Using Surveys for Research on Student Populations

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Panel Presentation – Research Methods Workshop

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Carleton UNIVERSITY
Canada's Capital University

NIPISSING UNIVERSITY
100 College Drive, Box 5002
North Bay, Ontario, Canada
P1B 8L7
Tel: 705.474.3450

academica group

Surveys

- "Best method available to the social scientist interested in collecting original data for describing a population too large to observe directly." (Babbie, 1995)
- "…method of measuring the perceptions of behaviors or attitudes or orientations in a large population" (Salant and Dillman, 1994)
- "The most common technique used for gathering data in descriptive research." (Merriam and Simpson, 1995)

Why Conduct Surveys?

- Surveys can be non-experimental questionnaires or part of structured interviews.
- Surveys are quick simple methods of collecting fact-finding or opinion data.
- Compare data before and after a treatment or event.
- Quantify and collect data quickly and efficiently.
- Quickly created but impossible to perfect…

Why Conduct Surveys?

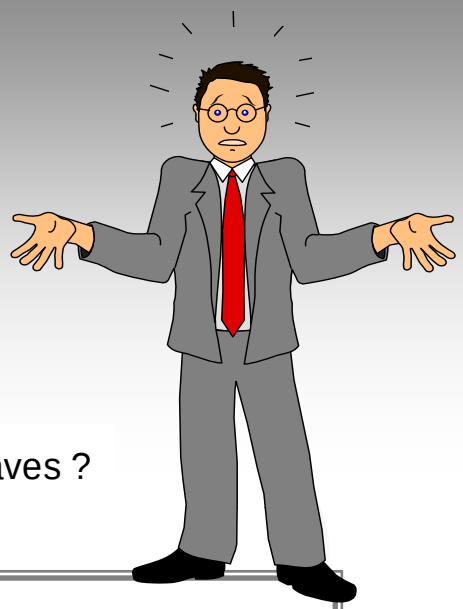
Why are surveys used?

- Allows people to tell researchers about themselves
- A method for studying relationships among variables and ways that attitudes and behaviors change over time
- Provides useful information for making public policy decisions / marketing
- An important complement to experimental findings
- Potentially collects qualitative and quantitative information.

Five Questions (Sherblom, 1993)

1. What do we want to know?
2. About whom do we want to know it?
3. How do we word the questions?
4. How do we elicit appropriate and adequate responses?
5. How do we interpret the results?

To Survey *or Not*



Key Design Question

Do you know what/how the target group thinks/believes/behaves ?

NO	YES
Need more in-depth understnding	Need Quantitative Data
What are the underlying perceptions/factors? What is the range of perceptions/responses?	How many think/believe/behave this? What are the segment differences?
Qualitative Research Methods	***Quantitative Research Methods***

Sampling Terminology

Census vs. Sample: Cost / Time / Decreased efficiency

Survey population: *N*

the population that the survey results are to be generalized

Sample frame

the "list" from which a sample is to be drawn in order to represent the survey population

Sample: *n*

all units of the population that are drawn for inclusion in the survey

Completed sample

all the respondents that completed the survey

Sampling

- Define population
- Non-probability "convenience" samples:
  - Good for "special populations" whose members cannot be "listed" beforehand
- Probability Sampling
  - Each element has a known chance of selection
  - Tests of inference and generalizability
  - Calculate confidence intervals for point estimates

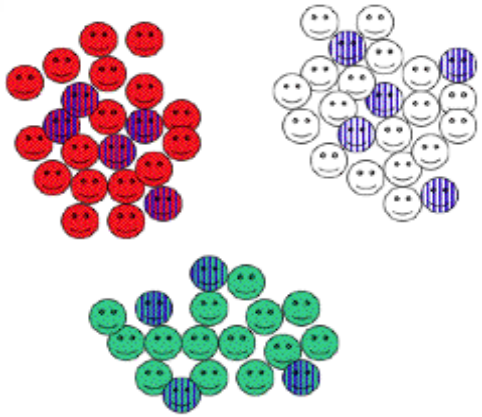
Sampling

Simple Random / Systematic Samples

- Create a sampling frame
- Use a random number table akin to "Pulling elements from a drum"
- E.g. 100 students from a school of 1000 students, then the sampling ratio is .1
- Almost always can just take every n^{th} case, after a random start, for example above take the 3^{rd}, 13^{th}, 23^{rd}, 33^{rd}, etc. cases
- In rare instances, bias may occur if sampling frame is ordered
  - Randomize or alphabetize

Sampling

Stratified Sample



- Population can be divided in some sort of groups, and a simple random sample is chosen from each group
- This can make sampling easier and in some cases produces more precise estimates

Response Rates

Selection vs. Response

- Normal response rates will vary across universities, student groups, and survey types

Evaluate Sampling and Response Error (If feasible)

- Assess sampling and response error by comparing the composition of the sample with known population characteristics (gender, age, year in program depending on available information) from the frame
- Records from student registration systems can yield information telling you whether your sample is systematically different from the population

Response Rates

Main Factors that impact response rates

- ***Purpose*** **of study, combined with the** ***Motivation*** **of respondents**
- **"*Cost*" of taking the survey, to participants, in time**

Other Factors that impact response rates

- **Quality of design (self admin. questionnaires and web surveys)**
- **Legitimacy / esteem of data collection organization**
- **Interviewer skill (surveys)**

Response rates may, depending on the survey, be affected by:

- **Novelty**
- **Reward / Trust**
- **Ease of taking the survey**

Sampling

- Population must be defined first, then sample selected
- Random Sampling
- Stratification of Sample
- Sample Size
- Self-selection bias issues with student populations

Four Sources of Error (Dillman, 2000)

Measurement Error

The responses to the answers are inaccurate, imprecise, ambiguous and cannot be used in a meaningful way.

Coverage Error

The sample is not drawn from a population in order to make that the interpretations will be useful.

Sampling Error

Only an inadequate subset of the population is surveyed.

Non-response Error

A significant number of people in the survey sample do not respond to the questionnaire and are different in a way that is important to the interpretation of the study.

Issues to Consider when using Surveys

Survey Construction

(Reducing Measurement Error)

- Creating questions that answer the question
- Picking Rating Scales / Likert Scaling
- Self Report

Administration of the Survey

(Considering Coverage, Sampling and Non-response Issues)

- Choosing a Survey Medium
- Enhancing Response Rates

Analysis, Interpretation and Reporting

(also Reducing Measurement Error)

Survey Design

Refine the Research Objectives

Collection of Demographic Information

Anonymity Issue

- Response rate vs. Data collection
- Differences in responses

Survey Design

Question wording

Potential problems that stem from a difficulty understanding the question

1. **Unfamiliar technical terms**
2. **Vague or imprecise terms**
3. **Ungrammatical sentence structure**
4. **Phrasing that overloads working memory**
5. **Embedding the question with misleading information**

Survey Design

Important considerations when writing questions

- Simplicity
- Double-barreled questions
- Loaded questions
- Negative wording
- Yea-saying and nay-saving

Survey Design

Use Open-ended questions infrequently and only when necessary.

- **Respondents are free to answer in any way they like**
- **Requires time to code responses; costly**
- **Some responses cannot be categorized**
- **Useful to find out what people are thinking and how people naturally view the world**

Survey Design

Use Closed-ended questions when appropriate

- Limited number of response alternatives are given
- More structured approach
- Easier to code
- Response alternatives are the same for everyone
- Useful when the dimensions of the variable are well defined
- Example – Likert scales and other rating scales

Rating Scales

Strongly agree _____ _____ _____ _____ _____ Strongly disagree

Not very enjoyable ——————————————— Very enjoyable

Point to the face that shows how you feel about the toy.

Rating Scales

Likert-type Scales are often used to quantify relationships.

1 – Strongly Agree

2 – Agree

3 – Neutral

4 – Disagree

5 – Strongly Disagree

- **Odd or Even Numbered ? How many points?**
- **Ensure they are Positively Scored**
- **Are Likert scales Nominal variables or Ordinal or Interval?**
- **How should we analyze them? Chi-square or t-tests? Wilcoxon Rank Sum?**

Survey Design

- Be aware that the questions that you ask can deliver powerful messages

- Beware of the "while we have you here" syndrome
  - If you aren't going to analyze it, don't ask it!

Survey Administration

- Data Collection Method - mail, telephone, interview, Drop-off, Email, Web

- Distribution
  - Procedures
  - Response Rates
  - Ethical considerations
  - Budget considerations / resources available

- Planning Process Overview

Survey Administration

Data Collection Methods

- Face-to-face
- Mail
- Drop off
- Telephone
- E-mail
- Web (on-line)√

What coordinates do you have:

- Name
- Telephone
- Mail address
- Email (personal / institutional)

Survey Administration

Dillman's Tailored Design Method (2000)

- On-line Survey Distribution
  - Pre-notice (Optional)
  - Cover & Questionnaire (Link)
  - Reminder Notice 1 (Replacement Link)
  - Reminder Notice 2 (Replacement & Final contact)

Response Rates

Response rates will vary across PSE institutions, student groups, and survey types

Factors Critical to Participation (Response Rates)

- Purpose of study
- Effectiveness of the ask (cover letter)
- Length of the survey
- Reward (incentives)
- Trust & Affinity to Sponsor
- Timing
- Target Group Considerations (i.e. survey fatigue)

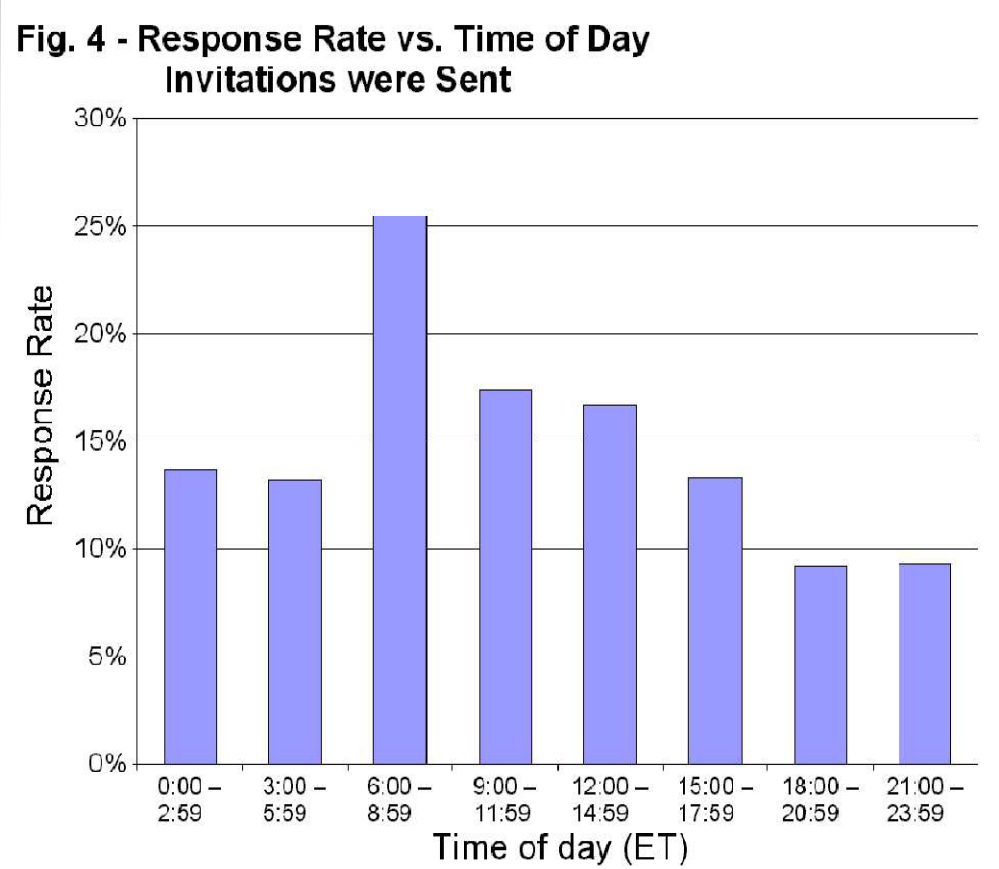
Survey Administration

Timing Observations & Tips:

- Over half of survey responses within in the 1-2 days.
- Seven out of eight responses arrive within the first week.
- Recommend 2-3 (avg. 20 days) weeks as a run time
  - This is especially true for institutional or firm-wide employee surveys, where students or employees may be on 2 week vacations.
  - 7 -10 days can be sufficient when speed is more of a concern than participation rates.

Survey Administration

Response rate and response time correlate strongly with the time of day. Find the highest response rates for survey invitations sent out between 6:00 and 9:00 AM (Fig. 4)1.



1. "Online Survey Response Rates and Times" Background and Guidance for Industry Michael Braun Hamilton, Online Survey Analyst mhamilton@supersurvey.com Tercent, Inc. / SuperSurvey; http://www.supersurvey.com

Participation

- About Response Rates
- How do you calculate it?
- What's reasonable?

Calculation of Response Rates

Response Rates

- The number of complete interviews divided by the number of eligible reporting units in the sample.

Cooperation Rates

- A cooperation rate is the proportion of all cases interviewed of all eligible units ever contacted.

Refusal Rates

- The proportion of all cases in which a respondent refuses to do an interview, or breaks-off an interview of all potentially eligible cases.

Response Rates

What is Reasonable ?

- Standards vary widely
- Consensus hard to come by:

1. 15 – 30% Minimal – not unusual & can be acceptable
2. 31 – 50% Reasonable – typical
3. 51 – 75% Superior
4. 75% + Rare indeed

Planning Overview

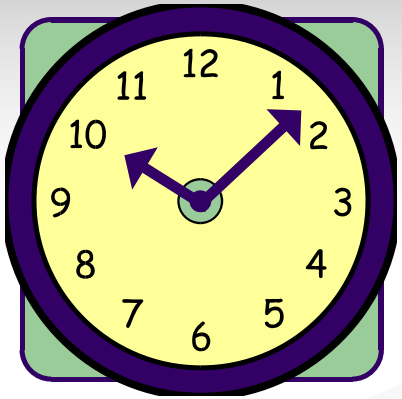
Ethical Considerations:

- Nature of questions
- Identification/tracking of respondents
- Reporting of findings - anonymously
- Informed consent
- Uses of findings
- Access to findings
- Explanations to respondents
- Use of incentives

Planning Overview

Budget Considerations

- Consultation time
- Questionnaire design time
- Printing/Programming
- Distribution - postage/caller
- Data Entry/Cleaning
- Data Analysis
- Report Development



Planning Overview

Planning Overview – Resource Considerations

- Types of expertise required
  - Design
  - Distribution
  - Coordination and monitoring
  - Statistical Analysis
  - Report Writing
- Types and sources of expertise available

Points to remember:

1. Four Errors (coverage, sampling, measurement, non-response)

2. Be specific about what you are researching and how your instrument helps achieve your goals.

3. During the administration, consider your audience and motivation to complete your survey. How will they interpret your survey?

A Real Life Case Study

- The Good
- The Bad
- The Ugly

Why did we do the survey?

The Good

- We had gathered some anecdotal info on what students thought they knew/perceived about the course but needed to match that knowledge with the quantitative analysis
- We had some LASSI results, student comments, faculty comments at meetings that indicated that there were certain perceptions within the different stakeholders, but needed to find out if our assumptions were correct
- Helped determine, one way or the other whether this course was having a measurable impact, both from a qualitative and quantitative perspective
- Elevated the level of knowledge for a large group of students of the existence of the course

The Bad

- We wanted to know if the students were being told that the course even existed

Sampling

The Good

- Use your knowledge and intuition as a starting point
- Need to be impartial and fair, but you understand your students, and that knowledge will help ensure that the sample is valid

The Bad

- Students are "surveyed out". Sample size must take into account those who will not respond and be quite vocal about it.

The Ugly

- Sometimes bias is almost impossible to detect or control.
- We used a paper survey over a short timeframe – had limited options and covered all the sample, but only got into classes where faculty either had a positive relationship with our department or with those administering the survey.

Survey Design

The Good

- Keep it short and simple. KISS method. Our survey took 10 minutes to complete. That went over well with the faculty whose classes I imposed on, and the students, who don't mind 10 minutes if they are there anyway

The Bad

- Need to ensure that all the language/terms used are understood by the sample group
- Very basic technical terms from "your world" may not be understood by a large portion of the sample

The Ugly

- No matter what you do, some questions will "stump" some of the sample group

Issues to Consider – Survey Design

Timing

The Good

- Depending on the survey, there are times when students surveys are "easier" to administer. Don't forget to take that into account.

The Bad

- Test the survey first for timing. Some questions, and you may be surprised by which ones, slow the process up if they are not perfectly clear or logical to the sample group.

The Ugly

- Avoid open-ended questions….some students love to write long opinions

Things to Consider – Survey Design

Internal Approval Processes

The Good

- Ethics committees are very thorough and know the rules. Be very thorough in your approach to them.

The Bad

- For "rookies" – ensure that you triple the time you think you will need to get it through "Ethics"

Rating Scales

The Good

- Again, the simpler the better. Don't try and tease out too much detail.

The Bad

- Know what "system" you have access to. May only apply to some of the smaller schools, but we have a system that only gives us 5 options.

The Ugly

- If you don't know that, you will have to "pool" some responses in unnatural ways. i.e. need to lump NURSING in with BSc – very different programs and responses.

Survey Administration

What type or medium to use?

We used paper.

The Good

- 800 paper surveys could be administered live in ten minutes in specific classes that met our identified sample
- If a question was being misinterpreted and you knew, it could be verbally clarified
- Quick – 550 completed in one week
- Could alter the sample if need be to meet the original criteria by class, i.e. 50% year one, 50% upper year

The Bad

- Time consuming for surveyor for the one week
- On-line – no need for all the time

The Ugly

- Reams of paper!

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P1B 8L7
Tel: 705.474.3450
academica group

We are:

- Al Carfagnini, Nipissing University
- Carol Miles, Carleton University
- Rod Skinkle, Academica Group
- Glenn Stalker, YorkUniversity

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