CHAPTER nine

Learning Objectives

1. To understand the concept of measurement.
2. To understand the four levels of scales and their typical usage.
3. To become aware of the concepts of reliability and validity.
4. To become familiar with the concept of scaling.
5. To learn about the various types of attitude scales.
6. To realize the importance of purchase intent scales in marketing research.
7. To become aware of some common problems and issues in using a type of scale.

The Concept Of Measurement and Attitude Scales

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### The Concept of Measurement and Attitude Scales

#### Measurement
The process of assigning numbers or labels to objects, persons, states, or events in accordance with specific rules.

#### Measurement scales

**Nominal Scales**
Partitions data into categories that are mutually exclusive and collectively exclusive.

**Ordinal Scales**
Used strictly to indicate rank order.

**Interval Scales**
Contains all the features of ordinal scales with the added dimension that the intervals between the data points on the scale are equal.

**Ratio Scales**
All powers of those mentioned as well as a meaningful absolute zero or origin.

#### Sources of measurement differences:

<table>
<thead>
<tr>
<th>Sources of measurement differences: random or systematic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A true difference in the characteristic being measured.</td>
</tr>
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<td>2. Differences due to stable characteristics of individual respondents.</td>
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<td>3. Differences due to short-term personal factors.</td>
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4. Differences caused by situational factors.
### The Concept of Measurement and Attitude Scales

**Sources of Measurement Differences**

5. Differences resulting from variations in administering the survey.
6. Differences due to the sampling of items included in the questionnaire.
7. Differences due to a lack of clarity in the measurement instrument.
8. Differences due to mechanical or instrument factors.

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### Reliability

- Consistent results over time.
- Measures are free from random error.

**Test-Retest Reliability:**

Obtained by repeating the measurement using the same instrument under as nearly the same conditions as possible.

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### Stability

- Very few differences in scores are found between the first and second tests.

**Equivalent Form Reliability:**

Avoids the test-retest by creating equivalent forms of measurement instrument.

Determined by measuring the correlation of the scores on the two instruments.
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## Internal Consistency Reliability:
Assesses the ability to produce similar results using different samples to measure a phenomenon.

## Validity
Addresses the issue of whether what we tried to measure was actually measured.

- Face validity
- Content validity
- Criterion-Related Validity

## Sources of Measurement Differences

<table>
<thead>
<tr>
<th>Situation 1: The lack of consistency means there is no reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situation 2: High reliability, but lacks validity</td>
</tr>
<tr>
<td>Situation 3: Reliable, consistent, and valid</td>
</tr>
</tbody>
</table>

All types of validity are interrelated.
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ATTITUDE SCALES

Scaling Defined
Procedures for attempting to determine quantitative measures of subjective and sometimes abstract concepts.
- Unidimensional scaling
- Multidimensional scaling

Graphic Rating Scales
Present to respondents with a graphic continuum typically anchored by two extremes

ITEMIZED RATING SCALES

Respondents must select from a limited number of ordered categories rather than placing a check mark on a continuous scale.

Rank Order Scale
Judging one item against another

Q-Sorting
Sort into piles according to specified rating categories

Paired Comparisons
Picking one of two objects

Constant Sum Scales
Divide a given number of points among two or more attributes

The Semantic Differential
The researcher selects opposite pairs
Respondents rate on a scale
Mean is computed and plotted
**Learning Objective**

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**ITEMIZED RATING SCALES**

**Stapel Scale**
Measures both the direction and intensity of attitudes simultaneously

**Likert Scales**
A series of statements that express either a favorable or unfavorable attitude toward the concept under study

**Purchase Intent Scales**
To get a rough idea of demand

**Some Basic Considerations When Selecting a Scale**
- Selecting a Rating, Ranking, Sorting, or Purchase Intent Scale
- Balanced Versus Nonbalanced Alternatives
- Number of Categories
- Odd or Even Number of Scale Categories
- Forced Versus Nonforced Choice
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Learning Objectives
1. To learn the objectives of questionnaire design.
2. To understand the role of the questionnaire in the data collection process.
3. To become familiar with the criteria for a good questionnaire.
4. To learn the process for questionnaire design.

5. To become knowledgeable about the three basic forms of questions.
6. To understand the key role of the questionnaire in data collection costs.
7. To learn the necessary procedures for successful implementation of a survey.
8. To understand how software and the Internet are impacting questionnaire design.

THE ROLE OF A QUESTIONNAIRE

Questionnaire Defined
A set of questions designed to generate the data necessary for accomplishing the objectives of the research project.

The Critical Link
Positioned between the survey objectives and the respondent’s information.
Translates the objectives into specific questions to solicit information.

To understand the role of the questionnaire in the data collection process.
The Concept of Measurement and Attitude Scales

CRITERIA FOR A GOOD QUESTIONNAIRE

Does it Provide the Necessary Decision-Making Information?
If the questionnaire fails to provide insights, then discard or revise.

Does It Fit Respondent Requirements?
What About Editing and Data-Processing Requirements?
A Questionnaire Serves Many Masters

The Questionnaire's Role in the Research Process

Figure 10.1

The Concept of Measurement and Attitude Scales

To become familiar with the criteria for a good questionnaire.

THE QUESTIONNAIRE DEVELOPMENT PROCESS

Step One: Determine Survey Objectives, Resources, and Constraints
The information sought.

Step Two: Determine the Data Collection Method
Impacts questionnaire design.

Step Three: Determine the Question Response Format
• Open-ended Questions
• Close-ended Questions

To learn the process for questionnaire design.
Learning Objective

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Figure 10.2

The Questionnaire Development Process

1. The wording must be clear.
2. Select words so as to avoid biasing the respondent.
3. Consider the ability of the respondent to answer the question.
4. Consider the willingness of the respondent to answer the question.

Step Five: Establish Questionnaire Flow and Layout

1. The wording must be clear.
2. Select words so as to avoid biasing the respondent.
3. Consider the ability of the respondent to answer the question.
4. Consider the willingness of the respondent to answer the question.
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THE QUESTIONNAIRE DEVELOPMENT PROCESS

1. Use the screener questions to identify qualified respondents.
2. After obtaining a qualified respondent, begin with a question that obtains a respondent's interest.
3. Ask general questions first.
4. Ask questions that require “work” in the middle of the questionnaire.
5. Insert “prompters” or strategic points.
6. Position sensitive, threatening, and demographic questions at the end.

Step Six: Evaluate the Questionnaire and Layout

• Are the Questions Necessary?
• Is the Questionnaire Too Long?
• Will the Questions Provide the Desired Information to Accomplish the Research Objective?

Step Seven: Obtain Approval of All Relevant Parties

Distribute copies to all parties with authority

Step Eight: Pretest and Revise

Use the best interviewers
Step Nine: Prepare Final Questionnaire

Copy
Precise typing, instructions, spacing, numbering, and precoding must be set up, monitored, and proofread.

Step Ten: Implementing the Survey

Supervisor’s Instructions
Interviewer’s Instructions
Call Record Sheet
Field Management Companies

Software for Questionnaire Development
Senses Multimedia Researchers incorporates:
• sounds
• images
• animations
• movie clips
• earlier responses
Survey Said
• PC and Web based surveys

SurveyBuilder.com works as follows:
1. Researcher creates custom survey at web site.
2. Instructions are e-mailed to link survey to web site.
4. Respondents complete survey - SurveyBuilder compiles data.
5. Users can remotely access survey results.
### The Concept of Measurement and Attitude Scales

**THE QUESTIONNAIRE’S ROLE IN COSTS AND PROFITABILITY**

<table>
<thead>
<tr>
<th>Impact on costs and profitability:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• the questionnaire</td>
</tr>
<tr>
<td>• incidence rate</td>
</tr>
<tr>
<td>• termination during an interview</td>
</tr>
<tr>
<td>• subject matter</td>
</tr>
<tr>
<td>• redundant or difficult</td>
</tr>
<tr>
<td>• questionnaire length</td>
</tr>
<tr>
<td>• changing the subject</td>
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To understand the role of questionnaire design in data collection costs.