Designing Effective Questionnaires and Surveys

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Surveys and Questionnaires *can* provide valuable data that can be used to provide *supplemental* information needed to make critical decisions.
Surveys enable us to investigate emerging issues.
Surveys can assist us in identifying specific problems when we know something isn’t quite right but we don’t know what the issues are.
Survey Options

Design your own

Purchase ready made tools

Cut and Paste
Surveys and Questionnaires

I. Defining the Survey Objectives
II. Choosing a Method of Data Collection
III. Selecting the Sample
IV. Writing Questions and Designing the Questionnaire
V. Collecting the Data
VI. Coding and Examining the Data
VII. Analyzing the Data and Preparing Reports
I. Defining the Survey Objectives

Objectives provide a reference point at all stages in the survey process.

• “Determine the level of student satisfaction.....”
• “Identify specific problems encountered by students during the registration process.....”
• “Gather demographic data to enable comparisons between subgroups......”
II. Choosing a method of data collection

- Personal Interviews
- Telephone Surveys
- Mail Surveys
- Computer Directed Interviews
- Email Surveys
- Internet/Intranet Surveys
- Focus Groups
III. Selecting the Sample

- Sample reflects population
- Budget can impact sample size
- Sampling error - generally, the larger the sample the lower the sampling error
III. Selecting the Sample

Survey Random Sample Calculator

If you have not yet conducted your survey and want to calculate how many people you need for your random sample, use calculators #1 and #2 below. If you already conducted your survey and want to know how accurate your data are given the number of responses you received, scroll down and use calculator #3.

#1 - How many survey respondents do you need?

Specify your desired error level and population size below and click calculate. The numbers next to each confidence level indicate how many people need to complete your survey to achieve the specified error level.

- How much error are you willing to tolerate? □ %
  If you are not sure, try somewhere between 3% and 8%
- How many people are in your population? □
  90% Confidence □
  95% Confidence □

Calculate
III. Selecting the Sample

Survey Random Sample Calculator

If you have not yet conducted your survey and want to calculate how many people you need for your random sample, use calculators #1 and #2 below. If you already conducted your survey and want to know how accurate your data are given the number of responses you received, scroll down and use calculator #3.

#1 - How many survey respondents do you need?

Specify your desired error level and population size below and click calculate. The numbers next to each confidence level indicate how many people need to complete your survey to achieve the specified error level.

How much error are you willing to tolerate?
If you are not sure, try somewhere between 3% and 8%

How many people are in your population?

<table>
<thead>
<tr>
<th>Confidence Level</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>214</td>
</tr>
<tr>
<td>95%</td>
<td>278</td>
</tr>
<tr>
<td>99%</td>
<td>399</td>
</tr>
</tbody>
</table>
Designing Effective Questionnaires and Surveys. AACRAO. April 2006

#2 - How many people do you need to send the survey to?

How many people need to complete the survey? 
From Calculator #1 above
What is your estimated response rate?
What % of people do you expect to complete the survey?

214

Send the survey to 856 people

#3 - How accurate are your survey results?

How many people are in your population? 1000
How many people completed your survey? 214

Calculate

Error Level

90% Confidence 5 %
95% Confidence 5.9 %
99% Confidence 7.8 %
Sample Definitions I

- Survey Population – all of the individuals to which you want to generalize your survey findings.
- The Sample – all the individuals from the population that you have selected for inclusion in your survey.

Dillman, 2000, *Mail and Internet Surveys*
Sample Definitions II

- Coverage error – results when every person in the survey population does not have a chance of being included in the sample.
- Sampling error – results from surveying just a subset of your sample.

Dillman, 2000, Mail and Internet Surveys
Use Large Samples When....

- Decisions based on survey data have serious or expensive consequences
- High level of confidence in the data is required
- High level of variance in the population
- Project costs and timing vary little with increases in the size of the sample
- Time and resources are available to cover cost of data collection
Use **Small Samples When**....

- Few major decisions are being based on survey data
- Require only rough estimates concerning population
- Little variance among population
- Project costs increase dramatically with sample size
- Time and/or budget limit amount of data that can be collected
Sampling Methods

Census – all individuals in the sample population are surveyed.

Probability sampling - each person in the sample population has a known, non-zero probability of being selected for the survey. Examples of probability sampling include random sampling, stratified sampling, etc. Using probability sampling, findings can be generalized to the larger population.
Sampling Methods

Non-probability sampling: individuals are selected to be surveyed in a non-random way. In this type of sampling, you cannot generalize your findings.

Convenience sampling: is a form of non-probability sampling. In this approach, a sample is selected because it is convenient.
Sample selection procedure

- Random selection methods
  - Nth name sampling
  - Random number generators
  - Tables of random numbers
  - Physical selection methods
IV. Writing Questions and Designing the Questionnaire

• Writing Questions
• Designing the format of the questionnaire
• Pretest questions and questionnaire
Types of question objects

- Attitudes
- Behaviors
- Characteristics
Types of Questions

- Multiple choice
- Numeric
- Text open end
- Yes/No
Multiple Choice

1. What is your major?
   - Accounting
   - Management
   - Finance
   - Economics
Numeric Open End

2. How many hours a week do you spend studying?
• 3. How can we improve our orientation programs?
Yes/No Responses

• Did the new student orientation meet your expectations?
  ______YES
  ______NO
Points to Ponder when Writing questions

• Make the questionnaire as easy to complete as possible
• Maintain interest with interesting questions
• Write fewer questions as opposed to too many questions
• Questions should be short and concise (20-25 words per question maximum)
• Don’t ask questions unless they fulfill objective
• The questionnaire design needs to motivate individuals to complete the questionnaire.
• Layout is critical
• Be aware of cultural differences
• KISS – Keep It Short and Simple
### Levels of Measurement

*A Judge's Deskbook on the Basic Philosophies and Methods of Science,*  
by Shirley A. Dobbin, Ph.D, and Sophia I. Gatowski, Ph.D

<table>
<thead>
<tr>
<th>Level</th>
<th>Properties</th>
<th>Observations Reflect</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Ratio   | true zero  
equal intervals  
order classification          | measurable differences in total amount | weight  
income                      |
| Interval| equal intervals  
order classification       | measurable differences in magnitude | Fahrenheit temperature  
IQ score  
GPA                         |
| Ordinal | order classification              | differences in degree         | attitudes  
letter grade  
movie ratings                |
| Nominal | classification                   | differences in kind           | ethnicity  
political affiliation     |
Nominal Sample

What is your gender?

0 Female       1 Male
Where do you prefer to eat your meals?

0  Student Center Food Court
1  Cafeteria
2  Off Campus Quick Card  Vendors
Ordinal Sample

Please put the following meal plan facilities in the order in which you prefer them (1, 2, 3):

___Student Center Food Court
___Cafeteria
___Off Campus Quick Card Food Vendors
___Hospital Cafeteria
Ordinal Ranking questions

- Product characteristics
- Frequency of use
- Recency of use
- Perceived price
- Ease of comprehension
Interval Sample

• Specify the range in which your grade point average falls:
  a. 2.0 – 2.5
  b. 2.51 – 3.0
  c. 3.1 – 3.5
  d. 3.51 – 4.0
Web Surveys

- Do not use too many colors or fonts
- Use color and font for emphasis
- White is a good background color
- Minimize the use of graphics
- Limit the need for horizontal scrolling
- Include an introduction or welcome page
- Consider your sample when designing pages
Web Surveys

- Do not use lots of pictures
- Do not use the latest technologies – some of your sample won’t have it.
- Try your survey on different browsers to check that it always looks the way you want it.
- If you are sending emails to students, check with your tech people to make sure that your SPAM filters will not block it.
Survey Layout

• Try to keep answer spaces in a straight line
• A single answer choice on each line is best.
Sample Layout

Do you agree, disagree or have no opinion that MCON has:

Quality academic programs - agree/not sure/disagree.
Quality faculty - agree/not sure/disagree.
Excellent food service - agree/not sure/disagree.
Quality academic advising - agree/not sure/disagree.
Sample Layout

Do you agree, disagree or have no opinion that MCON has:

<table>
<thead>
<tr>
<th>Service</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality academic programs</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Quality faculty</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Excellent food service</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Quality academic advising</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
PreTest Survey

• Pretesting can reveal issues with question wording, instructions, format, etc.
• Test the same kinds of individuals that will be included in the main survey.
• If you change any questions after the pretest, do not include those results with the posttest results.
V. Collecting the Data

• Distributing questionnaire and cover letter
• Maintain database of responders and nonresponders
• Sending reminders
Incentives

- A “token” incentive included with the survey has been shown to consistently increase response rates.
- But, promising to pay someone after they have completed the survey by sending a check afterwards does not improve the response rate.

Dillman, 2000, Mail and Internet Surveys
Incentives

Many researchers in higher education are offering raffles or lotteries as incentives to increase the rate of response to surveys.

Porter & Whitcomb (2003) did a study of this type of Incentive and had some interesting findings. They found that for incentives, more is not necessarily better, that increasing the size of the prize did not translate into higher response rates. Using prizes ranging from $50 to $200, they found that a $100 prize resulted in the highest response rate.
Sometimes we have to provide encouragement

- Provide self addressed stamped envelope
- Provide monetary incentive
- Provide coupon or product incentive
- Provide tuition or application discount
VI. Coding and Examining the Data

- Special coding scheme
- Individual judgement
- Review for data entry errors
VII. Analyzing Data and Reporting Results

- Statistical Analysis
- Manual calculations
- Computer based statistical programs
There is help with data analysis!

- Excel
- SPSS (Statistical package for the Social Sciences)
- Commercial Web Products
Some Web-Based Questionnaire Products

- www.zoomerang.com
- www.surveyshare.com
- www.surveytracker.com
- www.surveymonkey.com
- www.websurveyor.com
Resources for Surveys
National Survey of Student Engagement (NSSE):
http://nsse.iub.edu/index.cfm

National Survey of Faculty Engagement (FSSE):
http://nsse.iub.edu/fsse/index.cfm

ACT:
http://www.act.org/

National Center for Higher Education Management Systems:
http://www.nchems.org/

Noel-Levitz:
http://www.noellevitz.com/nlcom/Our+Services/Retention/Tools/

ASQ:
Cooperative Institutional Research Program (CIRP):
http://www.gseis.ucla.edu/heri/freshman.html

Internet Resources for Higher Education Outcomes Assessment:
http://www2.acs.ncsu.edu/UPA/assmt/resource.htm

Internet Resources for Institutional Research:
http://www.airweb.org/links/
Measuring Quality: Choosing Among Surveys and Other Assessments of College Quality
Describes and compares nationally standardized assessment instruments.
(http://www.airweb.org/images/measurequality.pdf)

Resources for Institutional Researchers:
http://www.bates.edu/oipa-resources.xml
Student Affairs Research:
http://www.uncc.edu/stuaffairs/sarlinks.htm

The ERIC Clearinghouse on Assessment and Evaluation:
http://PAREonline.net

Student Assessment Resources:
(some good surveys available here) http://www.uncc.edu/stuaffairs/sar/

Education Program Evaluation (U.S. ED)
http://www.ed.gov/offices/OUS/PES/primer1.html
ANSWERS (Accessing National Surveys with Electronic Research Sources) This site has resources for those with basic questions on to proceed with surveys:
http://highered.org/answers/

SIG on Survey Research in Education (SIG-SRE) of the American Educational Research Association (AERA):
http://www.as.ysu.edu/~gunapala/surveyed/index.htm
American Statistical Association – Brochures on surveys & related topics
http://www.amstat.org/sections/srms/

“What is a survey” http://www.whatisasurvey.info/

Chapter 3 - “How to collect survey data”

Chapter 4 - “Judging the quality of a survey”

Chapter 5 - “What are focus groups?”

Chapter 6- “Designing a questionnaire”

(Chapters are available on the web or there is an option to download the .PDF version)
Resources for Methods in Evaluation and Social Research:

This page lists FREE resources for methods in evaluation and social research. The focus is on "how-to" do evaluation research and the methods used: surveys, focus groups, sampling, interviews, and other methods. Most of these links are to resources that can be read over the web.

http://gsociology.icaap.org/methods/

Basics of Developing Questionnaires

http://www.mapnp.org/library/evaluatn/questnrs.htm
Professor Don Dillman
http://survey.sesrc.wsu.edu/dillman/


Links to Dr. Dillman’s papers
http://survey.sesrc.wsu.edu/dillman/papers.htm
Presenting Results

http://lilt.ilstu.edu/gmklass/pos138/datadisplay/badchart.htm
- examples of “good” and “bad” charts as well as tips on what to do and what to avoid.

Edward Tufte website - presenting data visually

http://www.edwardtufte.com/tufte/index
An Interesting Book to Read:

*How to Lie with Statistics*
Darrell Huff
Illustrated by Irving Geis

Over Half a Million Copies Sold—An Honest-to-Goodness Bestseller
References


