that H_0 is true, what is the probability of these (or more extreme) data?" These are not the same, as has been pointed out many times over the years by the contributors to the Morrison-Henkel (1970) book, among

Why microtargeting does not work (as claimed)

- Problems with null hypothesis testing:
 - If A then probably not B
 - If B then not A?
- If one is Belgium one is probably not a member of the Belgium Senate
- One is a member of the Belgium Senate, so one is not Belgium?

Why microtargeting does not work (as claimed)

- Problems with null hypothesis testing:
 - If A then probably not B
 - If B then not A?

A = null hypothesis

B = the data

- If A is true, probability that B = 4%, is often thought to imply that:
- If B, probability that A is true = 4%, quod non

Why microtargeting does not work (as claimed)

- Problems with null hypothesis testing:
 - If A then probably not B
 - If B then not A?

A = null hypothesis

B = the data

If B, what is the probably that A is true? (this is what you want to know)

Assumptions of microtargeting

Why is there no proof that micro-targeting works?

- We don't know which 'certain section of society' should be targeted
- We have problems measuring effect:
 - Pay per impression (proves nothing)
 - Pay per click (relevant?)
 - Pay per conversion (selection effect?)

- AdDrivenContent
- Algorithms optimising for increasing ad revenue

■ Hannah Arendt:

I am not worried that behaviourism is true, but that it will become true

Not everything that can be counted counts Not everything that counts can be counted

Not everything that can be controlled matters Not everything that matters can be controlled

POLITICAL SCIENCE

Fake news on Twitter during the 2016 U.S. presidential election

Nir Grinberg^{1,2*}, Kenneth Joseph^{3*}, Lisa Friedland^{1*}, Briony Swire-Thompson^{1,2}, David Lazer^{1,2}†

The spread of fake news on social media became a public concern in the United States after the 2016 presidential election. We examined exposure to and sharing of fake news by registered voters on Twitter and found that engagement with fake news sources was extremely concentrated. Only 1% of individuals accounted for 80% of fake news source exposures, and 0.1% accounted for nearly 80% of fake news sources shared. Individuals most likely to engage with fake news sources were conservative leaning, older, and highly engaged with political news. A cluster of fake news sources shared overlapping audiences on the extreme right, but for people across the political spectrum, most political news exposure still came from mainstream media outlets.

Discussion

This study estimated the extent to which people on Twitter shared and were exposed to content from fake news sources during the 2016 election season. Although 6% of people who shared URLs with political content shared content from fake news sources, the vast majority of fake news shares and exposures were attributable to tiny fractions of the population. Though previous work has shown concentration of volume both in political conversations on Twitter (21) and in fake news consumption (9), the extreme levels we observed are notable. For the average panel member, content from fake news sources constituted only 1.18% of political exposures, or about 10 URLs during the last month of the election campaign. These averages are of similar magnitude to estimates from previous work (8, 9), which is noteworthy given the vastly different study populations and methodologies. As in these studies, we found that the vast majority of political exposures, across all political groups, still came from popular nonfake news sources. This is reassuring in contrast to claims of political echo chambers (22) and fake news gamering more engagement than real news during the election (3).



Micro-targeting operates at two levels:

- Fake news (posted without payment)
- Fake ads (posted against payment)
- Fake news is amplified due to:
 - Ad-driven content, as algorithms optimise for increased ad revenue
- The difference is questionable:
 - Advertorials blur the difference
 - Stopping political advertising does not solve the problem of ad-driven content

Karlin Lillington: Ban all indiscriminate data gathering

Online advertising 'an almost completely unregulated environment' with no transparency

O Thu, Nov 7, 2019, 05:30



Karlin Lillington



Twitter chief executive Jack Darsey restifies before the Senate Intelligence Committee in Washington. Twitter is to stop according political advertising globally on its glatform. Photograph: Jim Watson/AFP via Botty Images

There's a far better approach to all of this. Just disallow all indiscriminate data gathering, ban sales of data to third parties, and ban microtargeting. Full stop. Everywhere online. For everything.



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See also slides Europe Lecture

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- For the lecture: https://www.montesquieu-instituut.nl/id/vklpnxbnxnr8/democratie_in_de_21e_eeuw_de_impact_van