



# 4

## Information Gathering: Interactive Methods

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# Objectives

- interactive methods for information gathering.
- Construct interview questions to

# Interactive Methods to Elicit Human Information Requirements

- Interviewing
- Joint Application Design (JAD)
- Questionnaires

# Major Topics

- **Interviewing**
  - Interview preparation
  - Question types
  - Arranging questions
  - The interview report
- User Stories
- **Joint Application Design (JAD)**
  - Involvement
  - Location
- **Questionnaires**
  - Writing questions
  - Using scales
  - Design
  - Administering

# Interviewing

- important method for
  - **collecting data** on **human** and
  - **system information** requirements
- reveals information about:
  - Interviewee opinions
  - Interviewee feelings
  - Goals
  - Key HCI concerns

# Interview Preparation

- Reading background material
- Establishing interview objectives
- Deciding whom to interview
- Preparing the interviewee
- Deciding on question types and structure

# Question Types

- Open-ended
- Closed

# Open-Ended Questions

- It allows interviewees to respond
  - **How they wish**, and to
  - **What length they wish**
- These are appropriate when the
  - **Analyst** is interested in **breadth** and **depth** of reply



# Open-ended questions

## **Include**

- What do you think
- Please explain how you make
- In what ways
- describes the interviewee's options for responding.

# Open-ended questions

- What's your opinion of the current state of business-to-business ecommerce in your firm?
- What are the critical objectives of your department?
- Once the data are submitted via the Web site, how are they processed?
- Describe the monitoring process that is available online.
- What are some of the common data entry errors made in this department?
- What are the biggest frustrations you've experienced during the transition to ecommerce?

# **Advantages** of Open-Ended Questions

- Puts the interviewee at ease
- Allows the interviewer to pick up on the interviewee's vocabulary
- Provides richness of detail
- Reveals avenues of further questioning that may have gone untapped

# Advantages of Open-Ended Questions (continued)

- Provides more interest for the interviewee
- Allows more spontaneity
- Makes phrasing easier for the interviewer
- Useful if the interviewer is unprepared

## **Disadvantages** of Open-Ended Questions

- May result in too much irrelevant detail
- Possibly losing control of the interview
- May take too much time for the amount of useful information gained
- Potentially seeming that the interviewer is unprepared
- Possibly giving the impression that the interviewer is on a “fishing expedition”

# Closed Interview Questions

- Closed interview questions limit the number of possible responses
- Closed interview questions are appropriate for generating *precise, reliable* data that is easy to analyze
- The methodology is efficient, and it requires little skill for interviewers to administer

# Closed Interview Questions

- How many times a week is the project repository updated?
- how many calls does the call center receive monthly?
- Which of the following sources of information is most valuable to you?
  - Completed customer complaint forms
  - Email complaints from consumers
  - Face-to-face interaction with customers
  - Returned merchandise
- List your top two priorities for improving the technology infrastructure.
- Who receives this input?

# **Benefits** of Closed Interview Questions

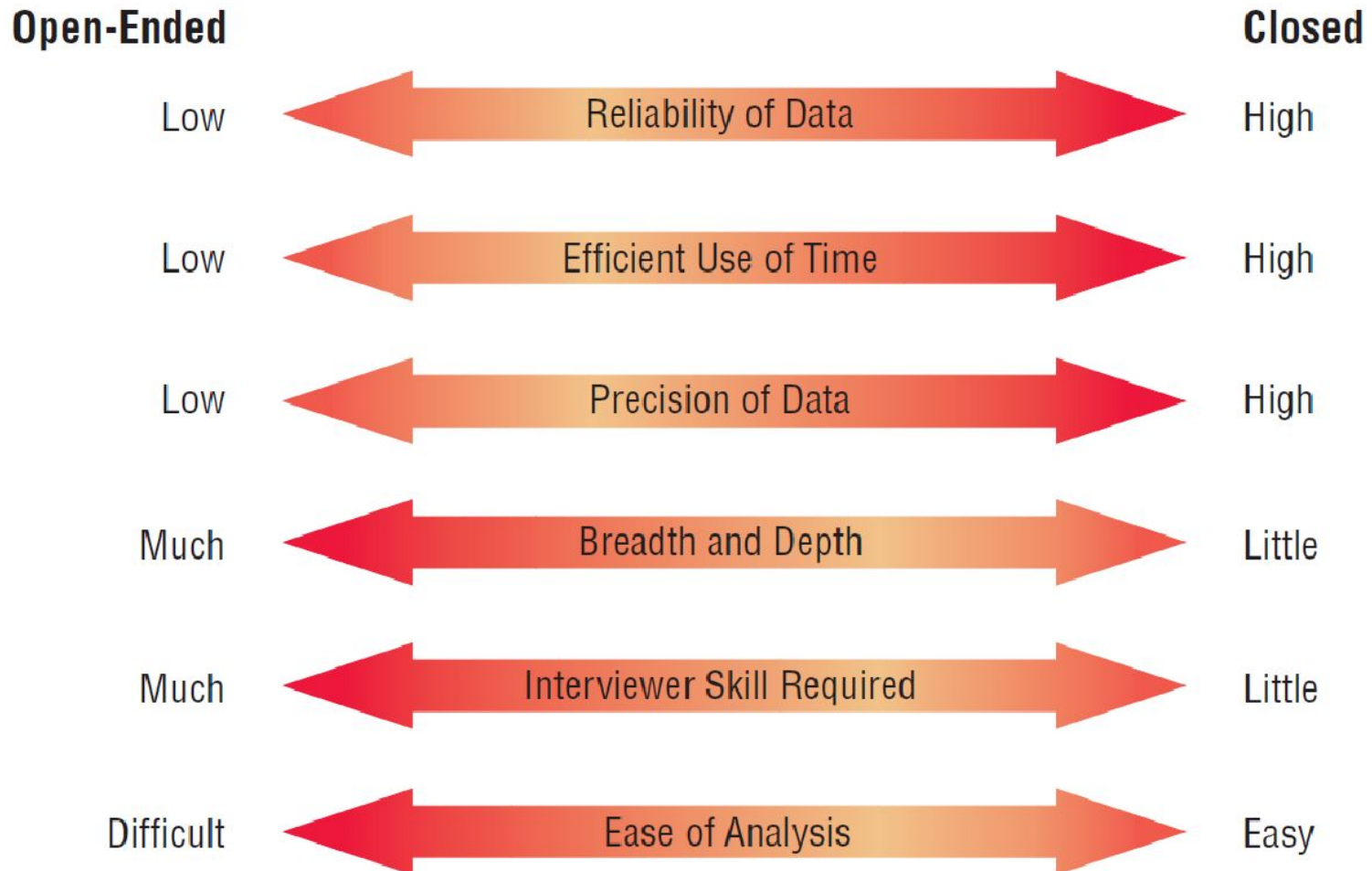
- Saving interview time
- Easily comparing interviews
- Getting to the point
- Keeping control of the interview
- Covering a large area quickly
- Getting to relevant data



## **Disadvantages** Closed Interview Questions

- Boring for the interviewee
- Failure to obtain rich detailing
- Missing main ideas
- Failing to build rapport between interviewer and interviewee

# Attributes of Open-Ended and Closed Questions (Figure 4.5)



# Bipolar Questions(closed question )

- only allowing a choice on either pole
- Bipolar questions are those that may be answered with a “yes” or “no” or “agree” or “disagree”
- Bipolar questions should be used carefully
- A special kind of **closed question**

# Bipolar Interview Questions

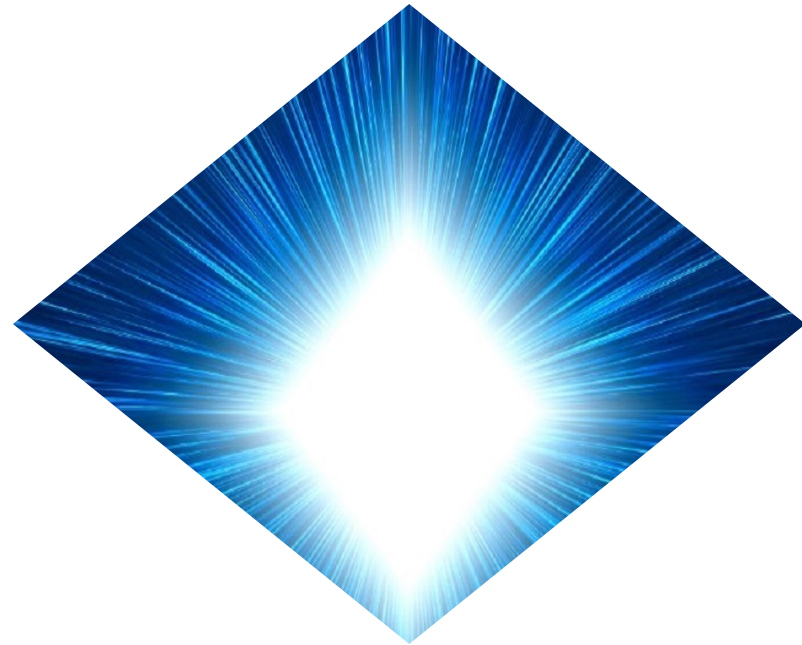
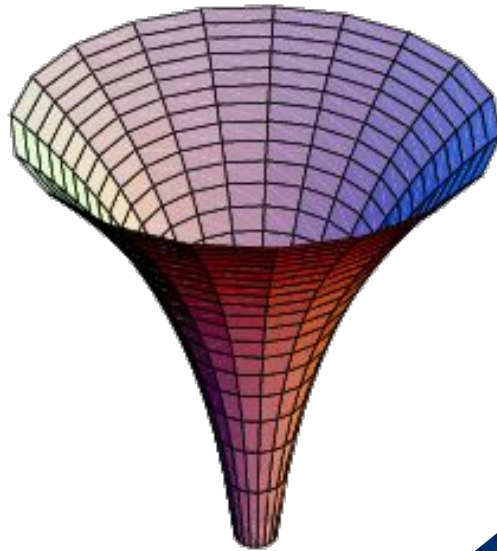
Do you use the Web to provide information to vendors?

- Do you agree or disagree that ecommerce on the Web lacks security?
- Do you want to receive a printout of your account status every month?
- Does your Web site maintain a FAQ page for employees with payroll questions?
- Is this form complete?

# Probes-3<sup>rd</sup> type of question

- Used as a follow-up question.
- The strongest probe is simply—Why?
- Probing questions elicit more detail about previous questions
- The purpose of probing questions is:
  - To get more meaning
  - To clarify
  - To draw out and expand on the interviewee's point
- May be either open-ended or closed

# Arranging Questions



# Arranging Questions

- **Pyramid**

- Starting with closed questions and working toward open-ended questions

- **Funnel**

- Starting with open-ended questions and working toward closed questions

- **Diamond**

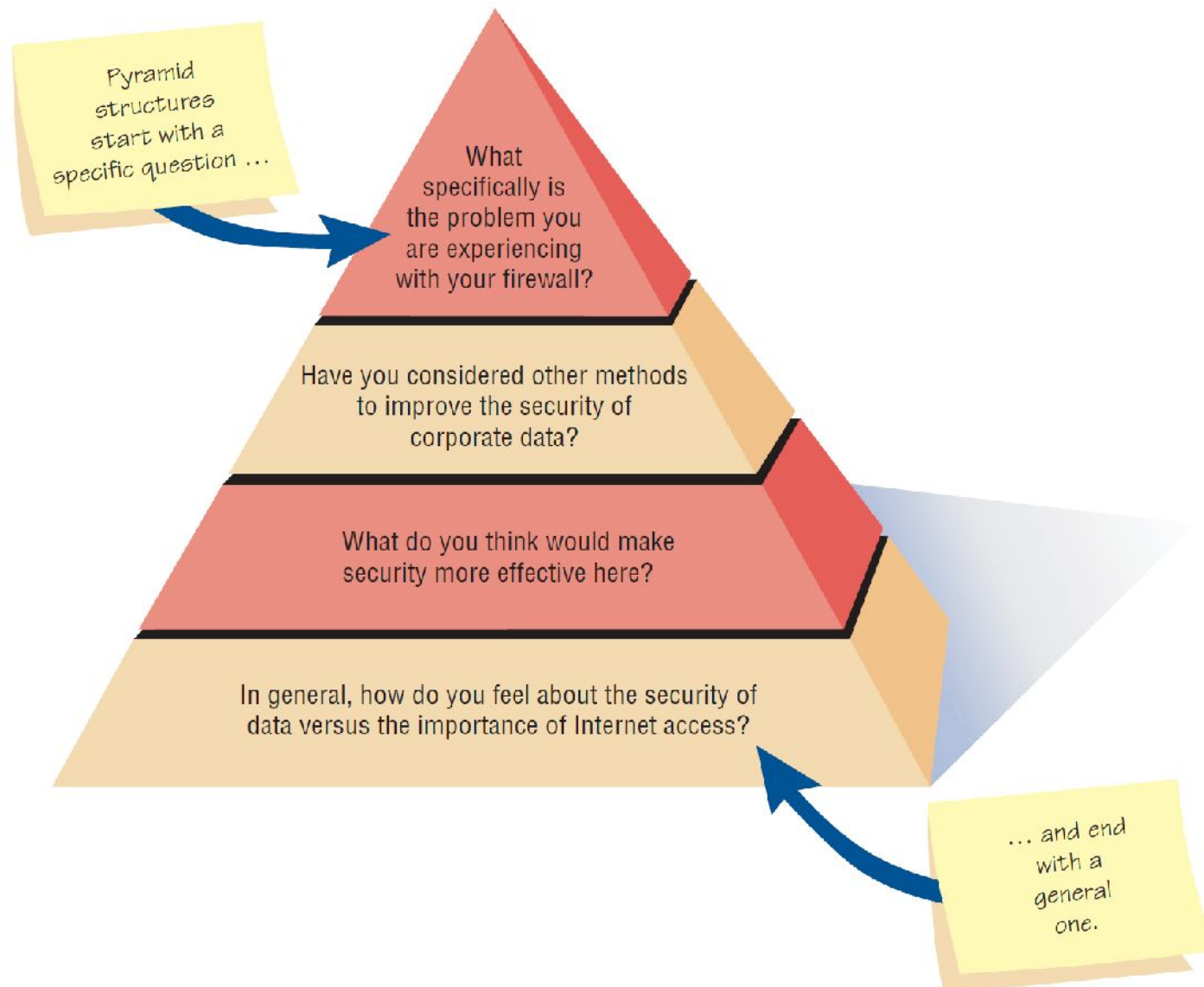
- Starting with closed, moving toward open-ended, and ending with closed questions

# Pyramid Structure

- Begins with very detailed, often closed questions
- Expands by allowing open-ended questions and more generalized responses
- Is useful if interviewees need to be warmed up to the topic or seem reluctant to address the topic



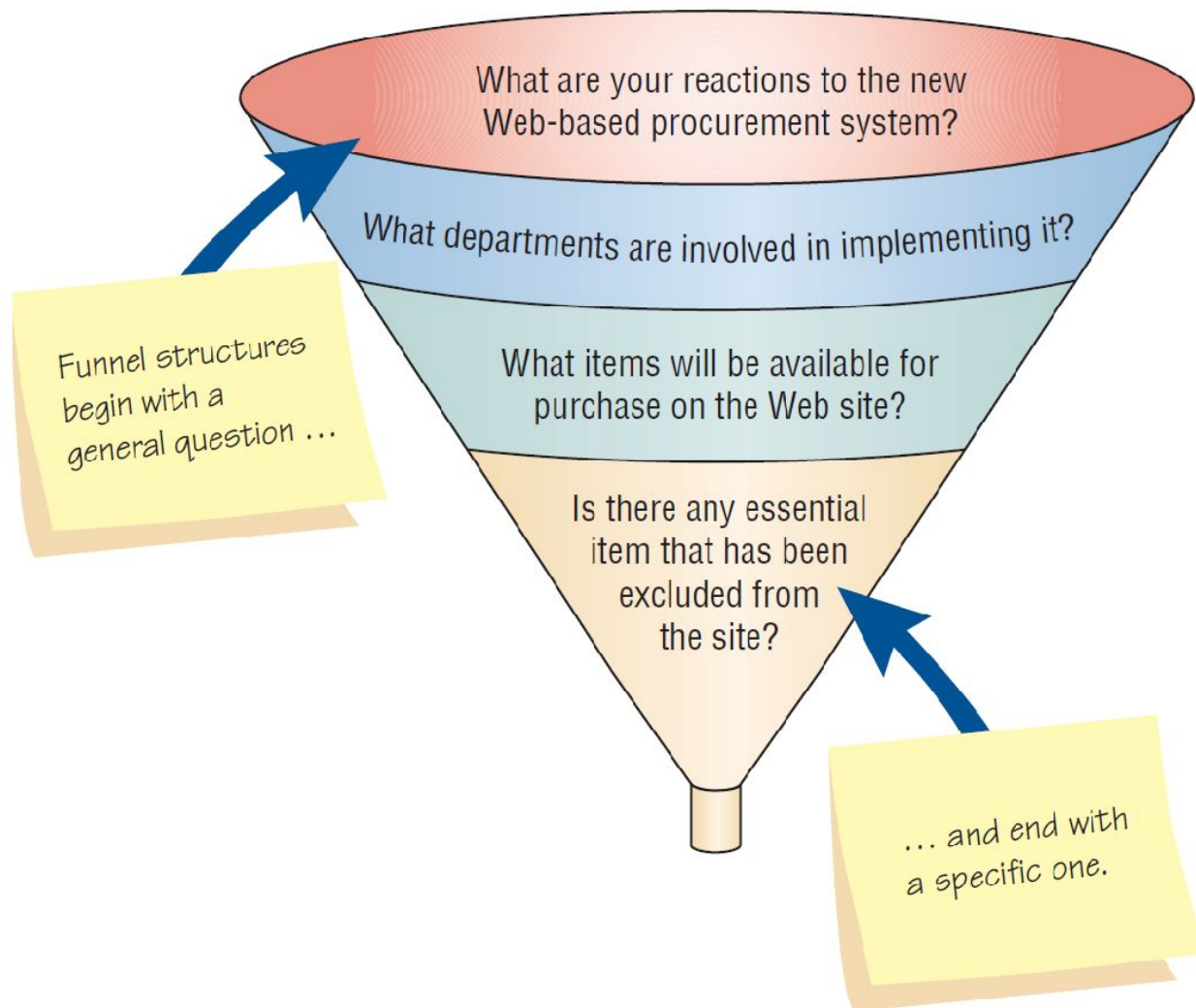
# Pyramid Structure for Interviewing Goes from Specific to General Questions



# Funnel Structure

- Begins with generalized, open-ended questions
- Concludes by narrowing the possible responses using closed questions
- Provides an easy, nonthreatening way to begin an interview
- Is useful when the interviewee feels emotionally about the topic

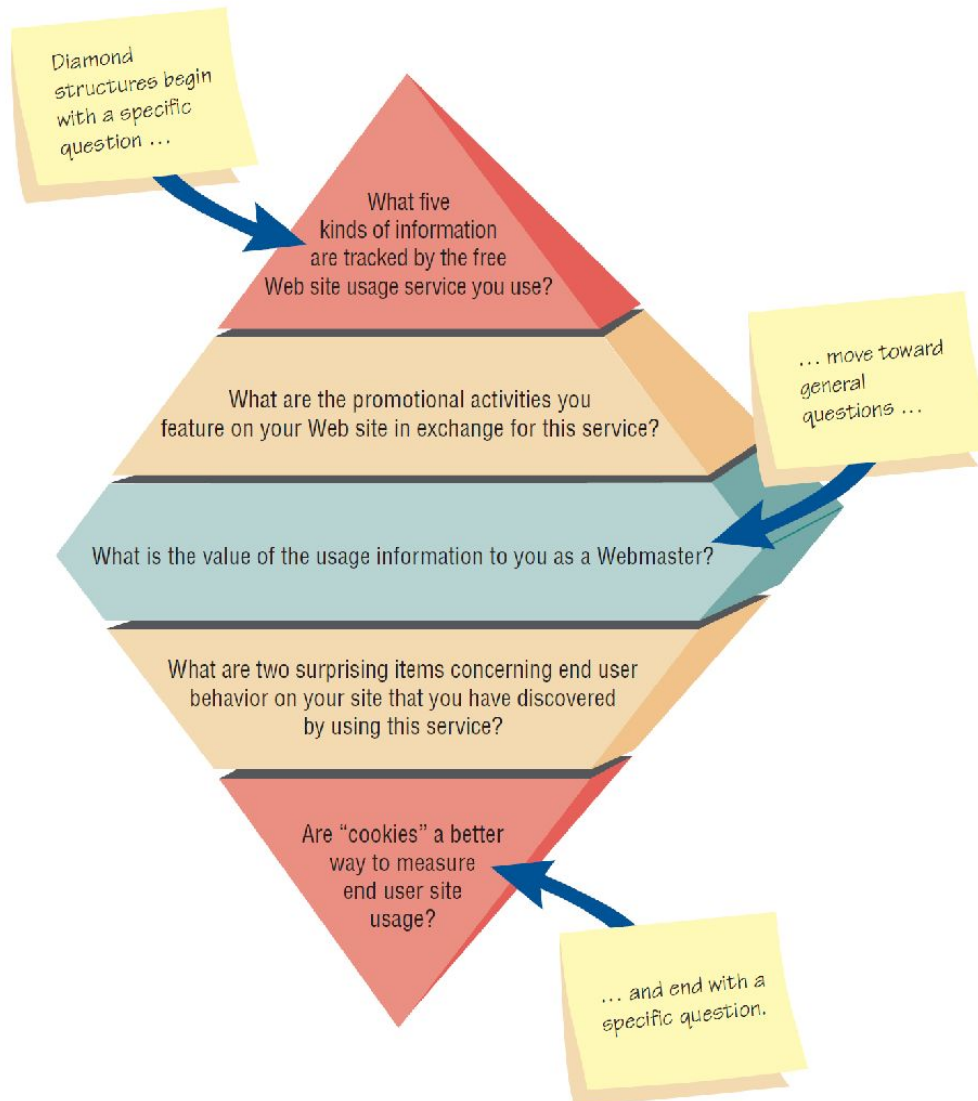
# Funnel Structure Begins with Broad Questions then Funnels to Specific Questions (Figure 4.8)



# Diamond Structure

- A diamond-shaped structure begins in a very specific way
- Then more general issues are examined
- Concludes with specific questions
- Combines the strength of both the pyramid and funnel structures
- Takes longer than the other structures

# Diamond-Shaped Combines the Pyramid and Funnel Structures (Figure 4.9)



# Closing the Interview

- Always ask “Is there anything else that you would like to add?”
- Summarize and provide feedback on your impressions
- Ask whom you should talk with next
- Set up any future appointments
- Thank them for their time and shake hands.

# Interview Report

- Write as soon as possible after the interview
- Provide an initial summary, then more detail
- Review the report with the respondent

End



# Stories

- Stories originate in the workplace
- Organizational stories are used to relay some kind of information
- When a story is told and retold over time it takes on a mythic quality
- Isolated stories are good when you are looking for facts
- Enduring stories capture all aspects of the organization and are the ones a systems analyst should look for

# Purposes for Telling a Story

- There are four purposes for telling a story:
  - **Experiential** stories describe what the business or industry is like
  - **Explanatory** stories tell why the organization acted a certain way
  - **Validating** stories are used to convince people that the organization made the correct decision
  - **Prescriptive** stories tell the listener how to act
- Systems analysts can use storytelling as a complement to other information gathering methods

# Joint Application Design (JAD)

- Joint Application Design (JAD) can replace a series of interviews with the user community
- JAD is a technique that allows the analyst to accomplish requirements analysis and design the user interface with the users in a group setting

# Conditions That Support the Use of JAD

- Users are **restless** and want something new
- The organizational **culture supports** joint problem-solving behaviors
- Analysts forecast an **increase** in the number of **ideas** using JAD
- Personnel **may be absent** from their jobs for the length of time required

# Who Is Involved

- Executive sponsor
- IS analyst
- Users
- Session leader
- Observers
- Scribe

# Where to Hold JAD Meetings

- Offsite
  - Comfortable surroundings
  - Minimize distractions
- Attendance
  - Schedule when participants can attend
  - Agenda
  - Orientation meeting

# Benefits of JAD

- Time is saved, compared with traditional interviewing
- Rapid development of systems
- Improved user ownership of the system
- Creative idea production is improved

# Drawbacks of Using JAD

- JAD requires a **large block of time** to be available for all session participants
- **If preparation** or the follow-up report is **incomplete**, the session may **not** be **successful**
- The organizational skills and culture may not be conducive to a JAD session



# Questionnaires

Questionnaires are useful in gathering information from key organization members about:

- Attitudes
- Beliefs
- Behaviors
- Characteristics

# Planning for the Use of Questionnaires

- Organization members are widely dispersed
- Many members are involved with the project
- Exploratory work is needed
- Problem solving prior to interviews is necessary

# Question Types

Questions are designed as either:

- **Open-ended**

- Try to anticipate the response you will get
- Well suited for getting opinions

- **Closed**

- Use when all the options may be listed
- When the options are mutually exclusive

# Trade-offs between the Use of Open-Ended and Closed Questions on Questionnaires (Figure 4.12)

**Open-Ended**

**Closed**

Slow



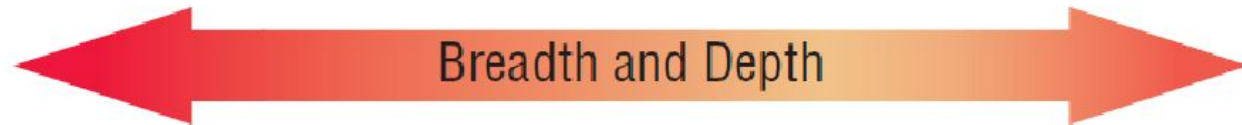
Fast

High



Low

High



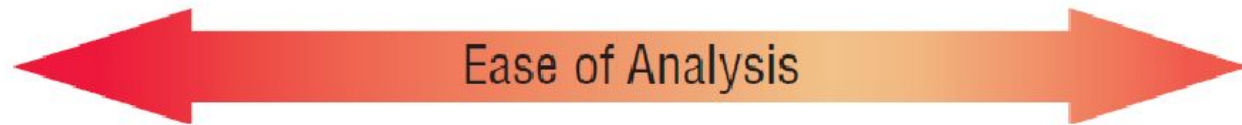
Low

Easy



Difficult

Difficult



Easy

# Questionnaire Language

- Simple
- Specific
- Short
- Not patronizing
- Free of bias
- Addressed to those who are knowledgeable
- Technically accurate
- Appropriate for the reading level of the respondent

# Measurement Scales

- The two different forms of measurement scales are:
  - Nominal
  - Interval

# Nominal Scales

- Nominal scales are used to classify things
- It is the weakest form of measurement
- Data may be totaled

What type of software do you use the most?

1 = Word Processor

2 = Spreadsheet

3 = Database

4 = An Email Program

# Interval Scales

- An interval scale is used when the intervals are equal
- There is no absolute zero
- Examples of interval scales include the Fahrenheit or Centigrade scale

How useful is the support given by the Technical Support Group?				
NOT USEFUL			EXTREMELY	
AT ALL			USEFUL	
1	2	3	4	5



# Validity and Reliability

- **Reliability** of scales refers to consistency in response—getting the same results if the same questionnaire was administered again under the same conditions
- **Validity** is the degree to which the question measures what the analyst intends to measure

# Problems with Scales

- Leniency
- Central tendency
- Halo effect

# Leniency

- Caused by easy raters
  - Solution is to move the “average” category to the left or right of center

# Central Tendency

- Central tendency occurs when respondents rate everything as average
  - Improve by making the differences smaller at the two ends
  - Adjust the strength of the descriptors
  - Create a scale with more points

# Halo Effect

- When the impression formed in one question carries into the next question
- Solution is to place one trait and several items on each page

# Designing the Questionnaire

- Allow ample white space
- Allow ample space to write or type in responses
- Make it easy for respondents to clearly mark their answers
- Be consistent in style

# Order of Questions




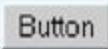
- Place most important questions first
- Cluster items of similar content together
- Introduce less controversial questions first

# Administering Questionnaires

- Administering questionnaires has two main questions:
  - Who in the organization should receive the questionnaire
  - How should the questionnaire be administered



# Ways to Capture Responses When Designing a Web Survey (Figure 4.13)

Name	Appearance	Purpose
One-line text box		Used to obtain a small amount of text and limit the answer to a few words
Scrolling text box		Used to obtain one or more paragraphs of text
Check box	<input type="checkbox"/>	Used to obtain a yes-no answer (e.g., Do you wish to be included on the mailing list?)
Radio button	<input type="radio"/>	Used to obtain a yes-no or true-false answer
Drop-down menu		Used to obtain more consistent results (Respondent is able to choose the appropriate answer from a predetermined list [e.g., a list of state abbreviations])
Push button		Most often used for an action (e.g., a respondent pushes a button marked "Submit" or "Clear")

# Methods of Administering the Questionnaire

- Convening all concerned respondents together at one time
- Personally administering the questionnaire
- Allowing respondents to self-administer the questionnaire
- Mailing questionnaires
- Administering over the Web or via email

# Electronically Submitting Questionnaires

- Reduced costs
- Collecting and storing the results electronically

# Summary

- Interviewing
  - Interview preparation
  - Question types
  - Arranging questions
  - The interview report
- Stories
- Joint Application Design (JAD)
  - Involvement and location
- Questionnaires
  - Writing questions
  - Using scales and overcoming problems
  - Design and order
  - Administering and submitting



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