



## Learning Objectives

- Recognize the value of unobtrusive methods for information gathering.
- Understand the concept of sampling for human information requirements analysis.
- Construct useful samples of people, documents, and events for determining human information requirements.
- Create an analyst's playscript to observe decision-maker activities.
- Apply the STROBE technique to observe and interpret the decision-maker's environment and their interaction with technologies.

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-1



## Unobtrusive Methods

- Less disruptive
- Insufficient when used alone
- Multiple methods approach
- Used in conjunction with interactive methods

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-2



## Sampling

- A process of systematically selecting representative elements of a population
- Involves two key decisions:
  - What to examine
  - Which people to consider

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-3



## Sampling Design

- To design a good sample, a systems analyst must follow four steps:
  - Determining the data to be collected or described
  - Determining the population to be sampled
  - Choosing the type of sample
  - Deciding on the sample size

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-4

## Four Main Types of Samples the Analyst Has Available (Figure 5.1)

	Not Based on Probability	Based on Probability
Sample elements are selected directly without restrictions	Convenience	Simple random
Sample elements are selected according to specific criteria	Purposive	Complex random (systematic, stratified, and cluster)

The systems analyst should use a complex random sample if possible.

Kendall &amp; Kendall

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-5

## The Sample Size Decision

- Determine the attribute.
- Locate the database or reports where the attribute can be found.
- Estimate the proportion of population that has the attribute
- Make the subjective decision regarding the acceptable interval estimate  $i$ .
- Choose the confidence level, and lookup  $z$ .
- Calculate the standard error.
- Determine the sample size.

Kendall &amp; Kendall

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-6

## Calculate the Standard Error of the Proportion

$$\sigma_p = i/z$$

$i$  = interval estimate

$z$  = confidence  
coefficient found in  
the confidence level  
lookup table

Kendall &amp; Kendall

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-7

## Determine the Sample Size $n$

$$n = \frac{p(1-p)}{\sigma_p^2} + 1$$

$\sigma_p$  = standard error

$p$  = the proportion of the population having  
the attribute

Kendall &amp; Kendall

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-8

## Example: A. Sembly Company

- What percentage of orders contain errors:
- Determine that you are looking for orders with mistakes (in names, add.etc).
- Locate order forms from the past six months.
- Examine order forms and conclude that  $p=5\%$ .
- Subjective decision of acceptable interval  $i = \pm 0.02$
- Look up confidence coefficient  $z$ -value = 1.96.
- Calculate  $\sigma_p = i / z = 0.02/1.96 = 0.0102$ .
- Determine  $n$ ;  $n = 458$ .

$$n = \frac{p(1-p)}{\sigma_p^2} + 1 = 457.55$$

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-9

A Table of Area under a Normal Curve Can Be Used to Look up a Value Once the Systems Analyst Decides on the Confidence Level (Figure 5.2)

First decide on the confidence level ...

Confidence Level	Confidence Coefficient (z value)
99%	2.58
98	2.33
97	2.17
96	2.05
95	1.96
90	1.65
80	1.28
50	0.67

... then look up the z value.

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-10

## Investigation

- The act of discovery and analysis of data
- Hard data: need to examine both
  - Quantitative
  - Qualitative

Kendall &amp; Kendall

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-11

## Analyzing Quantitative Documents

- Reports used for decision making  
need to obtain some of the documents that is used to run the business ( recent costs, recent labor)
- Performance reports
- Records: check for errors, look for chance to improve design, observe number and type of transactions
- Data capture forms: collect examples, types of forms  
(is the form field entirely? Are there forms never used? All copies circulated? Is there hard copy for the web form distrib.
- Ecommerce and other transactions

Kendall &amp; Kendall

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-12

## Reports Used for Decision Making

- Sales reports
- Production reports
- Summary reports

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-13

## A Performance Report Showing Improvement (Figure 5.3)

Week	Number of Batches Produced	Number of Batches Rejected	Percentage Rejected	Amount Away from 5% Goal
2/2	245	19	7.8	2.8
2/9	229	19	8.3	3.3
2/16	219	14	6.3	1.3
2/23	252	13	5.2	0.2
3/2	245	13	5.3	0.3
3/9	260	13	5.0	***
3/16	275	14	5.1	0.1
3/23	280	13	5.0	***
3/30	260	12	4.9	***
4/6	244	11	4.5	***
4/13	242	11	4.4	***
4/20	249	11	4.4	***
4/27	249	11	4.4	***

\*\*\* indicates met or exceeded the < 5% goal

Performance reports show goals ...

...and trends.

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-14

## Data Capture Forms

- Collect examples of all the forms in use.
- Note the type of form.
- Document the intended distribution pattern.
- Compare the intended distribution pattern with who actually receives the form.

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-15

## Questions to Ask about Official and Bootleg Forms that Are Already Filled out (Figure 5.5)

The form is titled "Farmfresh Reorder of Shopped Dairy Products". It contains several sections for data entry:

- Date**: \_\_\_\_\_
- Store Name**: \_\_\_\_\_
- Store Number**: \_\_\_\_\_
- Item Requested**: A list of items with checkboxes for "Cases" and "Item Requested".
 

Item Requested	Cases	Item Requested	Cases
Milk (1/2 gal.)	_____	Milk (quarts)	_____
Whole	_____	Whole	_____
2%	_____	2%	_____
1%	_____	1%	_____
Skim	_____	Skim	_____
Buttermilk	_____	Buttermilk	_____
Chocolate	_____	Chocolate	_____
Yogurt	_____	Yogurt	_____
Plain	_____	Pineapple	_____
Vanilla	_____	Marsh Apple	_____
Peach	_____	Banana	_____
Blueberry	_____	Mixed Fruit	_____
Raspberries	_____	Raspberries	_____
Strawberry	_____	Lemon	_____
- Ice Cream**: A list of items with checkboxes for "Cases" and "Item Requested".
 

Item Requested	Cases	Item Requested	Cases
Deluxe Pops	_____	Deluxe Quarts	_____
Deluxe 1/2 Gallons	_____	Premium Pops	_____
Stoney Minnies	_____	Premium Quarts	_____
- Requested by (employee number)**: \_\_\_\_\_
- Reason for shortage**: \_\_\_\_\_
- Total Cases Ordered**: \_\_\_\_\_
- Driver Number**: \_\_\_\_\_
- Route Number**: \_\_\_\_\_
- Store**: \_\_\_\_\_
- Date**: \_\_\_\_\_
- Driver**: \_\_\_\_\_
- Product shorted**: \_\_\_\_\_
- Cases needed**: \_\_\_\_\_
- Dairy manager's initials**: \_\_\_\_\_

Handwritten notes and arrows pointing to specific fields:

- Arrow pointing to "Cases" column: "Official form can contain information people by asking for this much information."
- Arrow pointing to "Reason for shortage": "There may be no logical order to the form."
- Arrow pointing to "Driver Number": "Is the total really needed?"
- Arrow pointing to "Cases needed": "Shorted" forms arise to simplify the problem.

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-16





## Analyzing Qualitative Documents

- Key or guiding metaphors
- Insiders vs. outsiders mentality
- What is considered good vs. evil
- Graphics, logos, and icons in common areas or Web pages
- A sense of humor

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-17



## Analyzing Qualitative Documents

- Email messages and memos
- Signs or posters on bulletin boards
- Corporate Web sites
- Manuals
- Policy handbooks

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-18

## Analysis of Memos Provides Insight into the Metaphors that Guide the Organization's Thinking (Figure 5.6)



Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-19

## Observation

- Observation provides insight on what organizational members actually do.
- See firsthand the relationships that exist between decision makers and other organizational members
- Can also reveal important clues regarding HCI concerns

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-20

## Analyst's Playscript

- Involves observing the decision-makers behavior and recording their actions using a series of action verbs
- Examples:
  - Talking
  - Sampling
  - Corresponding
  - Deciding

Kendall &amp; Kendall

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-21

## A Sample Page from the Analyst's Playscript Describing Decision Making (Figure 5.7)

Playscript Company: Solid Steel Shelving Scenario: Quality Assurance  
 Analyst: L. Brachet Date: 1/3/2010

Decision Maker (Actor)	Information-Related Activity (Script)
Quality Assurance Manager	Asks shop floor supervisor for the day's production report
Shop Floor Supervisor	Prints out daily computerized production report
Quality Assurance Manager	Discusses recurring problems in production runs with quality assurance (QA) manager
Quality Assurance Manager	Reads production report
	Compares current report with other reports from the same week
	Inputs data from daily production run into QA Model on computer
	Observes outcomes results of QA model
Shop Floor Supervisor	Calls steel suppliers to discuss deviations from quality standards
Quality Assurance Manager	Attends meeting on new quality specifications with quality assurance manager and vice president of production
Vice President of Production	Drafts letter to inform suppliers on new quality specifications agreed on in meeting
Quality Assurance Manager	Sends draft to vice president via email
	Reads drafted letter
	Requests corrections and comments via email
	Sends corrected letter on email
	Revises letter to reflect changes

Kendall &amp; Kendall

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-22



## STROBE

**STR**uctured **OB**servation of the **E**nvironment—a technique for observing the decision-maker's physical environment

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-23



## STROBE Elements

- Office location
- Desk placement
- Stationary equipment
- Props
- External information sources
- Office lighting and color
- Clothing worn by decision makers

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-24



## Office Location

- Accessible offices
  - Main corridors, open door
  - Major traffic flow area
  - Increase interaction frequency and informal messages
- Inaccessible offices
  - May view the organization differently
  - Drift apart from others in objectives

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-25



## Desk Placement

- Visitors in a tight space, back to wall, large expanse behind desk
  - Indicates maximum power position
- Desk facing the wall, chair at side
  - Encourages participation
  - Equal exchanges

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-26



## Stationary Office Equipment

File cabinets and bookshelves:

- If not present, person stores few items of information personally
- If an abundance, person stores and values information

Kendall & Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-27



## Props

- Calculators
- Personal computers
- Pens, pencils, and rulers
- If present, person processes data personally

Kendall & Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-28



## External Information Sources

- Trade journals or newspapers indicate the person values outside information.
- Company reports, memos, and policy handbooks indicate the person values internal information.

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-29



## Office Lighting and Color

- Warm, incandescent lighting indicates:
  - A tendency toward more personal communication
  - More informal communication
- Brightly lit, bright colors indicate:
  - More formal communications (memos, reports)

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-30

## Clothing

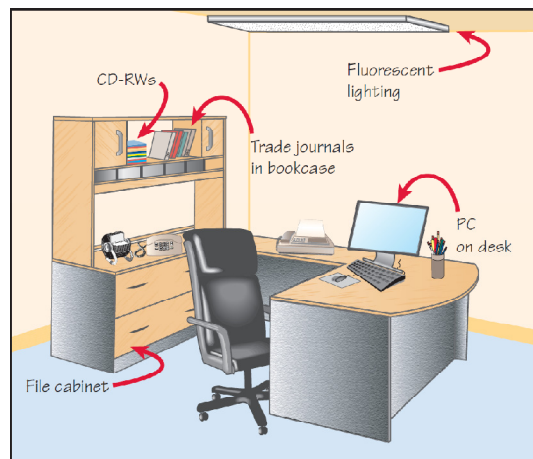
- Male
  - Formal two-piece suit—maximum authority
  - Casual dressing (sport jacket/slacks)—more participative decision making
- Female
  - Skirted suit—maximum authority

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-31

## Observe a Decision Maker's Office for Clues Concerning His or Her Personal Storage, Processing, and Sharing of Information (Figure 5.9)



Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-32



## Applying STROBE

- The five symbols used to evaluate how observation of the elements of STROBE compared with interview results are:
  - A checkmark means the narrative is confirmed.
  - An "X" means the narrative is reversed.
  - An oval or eye-shaped symbol serves as a cue to look further.
  - A square means observation modifies the narrative.
  - A circle means narrative is supplemented by observation.

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-33

## An Anecdotal List with Symbols for Use in Applying STROBE (Figure 5.11)

**Anecdotal List with Symbols for Applying STROBE**

Narrative Provided by Organizational Members Information is usually from a single source	Office Location and Equipment	Office Lighting, Color, and Graphics	Drafting of the Decision Maker
Adrian says, "I kept out the percentages myself."	✗	●	●
Urbah says, "I like to read up on these things."	✓	●	●
Ed says, "The right hand doesn't always know what the left hand is doing."	○	●	●
Adrian says, "The company doesn't change much."	✓	●	●
The operations staff works all night sometimes.	●	○	●
Urbah says, "We do things that way Mr. Adams wants to."	●	●	■
John says, "Tommy doesn't seem to care anymore."	●	●	○
	●	●	●
	●	●	●
	●	●	●

**Key**

- ✓ Confirm the narrative
- ✗ Negate or reverse the narrative
- Cue to look further
- Modify the narrative
- Supplement the narrative

Kendall &amp; Kendal

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-34

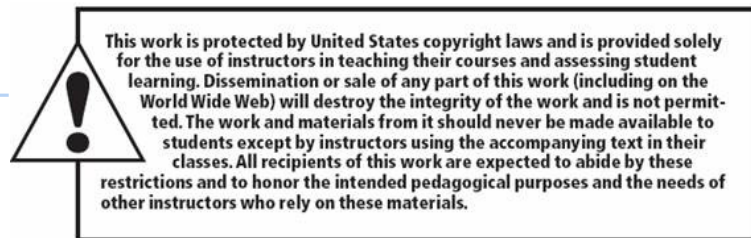
## Summary

- Sampling
  - Designing a good sample
  - Types of samples
  - Sample size
- Hard data
  - Quantitative document analysis
  - Qualitative document analysis
- Observation
  - Playscript
- STROBE
  - STROBE elements
  - Applying STROBE

Kendall &amp; Kendall

Copyright © 2011 Pearson Education, Inc. Publishing as Prentice Hall

5-35



All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. Printed in the United States of America.

Copyright © 2011 Pearson Education, Inc.  
Publishing as Prentice Hall

5-36