SAGE researchmethods

Likert Scale

In: Encyclopedia of Survey Research Methods

By: Jonathan E. Brill
Edited by: Paul J. Lavrakas
Book Title: Encyclopedia of Survey Research Methods
Chapter Title: "Likert Scale"
Pub. Date: 2011
Access Date: June 3, 2019
Publishing Company: Sage Publications, Inc.
City: Thousand Oaks
Print ISBN: 9781412918084
Online ISBN: 9781412963947
DOI: https://dx.doi.org/10.4135/9781412963947
Print pages: 428-429
© 2008 Sage Publications, Inc. All Rights Reserved.
This PDF has been generated from SAGE Research Methods. Please note that the pagination of the online version will vary from the pagination of the print book.

2008 SAGE Publications, Ltd. All Rights Reserved.

The Likert scale, named for Rensis Likert (pronounced "lick-urt") who published a seminal report describing its use, possibly is the most widely employed form of attitude measurement in survey research. Similar to nearly all psychometric scale measures, the Likert scale consists of multiple items that typically are summed or averaged to produce a more reliable measure than could be obtained by use of a single item.

The Likert scale is a special type of the more general class of summated rating scales constructed from multiple ordered-category rating items. Its distinguishing characteristics are as follows:

- Each item uses a set of symmetrically balanced bipolar response categories indicating varying levels of agreement or disagreement with a specific stimulus statement expressing an attitude or opinion (e.g. Ripe cherries are delicious).
- The response category points for each item are individually labeled (e.g. Strongly Agree, Agree, Disagree, Strongly Disagree).
- The descriptive text of these labels is chosen so that gradations between each pair of consecutive points seem similar.

This sense of equidistance often is reinforced by a set of consecutive integers (e.g. 1, 2, 3, 4) used to label each alternative along the continuum of choices. Although in technical terms, the response format used for Likert scale items is at the ordinal level of measurement, researchers traditionally have used parametric statistics (which assume at least an interval level of data) to analyze Likert scales.

It is commonplace for researchers to use the term Likert scale incorrectly. The term often is used to refer to an individual item or the response choice set featured by the items. These usages are improper. Rather, a Likert scale is a multi-item measure, each item in a Likert scale is known as a Likert item, and the response categories of a Likert item are known as a Likert response set.

Likert response sets may include four or more points, though five categories are traditional. Typical wording labels for the five categories are Strongly Agree, Agree, Neither Agree Nor Disagree, Disagree, and Strongly Disagree, though certainly other descriptors indicating varying levels of agreement and disagreement are used. Though a five-category set is most frequently employed, many psychometricians advocate using response sets of seven, nine, or even eleven points. Others prefer an even number of response choices, eliminating the neutral alternative to force a positive or negative expression of attitude. Use of four or six categories is the norm when an even number is offered.

Choosing the number of points featured by Likert items should not be driven by personal preference or simply whether one judges it appropriate to prevent fence-sitting by using a forced-choice response set with an even number of response options. Rather, the reliability of Likert scales can be affected by the number of response categories. In situations where low scale score variability is expected, reliability generally can be improved by employing greater numbers of categories. In contrast, when opinion toward the topic is widely divided, scale reliability is largely independent of the number of categories.

2008 SAGE Publications, Ltd. All Rights Reserved.

Although true Likert items use a symmetrically balanced agree-disagree continuum for individually labeled response choices, several other types of ordered-category items are often and incorrectly referred to as Likert scales or Likert items.

In Table 1, examples A and B are true Likert items; example C is not. More accurately, example C is an ordered-category rating item with the Likert-like properties of a bipolar and balanced response set (reinforced with sequential numbers). It is not a Likert item because the respondent does not indicate degree of agreement with a stimulus attitude statement; rather, the respondent is asked to indicate a level of satisfaction or dissatisfaction with a characteristic of some object or entity. Likewise, neither example D nor example E is a Likert item. Though the descriptive labels in example D are bipolar, they are not constructed using negation to achieve balance, and they do not ask for agreement with a stimulus attitude. In example E, the response choices are neither bipolar nor balanced and do not refer to a stimulus attitude statement. Each is an example of a generic ordered-category rating item. Similarly, neither item in the set shown as example F is a Likert item. Although the response choices are bipolar, they are not individually labeled and no attitude statement is referenced for agreement or disagreement. Rather, each item is known as a semantic differential or, especially when the sequenced numeral reinforcement is omitted, a discrete visual analog scale item.

2008 SAGE Publications, Ltd. All Rights Reserved.

Table 1 Likert versus Likert-like items

A. I think the president has been doing a wonderful job while in office.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐
1	2	3	4	5

B. I feel safe walking alone in my neighborhood at night.

Completely Agree	Mostly Agree	Somewhat Agree	Somewhat Disagree	Mostly Disagree	Completely Disagree
☐	☐	☐	☐	☐	☐

C. How satisfied or dissatisfied are you with the reliability of this product?

Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied
☐	☐	☐	☐	☐
1	2	3	4	5

D. Compared with adults in general, how would you rate your own health?

Excellent	Very Good	Good	Fair	Poor	Very Poor
☐	☐	☐	☐	☐	☐
1	2	3	4	5	6

E. When you drink coffee, how frequently do you choose to drink decaf coffee?

Never	Rarely	Occasionally	Often	Nearly Always
☐	☐	☐	☐	☐
1	2	3	4	5

F. Choose the one box along the continuum between each pair of antonyms that best describes how you view the service representative who assisted you.

Rude	1	2	3	4	5	6	7	Polite
Intelligent	1	2	3	4	5	6	7	Stupid

Likert items and their corresponding Likert scales are subject to response distortions. Central tendency bias may result from respondent reluctance to select extreme response categories. Acquiescence bias can result when respondents choose to agree with statements because of a desire to choose what they believe is the "correct" or otherwise most appropriate answer. Similarly, social desirability bias may result when respondents attempt to portray themselves or an organization to which they belong in a favorable light. Researchers

2008 SAGE Publications, Ltd. All Rights Reserved.

typically try to attenuate these effects by varying attitude statements so that some are expressed in a positive form while others are expressed in the negative.

After data collection, Likert items may be analyzed individually, or the value scores observed among theoretically related items may be summed or averaged to create a Likert scale. Though it is common to treat a single Likert item's observations as interval level data, it is more conservative to view such data as ordinal; the assumption that all respondents perceive differences between adjacent levels as equidistant is a tenuous one, particularly when smaller numbers of response choices are involved. When treated as ordinal data, Likert item results can be analyzed using nonparametric tests or chi-square tests of association. Likert scale data may be treated as interval data measuring a latent variable, and if relevant assumptions are met, parametric statistical tests (e.g. analysis of variance) can be applied. Finally, data from Likert items or scales sometimes are reduced to the nominal level by combining all agree and disagree responses into one of two corresponding categories (e.g. "accept" vs. "reject"). When this transformation occurs, a chi-square or McNemar test is the statistical procedure typically applied.

Jonathan E. Brill

http://dx.doi.org/10.4135/9781412963947.n273
See also

- Acquiescence Response Bias
- Attitude Measurement
- Balanced Question
- Bipolar Scale
- Forced Choice
- Interval Measure
- Ordinal Measure
- Semantic Differential Technique
- Social Desirability

Further Readings

LikertR. A technique for the measurement of attitudes. *Archives of Psychology*140(1932, June)1–55.

MastersJ. R. The relationship between number of response categories and reliability of Likert-type questionnaires. *Journal of Educational Measurement*11(1974, March)(1)49–53.