Surveys, interviews, focus groups, and diary studies

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Usable Privacy and Security

Carnegie Mellon University
CyLab

isr institute for SOFTWARE RESEARCH

Engineering & Public Policy

CyLab Usable Privacy & Security Laboratory
HTTP://CUPS.CS.CMU.EDU

Today's class

- Methods overview

- Recruiting participants

- Surveys

Methods overview

- Surveys

  - Ask people set list of questions (possibly with conditional questions or branching) with multiple choice or free response answers

- Interviews

  - Ask people open-ended questions, with follow-up questions depending on their responses

- Focus groups

  - Group interview, usually with 5-10 participants

- Diary studies

  - Ask people to record when certain events occur, respond to triggers, or answer questions at set times throughout the day

- *This is not an exhaustive list!*

Recruiting participants

- Recruiters with clipboards (or booth/table) on campus, somewhere where you have permission, public place

- CBDR at CMU
  https://cbdr.cmu.edu

- CMU data truck

- Craigslist, classified ads

- Facebook ads, Google Surveys, paid online ads

- Ads on busses, in publications

- Email to membership organizations (perhaps in exchange for donations)

- Flyers on bulletin boards, telephone polls, bus stops

- Panels, participant pools

- Random digit dialing

- Random address selection

- Crowdsoucing services

4

Flyers

- Big headline to grab attention

- Not too many words
  - Bullets are good

- Explain who qualifies, location, time commitment

- Mention payment (but in same font as everything else)

- Mention CMU

- Make it easy to contact you
  - Tear-offs
  - URL
  - QR code

- Color and/or graphics to stand out

Research Study: Interested in learning how to protect your privacy on the Internet?

Researchers at Carnegie Mellon are testing software tools that can be used to protect your privacy on the Internet. We are recruiting people who are interested in learning about these tools to participate in a 90-minute study in our lab on the Carnegie Mellon campus. Participants will receive a $30 Amazon gift card.

If you are interested in participating in this study, please fill out our screening survey at: http://cups.cs.cmu.edu/study

If selected, you will be contacted by email to schedule a time slot for the study.

Thank you!

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Internet Privacy Tools Study
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Redesign

Interested in learning to protect your privacy on the Internet?

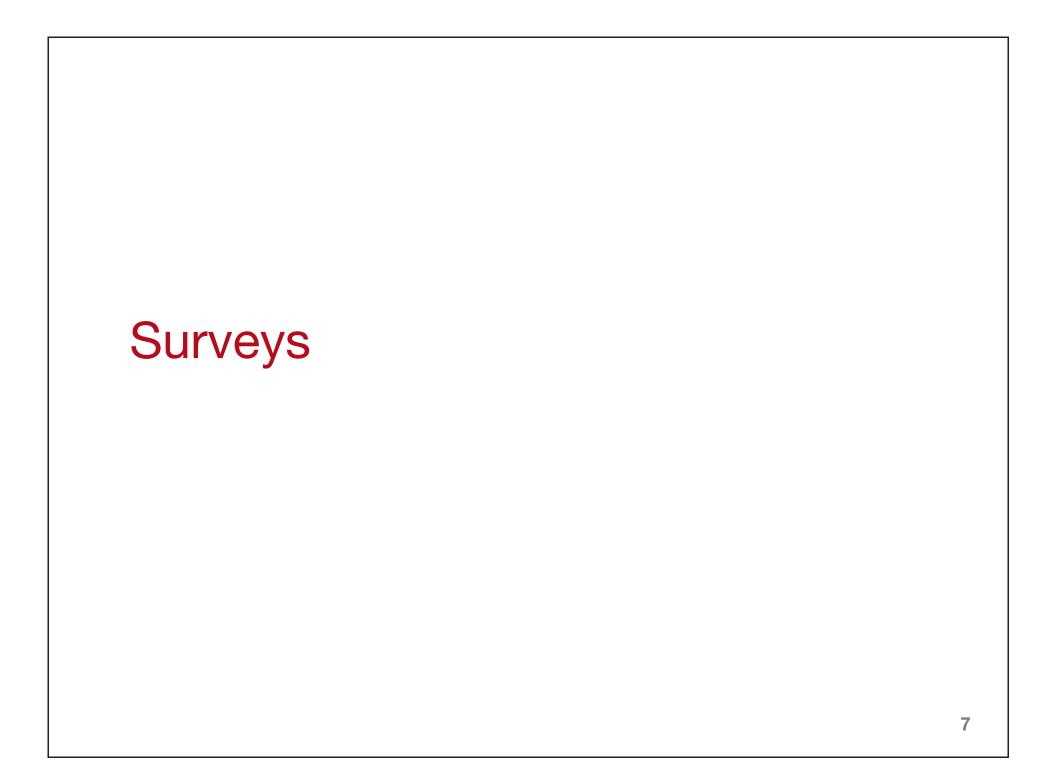Participate in Carnegie Mellon research study

We're recruiting people who want to learn about Internet privacy and test out some privacy tools.

- 90-minute study
- On campus at Carnegie Mellon
- $30 payment
- To participate, fill out screening survey at **http://cups.cs.cmu.edu/study**

CMU Internet Privacy tools study http://cups.cs.cmu.edu/study

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Surveys

Why do a survey?

- Obtain data from a lot of participants
  - Relatively quick, easy, unobtrusive, inexpensive
  - But random sampling can be very expensive

- Gather data about attitudes, opinions, perceptions, preferences, self-reported experiences

- Easy to collect data in standardized format, ready for analysis

- Useful for validating hypotheses from smaller studies with a larger population

Survey limitation: Self-reported data

- Don't know whether people are telling the truth

- Reasons people might not tell the truth
  - Laziness, don't want to think too much
  - They misremember
  - Their perceptions may not match reality
  - They tell you what they think you want to hear (Hawthorne effect – behavior changes due to being observed)
  - Embarrassed
  - Privacy concerns
  - Want to appear normal (thus choose answer choices in the middle)
  - Don't understand the question

Ways to deploy a survey

- Hand out paper

- Mail paper

- Tablet

- Online

- Phone

- Mobile

Types of survey questions

- Multiple choice
  - Likert scale

- Ranking

- Open-ended responses
  - Short response
  - Long response

Designing good survey questions

- Word questions clearly, without jargon or undefined abbreviations

- Avoid leading questions, ambiguous terms, or emotionally-loaded terms

- Design questions to evoke truthful responses
  - Non-threatening, don't bias participants to provide what they think you want, protect confidentiality

- Probe one dimension at a time

- Design questions such that respondents are likely to provide a range of answers

Clear questions

- Word questions clearly, without jargon, ambiguous terms, or undefined abbreviations

- Improve these questions:

  - Does your company use a VPN?

  - Do you make passwords with leet?

Avoid bias

- Avoid leading questions or emotionally-loaded terms

- Improve these questions:

  – Do you do insecure things like reuse your password?

  – Do you think privacy-invasive companies like Facebook should be allowed to collect information from children?

Evoke truth

- Design questions to evoke truthful responses
  - Non-threatening
  - Don't bias participants to provide what they think you want
  - Protect confidentiality (and tell participants that you will)
  - Don't allow participants to finish much faster by selecting certain answers

Probe one dimension at a time

- If you ask about multiple dimensions in one question, answers tend to be ambiguous

- Improve these questions:

  - Do you delete cookies or use an ad blocker to protect your privacy?

  - Are you concerned about your identity being stolen, making it difficult for you to get credit in the future?

Varied answers

- Design questions such that respondents are likely to provide a range of answers

  – If you bucket answers, use appropriate level of granularity, keeping in mind your population

- Improve this question:

  – How old are you?

    - 20-39
    - 40-69
    - 70-89

Appropriate answer choices

- Make sure answer choices are clear, mutually exclusive, cover entire space of possible answers

  – Allow multiple answers if choices are not mutually exclusive

  – Include "Other" if answers may not cover entire space

- Improve this question:

  – What technique did you use last time you created a password (choose 1)?

    - I used a name
    - I used a dictionary word
    - I used a random number
    - I added digits and symbols

18

Allow people to say they don't know

- Where appropriate, allow respondents to indicate they don't know, don't remember, don't have an opinion, or the question is not applicable to them

- Improve this question:
  - When was the last time you changed your email password?
    - This week
    - Last week
    - Last month
    - Last year
    - More than 1 year ago

Include sufficiently wide quantitative ranges

- Be aware that the rating scale can skew responses
  - People like to think they are normal and will choose responses that don't look like outliers

- Make sure you are covering an appropriate range

- Improve this question:
  - How often do you look at Facebook?
    - Once per week
    - A few times per week
    - Once per day
    - A few times per day

Rating scales

- Use consistent rating scales throughout
  - If you are asking multiple likert questions, try to use the same size scale throughout (3, 5, 7, 9, 10, 100, etc.)
- For opinion (concern, fun, difficulty, etc.) scales or agreement scales, put neutral in the middle
  - E.g.: Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree
- Framing statements with agreement scales can allow for more consistency

Be aware of difficulty

- Do not ask respondents to perform cognitively difficult tasks (unless you are testing their ability to perform these tasks) such as ranking more than 5 items

- Improve this question:

  – Rank the security level of each of these passwords, placing a 1 next to the most secure, 2 next to the next most secure, etc.

    - ieatkale88
    - ilovekale88
    - kale
    - love
    - 88kale88kale
    - i<3kale88

More survey design tips

- Cluster similar questions together

- Use a clear and attractive layout

- Pilot, pilot, pilot!

Be cognizant of length

- Provide appropriate pay or other incentives for a long survey

- Prioritize and eliminate questions that are less important to your research

- Consider dividing your sample randomly and giving different participants different questions

- Consider running multiple surveys or giving participants a break between survey parts

Include attention checks

- Make sure participants are paying attention
  - Ask same question more than once in slightly different ways
  - Ask question with obvious correct answer that is formatted similarly to other survey questions
  - Tell participants correct answer and see if they choose it
  - Check whether participants write meaningful answer to free response question

Pilot, pilot, pilot!

- You won't get it 100% right the first time

- Take the survey yourself and see how long it takes

- Watch people complete the survey and see if anything confuses them

- Give the survey to a small sample and check timing and look for unexpected results

- Come up with data analysis plan and use it to analyze pilot results