

A Review on Construction of Summated Rating Attitude Scales

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Abstract: Attitude is defined as the degree of positive or negative affect associated with some psychological object. Scale is a continuum from highest to lowest points and has intermediate points in between these two extremities. An attitude scale is a special type of questionnaire designed to produce scores indicating the intensity and direction (for or against) of a person's feelings about an object or event. Likert scale is a five point rating scale where response carries from strongly agree to strongly disagree or vice versa. It is also known as summated rating scale. Likert scale is easy to construct and use. Due to more comfortable and less time consuming, this is most widely used scale than any other scale.

Key Words: Attitude, Scale, Attitude Scale, Likert Scale.

1. ATTITUDE

Thurston (1946) defined attitude as the degree of positive or negative affect associated with some psychological object. According to Thurston, psychological object means any means, phrase, slogan, person, institution, ideal or idea toward which people can differ with respect to positive or negative affect.

For example

Smoking is injurious to health.	Positive Attitude
Smoking gives pleasure.	Negative Attitude

In the literature of psychology, the terms affect and feeling are used interchangeably. An individual who is associated with positive affect or feeling towards some psychological object have a favourable attitude towards the object and if he is associated with negative affect towards same psychological object have an unfavourable attitude toward the object. (Edwards, 1957)

2. SCALE:

'Scale' comes from the Latin word *scala*, meaning **a ladder or flight of steps**. Scale is a continuum from highest to lowest points and has intermediate points in between these two extremities. Scales are used to rank people's judgments of objects, events, or other people from low to high or from poor to good.

Use of computer in every sector is _____	Low 3	Medium 2	High 1
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(Anonymous, 2014)

3. ATTITUDE SCALE:

An attitude scale is a special type of questionnaire designed to produce scores indicating the intensity and direction (for or against) of a person's feelings about an object or event. (Anonymous, 2014)

4. TYPES OF SCALES:

There are three types of scales given below;

- **Differential scale-** A differential scale consists of a number of items whose position on the scale has been determined by ranking or rating operation performed by judges..
For example- Thurston's technique of Equal Appearing Interval scale.
- **Summated rating-** In this scale, individual indicates their agreement or disagreement with each item and their scores are determined by adding the sub-scores assigned to their responses to all separate items. Such scales are called summated scales.
For example- Likert's method of Summated Ratings
- **Cumulative scales-** An individual whose attitude at certain point on the dimension being measured will answer favourably all the items on one side of that point and answer unfavourably all those on the other side.
For example- Bogardus Social Distance Scale (Ray and Mondal, 2011)

5. THE METHOD OF SUMMATED RATINGS:

Likert (1932) developed a different method for the construction of attitude scale. In 1940, Bird named this method as the method of summated rating. This is a simpler method than any other method.

The various steps are involved in Likert's method-

- Investigator collects a large number of multiple choice type statements usually with five alternatives such as strongly agree, agree, undecided, disagree and strongly disagree.
- Such statements are administered to a group of subjects who respond to each item by indicating which of the given five alternatives they agree with.
- Every responded item is scored with different weights. The weight ranges from 5 to 1. For favourable statements a weight of 5 is given to "strongly agree", 4 to agree, 3 to undecided, 2 to disagree and 1 to strongly disagree and for the unfavourable statement the order of weights to be given is reversed so that strongly agree receives 1 and strongly disagree receives 5.

For example

Favourable Statement					
Statement	Drinking alcohol is bad for people's physical health.				
Responses	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Scores	5	4	3	2	1
Unfavourable Statement					
Statement	It is not possible to have fun at a party without drinking alcohol.				
Responses	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Scores	1	2	3	4	5

- After the weight has been given to items, a total score for each subject is found by adding weights earned by him on each item. Thus his total score is obtained after the weights are summated over all the statements.
- Since a subject's response to each item may be considered as his rating of own attitudes in a 5 point scale and his total score is obtained after all these weights are summated, the method is known as the method of summated ratings.
(Chandrakandan *et al*, 2001)
- Finally, selection of items is done through the procedure of **item analysis**. Probably, this step of item analysis is the major step, which distinguishes it from Thurston's method of equal appearing intervals.
- There are several methods of item analysis. Edwards (1957) has suggested the setting of two extreme groups-high and low on the basis of the total scores and finding out the significance of the difference between means of two groups by the test.

Calculation of t for evaluating the difference in the mean response to an attitude statement by a high group and a low group (N= 100)

Response category	Low group				High group			
	X	f	fX	fX ²	X	F	fX	fX ²
Strongly agree	4	2	8	32	4	15	60	240
Agree	3	3	9	27	3	20	60	180
Uncertain	2	20	40	80	2	10	20	40
Disagree	1	15	15	15	1	4	4	4
Strongly disagree	0	10	0	0	0	1	0	0
Sums		50	72	154		50	144	464
		n_L	∑X_L	∑X_L²		n_H	∑X_H	∑X_H²

- The value of t will indicate the extent to which a given statement distinguishes between high and low groups.

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{\sum(X_H - \bar{X}_H)^2 + \sum(X_L - \bar{X}_L)^2}{n(n-1)}}$$

Where,

$$\sum(X_H - \bar{X}_H)^2 = \sum x_{H^2} - \frac{(\sum X_H)^2}{n}$$

$$\sum(X_L - \bar{X}_L)^2 = \sum x_{L^2} - \frac{(\sum X_L)^2}{n}$$

The value of t is a measure of the extent to which a given statements differentiate between the high and low groups.

- In the method of summated ratings it is necessary to select 20 to 25 statements which constitute the final attitude scale.
- Approximately half of the selected statements should be favourable so that the strongly agree response carries the 5 weight and the strongly disagree response the 1 weight. The other half should consist of unfavourable statements so that the scoring system is reversed. This type of arrangement is necessitated to control certain response biases of subjects, which might be produced if only favourable statements or only unfavourable statements are included in the attitude scale.

$\bar{X}_L = \frac{72}{50} = 1.44$
$\bar{X}_H = \frac{144}{50} = 2.88$
$\sum(X_L - \bar{X}_L)^2 = 154 - \frac{(72)^2}{50} = 50.32$
$\sum(X_H - \bar{X}_H)^2 = 464 - \frac{(144)^2}{50} = 49.28$
$t = \frac{2.88 - 1.44}{\sqrt{\frac{50.32 + 49.28}{50(50-1)}}} = 7.13$

- The advantage of having both kinds of statements represented in the final scales is to minimise possible responses sets of subjects that might be generated if only favourable or unfavourable statements were included in the scale.
- A t-value equal to or greater than 1.75 indicates that the average response of the high and low groups to a statement differs significantly.
- About 20-25 statements with the largest t-values ($t \geq 1.75$) are selected for the final draft of the attitude scale. (Edwards, 1957)

Validity: Content or face validity has been used to measure the validation of this scale.

Reliability: Split-half technique is used. The reliability coefficient typically reported for scale constructed by the method of summated rating is above 0.85. (Edwards, 1957)

6. CONCLUSION:

Thus we can say that attitude is the positive or negative feelings toward any psychological object. Attitude cannot be measured by direct questioning or by direct observation so one has to construct the attitude scales. For constructing the attitude scale, one has to follow some steps that help in measuring the attitude. After constructing the statements, various techniques of attitude scales construction are used like Thurston's Equal Appearing Interval, Likert's Summated Rating Scale etc. Likert's Summated Rating Scale is a five point scale on which respondents express their attitude i.e. agree to disagree towards the statements. Likert's scale is more convenient and easy to use than Thurston's scale so Likert scale is widely used by the researchers in measuring attitude.

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