# **Detailed Study Design: SSA Y4**

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## **Data collected and Variable Definition**

* PreTrustImpostorType: Pre-training level of trust in [government; online business]. This is the OUTCOME var for predictive analyses of trust, and a CONTROL var for experimental analyses.
* CorrectTrustImpostorType: Post-training % correct for [government; online business] communications. This is the main OUTCOME var for experimental analyses.
* IncorrectTrustImpostorType: Post-training % incorrect for [government; online business] communications. This is the secondary OUTCOME var for experimental analyses.
* FraudExperienceImpostorType: Boolean value indicating if person self-reports having been a victim of [government; online business] fraud.
* FraudExperienceImpostorType: Numeric value indicating the amount a person reports having lost as a victim of [government; online business] fraud.
* Demographics: A range of demographics, like age and income. These are CONTROL vars for predictive analyses, and experimental analyses.
* GeneralizedTrust: Pre-training level of generalized trust. This a CONTROL var for predictive analyses, and experimental analysis.
* OtherPotentialTrustPredictors: Other non-demographic vars that Marti suggests we include!
* Arm: a categorical var indicating which training (or control) arm the individual was in.
* TreatmentResponsivenessDrivers: Variables that we define beforehand as potential characteristics of people that determine if they respond to our training or not. I.e., for WHOM does the training work?

## **Analyses that will be Run**

**Predictive Analysis: Does prior fraud decrease trust?**

PreTrustImpostorType ~ β1**FraudExperienceImpostorType +** β2**FraudLoss****ImpostorType** + φ Demographics

Hypothesis 1:β1 < 0; Hypothesis 2:β2 < 0

*Where ImpostorType is “Government” or “Business”.*

*Where* ***Text in Bold*** *indicates the variable whose coefficient is interpreted in this analysis.*

*Predictions: Prior fraud victimization is associated will lower trust in the internet and lower trust in the SSA.*

**Predictive Analysis: Are people who actively report fraud-loss significantly different than those who don’t? (I.e., BBB pop versus others who also experienced fraud-loss)**

avg(Demographics BBB) ~ avg(Demographics Prolific\_WithLoss)

*Prediction: BBB participants who reported a fraud loss will be disproportionately more White, older, and in middle income brackets relative to Prolific participants who reported that they experienced a fraud loss in the survey.*

*Prediction: BBB fraud reporters who lost money will be less likely to be White, have lower education, and be younger than BBB reporters who did not experience a loss.*

*Note – this analysis may not have enough sample size of fraud victims from Prolific, unless we run a non-nationally rep “get everyone” survey. We should also add a prolific question on whether or not they have previously reported the fraud a government agency.*

**Predictive Analysis: Are people who report fraud-loss significantly different than the US population (I.e. BBB pop versus nationally rep sample or census data)**

avg(Demographics BBB) ~ avg(Demographics Census)

*Need specific hypotheses here*

*Note – this analysis doesn’t need our study at all – just an analysis of BBB’s existing data. Is this worthwhile?*

*Prediction: BBB participants who reported a fraud loss will be disproportionately more White, older, and in middle income brackets relative to the general US population.*

**Predictive Analysis: What predicts trust? (I.e., What are the characteristics of people predisposed to (dis)trust)?**

**­**PreTrustImpostorType ~ β1FraudExperienceImpostorType + β2FraudLossImpostorType + φ Demographics + GeneralizedTrust + δ **OtherPotentialTrustPredictors**

*Predictions: Low self-control is associated with greater trust in the internet; greater online shopping is associated with greater trust in the internet; more confidence in the future of the US is associated with greater trust in SSA; feeling angry or frustrated with the US government is associated with less trust in SSA.*

**Experimental Analysis: Does the interactive training help people trust government | online business**

CorrectTrustImpostorType ~ **Arm**

*Prediction: The interactive training will yield the best discernment (highest number correct), relative to the other three treatment arms, and this effect will hold for both BBB and Prolific participants.*

*And, to verify correct randomization:*

CorrectTrustImpostorType ~ **Arm** + PreTrustImpostorType + FraudExperienceImpostorType + FraudLossImpostorType + Demographics + GeneralizedTrust + OtherPotentialTrustPredictors

**Experimental Analysis: Can we rebuild trust among previous victims of fraud?**

CorrectTrustImpostorType, BBB Sample only ~ **Arm**, BBB Sample only

*Prediction: BBB participants in the interactive training condition will show greater trust of legitimate solicitations relative to BBB participants in the dummy information control condition and general “it is important to trust” condition.*

**Experimental Analysis: What are the characteristics of people who respond to the training?**

CorrectTrustImpostorType ~ **Arm** \* **TreatmentResponsivenessDrivers +** Arm + TreatmentResponsivenessDrivers

*Note: This is a Conditional Average Treatment Effect analysis, and it is unlikely to provide statistically significant results because of the higher power needed for these tests. But, if we carefully predefine vars (and don’t ‘search for them’ afterwards), it’s possible.*

*Prediction: Participants with lower baseline scores of self-control will perform best following treatment relative to no-treatment control.*

*Prediction: Older adults will respond better to the treatment than younger adults.*

*Prediction: Less frequent internet users/online shoppers will respond better to the treatment than more frequent internet users/online users.*

**Experimental Analysis: Does the interactive trust training increase distrust?**

IncorrectTrustImpostorType ~ Arm + PreTrustImpostorType + FraudExperienceImpostorType + FraudLossImpostorType + Demographics + GeneralizedTrust + OtherPotentialTrustPredictors

*Predictions: The training does not increase distrust of legitimate solicitations relative to the control.*

*Predictions: The interactive training does not increase the likelihood of falsely categorizing fraudulent solicitations as genuine; the general “trust is important” message condition does increase the likelihood of falsely categorizing fraudulent solicitations as genuine.*

Experimental Analysis: Does the interactive trust training port over to other domains?

[IncorrectTrustImpostorType,UntrainedDomain | CorrectTrustImpostorType,UntrainedDomain] ~ ArmUntrainedDomain

Note – this analysis is only valid if there is an arm (or all arms) where there is no training in a particular domain (SMS, Voice, etc.) but there IS a test for it. However, we can simplify the analysis by treating this as a completely separate experiment, and one without the complicating factor of a time delay.

Also, preregistering this analysis (and the specific hypothesis about it NOT porting over to other domains) allows us to formalize the preliminary results we had on this question from Y3.

*Predictions: The interactive training does not port across solicitation channels, but DOES port across scam type (SSA versus business imposter).*

**Experimental Analysis: Does the impact of the interactive trust training last over time?**

[CorrectTrustImpostorType, 2 Week Delay] ~ Armimmediate - Arm2 Week Delay

Note – this requires arms with different time delays.

Also, preregistering this analysis (and the specific hypothesis about it NOT porting over to other domains) allows us to formalize the preliminary results we had on this question from Y3.

*Prediction: The effect of the training diminishes after a 2-week delay.*

# **Experimental Arms**

***Prolific, CloudPanels Populations***

Study 1, Core Study:

* Dummy information, immediate test.
* General “trust is important” message, immediate test.
* General “tips to recognize real communications”; train on Email and Websites; immediate test.
* Interactive “recognizing real communications”; train on Email and Websites; immediate test.

Study 2, Time Delay (can be combined with study 1 if sample size is large enough):

* Dummy information, immediate test.
* Dummy information, two-week delay test.
* Interactive “recognizing real communications”; train on Email and Websites; immediate test.
* Interactive “recognizing real communications”; train on Email and Websites; two-week delay test.

Optional Study 3, Train on Other Communications Mediums

* Dummy information, immediate test.
* Interactive “recognizing real communications”; train on SMS and Phone; immediate test.

***BBB Population***

Study 1A (if large sample size):

* Dummy information, two-week delay test.
* General “trust is important” message, two-week delay test.
* General “tips to recognize real communications”, two-week delay test.
* Interactive “recognizing real communications”, two-week delay test.

Study 1A (if small sample size):

* Dummy information, immediate test.
* General “tips to recognize real communications”, immediate test.
* Interactive “recognizing real communications”, immediate test.

## **Training Content**

Emails

* 3 real
  + Govt; Core Lesson: Look for the domain; Look for URL of links in bottom left
    - Specific Content: SSA Annual Message
  + Govt; Core Lesson: Look for informational message, no request for info or money
    - Specific Content: Tax Time Reminder
  + Biz; Core Lesson: Search directly for it, Look for domain, Well known company, independent reviews
    - Specific Content: Amazon Confirmation Email
* 1 fake
  + Govt; Core Lesson: Watch for urgency, domain, headers
    - Specific Content: SSA Cyber Attack

Websites

* 3 real
  + Govt; Core Lesson: Look at the domain
    - Specific Content: SSA Homepage: https://www.ssa.gov/
  + Biz; Core Lesson: Look for links on domains
    - Specific Content: Amazon Order Confirmation Page
  + Biz; Core Lesson: Informational pages are generally fine
    - Specific Content: Amazon Product Page: https://www.amazon.com/dp/B08B3B3LQ3
* 1 fake
  + Biz; Core Lesson: Look at the domain in URL and links; look for any requests for financial information
    - Specific Content: Hacked Amazon
    - Base: Amazon Home page https://www.amazon.com/ref=nav\_logo

*Note -- In primary studies, no training is provided on Voice, SMS and Letters.*

## **Test Content**

Email

* 2 real: 1 Govt, 1 Biz
  + Have: SSA
  + SW: McAfee Alert:
* 2 fake: 1 Govt, 1Biz
  + \*\*\*\* Cliff: IRS
  + CURRENTLY: SSA Fake; Should be BIZ fake?
  + \*\*\* Rubens : Product Order Confirmation (Free Covid Test)
    - Rubens – see if there is a actual scam here; if not SW will mock one up.
    - This is an example of COVID test scams : "During the COVID test "shortage", while searching on the web for businesses that had test Fatsion3d was one that popped up and indicate availability and a faster than most delivery. I placed an order on January 9, 2022 for Covid tests in the amount of $35.65, receipt # 1620-5132, order # 302873. In tracking the order initially the response was that the order was being processed. After not receiving my order, I first tried the phone number, which was a NY number and it was not working. I have sent several emails to their email - support@fatsion3d.com and have not received a response. In checking the address on the website, it is a residence -1644 Kohlenberg Avenue, North Port, FL 34288, The website is active selling other products, no more Covid tests. Please contact and investigate. I am sure others also were charged for Covid tests that were never received. Thank you."

Websites

* 2 real: 1 Govt, 1 Biz
  + \*\*\*\* SW Will get: IRS : https://www.irs.gov/payments/your-online-account
  + \*\*\*\* SW Will get Common Product Page: Walmart (Toilet Paper)
  + https://www.walmart.com/ip/ZOSI-H-265-8CH-5MP-Lite-DVR-1080P-Home-Security-Camera-System-Outdoor-8pcs-1920TVL-Surveillance-Weatherproof-Bullet-Cameras-80ft-IR-Night-Vision-Moti/428801206
* 2 fake: 1 Govt, 1Biz
  + \*\*\*\* Marti: SSA
  + \*\*\*\* Marti or Rubens: Virus Scanner

Letter

* 1 real: Govt
  + HAS Currently – Use y3
* 1 fake: Biz
  + HAS Currently – Use y3

SMS -> Web

* 1 real: Biz
  + SW Will get
* 1 fake: Govt
  + \*\*\* Marti or Rubens: A faked government website used by scammers
  + SSA Facebook Page