

Case Studies in Research and Bias

Let's look at some examples of bias in research and the impact of these biases in the real world. These examples help highlight the different kinds of bias and its impact on research strategies and design.

VR Headsets: Sampling Bias in Product Design

Virtual reality entered the public's mainstream imagination with the release of the Oculus headset in 2016. However, one large section of the market was inadvertently excluded—women. According to Adi Robertson, a senior reporter for popular tech magazine *The Verge*, virtual headsets designed and prototyped without female input made the final product practically unusable for women. The lenses were too far apart, the gloves too large, and the headstraps unable to comfortably accommodate larger or stylized hair. To address this sampling bias, Oculus gathered input from female users and incorporated their feedback into updated versions of the Oculus.



Additional Resources:

Building for Virtual Reality? Don't Forget about Women: This web article highlights the unintentional gender imbalance in entertainment and computing research demographics. Click on the following link to learn more:

<https://bit.ly/BuildingForVirtualRealityB2B>

Can Women Make Virtual Reality Mainstream? This article from a popular women's magazine outlines how the technology company, Oculus, worked with female developers to design a virtual reality headset that accommodates both male and female bodies. Click on the following link to learn more:

<https://bit.ly/WomenVirtualRealityB2B>

Los Angeles: Algorithmic Bias in Predictive Policing



Predictive policing is a method of law enforcement intended to prevent crime before it occurs. In 2015, the Los Angeles Police Department (LAPD) adopted PredPol, a software program that used arrest records instead of gathering intelligence from community residents. However, not all crimes lead to an arrest, and not all arrests result in the conclusion that a crime was committed. Because of this false equivalency, certain crimes were overrepresented in the PredPol predictions, while others were underrepresented. In 2020, LAPD cancelled their PredPol contract, citing costs and amid criticism that the algorithm is too simplistic to effectively predict crime.

Additional Resources:

LA's Lessons for Dallas on 'Big Data Policing': This investigative news article from NBC highlights the common challenges of using software to predict crime in Los Angeles, and what lessons might be learned in adapting this approach in other cities. Click on the following link to learn more:

<https://bit.ly/BigDataPolicingB2B>

Academics Confirm Major Predictive Policing Algorithm is Fundamentally Flawed: This long-form essay from Vice outlines how law enforcement are using software and algorithms to predict crime before it occurs. Supporters believe it will cut costs and save lives. Opponents think it's overly simplistic and harmful to the communities police intend to protect. Click on the following link to learn more:

<https://bit.ly/FlawedPolicingAlgorithmB2B>

Bush v. Gore: Anchoring in Election News Coverage

On Tuesday, November 7, 2000, American voters were choosing between Vice President Al Gore or Texas governor George W. Bush to be the next president of the United States. By the end of the night, all state elections had been decided except for Florida, and the final tally was too close to call. In a rush to be the first to report the final outcome, news outlets used unofficial counts to make the call. Some outlets declared Bush the winner, while others called the election for Gore. This led to public confusion when the results were still too close to call the next morning, triggering an automatic recount that lasted for over a month after Election Day. Ultimately, the state of Florida was called for Bush, by a margin of 0.009%, or 537 votes, but not before resulting in the erosion of public trust in both political elections and election news coverage.



Additional Resources:

The Election Night that Never Ended: This *Columbia Journalism Review* article outlines how early projections of the 2000 presidential election for Al Gore influenced the public's perception of the voter recount in Florida and subsequent ruling by the Supreme Court. Click on the following link to learn more:

<https://bit.ly/ElectionAnchoringB2B>

The Morning After: The Effect of the Network Call for Bush: This academic article discusses how the press' framing of election results as votes are being tallied impacts discourse about these events among both experts and the public. Click on the following link to learn more:

<https://bit.ly/MorningAfterB2B>

Decision 2000 with Bush and Gore Cold Open - SNL: This comedy skit from Saturday Night Live illustrates the power of anchoring in the broadcast medium, as evidenced in both the live coverage of election results and when politicians speak directly to the public in the midst of ambiguity or political uncertainty. (PARODY). Click on the following link to learn more:

<https://bit.ly/SNLColdOpenB2B>

W.E.I.R.D.: Selection Bias in Psychology Studies



Behavioral scientists routinely publish broad claims about human psychology and behavior in the world's top journals based on samples drawn entirely from Western, Educated, Industrialized, Rich, and Democratic (WEIRD) societies. These studies are then in turn reported on and presented to lawmakers, policy analysts and the general public. Researchers, often implicitly, assume that either there is little variation across human populations, or that these "standard subjects" are as representative of the species as any other population. With increased awareness among scholars and collaboration across international research networks, the harm of selection bias can be minimized in future research.

Additional Resources:

Psychology is WEIRD: This magazine article explains how young people from Western, educated, industrialized, rich, democratic countries (W.E.I.R.D.) are overrepresented in academic research, resulting in a less than universal reflection on human behavior and motivation. Click on the following link to learn more:

<https://bit.ly/PsychologyIsWeirdB2B>

The Weirdest People in the World: This academic article reviews the diversity of subjects in behavioral psychology studies and discovers that members of WEIRD (Western, Educated, Industrialized, Rich, Democratic) societies are among the least representative populations one could find for generalizing about humans. Includes suggestions for how to minimize the harm of selection bias in the behavioral sciences. Click on the following link to learn more:

<https://bit.ly/WeirdPeopleB2B>

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