

# TECH 646 Analysis of Research in Industry and Technology

## Surveys

Lecture note based on the Ch. 10 of the text book and supplemental materials:

Cooper, D.R., & Schindler, P.S., *Business Research Methods* (12th edition), McGraw-Hill/Irwin

Paul I-Hai Lin, Professor  
<http://www.etcs.pfw.edu/~lin>  
A Core Course for Master Science in Technology  
Purdue University Fort Wayne

## Surveys – Learning Objectives

### Understand ...

1. The process for selecting the appropriate and optimal communication approach.
2. Factors affect participation in communication studies.
3. The major sources of error in communication studies and how to minimize them.
4. The major advantages and disadvantages of the three communication approaches.
5. Why an organization might outsource a communication study.

## PulsePoint: Research Revelation

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The percent of business executives that believe that job loss and off-shoring will have the most impact on shareholder value in their industries in the next five years.

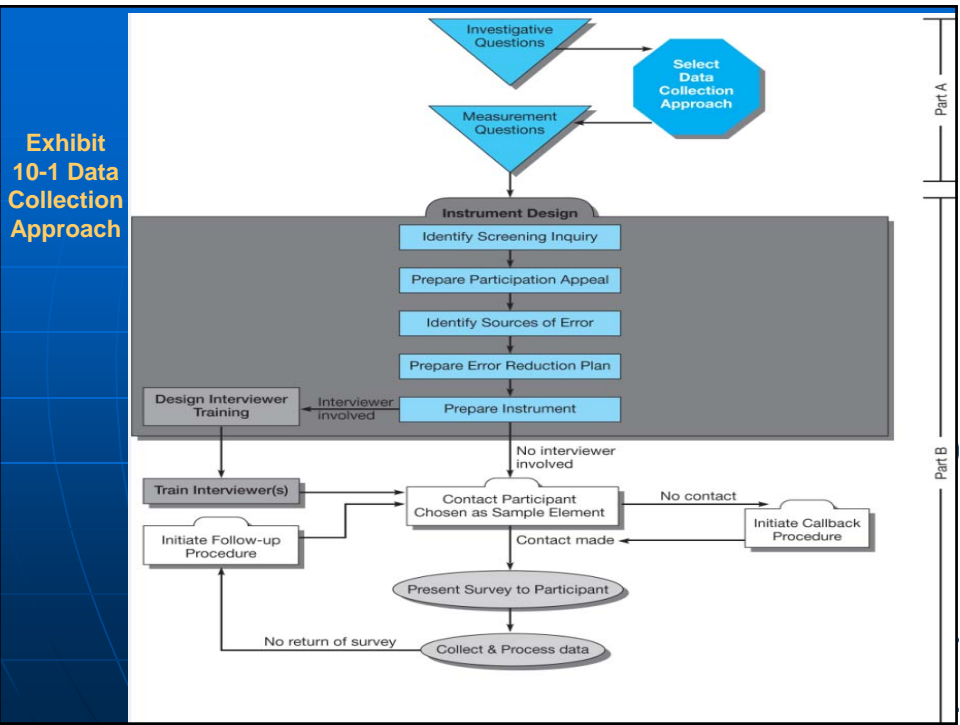
## Pull Quote

“If social media is the temperature check, **surveys** are the taste test to validate that the meal is cooked properly. A **good survey** enables you to: (1) tune out the noise and zero in on the opinions and comments that are directly applicable to your most pressing questions, and (2) validate trends and shifts in preference that you may have suspected, but weren’t certain about.”

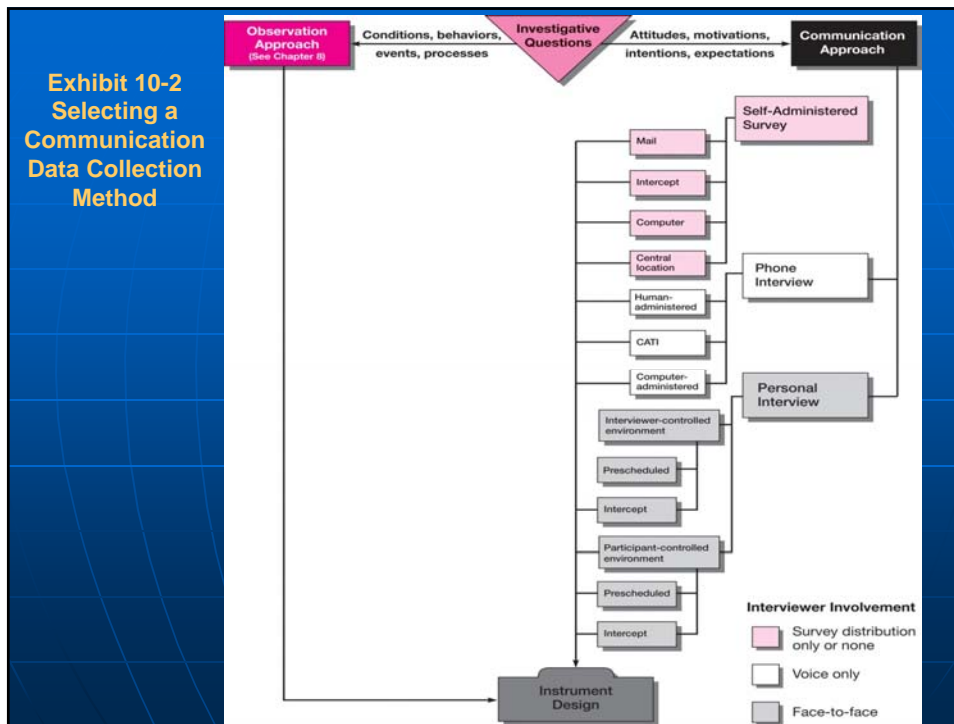
*Reggie Aggarwal, CEO,  
Cvent, [www.cvent.com](http://www.cvent.com)*

## Academic Quality Assurance Tools

- **Administrative/Staffs**
  - Faculty/Staff satisfactory survey
  - Chancellor/Vice-Chancellor
  - Dean/Dept. Char Performance survey
- **Academic Program Surveys**
  - New program needs/justification
  - Student course evaluation
  - Faculty course assessment (Self-administrative, Internet online)
  - Graduation survey
  - Employer survey
  - Alumni survey



**Exhibit 10-2  
Selecting a  
Communication  
Data Collection  
Method**



## Dilemma for Surveys

- “The ubiquity of **cell phones** and the rapid and continuing development of the **Internet** have completely altered the way we talk to each other, the way marketers talk to customers, the way customers shop and the way the media research their audiences.”

*Alain Tessier, founder,  
Mediamark Research, Inc.  
<http://www.mediamark.com/>*

## Communication Approach

- **Communication** – research method to analyze about
  - Opinions, Attitudes, Motivations, Intentions, Expectations, Perceptions, Knowledge, etc
- **Communication Approaches**
  - **Self-Administered Survey**: Mail, Intercept, Computer, Central Location
  - **Phone Interview**: Human administered, CATI (Computer Assisted Telephone Interview), Computer assisted
  - **Personal Interview**

## Communication Approach

- **Surveys**
  - A **measurement process** used to collect information during a highly structured interview, with or without a human interviewer
  - **Survey questions**
  - Using **statistical probability sampling** for selecting participants
  - **Survey findings**

## Communication Approach – Surveying or Interviewing

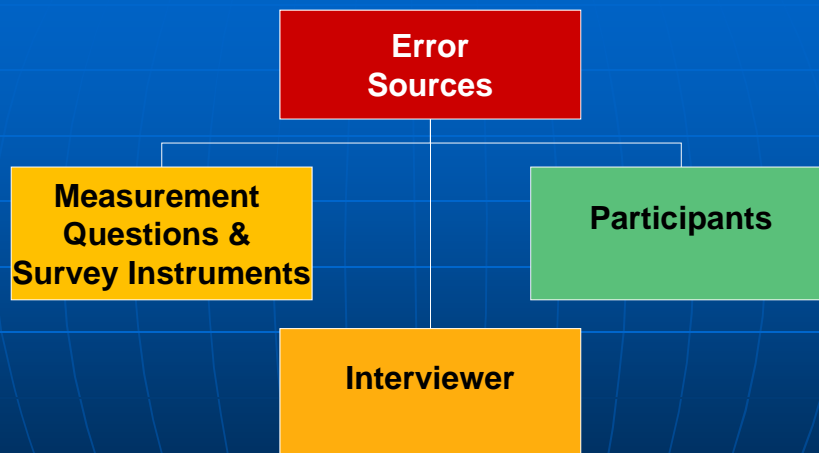
### ■ Strengths

- Versatility
- Efficiency
- Geographic coverage: using telephone, mail, a computer, e-mail, or Internet as the medium

### ■ Weaknesses

- Error
- Inaccessible populations

## Exhibit 10-3 Three Major Sources of Error



## Sources of Error (cont.)

- **Measurement Question Errors**
  - Select or craft inappropriate **questions**
  - Ask questions in inappropriate **orders**, or
  - Use inappropriate **transitions** and **instructions** to elicit information

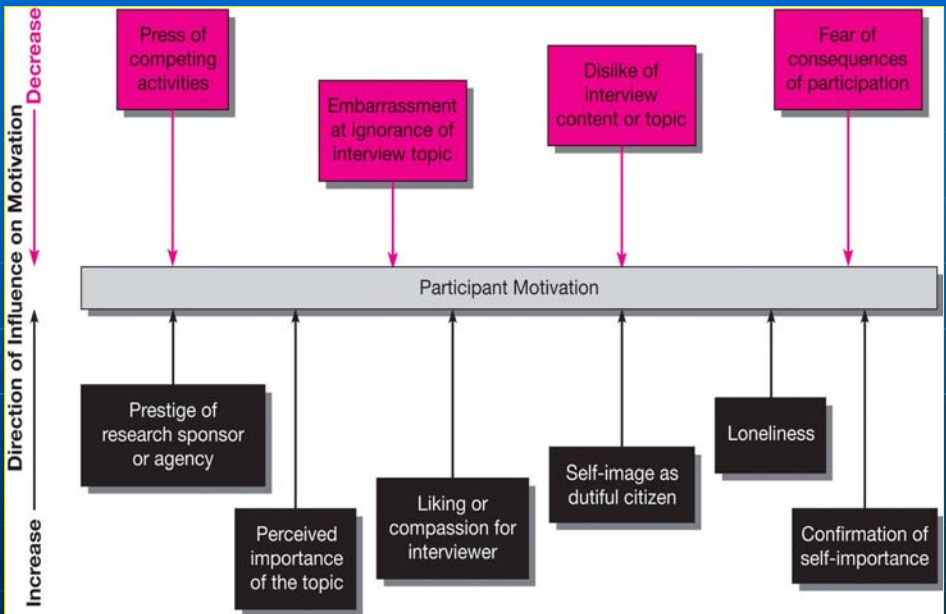
## Sources of Error (cont.)

- **Interviewer Error**
  - Failure to secure full **participant cooperation** - Sampling error
  - Failure to record **answers accurately** and completely - **Data entry error**
  - Process error
    - Interview inconsistency
    - Interview environment
    - Data or survey falsification
    - Influencing behaviors
    - Physical presence bias

# Sources of Error (cont.)

- Participant
  - Lack of knowledge
  - Misrepresentation of information
  - Concepts or construct misinterpretation
  - Incomplete participation
  - Refusal of participation (non-response error)

## Exhibit 10-4 Factors Influencing Participant Motivation





## Response Terms

- **Noncontact Rate**
  - A ratio of potential but unreached contacts to all potential contacts
  - A contact may be unreachable due to no answer, busy signal, answering machine or voice mail, and disconnects
- **Refusal Rate**
  - Refers to the ratio of contacted participants who decline the interview to all potential contacts
- **Incidence Rate**
  - Refers to the ratio of contacted people who actually qualify for the survey to all contacts

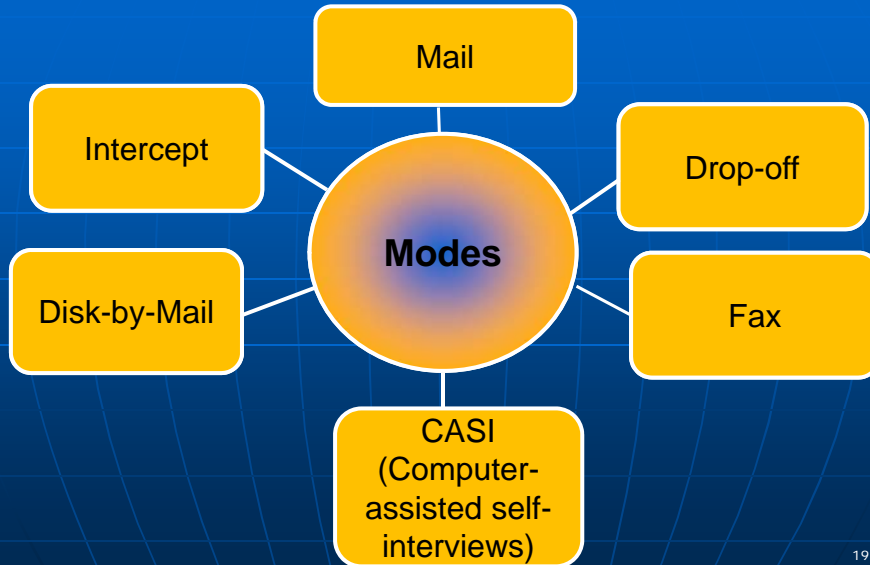
## Communication Approaches

**Self-Administered Survey**

**Telephone Survey**

**Survey via Personal Interview**

## Self-Administered Surveys



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## Self-Administered Surveys (cont.)

- **CASIs** (Computer Assisted Self-Interviews) - Computer-delivered self-administered questions use
  - Organizational Intranet
  - Internet
  - Online services
  - e-mail
  - Pop-up windows

## Self-Administered Surveys (cont.)

### ■ Intercept Surveys at

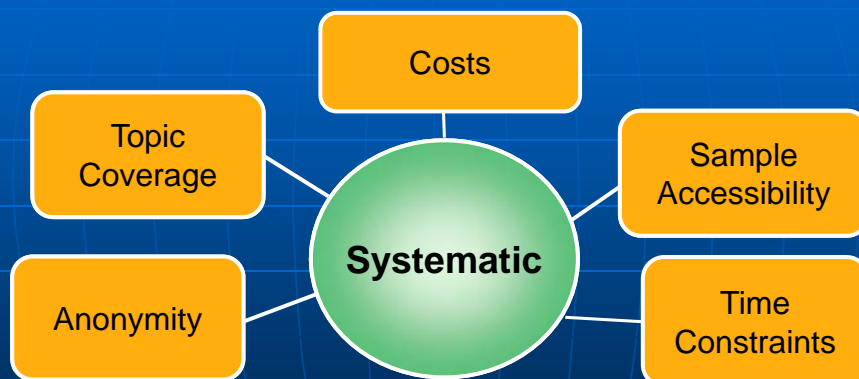
- Malls
- Conventions
- State fairs
- Vacation destinations
- Busy street corners



### ■ Via

- Paper-and-pencil questionnaire
- Computer delivered survey via kiosk

## Evaluation of Self-Administered Survey



## Designing Questionnaires Using the TDM

- **Total Design Method** (by Don Dillman) based on social exchange theory

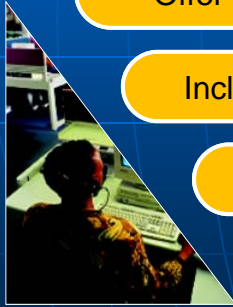
Easy to read

Offer clear directions

Include personalization

Notify in advance

Encourage response



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## Options for Web-based Surveys

- A Survey both delivered and collected via the Internet
- Online Survey Service
  - [www.Surveymonkey.com](http://www.Surveymonkey.com) (Basic is free)
  - [www.survata.com](http://www.survata.com)
  - <https://esurv.org/>
- Off-the-Shelf Web-based Survey software
  - Snap Surveys, <http://www.snapsurveys.com/us/>
  - SurveyGizmo, <http://www.surveygizmo.com/>

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## Advantages of Web-based Surveying Software

- Questionnaire design (word processing environment)
- Question and scale libraries
- Automated publishing to the Web
- Real-time viewing of incoming survey data
- Rapid transmission of results
- Flexible analysis and reporting mechanisms

## The Web as a Survey Research Venue

### Advantages

- Cost savings
- Short turnaround
- Use of visual stimuli
- Access to participants
- Perception of anonymity
- Access to data and experiences otherwise unavailable

### Disadvantages

- Recruitment
- Coverage
- Difficulty developing probability samples
- Technical skill
- System compatibility issues
- Possible self-selection bias

## Advantages of Self-Administered Study

- Access inaccessible participants
  - Incentives for higher response rates
  - Lowest-cost
  - Geographic coverage
  - Minimal staff needed
  - Perceived anonymity
  - Reflection time
  - Question complexity
- Rapid data collection
  - Visuals possible
  - Multiple sampling possible



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## Disadvantages of Self-Administered Study

- Low response rates in some modes
  - No interviewer intervention
  - Cannot be too long
  - Cannot be too complex
  - Requires accurate list
- Skewed responses by extremists
  - Participant anxiety possible
  - Directions necessary
  - Need for low-distraction environment
  - Security

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## Improving Response Rates to Surveys

- Advance Notification
- Reminders
- Return Directions and Devices
- Monetary Incentives
- Deadlines
- Promise of Anonymity
- Appeal for Participation

## Telephone Survey



Traditional

CATI systems

Computer-administered

## Advantages of the Telephone Survey

- Lower costs than personal interview
- Wide geographic coverage
- Fewer interviewers
- Reduced interviewer bias
- Fast completion time
- Random Dialing
- CATI (Computer-Assisted Telephone Interview)

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## Disadvantages of the Telephone Survey

- Lower response rate
- Early termination
- Higher costs if geographically dispersed sample
- Limited Interview length
- Inaccessible populations
- Limited complexity of scales

iPhone



Voice-over IP



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## Survey via Personal Interview

- **CAPI (Computer Assisted Personal Interviewing)**
  - Employing visualization techniques
  - Can be costly
- **Intercept Interview**
  - Targets participants in centralized locations
  - Reduced costs

## Personal Interview Survey

### Advantages

- Good cooperation rates
- Interviewer can probe and explain
- Visual aids possible
- Illiterate participants can be reached
- Interviewer can prescreen
- CAPI possible

### Disadvantages

- High costs
- Need for highly trained interviewers
- Time consuming
- Labor-intensive
- Some unwilling to invite strangers into homes
- Interviewer bias possible

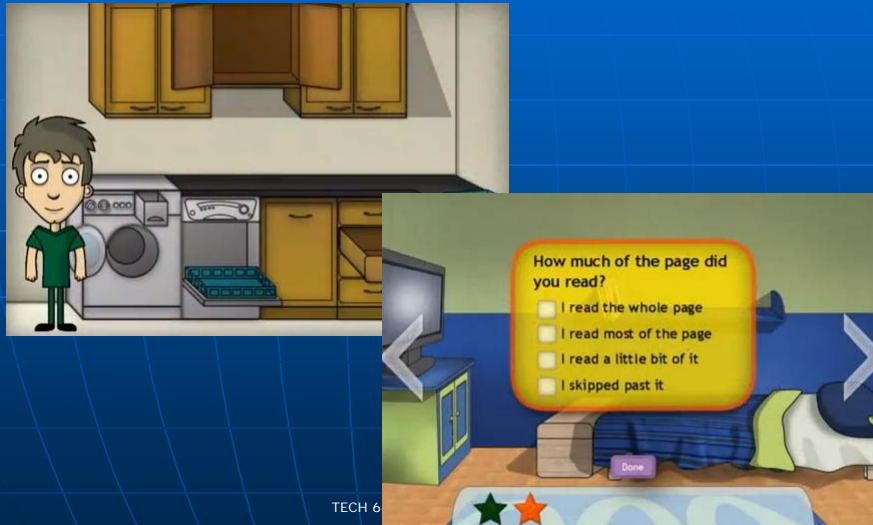
## Key Terms

- Communication approach
- Computer-administered telephone survey
- Computer-assisted personal interviewing (CAPI)
- Computer-assisted self interview (CASI)
- Disk-by-mail survey
- Computer-assisted telephone interviewing (CATI)
- Intercept interview
- Interviewer error
- Mail survey
- Noncontact rate
- Nonresponse error

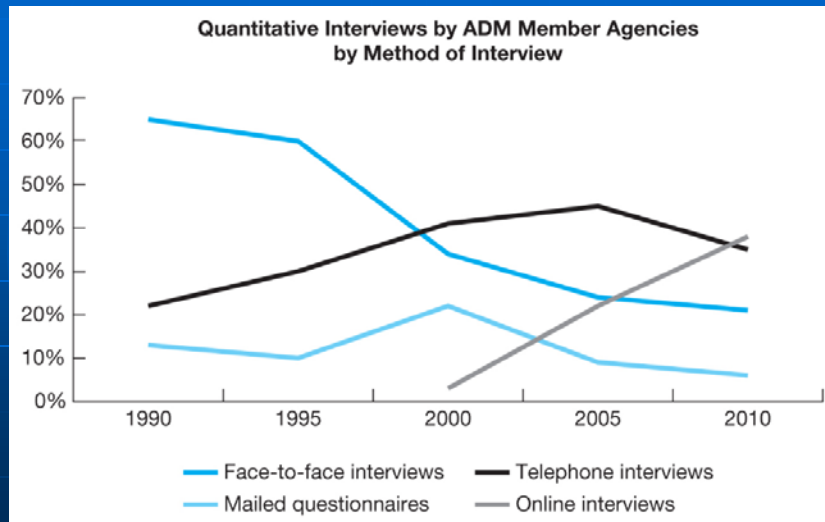
## Key Terms (cont.)

- Panel
- Personal interview
- Random dialing
- Refusal rate
- Response error
- Self-administered survey
- Survey
- Telephone interview
- Web-based questionnaire

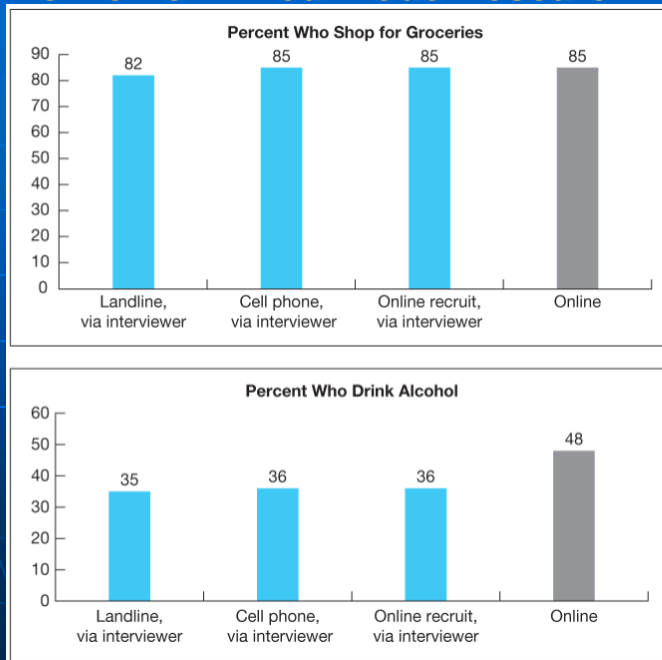
## Snapshot: Gamification in Research



## PicProfile: Methodology Trends



## PicProfile: Mixed-mode Research



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## Snapshot: Are Cell phone & Smartphones Ready for Research

**31.6% wireless only homes**

**Multi-method phone studies are the norm**

**Multi-method phone studies are the norm**

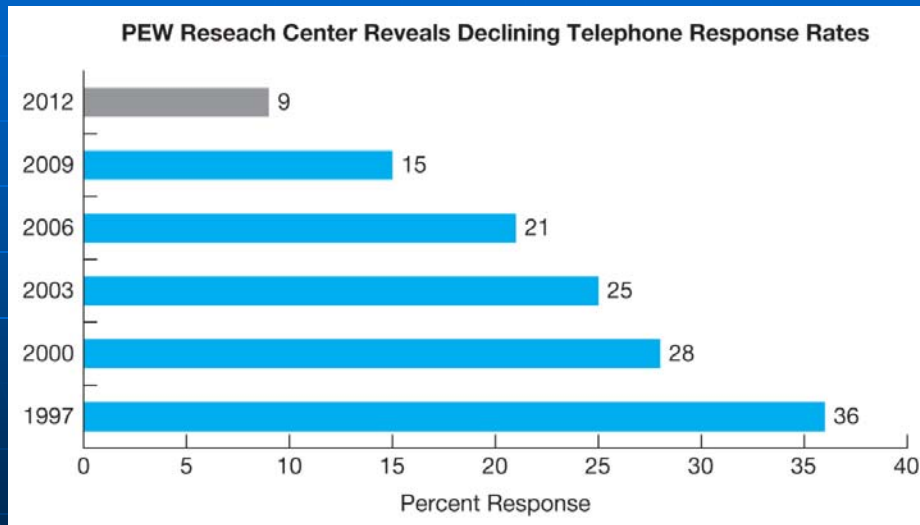
**Phone method data is weighted by population parameters**

**Cell phone studies offer unique challenges.**

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## PicProfile: Declining Phone Response



## Snapshot: Voice Adds Depth

**“By eliminating the human interviewer from the call, we allow the caller to participate whenever it suits them, rather than when it suits us.”**

Longer, more robust answers to open-ended questions

Summary

Q&A

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