Principles of Web Survey Design

Survey structures that promote consistency in data collection
Answering the Big Questions

Why conduct survey research?

How do we collect reliable information?

What kind of feedback are we interested in?

What do we want to learn from our survey results?
Introduction

• Survey Theory
• Concept Mapping
  • Operationalizing concepts
• Survey Validity and Reliability
  • Eligible population
• Gate and Branch questions
• Answer Choices

• Survey Flow
  • Question order
  • Skip logic
• Visual Presentation
  • Reducing respondent burden
• Data Collection
  • Anticipating analysis
• Conclusions
Introduction: Survey Design Workflow

Mapping Concepts

Operationalize Concepts

Creating Questions

Question Types

Write-in

Gate Questions

Answer Choice Scales

Multiple Choice

Multi-Select

Eligible Population

Survey Flow

Data Collection

Question Order

Skip Logic
Survey Theory and Managing Behavior

Problems
• Forget their experiences pertaining to the survey questions
• Interpret questions in different ways
• Answer questions differently depending on placement in survey
  • Even answer choice order has an affect

More Problems
• Skip questions if permitted
• Choose contradictory answers if permitted
• Answer questions while thinking about a different service
• Fail to complete the survey
• Provide feedback that is not actionable
Survey Theory

Predictable Survey Experience

Validity

Reliability
Survey Validity

• Validity
  • Does the survey measure what we intend for it to measure?

• Reliability
  • Will the survey produce the same results if given a second time?
  • Will each respondent understand the question in the same way?

1. How often did you find it useful to visit the library services desk?
   - Never
   - Sometimes
   - Usually
   - Always

2. How often did you find the assistance that you received at the library services desk to be useful?
   - Never
   - Sometimes
   - Usually
   - Always
Survey Reliability

• Validity
  • Does the survey measure what we intend for it to measure?

• Reliability
  • Will the survey produce the same results if given a second time?
  • Will each respondent understand the question in the same way?

3. In the past month, how many times did you visit the Pattee Library?
   - 0 times
   - 1-3 times
   - 4-10 times
   - More than 10 times

4. On a scale of 1 to 5, how useful did you find the weekly seminar series?
   - 1
   - 2
   - 3
   - 4
   - 5
Declining Response Rates

• Have been declining since at least the mid-1990s, and probably since survey research began

• Industry is concerned about non-responses bias

• Survey validity and reliability is dependent on a representative sample

• Many survey researchers will use techniques such as weighting or oversampling to account for non-response bias
Non-Response Bias Gone Wrong

POSSIBLE EVIDENCE OF DIFFERENTIAL PARTISAN NONRESPONSE IN TRUMP APPROVAL POLLS

Differential partisan nonresponse—the idea that survey response rates vary by partisanship—has received a lot of attention as of late. I had some thoughts on this subject a while ago too. Most notably, strong evidence exists that this specific pattern can explain much of the opinion movement seen in pre-election polling during the campaign period, and might be responsible for polling error in this past election. Nonresponse bias of any kind has been considered as a source for election polling error as well.

NATE COHN EXPLAINS WHAT THE POLLS GOT WRONG

The Literary Digest
NEW YORK AUGUST 22, 1936

Topics of the day
"THE DIGEST" PRESIDENTIAL POLL IS ON!
Famous Forecasting Machine: Is Thrown Into Gear for 1936
Web Survey vs. Other Modes

Advantages

• Web surveys are no longer the newest mode through which to complete a survey
  • Mobile surveys are now increasingly popular
    • Through apps or SMS link
• Web surveys can enforce skip logic
• Web survey platforms have data export tools

Disadvantages

• Web surveys are more likely to produce duplicates
• Browser issues can prevent survey completion
• More likely to receive negative answers compared with a phone survey
• Make a list of the services for which you would like feedback
  • Divide those services into the minimum measurable components (operationalize)
  • Start from the broadest and end with the most specific
  • Respondents are most likely to give an appropriate answer if the questions ask about specific services
Survey-Eligible Populations

- Concerns validity and reliability
- A survey and its questions should only be completed by those who are eligible and/or have experience with the service

- Examples
  - Those who have visited the library in the past year
  - Students and/or professors only
  - Those who have visited the service desk at least once
  - Those who visited the library in person or who have used online services and software
  - Those who have not yet visited the library
Gate and Branch Questions

• Gate questions are possibly the most important questions in the survey
  • And yet only have a minor role in the analysis of survey results
• Restrict the survey to eligible respondents
• Reduce the complexity of analysis work
• Establish conceptual breakpoints in the survey

5. Have you visited the library in the past year?
   - Yes
   - No
   - No, but I intended to

6. How often was your experience with the library services desk positive?
   - Never
   - Sometimes
   - Usually
   - Always
Web Survey Question Types: Gate and Branch

2. Which software do you plan to use when you visit the library?

- [ ] Microsoft Suite Products
- [ ] EndNote
- [ ] Tableau
- [ ] R
- [ ] Other (please specify)

- [ ] None of the above

OK
Expository Text

- Expository text typically follows a gate question

- Prompts the respondent to orient to the topic or service in question

- Improves survey validity and reliability

- “In the following section, please think only about your experiences in the Pattee Library when answering the questions.”

- “The following questions concern only your visits to the service desk in the past 3 months.”
Answer Choices

- **Types**
  - Yes / No
  - Frequency
    - Never / Sometimes / Usually / Always
  - Intensity
    - Strongly Disagree / Disagree / Neither Agree nor Disagree / Agree / Strongly Agree

- Learn more about the subpopulation for each answer choice in a cross-tabs analysis

- Opportunity to branch questions based on response

- **Scaling**
  - 3, 4, or 5-point scales
    - Respondents are unlikely to be able to differentiate finer scales
      - 1-10 scale can be an exception

- **Ranking**

- **Outside of the Scale**
  - Not Applicable / No Experience Option
  - No Opinion
  - Write-in
Answer Choice Scales: Write-ins

• Do you really need one?
  • Create a list of possible responses
    • Potential to create a multi-select question

• May be necessary for qualitative feedback
  • Write-in questions can provoke responses that may not be relevant to survey goals

• Stand-alone vs. Catch-all

• Coding write-in answers
  • Anticipate themes
    • Code based on the topic of the response
  • Sentiment Analysis
    • The intensity of the response

• Descriptive
  • For idiosyncratic responses that do not fit a pattern

• Blind Coding
Web Survey Question Types: Matrix

5. How would you rate the following library amenities?

<table>
<thead>
<tr>
<th></th>
<th>Very Negatively</th>
<th>Negatively</th>
<th>Neutral</th>
<th>Positively</th>
<th>Very Positively</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Spaces</td>
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<td>Computer Equipment and Software</td>
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<td>Availability of Books for Coursework</td>
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<td>Seminar Series</td>
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<tr>
<td>Small Group Meeting Spaces</td>
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</tr>
</tbody>
</table>
Please rate how much you disagree or agree with the following statement. I have always had a positive experience when I need to reserve a room for group study?

1. Strongly Disagree
2. Disagree
3. Neither Disagree nor Agree
4. Agree
5. Strongly Agree
Web Survey Advantage: Enforcing Skip Patterns

- Reduces the need for data cleaning
  - Skip patterns limit question eligibility
  - Ability to require an answer
  - Ability to add an ‘NA’ choice

- Allows for spatial aggregation of conceptually-related questions
  - Intuitive flow from general to specific questions improves survey comprehension
Survey Exercise: Find the skip logic error

1. How often did you visit the library during the fall semester in-person?
   - 0 times
   - 1 time
   - 2-5 times
   - More than 5 times

5. How would you rate the following library amenities?

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</table>
Data Collection

• The very last step after survey development work
• Make sure to set an end date for the survey
• Some respondents will likely fail to complete the survey and then restart it
• Try not to edit the questions once the survey has been released

• Anonymity
  • Encourage respondents not to place their name in a write-in response

• Technical Issues
  • Browsers
  • Cookies
Summary of Principles

• Use concept mapping to establish what kind of feedback is needed

• Design the survey to encourage completion
  • Group questions conceptually

• Enforce skip logic to limit questions to those who are eligible

• Use expository text to guide respondents

• Start with general questions at the beginning that grow more specific

• Use intuitive scales, and limit the variety of them within the survey

• It is much better to overmanage a respondent’s path through the survey than undermanage
Next up: Tableau

• Visualizing Survey Results in Tableau
  • Create dashboards with multiple ‘vizzes’
  • Learn to create interactive visualizations with descriptive statistics

• Export from survey platform
  • Shortcuts for data transformation

• Process data in Tableau
  • Create calculated fields

• Dashboarding
  • Vizzes by any demographic subgroup variable

• Methods to share visualizations with others who do not have a Tableau subscription