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NAME OF THE DEPARMENT : DEPARTMENT OF

MANAGEMENT SCIENCES

SUBJECT : RESEARCH METHODOLOGY

TOPIC : MEASUREMENT METHODS

STAFF NAME : CHANDRASEKAR N

MEASUREMENT METHODS

Interview Research

1) The qualitative research interview seeks to describe and the meanings of central themes in the life world of the subjects. The main task in interviewing is to understand the meaning of what the interviewees say.

2) A qualitative research interview seeks to cover both a factual and a meaning level, though it is usually more difficult to interview on a meaning level.

3) Interviews are particularly useful for getting the story behind a participant's experiences. The interviewer can pursue in-depth information around the topic. Interviews may be useful as followup to certain respondents to questionnaires, e.g., to further investigate their responses.

Characteristics of Interview

1) Interviews are completed by the interviewer based on what the respondent says.

2) Interviews are a far more personal form of research than questionnaires.

3) In the personal interview, the interviewer works directly with the respondent

4) Unlike with mail surveys, the interviewer has the opportunity to probe or ask follow up questions.

5) Interviews are generally easier for respondent, especially if what is sought is opinions or impressions.

6) Interviews are time consuming and they are resource intensive.

7) The interviewer is considered a part of the measurement instrument and interviewer has to well trained in how to respond to any contingency

Types of Interviews

1) **Informal, conversational interview -no predetermined questions are asked, in order to remain as** open and adaptable as possible to the interviewee's nature and priorities; during the interview the interviewer "goes with the flow".

2) **General interview guide approach -the guide approach is intended to ensure that the same** general areas of information are collected from each interviewee; this provides more focus than the conversational approach, but still allows a degree of freedom and adaptability in getting the information from the interviewee.

3) **Standardized, open-ended interview -the same open-ended questions are asked to all** interviewees; this approach facilitates faster interviews that can be more easily analyzed and compared.

4) **Closed, fixed-response interview -where all interviewees are asked the same questions and asked** to choose answers from among the same set of alternatives. This format is useful for those not practiced in interviewing

Survey Research & its Types

   A survey is defined as a brief interview or discussion with individuals about a specific topic. The term survey is unfortunately a little vague, so we need to define it better. The term survey is often used to mean 'collect information.

Classification of Survey Design According to Instrumentation

In survey research, the instruments that are utilized can be either a questionnaire or an interview (either structured or unstructured).

1. Questionnaires

   Typically, a questionnaire is a paper-and-pencil instrument that is administered to the respondents. The usual questions found in questionnaires are closed-ended questions, which are followed by response options. However, there are questionnaires that ask open-ended questions to explore the answers of the respondents.

Questionnaires have been developed over the years. Today, questionnaires are utilized in various survey methods, according to how they are given. These methods include the self-administered, the group-administered, and the household drop-off. Among the three, the self-administered survey method is often used by researchers nowadays. The self-administered questionnaires are widely known as the mail survey method. However, since the response rates related to mail surveys had gone low, questionnaires are now commonly administered online, as in the form of web surveys.

- **Advantages: Ideal for asking closed-ended questions; effective for market or consumer** research

- **Disadvantages: Limit the researcher's understanding of the respondent's answers; requires** budget for reproduction of survey questionnaires

2. Interviews
Between the two broad types of surveys, interviews are more personal and probing. Questionnaires do not provide the freedom to ask follow-up questions to explore the answers of the respondents, but interviews do. An interview includes two persons - the researcher as the interviewer, and the respondent as the interviewer. There are several survey methods that utilize interviews. These are the personal or faceto- face interview, the phone interview, and more recently, the online interview.

- **Advantages: Follow-up questions can be asked; provide better understanding of the answers of** the respondents
- **Disadvantages: Time-consuming; many target respondents have no public-listed phone** numbers or no telephones at all
- **Classification of Survey Design According to the Span of Time Involved** The span of time needed to complete the survey brings us to the two different types of surveys: crosssectional and longitudinal.

1. Cross-Sectional Surveys

Collecting information from the respondents at a single period in time uses the cross-sectional type of survey. Cross-sectional surveys usually utilize questionnaires to ask about a particular topic at one point in time. For instance, a researcher conducted a cross-sectional survey asking teenagers' views on cigarette smoking as of May 2010. Sometimes, cross-sectional surveys are used to identify the relationship between two variables, as in a comparative study. An example of this is administering a cross-sectional survey about the relationship of peer pressure and cigarette smoking among teenagers as of May 2010.

2. Longitudinal Surveys

When the researcher attempts to gather information over a period of time or from one point in time up to another, he is doing a longitudinal survey. The aim of longitudinal surveys is to collect data and examine the changes in the data gathered. Longitudinal surveys are used in cohort studies, panel studies and trend studies.

Measurement Scales
1) Dichotomous Scales
A dichotomous scale is a two-point scale which presents options that are absolutely opposite each other. This type of response scale does not give the respondent an opportunity to be neutral on his answer in a question.

Examples:
- Yes- No
- True - False
- Fair - Unfair
- Agree – Disagree

2) Rating Scales
Three-point, five-point, and seven-point scales are all included in the umbrella term "rating scale". Arating scale provides more than two options, in which the respondent can answer in neutrality over a question being asked.

Examples:

Three-point Scales

 1 .Good - Fair – Poor

 2.Agree – Undecided - Disagree

 3.Extremely- Moderately - Not at all

 4.Too much - About right - Too little

2. Five-point Scales (e.g. Likert Scale)

- Strongly Agree – Agree – Undecided / Neutral - Disagree - Strongly Disagree

- Always – Often – Sometimes – Seldom – Never

- Extremely – Very - Moderately – Slightly - Not at all

- Excellent - Above Average – Average - Below Average - Very Poor

3. Seven-point Scales

- Exceptional – Excellent – Very Good – Good – Fair – Poor – Very Poor

- Very satisfied - Moderately satisfied - Slightly satisfied – Neutral - Slightly dissatisfied -Moderately Dissatisfied- Very dissatisfied

3) Semantic Differential Scales
A semantic differential scale is only used in specialist surveys in order to gather data and interpret based on the connotative meaning of the respondent's answer. It uses a pair of clearly opposite words, and can either Examples:
1. Marked Semantic Differential Scale
Please answer based on your opinion regarding the product:be marked or unmarked.

very slightly neither slightly very

Inexpensive [ ] [ ] [ ] [ ] [ ] Expensive

Effective [ ] [ ] [ ] [ ] [ ] Ineffective

Useful [ ] [ ] [ ] [ ] [ ] Useless

Reliable [ ] [ ] [ ] [ ] [ ] Unreliable

2. Unmarked Semantic Differential Scale

The central line serves as the neutral point:

Inexpensive _____|_____ Expensive

Effective _____|_____ Ineffective

Useful _____|_____ Useless

Reliable _____|_____ Unreliable

Techniques of Developing Scales

1) Define the attitude

The first step in designing an attitude scale is to define the attitude you want to measure. What does the attitude mean? What does "desire to learn" mean? If students do not have a desire to learn, what do they have? Perhaps, "desire to get a degree." With these two en points we can begin to build a scale to differentiate between those who desire to learn, and those who merely want a credential.

In defining the attitude, we must choose which end of the scale will be positive, and which will be negative. The simplest way to do this is to assign the positive end of the scale to your attitude. For our example, we'll make "desire to learn" positive, and "desire to get a degree" negative.

2) **Determine related areas**

Having defined the end points of the scale, we next determine what attitudes, opinions, behaviors, or feelings might be related to each end of the scale. What kinds of things would reflect the positive side? The negative side? These related areas provide the raw material from which we'll develop attitudinal statements. In what areas would "learn" and "degree" students differ? Here's my suggested list: doing homework, using the library, extra reading, free time discussion, meetings with professors, opinions concerning the meaning of a degree, and views on grades.

3) Write statements

Next, we will write statements that reflect positive and negative aspects of these areas. We've defined "positive" to mean "that which agrees with my position," and "negative" means "that which disagrees with my position." The statements, even though reflecting subjective variables, should be objective. That is, statements must not be systematically biased toward one position or the other. Students who really want merely to get a degree should have no trouble scoring low on the scale. They should tend to agree with statements reflecting "degree" and tend to disagree with statements reflecting "learning." In the same way, students who really want to learn should tend to agree with "learning" statements, and tend to disagree with "degree" statements.

4) Create an item pool

Continue writing items, both positive and negative, until you have an item pool at least twice the size of your intended instrument. If you plan to have 20 statements in your final scale, then create an item pool
of 40 items.

Validating the items

Enlist a validation panel of 6-8 persons to evaluate each item. It is suggested that you have persons on the panel who represent both extremes of the scale. Have the panel rate each item on its clarity and potency in defining the attitude in question.

Formatting the Scale

Randomly order the selected statements. Use letters to indicate choices, such as "SD", "D", "A", and "SA" rather than numbers. I recommend that you use four or six levels of response. Using an even number of responses forces respondents to mark the direction of their attitudinal tendencies — positive Or negative. Mean scores for groups filling out the scale have more meaning in this less stable construction. Many Likert scales have 5 levels, with a "no opinion" center. This neutral middle option allows subjects an easy way to avoid considering the statement.

Rank

   Rank order the evaluated items on clarity and potency. Choose an equal number of positive and negative items from the best statements.

Scoring the scale

The points given for each response depend on whether the statement is positive or negative. The person who "strongly agrees" with a "positive statement" gets the maximum points. One who "strongly disagrees" with a "positive statement" gets the minimum points. For a four-point scale, the scoring would be as follows for *positive statements: SD=1, D=2, A=3, SA=4.*

The person who "strongly agrees" with a negative statement gets the minimum number of points (1), while the one who "strongly disagrees" with a negative statement gets the maximum points (4). In Our four-point example, the scoring for *negative statements would be as follows: SD=4, D=3, A=2, and SA=1.*

In this short 8-item example attitude scale subject attitude scores will range from a low of "**8**" **(8 x 1 =** 8) to a high of "**32**" **(8 x 4 = 32). For a twenty-five item scale, this procedure yields scores ranging from** 25 to 100. These scores can then be used to compare groups on the defined attitude

Reliability & Validity of Scales

Validity:

Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform. Does the measure employed really measure the theoretical concept (variable)? It is rare, if nearly impossible, that an instrument be 100% valid, so validity is generally measured in degrees. As a process, validation involves collecting and analyzing data to assess the accuracy of an instrument. There are numerous statistical tests and measures to assess the validity of quantitative instruments, which generally involves pilot testing. The remainder of this discussion focuses on external validityand content validity.

External validity is the extent to which the results of a study can be generalized from a sample to a population. Establishing eternal validity for an instrument, then, follows directly from sampling. Recall that a sample should be an accurate representation of a population, because the total population may not be available.

An instrument that is externally valid helps obtain population generalizability, or the degree to which a sample represents the population.

Content validity refers to the appropriateness of the content of an instrument. In other words, do the measures (questions, observation logs, etc.) accurately assess what you want to know? This is particularly important with achievement tests. This would involve taking representative questions from each of the sections of the unit and evaluating them against the desired outcomes.

Reliability:

a. Will the measure employed repeatedly on the same individuals yield similar results? (stability)

b. Will the measure employed by different investigators yield similar results? (equivalence)

c. Will a set of different operational definitions of the same concept employed on the same individuals, using the same data-collecting technique, yield a highly correlated result? Or, will all items of the measure be internally consistent? (homogeneity) *Reliability can be thought of as consistency. Does the* instrument consistently measure what it is intended to measure? It is not possible to calculate reliability; however, there are four general estimators that you may encounter in

1. *Inter-Rater/Observer Reliability: The degree to which different raters/observers give consistent* answers or estimates.
2. *Test-Retest Reliability: The consistency of a measure evaluated over time.*
3. *Parallel-Forms Reliability: The reliability of two tests constructed the same way, from the same*
content.
4. *Internal Consistency Reliability: The consistency of results across items, often measured with* Cronbach's Alpha.

Relating Reliability and Validity

Reliability is directly related to the validity of the measure. There are

Several important principles. First, a test can be considered reliable,

but not valid. Consider the SAT, used as a predictor of success in

college. It is a reliable test (high scores relate to high GPA), though
 only

a moderately valid indicator of success (due to the lack of structured

environment – class attendance, parent-regulated study, and sleeping

habits – each holistically related to success).

Second, validity is more important than reliability. Using the above example, college admissions may consider the SAT a reliable test, but not necessarily a valid measure of other quantities colleges seek, such as leadership capability, altruism, and civic involvement. The combination of these aspects, alongside the SAT, is a more valid measure of the applicant's potential for graduation, later social involvement, and generosity (alumni giving) toward the alma mater. Finally, the most useful instrument is both valid and reliable. Proponents of the SAT argue that it is both.

It is a moderately reliable predictor of future success and a moderately valid measure of a student's knowledge in Mathematics, Critical Reading, and Writing.

THANK YOU