

A Comparison of Three Forms of the Semantic Differential

Ron Garland

Rating scales are widely used by researchers to measure people's attitudes to a variety of stimuli, yet little time is spent examining respondents' reactions to the form of the scales used for this purpose. Three forms of the semantic differential were tested to determine whether labelling the scale points affects the way that the scales are used, and to determine which form respondents prefer to use. The scale points were either unlabelled, labelled, or numbered. No significant differences were found in the ratings that were obtained with each form, but participants clearly preferred to use the labelled form. It is suggested that this is the form of the semantic differential to use when surveying a diverse audience; the other forms tested may be more suitable for specialist audiences.

Keywords: semantic differential, rating scales, attitude measurement

Introduction

The measurement of attitudes by the use of descriptive scales is widely practised in consumer research, and the researcher is often faced with the question of which scale to choose. However, it is rather rare for market research practitioners to actually test the techniques they use. All too often constraints of time and budget preclude detailed research into methodologies, and this function is usually left to academic researchers. Yet it is in the market researcher's own interest to use scales that minimise respondent dissatisfaction, discomfort or misunderstanding, so that data quality and respondent cooperation is maintained.

A popular scaling device is the semantic differential. Developed by Osgood (1957), the semantic differential usually takes the form of a 5- or 7-point bipolar adjectival scale, but a number of different forms are commonly used. These forms usually differ according to the number of points on the scales, and the degree and type of labelling of these points. (For reviews of these various forms, see Hawkins, Albaum & Best 1974; Holmes 1974; Hughes 1975; Downs 1978; Wildt & Mazis 1978; Menezes & Elbert 1979; Friedman, Friedman & Gluck 1988; and Schertzer & Kernan 1985). However, few studies have compared the results obtained from different scale forms, or examined respondents' attitudes towards these different forms to determine which types respondents prefer.

The purpose of this study was to examine the effect on responses of different forms of scale point labelling, and to examine respondents' attitudes towards the different scale forms.

Method

In this study, a five point semantic differential was employed. Five point scales are commonly used in consumer research, mainly because researchers suspect these scales tend to be more easily understood by respondents than scoring systems using more points. Respondents were presented with the three forms of the semantic differential as outlined in Figure 1.

Figure 1. The three forms of semantic differential tested

Unlabelled						
adjective	[]	[]	[]	[]	[]	adjective
Numerical						
adjective	1	2	3	4	5	adjective
Labelled						
	very	quite	neither/nor	quite	very	
adjective	[]	[]	[]	[]	[]	adjective

A sample of 72 women was asked to taste a plain wafer biscuit and rate it on three semantic differential scale items: hard-soft, dry-moist, and fresh-stale. The questions for this study followed a questionnaire for a project in which respondents had already encountered scales, so each was conversant already with the mechanics of using a scale to record their opinions. Non-comprehension of the task was therefore minimised. Women were selected because consumer research, especially for food and household products, is often conducted with women only. These women were aged between 25 and 39 years, and had bought biscuits in the previous month.

A different scale form was used by each woman for each of the three scale items. For example, one respondent rated hardness on a scale with unlabelled scale points, rated dryness on a scale with scale points numbered, and rated freshness on a scale with labelled scale points. No respondent rated a particular biscuit characteristic on more than one form of scale. The three forms of the semantic differential were balanced across the three biscuit characteristics so that 24 respondents were exposed to each of the nine possible combinations of scale form and biscuit characteristic. In addition, each scale was set out on a separate page to minimise bias.

Following the rating task, respondents answered four open-ended questions which asked them to evaluate each form of semantic differential. They were asked to indicate how well each scale form allowed them to express their true opinion, how easy each scale form was to complete, and how easy each scale form was to understand. Respondents were also asked to indicate which scale form they would prefer to use in any future questionnaire they might have to answer. These questions were derived from the work by Downs (1978) in his tests of the upgraded semantic differential developed by Hughes (1975).

Results and Discussion

Clearly, respondents favoured the labelled semantic differential (see Table 1). It was significantly more suitable for ease of expressing opinion, ease of completion, comprehension, and overall preference.

Table 1. Assessments of each form of the semantic differential

Form of semantic differential	Easiest to express true opinion ¹		Easiest to complete ²		Easiest to understand ³		Most preferred for future surveys ⁴	
	n	%	n	%	n	%	n	%
Labelled	38	53	31	43	29	40	41	57
Numbered	18	25	14	20	5	7	12	17
Unlabelled	12	17	16	22	9	13	13	18
All three scales ⁵	4	5	11	15	29	40	6	8
	72	100	72	100	72	100	72	100

Notes:

1. $X^2 = 15.66$, d.f. = 2, $p < .001$

2. $X^2 = 8.88$, d.f. = 2, $p < .025$

3. $X^2 = 25.40$, d.f. = 2, $p < .001$

4. $X^2 = 23.08$, d.f. = 2, $p < .001$

5. A number of respondents felt that there were no differences between any of the forms of semantic differential in completion of particular tasks.

Furthermore, there were no significant differences between the three scale forms for either the rating distributions or for the mean scale ratings on each scale item (see Table 2, Appendix 1).

From a researcher's viewpoint these results are reassuring, since they mean that the labelled form can be used in the knowledge that it is very unlikely to bias the results.

On questioning respondents about why they preferred a particular scale in relation to a particular task, it became evident that the majority of participants in the survey wanted definite options (labelling) along the scales to aid them in making a decision. The presence of verbal tags or cues on the labelled semantic differential was seen as offering reassurance and making the task more or less self-explanatory. Precise answers seemed to be important to respondents, and the verbal tags were seen as aiding precision. Economy of effort, an important prerequisite for engendering respondent cooperation in any survey, also appeared to be well served by the labelled semantic differential. Overall preference for a particular form of the semantic differential, phrased in terms of "the scale most preferred for any future survey you might have to take part in", came out strongly for the labelled semantic differential. It is possible, however, that the results could be biased in favour of this form, since the respondents were exposed to this form in the previous study. The respondents' answers to the open-ended questions about the scale forms are presented in Table 3 (see Appendix 1).

A number of respondents experienced no difficulty with any of the forms of semantic differential tested, and indicated that any of the scales they had encountered in the study would suit them in future surveys. Some participants did state that they preferred the numerical form best. A quick check of their occupation showed that these people were used to working with numbers and they seemed to want to tell us this! Also, it would appear that a

few respondents enjoyed having fewer restrictions placed on their expression of opinions and so preferred the unlabelled semantic differential.

Conclusion

Although the results of this study need further testing to allow statements to be made with greater certainty, it would appear that a useful rule-of-thumb for the choice of a form of the semantic differential can be based on the following conclusions: If you are surveying a sample of numerate people then the numerical form may be best; if you are surveying people familiar with abstract thinking then the unlabelled semantic differential should be considered; but if you are surveying the general public, or are in any doubt about comprehension of the task by your respondents, then the labelled semantic differential is the best compromise.

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Ron Garland is a Lecturer in the Department of Marketing, Massey University.

Appendix 1

Table 2. Distributions and mean scores for each biscuit characteristic on each form of semantic differential tested

Biscuit Characteristic		Labelled	Numbered	Unlabelled
Hard	1	-	4	1
	2	17	12	15
	3	7	6	7
	4	-	2	-
Soft	5	-	-	1
$X^2=11.78$, d.f.=8, $p=0.15$ $t=0.68$, $p>0.20$	Total	24	24	24
	Mean	2.29	2.25	2.38
Dry	1	7	4	6
	2	9	14	13
	3	7	5	4
	4	1	1	1
Moist	5	-	-	-
$X^2=5.87$, d.f.=8, $p=0.40$ $t=0.76$, $p>0.20$	Total	24	24	24
	Mean	2.08	2.13	2.00
Fresh	1	11	7	8
	2	10	11	8
	3	2	4	6
	4	1	2	2
Stale	5	-	-	-
$X^2=3.88$, d.f.=8, $p=0.60$ $t=1.61$, $p>0.10$	Total	24	24	24
	Mean	1.71	2.04	2.08

Table 3. Reasons for choosing a particular form of the semantic differential

a. Ease of expressing true opinion*	Labelled	Numerical	Unlabelled
	N=38	N=18	N=12
	n	n	n
• Definite answers/know the meaning of each choice/no guessing	21**	4	-
• Easiest to answer/clearest/most explanatory	20	9	6
• More flexible/words are too restricting	-	3	9
• Usual way of answering	1	3	-
• Can express myself better	3	1	-
• Quickest to do/quickest to read	1	-	2

* 4 respondents did not want to choose among the scales on this task.

** The frequencies shown indicate the number of times a reason was stated; each respondent was allowed more than one reason.

b. Easiest to complete*	Labelled	Numerical	Unlabelled
	N=31	N=14	N=16
	n	n	n
• Easiest to carry out instructions	13	7	7
• More positive/more precise	13	-	1
• Quickest and easiest	6	-	2
• Instantly understood	4	1	-
• Requires little reading/economical	-	-	3
• More choice	1	-	2

*11 respondents did not want to choose among the scales on this task.

c. Easiest to understand*	Labelled	Numerical	Unlabelled
	N=29	N=5	N=9
	n	n	n
• Written explanation/self explanatory	11	-	-
• Straightforward/clear	10	-	1
• Words at each end best guide	-	2	4
• Immediately understood	3	-	1
• Usual way of answering	2	1	-

*29 respondents did not want to choose among the scales on this task.

d. Most preferred for future surveys*	Labelled	Numerical	Unlabelled
	N=41	N=12	N=13
	n	n	n
• Easiest to understand/easiest to do	22	7**	6
• Quickest	14	-	4
• More precise/exact/less subjective	13	2	-
• More choice	3	1	2
• Involves less thinking	5	-	1
• Can express yourself clearly	4	-	1
• Too many words are confusing	-	2	-

* 6 respondents did not want to choose among the scales on this task.

** Most of these respondents were employed in a clerical, teaching or computing occupation.