Design Your First Survey

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What does a good survey entail

- Reduce coverage error (sampling, mode of survey)
- Increase response rate (sampling, mode of survey)
- Reduce measurement errors to the greatest extent.

Sources of measurement errors (variances and bias caused by survey design or administration):

1. sampling (get representative and large enough sample)
2. questionnaire design (design questions that minimize comprehension variance and bias)
3. survey administration (avoid biased impact to interviewees)
Survey Sampling
Survey sampling

What is your target population?

• Sampling techniques:
  1. Random sampling (SRS, stratified, clustered)
  2. Sample sizes: (multiple factors decide sample sizes) (see next slide)
  3. Sampling framework: (do not introduce bias in sampling) (e.g. high school students)
How big the sample should be?

- Non-statistical consideration
  - availability of resources
  - Manpower
  - Budget
  - Sampling frame

- Statistical Consideration:
  - Level of precision
  - Confidence level
  - Degree of variability
  - Response rate
  - Types of test to be conducted
Questionnaire Design
Questions that introduces measurement errors

• Comprehension variation: How much time do you usually spend on reading every week? (reading for recreation/work?; variations from week to week)

• Leading bias: Smoking causes lung cancer. Are you a smoker?

• visual aid: eg, picture of a healthy person vs. a sick person

• Negative numbers in scales: eg, dislike, neutral, like (-1,0,1) (1,2,3)

• Primacy effects: order of choices being provided (Krosnick & Allen study on desirable child qualities)
How to make a good survey

• Understand types of questions

--simple questions (two or more answers, closed questions) (exhaustive and mutually exclusive)
--frequency questions (information retrieving)
--scale questions
--mark-it-all questions (clear instruction)
--filter questions
--open-ended questions (fill in answers)
How to make a good questionnaire

• Start from a research question and make a good plan
  --what is your research question (how do you envision your results)
  --convert concepts into questions
  --check the fit of the questionnaire
  --check if questions introduce measurement errors (through pretests)

  e.g. Uber drivers’ satisfaction survey
Uber drivers’ satisfaction survey—concept to questions

• Concept: Satisfaction
• Dimensions: materialistic; non-materialistic
• Sub-dimensions:
  materialistic---hourly salary; working hours; flexibility; benefits
  non-materialistic---job security; respect from interactions with customers; relationship with co-workers; career development opportunities
Uber drivers’ satisfaction survey—check the fit

• Did you cover every aspect of “satisfaction” you are interested in? Which aspect you want to emphasize on?

• Did you ask the appropriate filter question? (full-time vs. part-time drivers)

• Remover everything you don’t need
Uber Drivers’ Satisfaction Survey--
Check the quality of questionnaire

- Make good use of pretests
  --- expert review (survey designer, experts in the field)
  --- focus group (a group of drivers, customers, stakeholders, competitors)
  --- pilot sample (send the survey to a small group of Uber drivers)
Uber drivers’ satisfaction survey—
check quality of the questions

• Do I have ambiguous questions that may lead to variations for respondents’ comprehension?

• Do I have questions that may solicit biased answers

• Did I miss important items that may be used to measure the concept I am interested in?
Survey Administration
Survey mode selection

• Pick the right survey mode: (differ on response rate and self-selection bias, accuracy of answers)

---self-administered (eg. SAQ) vs. interviewer administered (eg. CATI, CAPI)
(interviewer intervention: standardized vs. conversational)

---written-based (Web) vs. oral based (CAPI, CATI)
(data analysis, human error, accuracy)

---face-to-face (CAPI); telephone (CATI); mail-in (SAQ/Mail); vs. online (SAQ/web)
What a survey questionnaire should include?

- Introduction
  (who, what, how long, confidentiality and voluntary participation, IRB information)

- Filtering questions
  (if you have targeted population: eg. Certain age group. Always hard to find whatever you are looking for)

- Main questions
  (starting from easy questions)
  (starting from relevant questions)
  (questions logically arranged)
  (controversial and sensitive questions put towards the end)
  (number your questions; negative numbers for N/A etc)

- Demographic questions
  (for weighting and for data analysis in the future)

- Thank you and follow up survey options
Qualtrics

• [https://berkeley.qualtrics.com/](https://berkeley.qualtrics.com/)

• Use your calnet ID and password to get authenticated with the Berkeley site license
Resources and References

• Recommended textbooks are from: Coursera.com Questionnaire Design for Social Surveys
  (You can find more here https://class.coursera.org/questionnairedesign-002)


