

Quantification in Social Research Using Likert Scales

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ABSTRACT

This paper presented some clarifications on Likert scales and their application to measurement in social researches. A Likert scale is a multi-item scale, not a single item. When an item is taken singly it should not be called a Likert scale but a Likert item, a Likert-type item or an ordered category item.

The items that constitute a Likert scale may be several Likert items or Likert-type items. In situations where the items are considered ordered categorical, the composite score is referred to as summated rating scale instead of Likert scale.

Keywords: quantification, Likert scale, Likert item, Likert-type item, summated rating scale

INTRODUCTION

Likert scales have become the most common procedure for measuring characteristics that are otherwise difficult to measure, such as psychological attitudes. In most social researches, it is not uncommon to encounter in the methodology the statement pertaining to the use of Likert scales to assess or measure such and such characteristics.

Such an application have provided some light on the description of many social characteristics which, in absence of more accurate and doable measurement procedures, is acceptable enough.

The application of Likert scales have been widespread such that its original meaning and usage have been unnecessarily extended in an attempt to come up with a measurement. Researchers have tended to use and interpret Likert scales in a variety of ways. This is alarming, since this poses questions on the validity of the measurements obtained in particular and on the whole research in general.

Hence, this paper was prepared to (1) describe the proper application of Likert scales in quantifying social characteristics and (2) present a review of how graduate students applied Likert scales in their theses.

Likert Scales

Rensis Likert, a sociologist at the University of Michigan published in 1932 "A Technique for the Measurement of Attitudes" using a scale that since then have been referred to as "Likert Scales". Likert was concerned with measuring psychological attitudes and wished to do this in a "scientific way". Specifically, he sought a method that would produce attitude measures that could reasonably be interpreted as measurements on a proper metric scale, in the same sense that we consider inches or degree Celsius true measurement scales (Uebersax, 2006).

Likert scaling presumes the existence of an underlying (or latent or natural) continuous variable whose value characterizes the respondents' attitudes and opinions. If it were possible to measure the latent variable directly, the measurement scale would be, at best, an interval scale (Clason and Dormody, 2005).

A Likert scale is a multi-item scale, not a single item. A single item is instead referred to as a Likert item if it satisfies certain format requirements. Table 1 shows a portion of the survey questionnaire used by Antonio (2003) in her masteral thesis.

Table 1. A Likert scale to measure job satisfaction of teachers.

Item	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Teachers are sent to seminars and trainings	5	4	3	2	1
Teachers received their salaries on time	5	4	3	2	1
Teachers act as resource person/speaker/lecturer	5	4	3	2	1

The construct being measured in the above example is job satisfaction of teachers in DDU (Deprived, Depressed and Underserved) areas in Narra, Palawan. The Likert scale has 65 items representing all aspects of the teaching profession.

In applying Likert's method, the teacher's attitude is measured by combining their responses for all the items. The combining method may employ summing or averaging using the mean. The resulting combined or composite value represents a realistic measurement of the level of satisfaction of teachers toward their job.

The following criteria for Likert scales are evident from the above example:

1. The scale contains several items.
2. The response levels are arranged horizontally.
3. The response levels are anchored with consecutive integers.
4. The response levels are also anchored with verbal labels which connote more or less evenly-spaced gradations.
5. The verbal labels are bivalent and symmetrical about a neutral middle.
6. The scale always measures attitude (in original Likert's usage) in terms of agreement/disagreement to a target statement.

Criterion 5 imply that there should be an odd number of response levels. The number is usually 5, although 7, 9 or 11 are also used.

A genuine Likert scale is one that satisfies all the six (6) criteria mentioned above. In actual applications, however, when Likert scales are applied to measurement of characteristics other than attitude, criteria 1 – 4 are sufficient requirements for measurement using Likert scales (Uebersax, 2006).

Likert and Likert-Type Items

One common error committed by most people regarding the use of Likert scales is the use of a single item that is formatted to look like one of the Likert items. This single item cannot be considered as constituting a Likert scale, rather it can be called a Likert item, provided criteria 2 – 5 above are satisfied.

The distinction between a Likert scale and a Likert item has implications in data analysis. A Likert scale, being a composite value of all Likert items, approximates an interval scale of data while an individual value from a Likert item is at the ordinal scale. In statistical analysis, the statistical test to be used should be appropriate for the scale of data being analyzed.

When criteria 5 and 6 are not satisfied, the item can be more appropriately called a Likert-type item. Certain applications have an item that does not elicit agreement or disagreement to a statement, thus violating criterion 6. Moreover, some items do not satisfy criterion 5 since the anchor labels are not bivalent and/or not symmetrical. These items have no definite neutral middle or contain an even number of response levels.

Table 2 shows an example of a Likert-type item. In the example lifted from the study of Meneses (2003), the response labels are clearly not bivalent, the label "frequently" being not the exact opposite of "seldom" and the central label "occasionally" being not necessarily the neutral middle.

Table 2. A Likert-type item.

Item	Always	Frequently	Occasionally	Seldom	Never
The administrator provides useful advice for the development of those he/she leads	5	4	3	2	1

The Likert-type item may also contain an even number of response levels as illustrated in table 3. An item used in the assessment of Nonformal education programs in Narra, Palawan contains four (4) response levels (Padilla, 2005).

Table 3. A Likert-type item with 4 response levels.

Item	Very Adequate	Adequate	Fairly Adequate	Inadequate
Planning for the Non-Formal Education program	4	3	2	1

The definition of a Likert scale which refers to a composite score taken from several Likert items can be generalized to a composite score of several Likert-type items. This use of the Likert scale in a broader sense is the more common measurement technique employed in most social researches.

Summated Rating Scales

In constructing Likert scales, researchers are cautioned on the extent to which they can generalize the scaling procedure. As one attempts to apply a more generalized Likert scale, there is the tendency to depart from the criteria earlier enumerated. This may pose a question on the appropriateness of addressing such a measure as a Likert scale.

One common misunderstanding about the Likert scale is to treat an ordered category item as a Likert-type item. As an illustration, consider the following example of an ordered category item (Uebersax, 2006):

How often do you smoke cigarettes?

1 = never

2 = once in a while

3 = 1 – 5 per day

4 = more than 5 per day.

The above item is obviously not a Likert scale, a Likert item or a Likert-type item. However, a composite score resulting from such items may comprise a scale but not definitely a Likert scale. Instead, such a scale will be referred to as summated rating scale.

CONCLUSION

Quantification in social research usually employ the technique of getting a composite score from several items. This paper considers this score as a Likert scale if the items satisfy the criteria set for Likert items or Likert-type items. In more generalized cases, composite scores that were obtained from ordered category items shall be referred to as summated rating scales, not Likert scales.

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