Mistrust from Inconsistent Verbal & Nonverbal signals

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Research Question

Does a listener mistrust a speaker whose speech does not match nonverbal cues, like the body language, facial expressions etc.

What signals do people rely on to decipher the “real” message?

Problem Statement

Null Hypothesis:

People trust speakers regardless of whether there are inconsistent verbal and nonverbal signals i.e. trust is solely based on the content of a speech.

Alternate Hypothesis:

People mistrust speakers when there are inconsistent verbal and non-verbal signals

Logistics and Experimental design

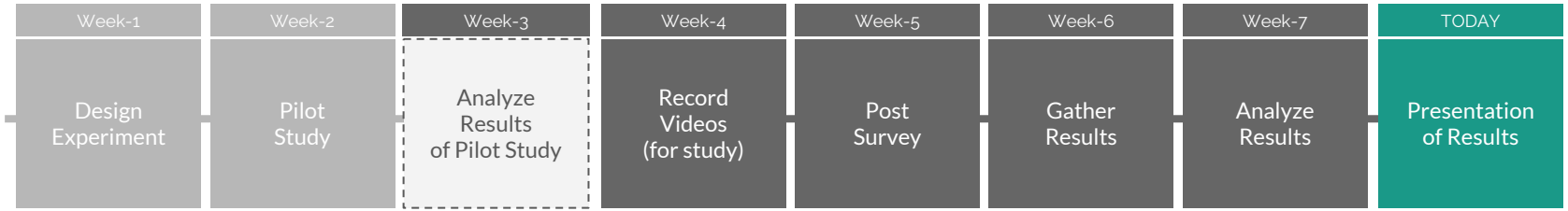
- ➔ Recruit subjects for the study (Mechanical Turk, Lucid Surveyors, Friends & Family)
- ➔ Subjects assigned at random to treatment vs. control as:
  - ◆ Normal version vs. Flippant version
  - ◆ Male speaker vs. Female speaker
- ➔ Present videos (approx. 2-3 minutes) recorded for the purpose of this field experiment
- ➔ Subjects will be asked a compliance question
- ➔ Subjects who get the compliance question right get the next question:
  - ◆ “Do you trust the speaker or not”
- ➔ Analyze responses from different groups & report results

Model

- ➔ Outcome variable (Does the listener trust the speaker): trust
- ➔ Treatment (The video with inconsistent verbal and non-verbal clues): treat
- ➔ Covariate(Is Female?): Female (Self Identified Female)
- ➔ Prospective, randomized, subjects blinded to study purpose

➔ **lm(trust ~ treat + female * treat)**

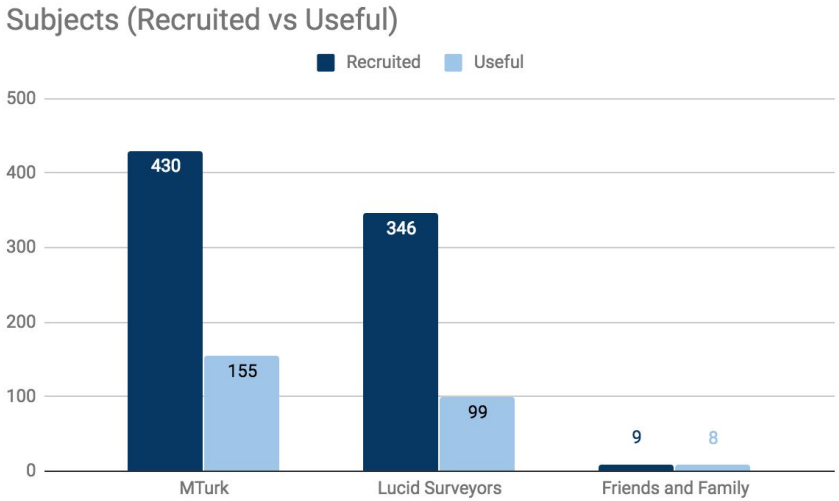
Timeline


Week-1
Design Experiment
Week-2
Pilot Study
Week-3
Analyze Results of Pilot Study
Week-4
Record Videos (for study)
Week-5
Post Survey
Week-6
Gather Results
Week-7
Analyze Results
TODAY
Presentation of Results

Subjects (for study)

Subjects recruited as:

- MTurks
- Lucid Surveyors
- Friends & Family



MTurk averaged 36% compliance
Lucid averaged 28% compliance

Quality Surveys

262 quality surveys across all sources

Measure Outcome

Report how outcome is measured as part of the experimental design

Trust vs. Mistrust

(as measured across all 3 groups)

Assumptions

- Subjects pay full attention while watching videos that were less than 3 minutes long
- Pilot study is a good indication of quality of responses for the real experiment

Pilot Study

Pilot study performed to understand:

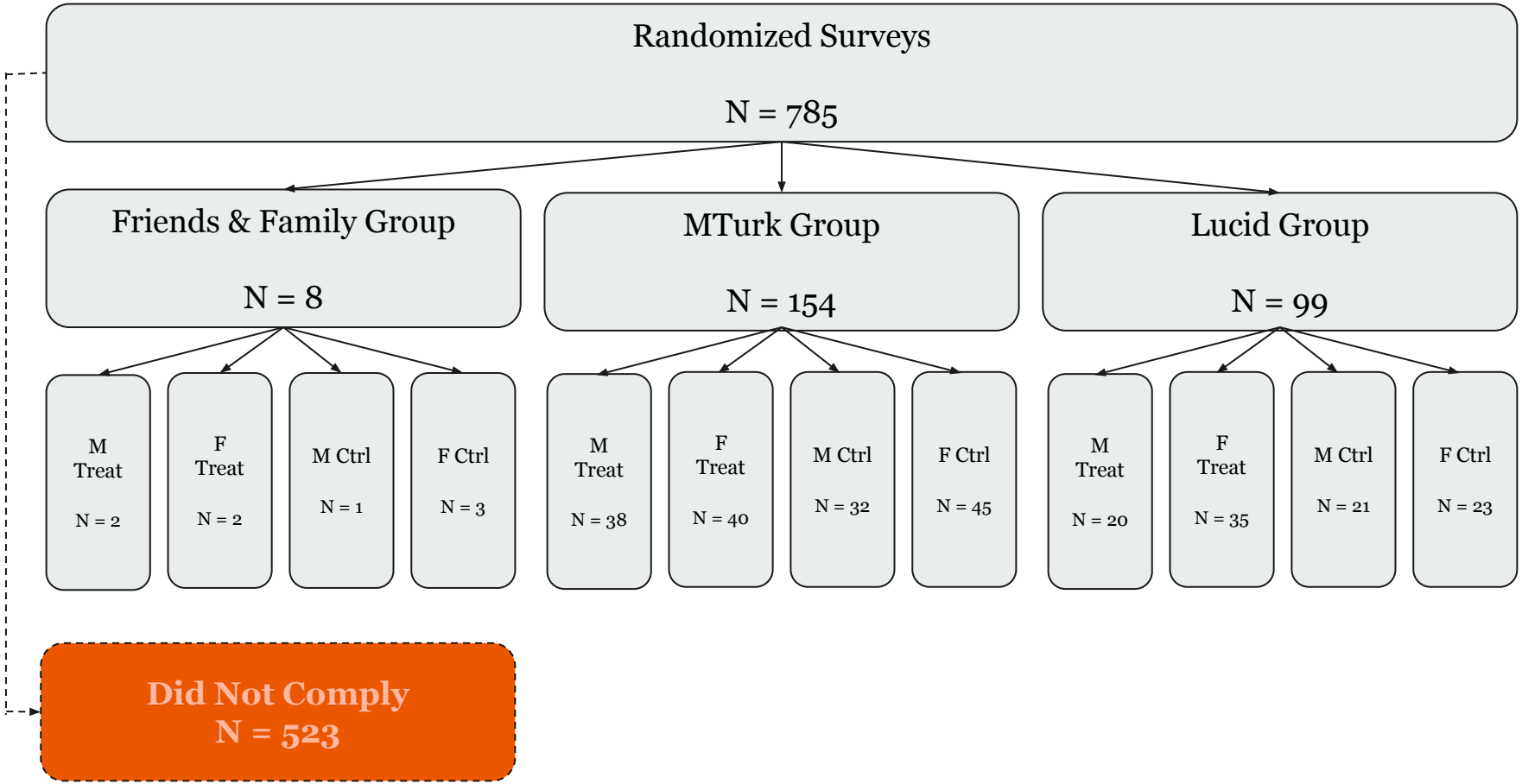
- Effect size & statistical power
- Recruitment of subjects and timeliness of responses
- Additional categorization needed for the real experiment (Compliance)
- Covariates needed for the experiment (Gender)

Field Experiment

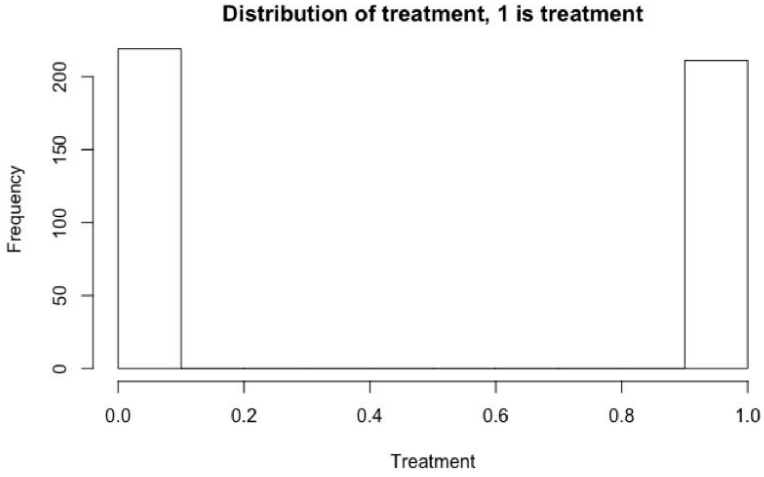
Experimental Study

Experimental study was performed over a period of 2 weeks:

- Recruit subjects for the study
- Subjects were randomly assigned between treatment and control groups
- Study also included randomization of videos (speaker: male vs. female)
    - No difference in video topic, length and content
- Compliance question - a question to check subjects' attentiveness to the video
- Binary outcome variable (Trust, No-Trust)
- Qualtrics survey - collect details from the experiment
    - Randomization for Control and Treatment
    - Randomization based on speaker's gender



Experiment - Flow Diagram


Distribution of treatment, 1 is treatment
Frequency
0
50
100
150
200
0.0
0.2
0.4
0.6
0.8
1.0
Treatment

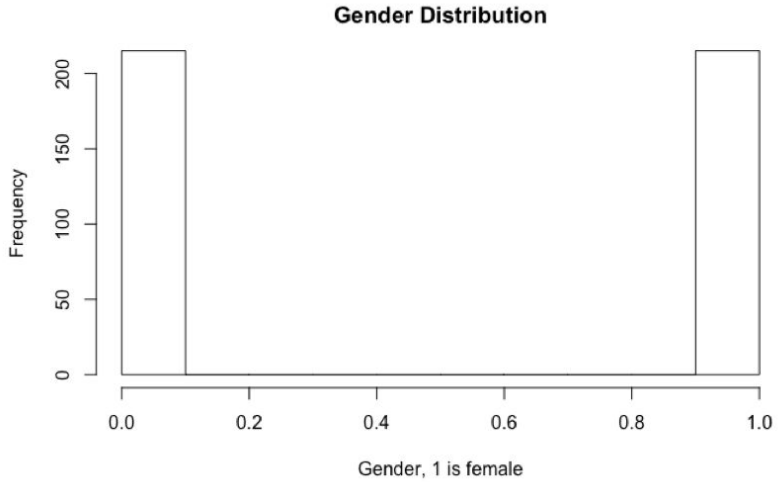
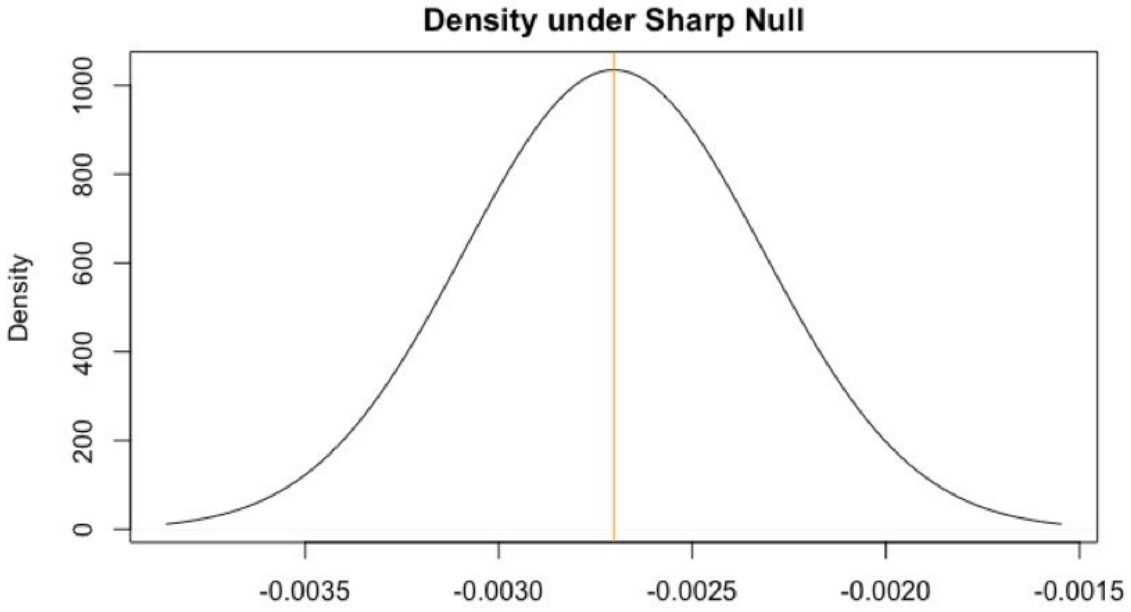

Gender Distribution
Frequency
0
50
100
150
200
0.0
0.2
0.4
0.6
0.8
1.0
Gender, 1 is female

Table 1: Experimental Results

	Dependent variable:			
	trust			
	FriendsFamily	Lucid	MTurk	AllSources
	(1)	(2)	(3)	(4)
treat	−0.500	0.018	−0.360***	−0.223***
	(0.661)	(0.139)	(0.087)	(0.076)
female	−0.333	0.175	0.061	0.101
	(0.624)	(0.137)	(0.084)	(0.074)
treat:female	−0.167	−0.181	0.035	−0.051
	(0.825)	(0.186)	(0.118)	(0.102)
Constant	1.000	0.682***	0.939***	0.839***
	(0.540)	(0.096)	(0.063)	(0.055)
Observations	8	99	154	261
R^2	0.417	0.023	0.196	0.094
Adjusted R^2	−0.021	−0.008	0.180	0.083
Residual Std. Error	0.540 (df = 4)	0.449 (df = 95)	0.364 (df = 150)	0.408 (df = 257)
F Statistic	0.952 (df = 3; 4)	0.748 (df = 3; 95)	12.157*** (df = 3; 150)	8.882*** (df = 3; 257)
Note:				*p<0.1; **p<0.05; ***p<0.01

Experiment - Treatment Effect



- The ATE from the experiment [-.223(.076)] is not on the graph

Test for Sharp NULL Hypothesis

- Incongruent verbal/nonverbal cues in a speech led to a meaningful decrease in trust in **the MTURK survey population**

- These results **cannot** be generalized beyond the precise kind of communication, Subject population, environment (survey) and content that we used in the experiment

- The ATE from the MTURK population is not reproducible with Randomization inference

Extend the experiment with different kinds of populations (outside the typical survey tools)

- Friends and Family
  - Make more friends
  - Frank needs to fix his firewall
- Age groups

Questions?

References

- https://docs.google.com/document/d/1gVG162J_LP5J97070LK0bLHRTMWzWmZkhb68rwhPab0/edit?ts=5bd61eb5

- https://github.com/UCB-MIDS/ExperimentsForTrust.git

- Videos
  - Sudha flippant: https://vimeo.com/303927201
  - Sudha normal: https://vimeo.com/303926147
  - Frank flippant: https://vimeo.com/303932560
  - Frank normal: https://vimeo.com/303932013