Surveying for Customer Satisfaction

Department of Neighborhood and Community Services
March 2012

Course Outline

- **Choosing the Research Approach**
- **Planning the Project**
- **Ethics, Confidentiality and Integrity**
- **Defining the Population and Sample**
- **Designing and Writing the Questionnaire**
- **Interpreting the Data**
- **Tools and Resources**

Definitions

Population
The collection or universe of all elements being described or measured by the survey.

Sampling Frame
An exhaustive list of all members of the population from which a sample can be drawn.

Sample
Any portion of the population, less than the total.

Survey
A process of inquiry for the purpose of data collection and analysis using observation, questionnaires and interviews.

Definitions

Census
*A study using
all of the available members
of a population.*

Questionnaire
*A measuring
device used to query a
population or sample in order
to obtain information.*

Bias
*Distorted or unreliable survey
results. All surveys contain
some bias.*

Respondent
*An element or
member of the population
selected to be sampled.*

Choosing the Research Approach

- **Alternative methods for measuring customer satisfaction**

- **Pros and Cons of customer satisfaction surveys**

- **Attributes of good customer satisfaction surveys**

Choosing the Research Approach

"A customer's satisfaction with a product or service has virtually no bearing on his or her likelihood to return to buy from that company again—unless the customer is made to feel "totally satisfied," "wowed," "exuberant" or "elated.""

Jones, Thomas O. and W. Earl Sasser, Jr. "Why Satisfied Customers Defect." Harvard Business Review. 73.6 (1995): 88-99. Interaction Metrics at http://www.customersatisfactionstrategy.com/measure_satisfaction.html

Choosing the Research Approach

Ways to Measure Customer Satisfaction

Mystery Shopping

Feedback Cards

Monitoring

Interviews & Focus Groups

Interaction Metrics at http://www.customersatisfactionstrategy.com/other_ways.html

Choosing the Research Approach

Customer Satisfaction Surveys

Pros

Cons

Efficient method for collecting information.

Systematic and impartial means for obtaining quantitative information.

Need careful planning to collect meaningful information.

Are obtrusive.

Results cannot dictate decisions.

Choosing the Research Approach

Good customer satisfaction surveys:

Measure how the customer "feels" not just satisfaction. (Were they wowed?)

Do not "bias" questions to elicit positive results.

Provide meaningful information about how to improve products and services.

Provide results that are representative of the population of customers.

Developing a Project Plan

- **Setting Goals and Objectives**

- **Background Research**

- **Choosing a Survey Format**

- **Determining Schedule and Budget**

- **Ethics, Confidentiality and Integrity**

Developing a Project Plan

Not clearly defining the purpose and goals of a survey is a common pitfall.
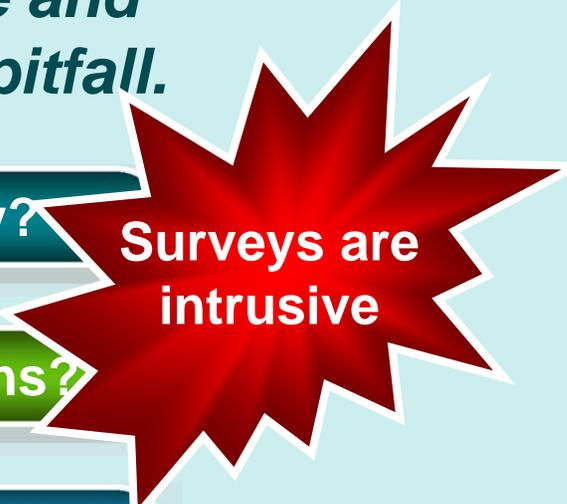
- What is the purpose of the survey?
- Can info be obtained by other means?
- Can the intended audience be reached?
- Who will use the information and how?
- What crosstabs are desired?
- Is the study feasible?

Surveys are intrusive

Developing a Project Plan

Performing background research will improve the quality of the survey.

What questions work well in other studies?

What terminology is used?

Is it desirable to compare results to others?

How are sampling frames defined?

Developing a Project Plan

Research shows:

"Questionnaire(s)… have elements that often appear to be just plain common-sense, but when they are implemented, may involve some subtlety."

Scheuren, Fritz, *What is a Survey: How to Plan a Survey,* American Statistical Association, June 2004,

Developing a Project Plan

Research shows:

In a survey about robbery victimization, One might ask:

Were you robbed during the last six months?

Developing a Project Plan

Common Types of Surveys

Mail or Written

Internet or Electronic

Telephone

Face-to-Face Interview

Developing a Project Plan

Mail or Written Surveys

Pros

Low staff resources
Complex questions
Large samples
Low interviewer bias
Low social bias
More honesty
Low cost

Cons

Implementation speed
Question sequence
Question branching
Require better questions
Respondent substitution
Low response rates

Developing a Project Plan

Internet or Electronic Surveys

Pros	Cons
Low staff resources	Creating sample frame
Complex questions	Require better questions
Question sequence	Respondent substitution
Question branching	Confidentiality concerns
Large samples	Low response rates
Implementation speed	
Low interviewer bias	
Low social bias	
Low cost	

Developing a Project Plan

Telephone Surveys

Pros

Cons

Question forgiveness
Open ended question
Question sequence
Question branching
Survey length
Implementation speed
Select respondent

Complex questions
Sampling issues
High staff resources
Confidentiality concerns
Interviewer bias/training
Social bias-less honesty
Low response rates
Medium cost

Developing a Project Plan

Face-to-Face Surveys

Pros

Question forgiveness
Open ended question
Question sequence
Question branching
Survey length
Survey complexity
Select respondent

Cons

Smaller samples
High staff resources
Interviewer bias/training
Social bias-less honesty
Implementation speed
High cost

Developing a Project Plan

How Much Time Does It Take to Conduct a Survey?

- **Varies by type and complexity**
  - A very simple survey may take only 2 or 3 weeks
  - More commonly, it takes from several months to a year
  - A common pitfall is under estimating the time & resources
- **Steps involved in conducting a survey**
  - Identifying the information needs and goals;
  - Defining and locating respondents;
  - Deciding how the data will be collected;
  - Designing and pretesting the questionnaire;
  - Hiring and training staff or contractors;
  - Collecting the data;
  - Determining how to handle non-response/follow-up; and
  - Coding, cleaning, tabulating, and analyzing the data.

Developing a Project Plan

How Much Does It Cost to Conduct a Survey?

- ## Varies by type and complexity
  - As a general rule, surveys are an ***expensive*** method of obtaining information.

Ethics, Confidentiality and Integrity

Quality is largely determined by purpose and the way the survey is conducted!

How questions are asked can greatly affect survey results!

Surveys are intrusive

Survey invites should always indicate that participation is completely voluntary!

Confidentiality is difficult to ensure! Virginia local governments are subject to FOIA.

Ethics, Confidentiality and Integrity

If any federal funds are used, check to see if your research must follow the federal guidelines for research projects.
It may fall under Title 45 Protection of Human Subjects.
http://ohsr.od.nih.gov/guidelines/45cfr46.html

Surveys are intrusive

Sampling

- **Defining the Target Population**

- **Nonprobability Samples**

- **Probability Samples**

- **Sample Size**

- **Response Rates and Nonresponse**

Sampling

Defining the Target Population

It is a common pitfall not to spend the time necessary to ensure that the population from which the sample is drawn is complete and well defined.

Can the intended audience be reached?

Sampling

What is the population being measured?

Two early polls in the Democratic primary for governor of Virginia showed the three candidates tightly bunched together and more voters were undecided than favored any of them.

A poll conducted a couple of weeks later shows Terry McAuliffe, the former chairman of the Democratic National Committee, ahead by double digits. Has McAuliffe surged?

Pollster	Date	Deeds	McAuliffe	Moran	Undecided
Public Policy Polling	3/27-3/29	15	18	22	45
Research 2000	4/6-4/8	16	19	24	41
SurveyUSA	4/25-4/27	22	38	22	18

Goodman, Josh; Poll Finds McAuliffe Strong, But…; From Governing.com, Ballot Box; May 1, 2009.
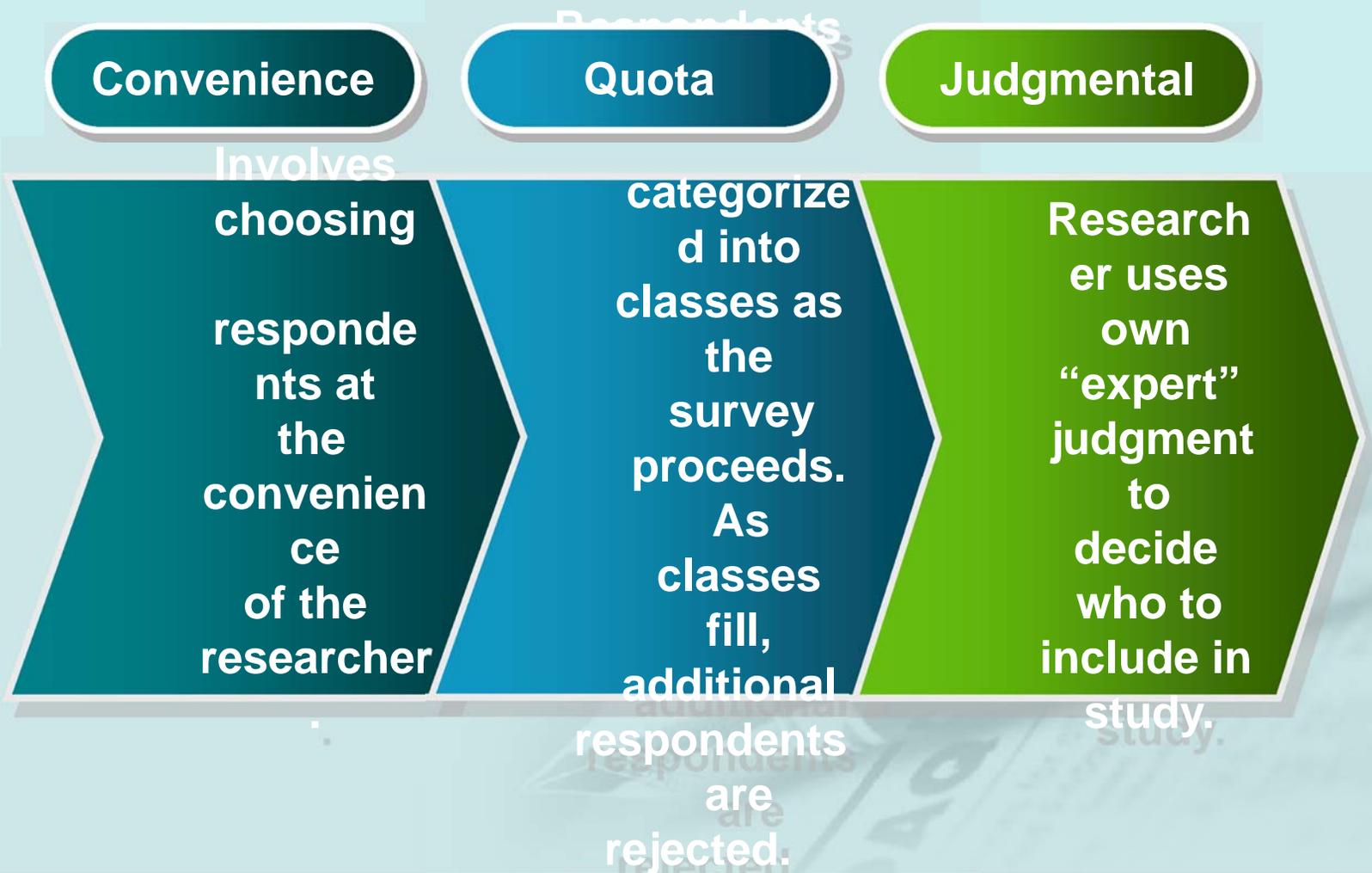
Sampling

What is the population being measured?

- **All of the polls asked the same question**
- **But the samples were drawn from different populations**
  - Public Policy Polling and Research 2000 drew their samples from persons likely to vote in the Democratic primary.
  - SurveyUSA drew their sample from all registered voters of which only about a third were likely to vote in the Democratic primary.

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Sampling

Common Types of Nonprobability Samples

Convenience	Quota	Judgmental
Involves choosing respondents at the convenience of the researcher.	Respondents categorized into classes as the survey proceeds. As classes fill, additional respondents are rejected.	Researcher uses own "expert" judgment to decide who to include in study.

Sampling

Common Types of Probability Samples

Simple Random	Cluster	Systematic
Each person or item in the population has an equal chance of being selected.	population to be sampled is subdivided into mutually exclusive groups. A random sample of the groups is drawn.	of the sampling frame is selected after randomly selecting the first through nth element as the start.

Sampling

Nonprobability Samples

Pros

Cons

Ease in which it can be administered.

Less complicated and time consuming.

Cannot generalize to the population. Must limit findings to those sampled.

Cannot calculate sampling statistics.

Sampling

Probability Samples

Pros

Cons

Can generalize to the population.

Can calculate sampling statistics.

Harder to administer.

More complicated and time consuming.

Sampling

What kind of sample is… an election for the Board of Supervisors?

Probability or Nonprobability?

Sampling

What kind of sample is… a Bingo game?

Probability or Nonprobability?

Sampling

What kind of sample is… pop-up survey encountered on a website?

Probability or Nonprobability?

Definitions

Sampling Error
Difference between an estimate derived from a sample survey and the "true value" for the population.

Standard Deviation
A measure of the spread in a set of observations around the "true value."

Confidence Interval
An interval estimate of a population parameter based on the standard deviation.

Confidence Level
The probability that the confidence interval will include the true population value.
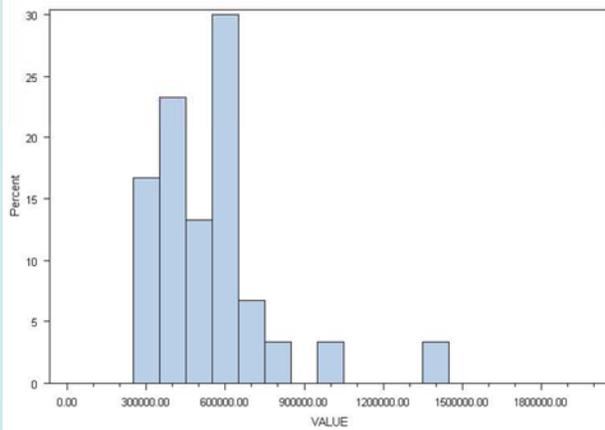
Sampling

How Big Is Enough?

Population Size	Confidence Interval at 95% Confidence Level — Sample Size															
	50	75	100	150	200	250	300	350	400	450	500	750	1000	1250	1500	2000
200	12.2	9.1	7.0	4.1												
300	12.2	10.0	8.2	5.8	4.1	2.6										
400		10.4	8.7	6.4	5.0	3.9	2.9	2.0								
500			8.9	6.8	5.4	4.5	3.6	2.9	2.2	1.5						
600			9.1	7.1	5.8	4.8	4.1	3.5	2.9	2.4	1.8					
700			9.3	7.2	6.0	5.1	4.4	3.8	3.3	2.8	2.4					
800			9.4	7.4	6.1	5.2	4.6	4.0	3.5	3.1	2.7	0.9				
900			9.4	7.5	6.2	5.4	4.7	4.2	3.7	3.3	3.0	1.5				
1,000			9.5	7.5	6.3	5.5	4.8	4.3	3.9	3.5	3.2	1.8				
2,000			9.7	7.8	6.7	6.0	5.3	4.9	4.5	4.1	3.9	2.9	2.2	1.7	1.3	
3,000			9.8	8.0	6.8	6.1	5.5	5.0	4.7	4.3	4.1	3.2	2.6	2.1	1.8	1.3
4,000			9.9	8.0	6.9	6.1	5.6	5.1	4.7	4.4	4.2	3.3	2.7	2.3	2.0	1.6
5,000			9.9	8.0	6.9	6.2	5.6	5.2	4.8	4.5	4.2	3.4	2.8	2.4	2.2	1.7
10,000			9.9	8.1	7.0	6.2	5.7	5.3	4.9	4.6	4.4	3.5	3.0	2.6	2.4	2.0
25,000			10.0	8.1	7.0	6.3	5.7	5.3	5.0	4.7	4.4	3.6	3.1	2.8	2.5	2.1
50,000				8.2	7.1	6.3	5.8	5.3	5.0	4.7	4.4	3.6	3.1	2.8	2.6	2.2
500,000				8.2	7.1	6.3	5.8	5.3	5.0	4.7	4.5	3.6	3.2	2.8	2.6	2.2
1,000,000				8.2	7.1	6.3	5.8	5.3	5.0	4.7	4.5	3.7	3.5	2.8	2.6	2.2

Clark, Lawrence P., Introduction to Surveys and Interviews, Policy Studies Associates, 1981.
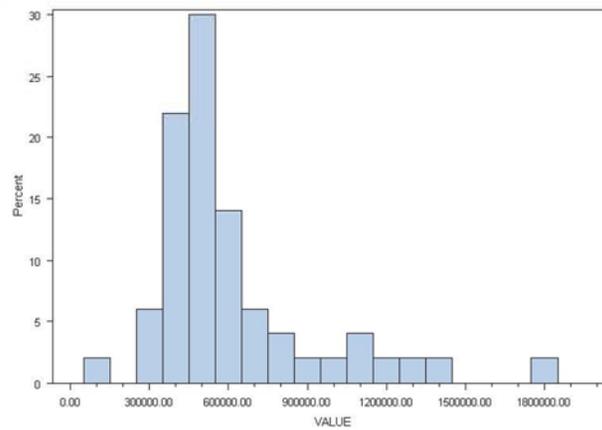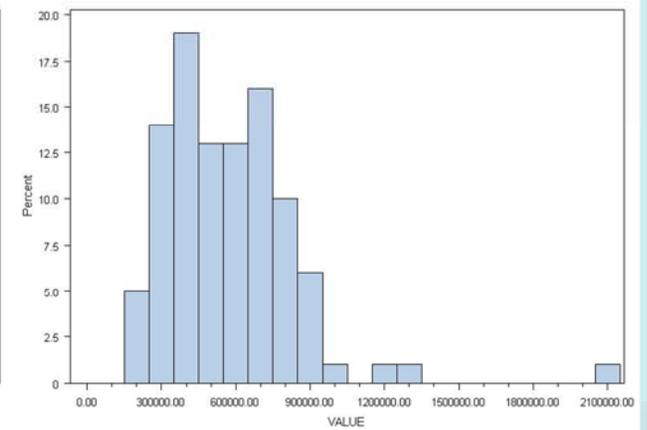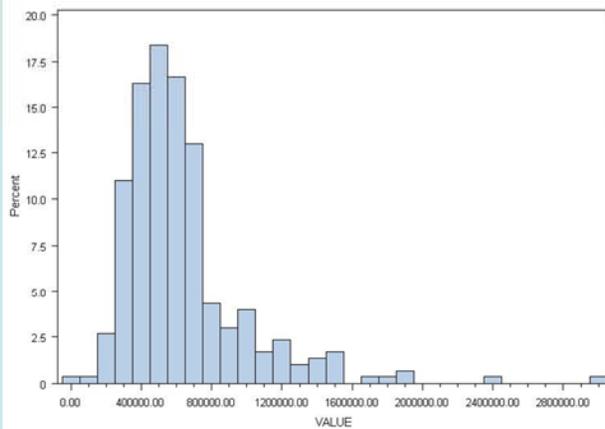
Sampling

How Big Is Enough?
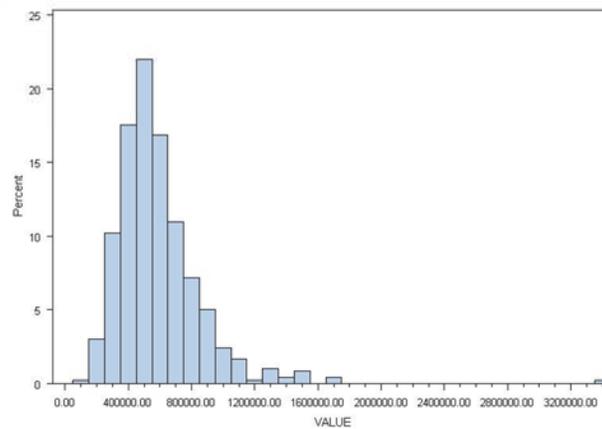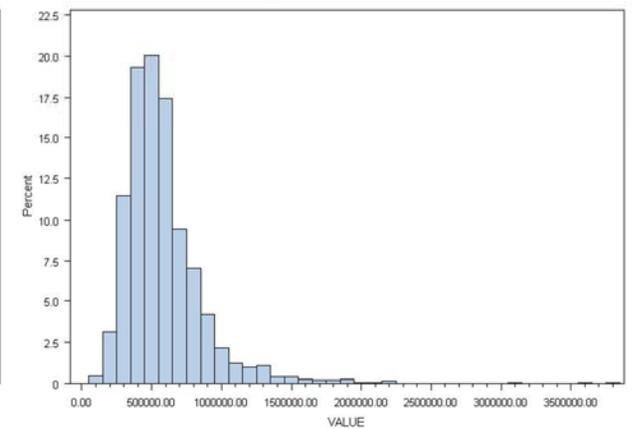
Sampling

How Big Is Enough?

Sample Size	Mean Market Value of Owned Housing	95% Confidence Limit +/-	Is Pop. Mean Within 95% Confidence Range?	Difference From Population Mean
30	$538,309	$86,220	YES	-54,381
50	$609,614	$88,847	YES	16,924
100	$569,940	$53,344	YES	-22,750
300	$632,221	$40,256	YES	39,531
500	$586,087	$24,025	YES	-6,603
2000	$590,583	$15,489	YES	-2,107
Population	$592,690			

Definitions

Response Rate
The percentage of surveys completed from the total sample queried.

Unit Nonresponse
When information from a sampling unit is not available.

Item Nonresponse
Nonresponse to selected items or questions on a survey.
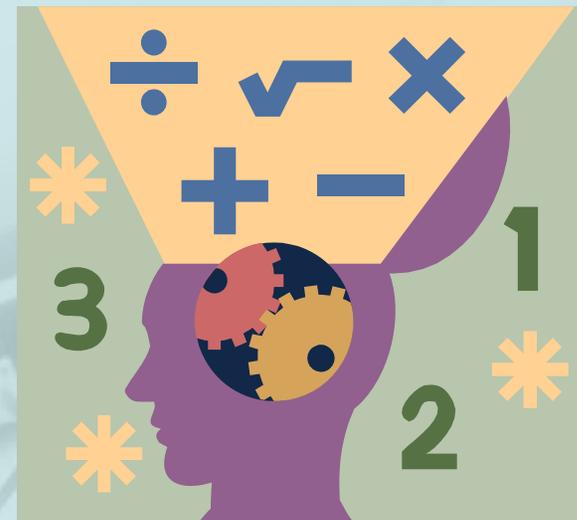
Sampling

Controlling Nonresponse

Give respondents a strong reason to participate

Use well designed questionnaires

Keep the survey brief

Keep the sample as small as possible

Use of incentives

Follow-up! Follow-up! Follow-up!

Sampling

Mail Survey Follow-up Timeline

Survey Mailed	Week One	Week Three	Week Seven
Questionnaires are mailed first class with a stamped return envelop for completed forms.	A postcard reminder sent to everyone. Thanks those who have responded and reminds those who have not.	A letter and replacement questionnaire sent to those who have not responded.	A letter and replacement questionnaire sent to those who have not responded.

Dillman, Don A., Mail and Telephone Surveys: The Total Design Method, John Wiley and Sons, 1978.

Sampling

Internet Survey Follow-up Timeline

Survey Email — **Day Three** — **Day Six** — **Day Nine**

Survey invite is emailed. For employed persons mid-week is the best time to send the invite.

Email reminder to everyone. It thanks those who have responded and reminds those who have not responded.

An email with a modified appeal letter is sent to those who have not responded.

An email with a modified appeal letter is sent to those who have not responded.

Sampling

Sources of Sampling Error and Bias

Coverage Error

Sampling Error

Nonresponse Error

**Total Students
In School
(Population)**

**Students in PTA
Phonebook
(Sampling Frame)**

**Students
Selected for
Survey
(Sample)**

**Students
Completing
Survey
(Respondents)**

Professor Villegas, University of San Francisco, Business Statistics: A First Course.
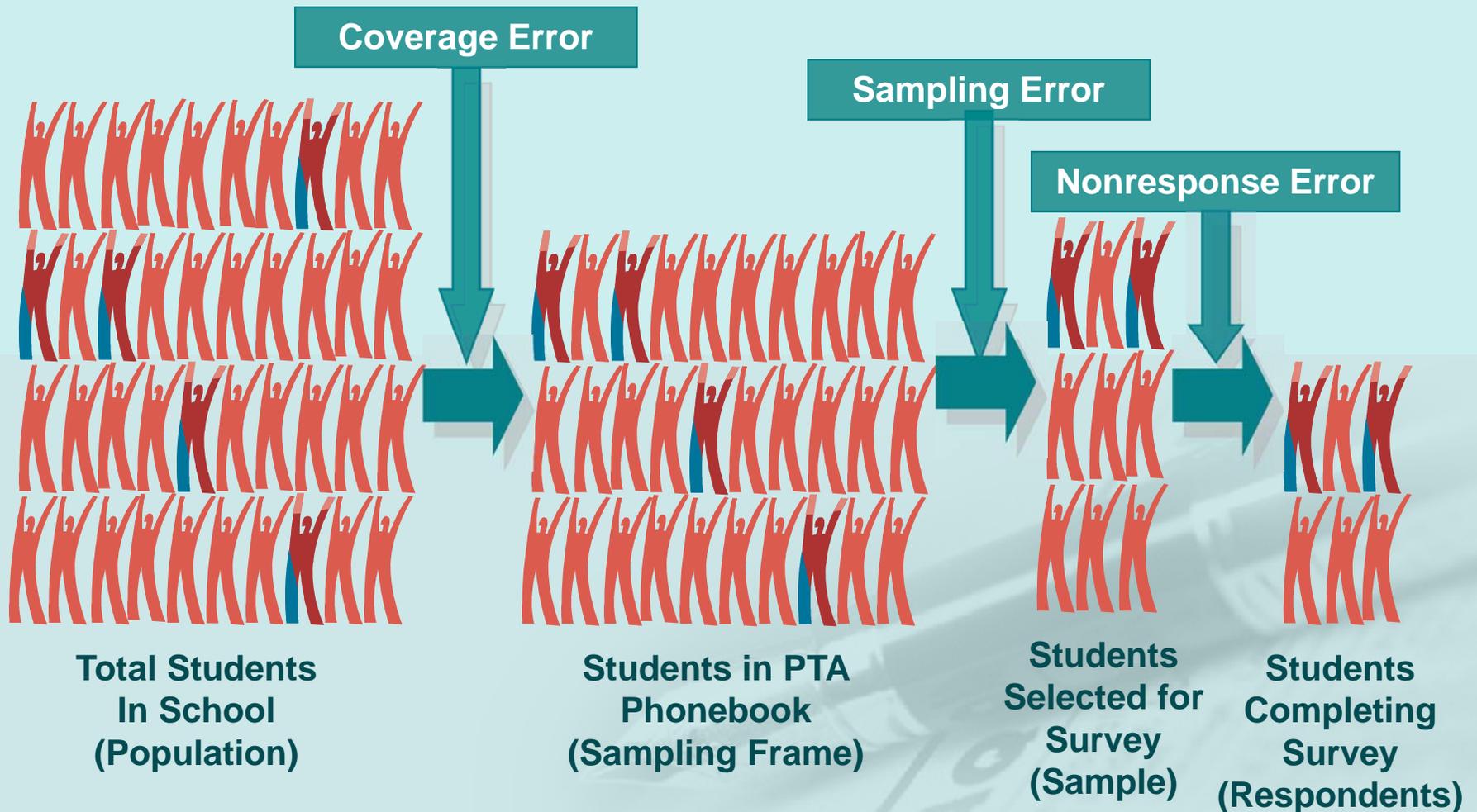
Sampling

Evaluating the Quality of a Sample

Was the intended audience reached?

Did each element have a known probability of being sampled?

What are the response rates?

How variable is the characteristic being measured?
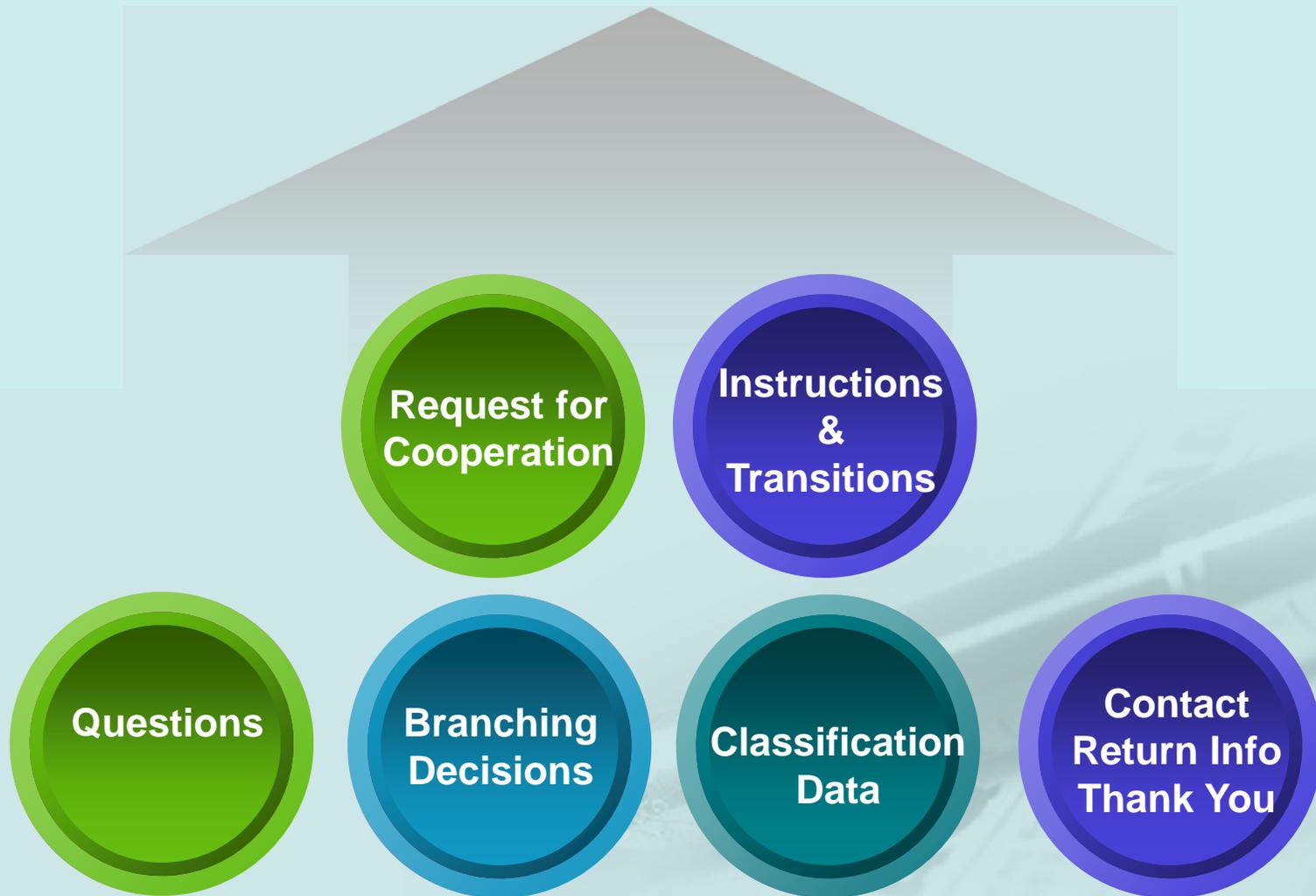
What is the size of the sample?

Questionnaire Design

- **The Components of a Questionnaire**

- **General Layout of a Questionnaire**

- **Types of Questions**

- **Forms of Questions**

- **Question Wording**

- **Pretesting**

Questionnaire Design

Components of a Questionnaire

Request for Cooperation

Instructions & Transitions

Questions

Branching Decisions

Classification Data

Contact Return Info Thank You

Questionnaire Design

Surveys are intrusive

Writing the Request for Cooperation

Do me a favor

Solve Problem

Appeal is limited. If you do me a favor, I will do you a favor.

May respond to very brief survey if recipient doesn't have to go out of his way.

Stronger, broader appeal if problem is important to recipient. Recipient derives reward by feeling they have contributed to the solution of an important problem.

Dillman, Don A., Mail and Telephone Surveys: The Total Design Method, John Wiley and Sons, 1978.

Questionnaire Design-Appeal Letter

First Paragraph

Explains goal of the study and convinces recipient that the study is useful. May connect through a group to which the recipient associates. Don't build the appeal around a group that is rejected by some of those surveyed. It is essential to avoid any hint of bias.

Second Paragraph

Convinces the recipient that they are important and no one can be substituted. "You are one of a small number of persons being asked to give their opinion. For the results to truly represent the thinking of…, it is important that we hear back from you."

Third Paragraph

Addresses concerns about confidentiality. Remember to be careful about promising confidentiality unless you can absolutely assure it. All public records are subject to FOIA.

Fourth Paragraph

Reemphasizes the basic justification for the study. Include information on how data will be used making sure that the promise of action is consistent with the social utility appeal in paragraph one.

Dillman, Don A., Mail and Telephone Surveys: The Total Design Method, John Wiley and Sons, 1978.

Questionnaire Design

Questionnaire Layout

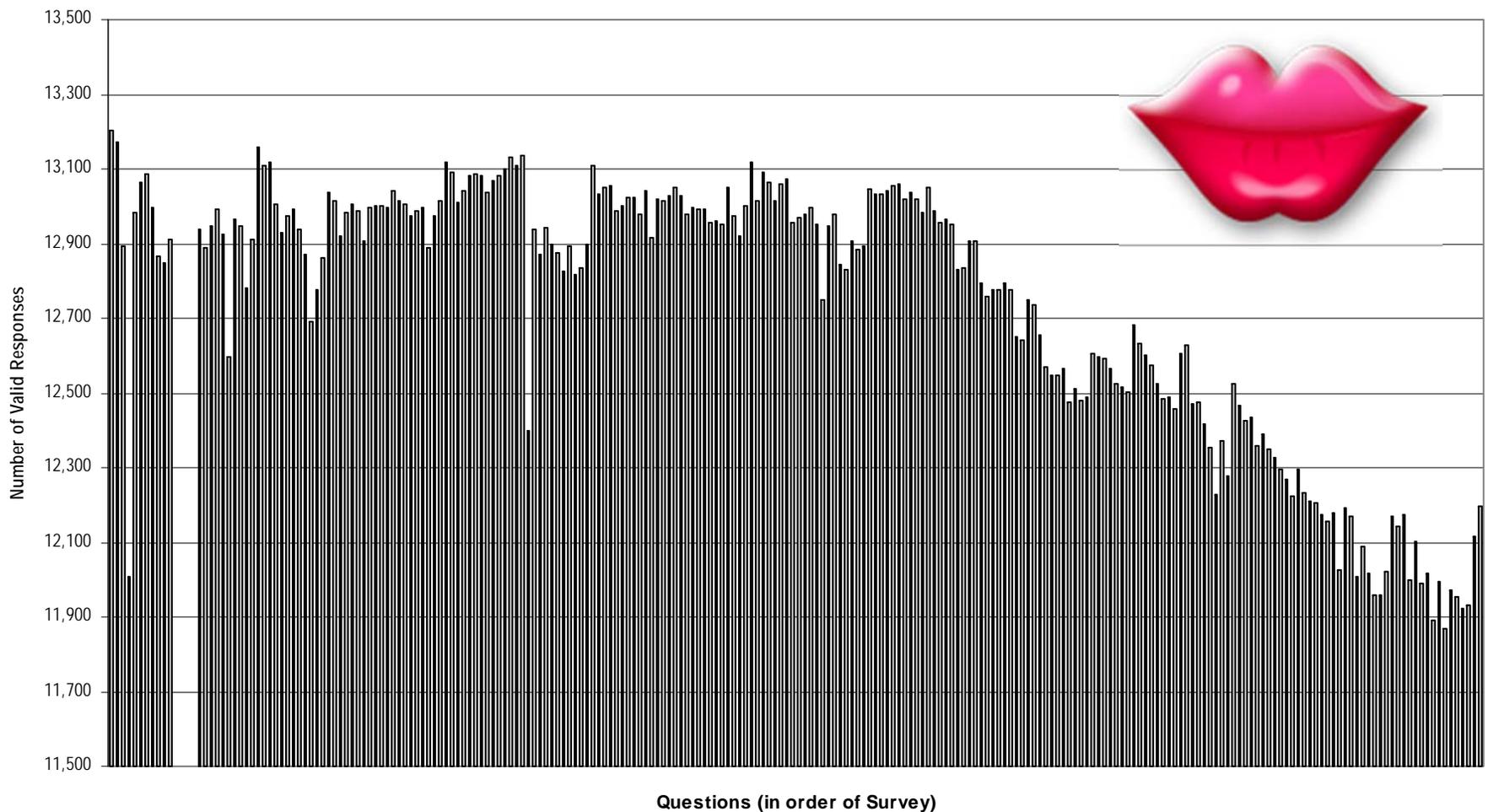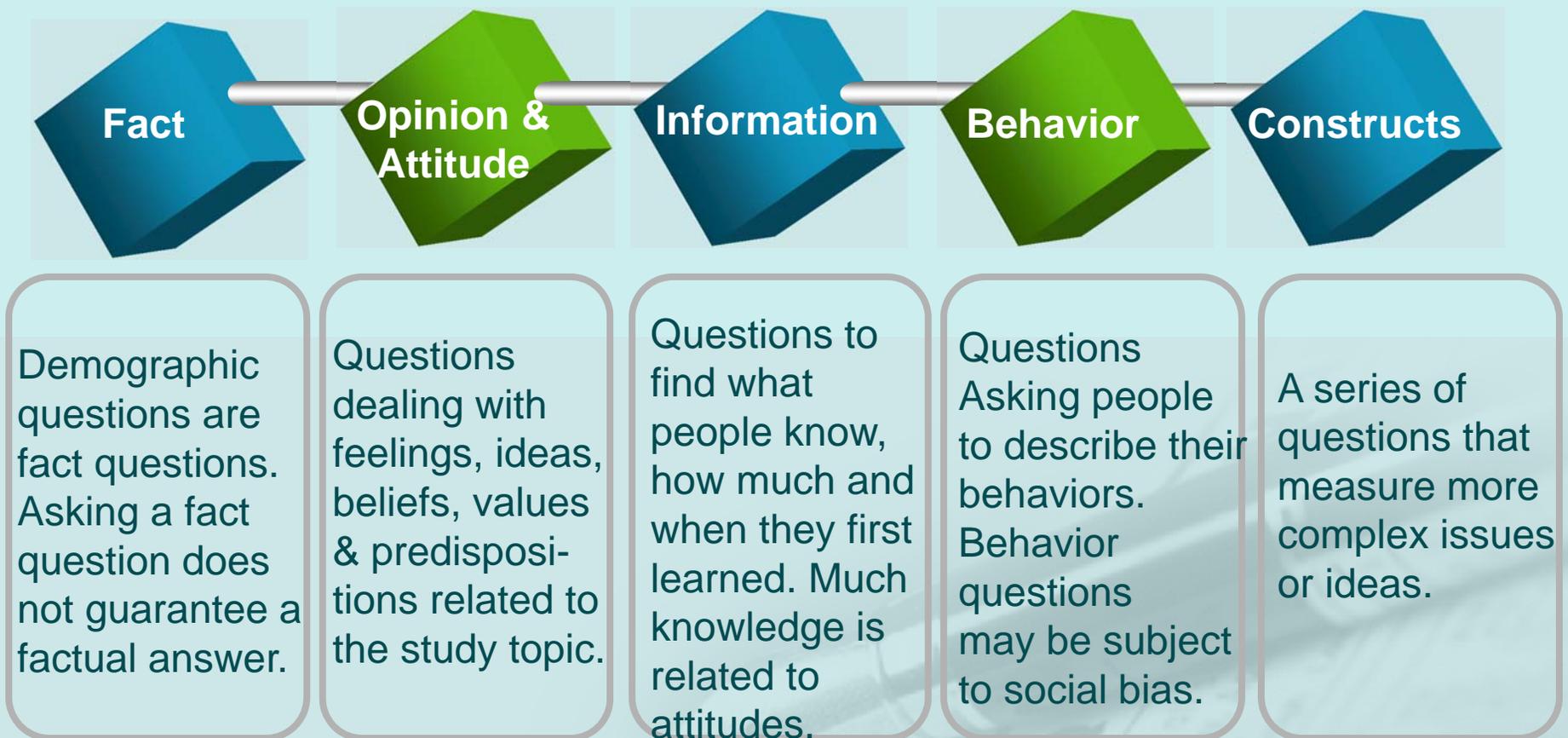| Length	Appearance	Vertical Flow	Question Sequence	Font
Keep survey short. It should not take more than 10 to 15 minutes to complete.	Make it look professional. Use lots of white space to make it easy to read. Avoid clutter and too many questions on a page.	Arrange in a vertical flow. This is the easiest pattern for respondents. Questions should fit completely on page or column.	Nonthreatening questions about study topic first. Cluster by topic. Demographics should be at the end.	Use simple, easy to read font. Lowercase for questions & uppercase for answers.

Questionnaire Design

Response Drop-Off by Question

Questionnaire Design

Types of Questions

Fact	Opinion & Attitude	Information	Behavior	Constructs
Demographic questions are fact questions. Asking a fact question does not guarantee a factual answer.	Questions dealing with feelings, ideas, beliefs, values & predisposi-tions related to the study topic.	Questions to find what people know, how much and when they first learned. Much knowledge is related to attitudes.	Questions Asking people to describe their behaviors. Behavior questions may be subject to social bias.	A series of questions that measure more complex issues or ideas.

Backstrum, Charles H. and Hursh-Cesar, Gerald; Survey Research; Northwestern University Press, 1981.

Questionnaire Design

Forms of Questions

Unstructured

Open Ended — **Partially Open**

Structured

Multiple Choice — **Likert Scale** — **Ordinal Scale** — **Ranked Response**
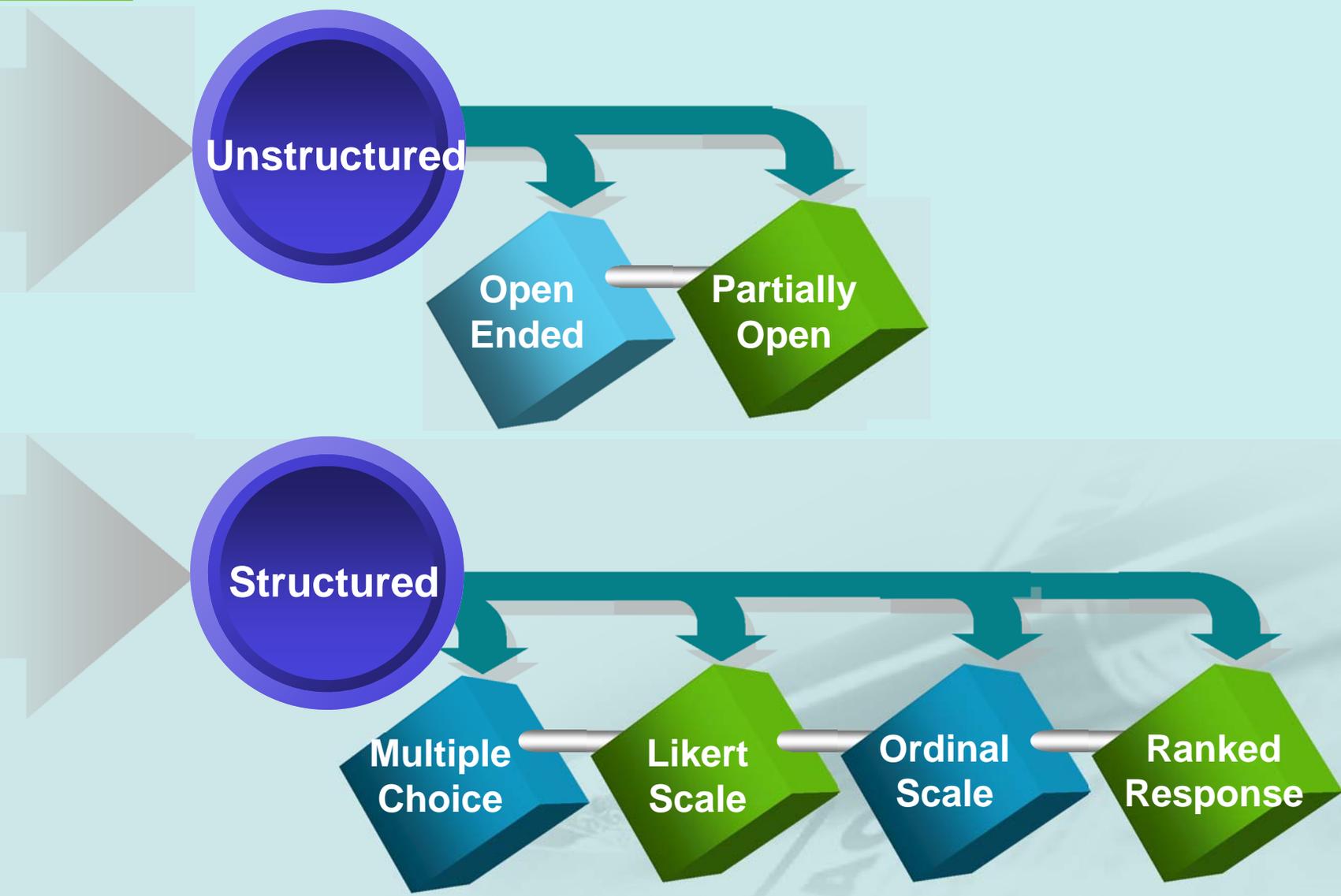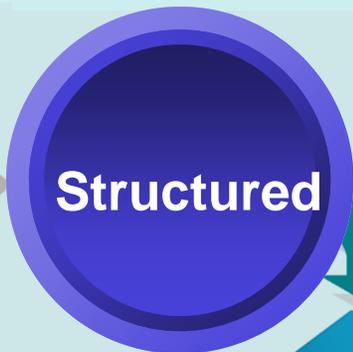
Questionnaire Design

Unstructured

Pros: Stimulate free thought & elicit precise information.

Cons: Demanding to answer and often very difficult to tabulate and analyze.

Structured

Pros: Easy to answer and easy to tabulate and analyze.

Cons: Restricts answers to what researcher knows.

Dillman, Don A., Mail and Telephone Surveys: The Total Design Method, John Wiley and Sons, 1978.

Questionnaire Design

Multiple Choice Questions

Dichotomous Questions:

Two possible answers (i.e. yes/no, true/false, male/female, etc.)

Multichotomous Questions:

Three or more possible answers – can be a single or multiple response question

Alreck, Pamela L. and Settle, Robert B.; The Survey Research Handbook, Richard D. Irwin, Inc; 1985.

Questionnaire Design

Conventional Scale Questions

Likert Scale:

    Opinion or behavior question measuring degree or frequency on a ordered scale

How strongly do you agree or disagree with the following statement:

Information was presented in a way that I could understand. (please select only one answer)

      1. STRONGLY AGREE
      2. AGREE
      3. NEUTRAL
      4. DISAGREE
      5. STRONGLY DISAGREE

Alreck, Pamela L. and Settle, Robert B.; The Survey Research Handbook, Richard D. Irwin, Inc; 1985.

Questionnaire Design

Conventional Scale Questions

Ordinal Scale:

Multiple choice question with responses that define an ordered sequence

Ordinarily, when do you or someone in your family first turn on a television set in your home on Saturdays?
(please select only one answer)

1. *FIRST THING IN THE MORNING*
2. *MID-MORNING*
3. *AROUND NOON*
4. *MID-AFTERNOON*
5. *EARLY EVENING AROUND DINNER*
6. *AFTER DINNER*
7. *USUALLY DON'T TURN IT ON*

Alreck, Pamela L. and Settle, Robert B.; The Survey Research Handbook, Richard D. Irwin, Inc; 1985.

Questionnaire Design

Conventional Scale Questions

Ranked Scale:

Question where response items are ranked relative to each other.

Please rank the following tasks in their order of preference. Write the number 1 next to the job you most prefer doing, 2 next to your second choice, and so forth.

    _ *WRITING*
    _ *EDITING*
    _ *FILING*
    _ *ANSWERING THE PHONES*

Alreck, Pamela L. and Settle, Robert B.; The Survey Research Handbook, Richard D. Irwin, Inc; 1985.

Questionnaire Design

Question Wording

"Writing questions would be a lot easier if we did not have to use words!"

Dillman, Don A., Mail and Telephone Surveys: The Total Design Method, John Wiley and Sons, 1978, p. 95.

Questionnaire Design

Will the question elicit the type of response desired?

- **How long have you lived in your current home?** _____

--- **As an open-ended question, it may elicit answers such as "all my life," instead of a number of years. Even if the wording is changed to "How many years have you lived in your current home?" respondents may have difficulty answering an open-ended question, if it has been less than one year.**

Questionnaire Design

Use simple, familiar words and avoid acronyms and slang.

- **Which detrimental attributes impact on our transportation system?**
    - Words are too difficult – try to maintain a fifth grade reading level.

- **In your opinion, should the government regulate the CIA more closely?**
    - Question is vague and has multiple meanings – government and CIA

Questionnaire Design

Avoid double-barrel questions.

- **Do you support no smoking policies in office buildings, but not in restaurants?**

--- **This is two separate questions. The respondent may support no smoking policies in both locations, in no location or in either location individually.**

Questionnaire Design

Make sure the question is one the respondent can answer.

- **In the past three months, how often has your family purchased gasoline from this service station?**

--- **Respondent recall becomes unreliable quickly. In addition, even if the respondent knew how often they purchased gasoline, they may not know the habits of other family members.**

Questionnaire Design

Avoid questions with double negatives.

- **Should department heads not be directly responsible to the chair of the Board of Supervisors?**
  1. NO
  2. YES

- **To whom should department heads be directly responsible?**
  1. THE COUNTY EXECUTIVE
  2. THE BOARD OF SUPERVISORS
  3. OTHER, please explain_____

Questionnaire Design

Will the respondent answer truthfully?

▪ **Typically, how many minutes of aerobic exercise do you get each week?** Aerobic exercise is defined as brisk physical activity such as walking briskly, running, bicycling, etc.

  1. NO MINUTES
  2. 1 TO 59 MINUTES
  3. 60 TO 149 MINUTES
  4. 150 MINUTES OR MORE

--- **Certain topics elicit biased responses or higher item nonresponse. These topics include income, age, personal behaviors and criminal activities.**

Questionnaire Design

Does the question bias the respondent's answer?

- **The president believes Social Security should be privatized. Do you agree?**
    1. STRONGLY AGREE
    2. AGREE
    3. NEUTRAL
    4. DISAGREE
    5. STRONGLY DISAGREE

--- **The answers to this question might reflect more about what respondents think about the president than what should be done with Social Security.**

Common Problem Words

about	dry	law	put	today
all	each	less	quite	too
always	ever	like	read	town
America	every	make	saw	trip
American	everybody	might	see	where
and	everything	more	seen	who
any	fair	most	service	you
anybody	few	near	several	
anyone	get	never	should	
anything	give	nobody	sign	
anyway	go	none	sometimes	
art	government	nothing	such	
bad	have	now	supper	
believe	hear	only	sure	
best	heard	or	take	
business	it	own	that	
could	its	people	the	
country	just	poor	these	
daily	knew	possible	this	
dinner	know	public	those	

Payne, Stanley L.; The Art of Asking Questions; Princeton University Press; 1979.

Common Problem Words

You

'You' can mean the respondent alone or a group the respondent identifies with. For example, if a customer is an organization, 'you' may be interpreted as the entire organization or just the person filling in the survey. Be clear about which definition is desired.

All & Always

Absolutes are rarely true and responses often will reflect this feeling. In Likert scales it is best to stay away from absolutes. For example: *"How often can you find the information you need on our web site? With 1 = always and 5 = never."*

And & Or

In some contexts, conjunctions may be taken as either separating two alternatives or as connecting two parts of a single alternative. For example: *"Is there much rivalry between the teams who prepare contracts and review contracts?"*

Now

Many respondents are very literal in their interpretations of questions. For example:
"What kind of work are you doing now?"
May elicit the response – answering your dumb questions.

Payne, Stanley L.; The Art of Asking Questions; Princeton University Press; 1979.

Questionnaire Design

"The pretest is the most misunderstood and abused element of the survey process. As commonly used, the pretest is an early, troubleshooting phase in which we look for questionnaire weaknesses. But it should be far more than that."

Backstrom, Charles H. and Hursh-Cesar, Gerald; Survey Research; John Wiley & Sons, 1981, p. 285.

Questionnaire Design

What a Pretest Should Check

Do the questions measure what is intended to be measured?

Are all the words clearly understood?

Are questions interpreted similarly by all respondents?

Do structured questions have answers that apply to everyone?

Are all the questions answered correctly?

Does any aspect of the questionnaire suggest researcher bias?

Does it create a positive impression motivating people to answer it?

Dillman, Don A., Mail and Telephone Surveys: The Total Design Method, John Wiley and Sons, 1978.

Questionnaire Design

Three Parts of a Pretest

Peer Review

Subject Experts

Respondents

Review by research peers to evaluate if the questionnaire will accomplish the study objectives.

A review by professionals with substantial knowledge of the survey topic.

just a dress rehearsal. Have respondents complete questionnaires in presence of the researcher.

Dillman, Don A., Mail and Telephone Surveys: The Total Design Method, John Wiley and Sons, 1978.

Questionnaire Design

Pretesting Techniques

Focus Groups

Think-Out-Loud Interviews

Behavioral Observation

Split Panel Tests

Respondent and Interviewer Debriefings

Item Nonresponse Analysis

Analysis of Response Distributions

Scheuren, Fritz, *What is a Survey: How to Plan a Survey,* American Statistical Association, June 2004,

Questionnaire Design

Greenwood Library Customer Survey Exercise

Questionnaire Design

Measuring the WOW Factor

1. How would you rate your overall satisfaction with the services provided from [organization]?.............

VERY DISSATISFIED   VERY SATISFIED

1   2   3   4   5   6   7   8   9   10

2. Compared to your expectations, how well has [organization] measured up to your overall expectations?...

FALLS SHORT OF EXPECTATIONS   EXCEEDS EXPECTATIONS

1   2   3   4   5   6   7   8   9   10

3. Think about an ideal program for people in your circumstances. How well do you think the services you received compare with the ideal set of services?...

NOT VERY CLOSE TO IDEAL   VERY CLOSE TO IDEAL

1   2   3   4   5   6   7   8   9   10

Data Analysis and Interpretation

- **Tabulation Methods**

- **General Considerations**

- **How Well Do the Demographics of the Respondents Match the Intended Population**

Data Analysis and Interpretation

Tabulation Methods

Manual

Spreadsheet Programs

Survey Analysis Programs

Data Analysis and Interpretation

General Considerations

Drilling Too Finely

Reporting Results From Surveys With Poor Response Rates

Generalizing From Nonprobability Samples

Misinterpreting Relationships Between Variables

Extrapolating Results to Different Populations

Assuming a Static World

Making Comparisons to Other Data

Backstrom, Charles H. and Hursh-Cesar, Gerald; Survey Research; John Wiley & Sons, 1981.

Data Analysis and Interpretation

Do your respondents look like the population you were trying to reach?

Do the respondents who returned surveys promptly look different than those who returned their surveys after receiving reminders?

Data Analysis and Interpretation

- **Determine which of the following statements are reliable. Using your knowledge, list the possible problems with each statement.**

1. The average annual income of Americans is $29,100 according to a survey carried out in Iowa.

2. A large majority of people from rural areas support subsidies for failing farm operations. This is the result of a phone-in poll carried out by a Washington area television station.

3. Statistics reveal that 30% of our nation's school dropouts are below average in reading and writing.

4. Youth unemployment is over 12%, therefore, more than 12% of the county's 15- to 24-year-olds are unemployed.

5. Recently, a leading environmental group claimed that only 3% of the county's land mass was covered by forest, whereas a leading business organization claimed the figure was 6%.

Tools and Resources

General Survey Research Guides

- DSMHS Research Tools:
  http://www.fairfaxcounty.gov/demogrph/ResearchTools.htm

- American Statistical Association – What is a Survey?
  http://www.whatisasurvey.info/

- American Association for Public Opinion Research, Poll and Survey FAQ - http://www.aapor.org/poll

- Statistics Canada – Statistics: Power From Data!
  http://www.statcan.gc.ca/edu/power-pouvoir/toc-tdm/5214718-eng.htm

- SurveyMonkey – Smart Survey Design
  http://s3.amazonaws.com/SurveyMonkeyFiles/SmartSurvey.pdf

Tools and Resources

General Survey Research Guides

- Federal Committee on Statistical Methodology - http://www.fcsm.gov/
  - Contracting for Surveys - http://www.fcsm.gov/working-papers/sw9.html
  - Developing Questionnaires - http://www.fcsm.gov/working-papers/wp10.html

- Alreck, Pamela L. and Settle, Robert B., The Survey Research Handbook, Richard D. Irwin, Inc., 1985

- Dillman, Don A., Mail and Telephone Surveys: The Total Design Method, John Wiley & Sons, 1978

- Payne, Stanley L., The Art of Asking Questions, Princeton University Press, 1979

Tools and Resources

- ## **Sample Size Calculators**
  - National Statistical Service of Australia - http://www.nss.gov.au/nss/home.NSF/pages/Sample+Size+Calculator+Description
  - Creative Research Systems - http://www.surveysystem.com/sscalc.htm
  - Raosoft - http://www.raosoft.com/samplesize.html
- ## **Random Number Generator**
  - Random.org - http://www.random.org/
    - Integer Generator - http://www.random.org/integers/
    - List Randomizer - http://www.random.org/lists/

Tools and Resources

- **Electronic Survey Tools**
  - Fairfax County Department of Information Technology survey products
    - ThinkTank
    - SNAP
  - Web sites reviewing online survey products:
    - http://researchthink.blogspot.com/2006/08/comparing-online-survey-software.html
    - http://www.comparesoftwareproducts.com/