Unit – III

I. **DISCUSS THE CONCEPT OF MEASUREMENT AND SCALING IN MARKETING RESEARCH? EXPLAIN DIFFERENT TYPES OF SCALES SUCH AS NOMINAL, ORDINAL, INTERVAL AND RATIO SCALES.**

II. **DISCUSS THE PRIMARY SCALES OF MEASUREMENT AND DIFFERENTIATE THEM. EXPLAIN ATTITUDE SCALES THURSTONE'S, LIKERT'S, GUTTMAN'S, SEMANTIC DIFFERENTIAL SCALES.**

III. **WHAT ARE THE ESSENTIALS OF DESIGNING A GOOD QUESTIONNAIRE? FRAME A SAMPLE QUESTIONNAIRE FOR DETERMINING INTERNET DATA USAGE PATTERN BY INDIAN MILLENNIALS.**

ONE PROBLEM FROM THIS UNIT CAN BE EXPECTED

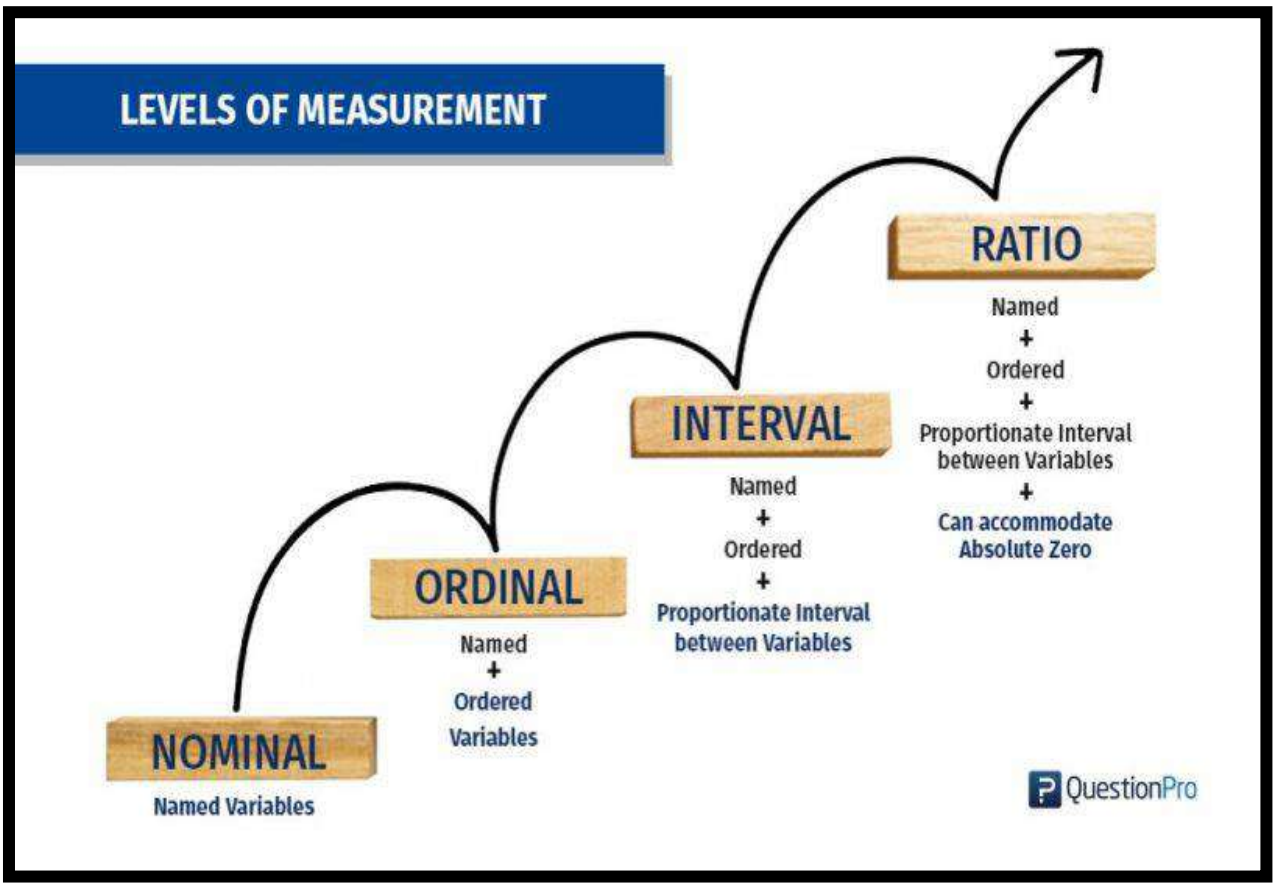
I. DISCUSS THE CONCEPT OF MEASUREMENT AND SCALING IN MARKETING RESEARCH? EXPLAIN DIFFERENT TYPES OF SCALES SUCH AS NOMINAL, ORDINAL, INTERVAL AND RATIO SCALES.

A. MEASUREMENT IN MARKETING

Research investigates latent variables in marketing, focusing on current paradigms as well as recently suggested alternative concepts. The book proposes a unified scientific definition of measurement that allows for testing the hypothesis of the real existence of a latent variable.

B. SCALING TECHNIQUES

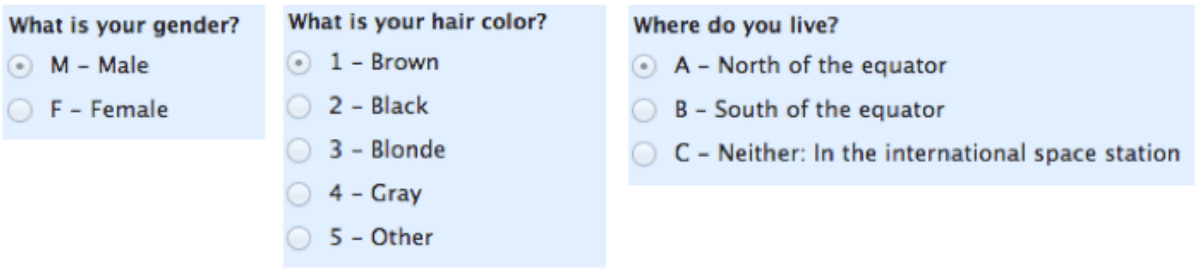
Scaling is the process of generating the continuum, a continuous sequence of values, upon which the measured objects are placed. In Marketing Research, several scaling techniques are employed to study the relationship between the objects.



1. NOMINAL SCALE: 1ST LEVEL OF MEASUREMENT

Nominal Scale, also called the categorical variable scale, is defined as a scale used for labeling variables into distinct classifications and doesn't involve a quantitative value or order.

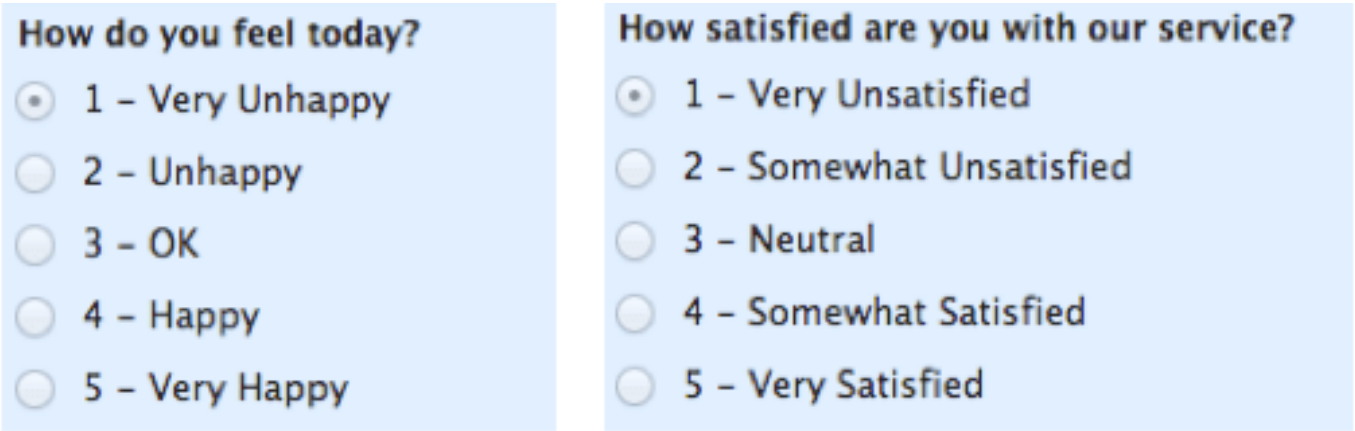
There are cases where this scale is used for the purpose of classification – the numbers associated with variables of this scale are only tags for categorization or division. Calculations done on these numbers will be futile as they have no quantitative significance.



2. ORDINAL SCALE: 2ND LEVEL OF MEASUREMENT

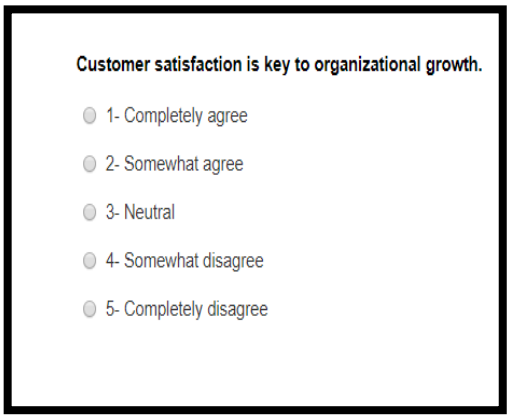
Ordinal Scale is defined as a variable measurement scale used to simply depict the order of variables and not the difference between each of the variables. These scales are generally used to depict non-mathematical ideas such as frequency, satisfaction, happiness, a degree of pain etc.

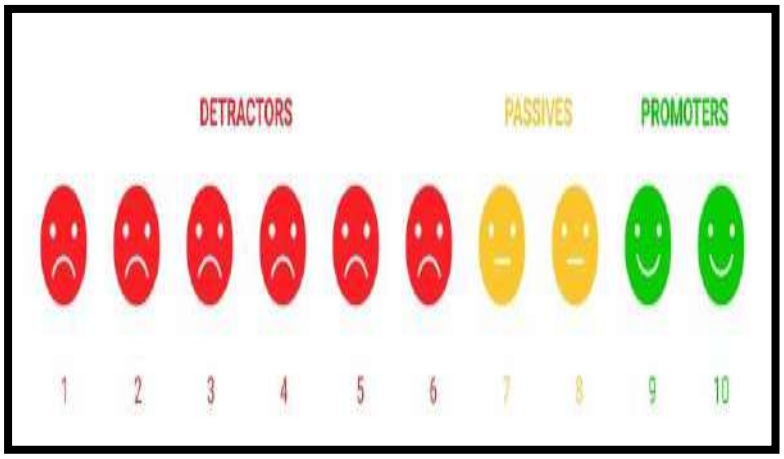
For example, a semantic differential scale question such as:



3. INTERVAL SCALE: 3RD LEVEL OF MEASUREMENT

Interval Scale is defined as a numerical scale where the order of the variables is known as well as the difference between these variables. The interval scale is the most commonly used question types in a research study. To get any answer type, it is imperative that the question asked requires the respondents to answer on a numerical scale where the difference between the two numbers is equal.





4. RATIO SCALE: 4TH LEVEL OF MEASUREMENT

Ratio scale is a type of variable measurement scale which is quantitative in nature. Ratio scale allows any researcher to compare the intervals or differences. Ratio scale is the 4th level of measurement and possesses a zero point or character of origin. This is a unique feature of ratio scale. For example, the temperature outside is 0-degree Celsius. 0 degree doesn't mean it's not hot or cold, it is a value.

Please select which age bracket do you fall in?

Below 20 years

21-30 years

31-40 years

41-50 years

50ears and above

II. DISCUSS THE PRIMARY SCALES OF MEASUREMENT AND DIFFERENTIATE THEM. EXPLAIN ATTITUDE SCALES - THURSTONE'S, LIKERT'S, GUTTMAN'S, SEMANTIC DIFFERENTIAL SCALES.

ATTITUDE SCALES

The term scaling is applied to the attempts to measure the attitude objectively. Attitude is a resultant of number of external and internal factors. Depending upon the attitude to be measured, appropriate scales are designed. Scaling is a technique used for measuring qualitative responses of respondents such as those related to their feelings, perception, likes, dislikes, interests and preferences.

PRIMARY SCALES OF MEASUREMENT AND DIFFERENTIATE THEM

Provides:	Nominal	Ordinal	Interval	Ratio
The "order" of values is known		✔	✔	✔
"Counts," aka "Frequency of Distribution"	✔	✔	✔	✔
Mode	✔	✔	✔	✔
Median		✔	✔	✔
Mean			✔	✔
Can quantify the difference between each value			✔	✔
Can add or subtract values			✔	✔
Can multiple and divide values				✔
Has "true zero"				✔

A. HOW TO CONSTRUCT A THURSTONE SCALE?

Step 1: Gather statements regarding the topic in-hand which will possibly have a broad scope of responses – usually from extremely unfavorable to extremely favorable.

Step 2: Statements that do not contribute towards the objective of research **can be discarded.** The ones that are selected are then sent out to a group of people/judges for further filtration.

Step 3: These judges then segregate the statements on a 1-11 scale where 1 indicates extremely unfavorable and 11 indicates extremely favorable. Sections of statements are created – extreme sections will have the most disagreed and the most agreed statements and the midsection will have statements which are neither unfavored nor favored. Judges are expected only to stack extreme statements and the midpoint.

Step 4: Every statement will have a rating on the 1-11 scale. This number corresponding to each statement will be **an average of the ratings** provided by multiple judges. The statements which can't be rated by the judges are usually not considered for further analysis.

Sr. No	Scale Statement	Scale Score
1	It is one of the most skewed results in the history of U.S elections.	8.2
2	It is unfair that Trump won the elections despite the rampant hate for him among citizens.	5.9
3	It is disappointing to see Trump being appointed as the U.S President.	9.5
4	It is the best thing that has happened in the U.S politics.	5.5
5	Trump has been a believer of world peace and he will surely work towards it.	1.8
6	Trump believes in racial equality.	4.3

Thus, Thurstone ***score*** = ***Values*** related to the statement favored by respondents / the total statements were chosen by respondents

B. HOW TO CONSTRUCT A GUTTMAN SCALE?

In many cases, the strength of respondent opinions is more important than the opinions themselves. Guttman scale, also

popularly known as cumulative scale, has a series of statements chosen by a careful rating process.

Guttman scale question is used in various surveys –

- To analyze cumulative studies
- To measure respondent behavior and feedback
- To collect information about customer and employee feelings
- This cumulative scale has been used in understanding customer satisfaction and also employee engagement.

Respondent	Statement 1	Statement 2	Statement 3	Statement 4	Statement 5	Statement 6	Statement 7
2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	Yes	Yes	Yes	Yes	–	–	–
18	Yes	Yes	Yes	Yes	Yes	–	–
21	Yes	–	–	Yes	–	–	–
25	Yes	Yes	–	–	Yes	–	–
30	–	–	–	–	Yes	–	Yes

A Guttman scale can be developed by following the below mentioned steps:

Step 1: Have a defined purpose of using Guttman Scale: For any scaling technique to be productive, the purpose of constructing it should be well-defined. In the example under discussion, the researcher must decide the intent of having statements related to Trump in the survey.

Step 2: Note down a series of statements: A researcher can obtain impactful insights into the value of the statements only if there are various statements related to Trump.

Step 3: Assign values to every statement – The list of 80-100 statement has to be rated by subject matter experts. Each one of these experts is supposed to rate every statement. The experts are expected to submit their agreement or disagreement with the

mentioned statements. This feedback should not be governed by their personal opinions and should rather be in favor of the study.

Step 4: Format the statements for analysis: This step is critical for research. The statements are usually produced in Matrix format.

Step 5: Decide the Guttman scale – On the basis of the judgment by experts, those statements with the least agreement can be eliminated from the final scale and a filtered list of statements can be sent to the respondents.

C. SEMANTIC DIFFERENTIAL SCALE

b. Semantic Differential Scale

This is a seven point scale and the end points of the scale are associated with bipolar labels.

1						7
Unpleasant	2	3	4	5	6	Pleasant
Submissive						Dominant

Suppose we want to know personality of a particular person. We have options-

1. Unpleasant/Submissive
2. Pleasant/Dominant

Bi-polar means two opposite streams. Individual can score between 1 to 7 or -3 to 3. On the basis of these responses profiles are made. We can analyse for two or three products and by joining these profiles we get profile analysis. It could take any shape depending on the number of variables.

Profile Analysis

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Mean and *median* are used for comparison. This scale helps to determine overall similarities and differences among objects.

When Semantic Differential Scale is used to develop an image profile, it provides a good basis for comparing images of two or more items. The big advantage of this scale is its simplicity, while producing results compared with those of the more complex scaling methods. The method is easy and fast to administer, but it is also sensitive to small differences in attitude, highly versatile, reliable and generally valid.

D. LIKERT SCALE

a. Likert Scale

It was developed Rensis Likert. Here the respondents are asked to indicate a degree of agreement and disagreement with each of a series of statement. Each scale item has 5 response categories ranging from strongly agree and strongly disagree.

5	4	3	2	1
Strongly agree	Agree	Indifferent	Disagree	Strongly disagree

Each statement is assigned a numerical score ranging from 1 to 5. It can also be scaled as -2 to +2.

-2	-1	0	1	2

For example quality of Mother Diary ice-cream is poor then Not Good is a negative statement and Strongly Agree with this means the quality is not good.

Each degree of agreement is given a numerical score and the respondents total score is computed by summing these scores. This total score of respondent reveals the particular opinion of a person.

Likert Scale are of ordinal type, they enable one to rank attitudes, but not to measure the difference between attitudes. They take about the same amount of efforts to create as Thurston scale and are considered more discriminating and reliable because of the larger range of responses typically given in Likert scale.

A typical Likert scale has 20 - 30 statements. While designing a good Likert Scale, first a large pool of statements relevant to the measurement of attitude has to be generated and then from the pool statements, the statements which are vague and non-discriminating have to be eliminated.

Thus, likert scale is a five point scale ranging from 'strongly agreement'to 'strongly disagreement'. No judging gap is involved in this method.

E. RELIABILITY AND VALIDITY OF A SCALES.

BASIS FOR COMPARISON	VALIDITY	RELIABILITY
Meaning	Validity implies the extent to which the research instrument measures, what it is intended to measure.	Reliability refers to the degree to which scale produces consistent results, when repeated measurements are made.
Instrument	A valid instrument is always reliable.	A reliable instrument need not be a valid instrument.
Related to	Accuracy	Precision
Value	More	Comparatively less.
Assessment	Difficult	Easy

RELIABILITY

Reliability refers to the consistency of a measure. Psychologists consider three types of consistency: over time (test-retest reliability), across items (internal consistency), and across different researchers (inter-rater reliability).

Stability: Degree of stability can be checked by making a comparison of the results of repeated measurement.

Equivalence: Equivalence can be gauged when two researchers compare the observations of the same events.

i. Test-Retest Reliability

When researchers measure a construct that they assume to be consistent across time, then the scores they obtain should also be consistent across time. Test-retest reliability is the extent to which this is actually the case.

ii. Internal Consistency

A second kind of reliability is internal consistency, which is the consistency of people's responses across the items on a multiple-item measure.

iii. Interrater Reliability

Many behavioural measures involve significant judgment on the part of an observer or a rater. Inter-rater reliability is the extent to which different observers are consistent in their judgments.

VALIDITY

Validity is the extent to which the scores from a measure represent the variable they are intended to.

- **Content Validity:** Otherwise known as face validity, it is the point to which the scale provides adequate coverage of the subject being tested.
- **Criterion Validity:** The type of validity which gauges the performance of measuring instrument, i.e. whether it performs as expected or estimated, with respect to the other variables, chosen as a meaningful parameter. The criterion should be relevant, unbiased, reliable, etc.
- **Construct Validity:** Construct validity in a measure refers to the extent to which it adheres to estimated correlations with other theoretical suppositions.

III. WHAT ARE THE ESSENTIALS OF DESIGNING A GOOD QUESTIONNAIRE? FRAME A SAMPLE QUESTIONNAIRE FOR DETERMINING INTERNET DATA USAGE PATTERN BY INDIAN MILLENNIALS.

FIVE BASIC PRINCIPLES FOR WRITING GOOD QUESTIONNAIRES

1. BE COMPREHENSIBLE!

- Use a clear and comprehensible language to ease the cognitive burden for the respondents. Each and every question reduces the respondent's capability of concentration.
- Therefore, if you want to keep their attention, the questions should be as comprehensible as possible. This is especially true if you have less educated people in your sample.

2. BE CLEAR!

It sounds obvious, but questions need to be clear and unambiguous. Using vague buzz words, unfamiliar terms or everyday language can blur your results. Even though respondents may think they understand what you mean, everyone will have something different in mind, when answering your question.

3. BE NEUTRAL!

Avoid suggestive questions or unbalanced answering options. The respondents may not necessarily mind or even notice, but your results may then lean towards one or another answering option.

In this case you are not measuring the objective facts, but implicitly asking for approval of your subjective standpoint. Your data will be biased. Hence, you should always take a neutral standpoint and try to be as objective as possible when writing a questionnaire.

4. OPERATIONALIZE!

Very often, you will want to find out about attitudes and behaviors that can't be evaluated directly. Try to operationalize these concepts and translate them into clear and tangible indicators. Instead of asking directly whether someone is "lifestyle oriented", rather ask for specific products or activities, the respondent may have had contact with during the last weeks. Not only will it be easier for the respondent to find an answer but also lead to much more accurate results.

5. MIND THE ORDER!

Any clues given at the beginning of the questionnaire may affect the answers to questions that follow. Or the first statements presented to a respondent may affect the respondent's choice of an answering option.

This is what psychologists call priming, an effect of the short-term memory on our decision making. Therefore, if possible, try to randomize the order of your questions and statements. If you can't do that, at least try to optimize the order to get natural, unbiased feedback.

There are definitely many more things to keep in mind, but you would be surprised how often even these five basic principles are neglected in research practice.