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THE PERCEIVED FAVORABLENESS OF SELECTED SCALE ANCHORS AND RESPONSE ALTERNATIVES

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The purpose of the study was to obtain objective estimates of the extent to which respondents perceive selected questionnaire response alternatives as general indicators of favor or disfavor toward attitudinal objects. Lists of many descriptive terms denoting various degrees of acceptability (e.g., moderately acceptable), adequacy (e.g., slightly inadequate), and relative goodness (e.g., much worse) were presented to 51 U.S. Army officers and enlisted personnel who rated each term on an 11-point scale of "favorableness" and indicated whether or not the meaning of the term seemed ambiguous. The

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mean, standard deviation, and range of responses were computed for each term and presented in tabular form. Those terms with smaller standard deviations are more strongly advocated for use in questionnaire items than those with larger standard deviations. A technique for constructing scaled response alternative sets is demonstrated. The term borderline is recommended as a replacement for neutral in many applications, because of an ambiguity of meaning that may often accompany use of the latter term.

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FOREWORD

An important and continuing concern within the Army Research Institute for the Behavioral and Social Sciences (ARI) has been the influence of factors that may enhance or degrade the usefulness of responses to questionnaire and interview items. Examples of such factors are the number of items in the questionnaire, the number of response alternatives in items, the presence of words in item stems that may bias the direction or intensity of responses, the kind of modifiers used in response alternatives, the forcing or not forcing of the respondent to state a preference, the serial order of items and response alternatives, and the amount of time required to complete the questionnaire.

This report represents a collaborative ARI effort designed to provide objective data concerning the denotative meanings and inherent scale positions of common descriptors used as response alternatives and scale anchors in questionnaire construction. The statistical analyses were conducted by Operations Research Associates, Palo Alto, Calif., in connection with a contract that subsumed their contribution to the present report (Contract No. DAHC 19-74-C-0032). The larger project was directed at producing an instructional manual for constructing and administering questionnaires (ARI Special Publication P-77-1) and a technical report of the results of an extensive survey of the literature on factors involved in questionnaire construction and administration. Data collection and manuscript preparation of this report were accomplished by the ARI Field Unit, Fort Hood, Tex.

This report supports the objectives of FY 1974 RDTE Project 2Q763743A775, Human Performance in Field Assessment.

JOSEPH ZEIDNER
Technical Director (Designate)

THE PERCEIVED FAVORABLENESS OF SELECTED SCALE ANCHORS AND RESPONSE ALTERNATIVES

BRIEF

Requirement:

In the interest of improving methods of questionnaire construction, the principal purpose of this study was to produce objective norms regarding the extent to which respondents perceive various descriptive phrases (denoting degrees of acceptability, adequacy, or goodness) as indicators of favorable or unfavorable attitude.

Procedure:

Lists containing many descriptors denoting degrees of acceptability, adequacy, and goodness were distributed to a random selection of 51 Army officers and enlisted personnel who rated each descriptor on a bipolar scale of favorableness and indicated for each whether it seemed ambiguous.

Findings:

The majority of the tested descriptors were considered unambiguous by a majority of the raters. In this connection, a specific finding of interest was that the adverb modifiers pretty and rather were contained in more than half the adjective phrases considered ambiguous by the raters, which indicated the advisability of exercising caution in using these terms in questionnaire response alternatives and scale anchors.

The mean, standard deviation, and range of the raters' responses for each descriptor were computed and are presented in tabular form for use in questionnaire construction. Descriptors with large standard deviations are noted and considered generally less desirable than the others but are not necessarily to be avoided in every application.

A limited amount of data relevant to intrasubject consistency indicated that the ratings are reliable.

Examples of sets of scaled response descriptors with desirable scale properties are presented in connection with a description of possible methods for choosing response descriptors for questionnaire items.

Regarding scale midpoints, it was noted that the term neutral, although possessing desirable statistical characteristics, may normally be unsuitable as a midpoint descriptor because of an inherent ambiguity of

meaning. The term borderline seems appropriate as a replacement for neutral in many contexts.

Utilization of Findings:

The objective contents of this report have been integrated into the Army Research Institute Questionnaire Construction Manual, which elaborates procedures for selecting response alternatives and scale anchors (and other topics). The manual is used within both the Army and the civilian community. This report also complements existing literature pertaining to the characteristics of descriptive terms for use in questionnaire item construction.

THE PERCEIVED FAVORABLENESS OF SELECTED SCALE ANCHORS AND RESPONSE ALTERNATIVES

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THE PERCEIVED FAVORABLENESS OF SELECTED SCALE ANCHORS AND RESPONSE ALTERNATIVES

INTRODUCTION

The construction of multiple-choice rating-scale questionnaires frequently involves selecting adjectives, adverbs, or descriptive phrases for use as response alternatives or scale anchors. The ultimate value of the questionnaire often rests to a great degree on such properties of these descriptors as clarity of meaning, evaluative intensity, and the extent to which the denotations of the descriptors do not overlap. It is desirable, therefore, that response scales be constructed with such factors in mind and in accordance with the objective properties of the candidate descriptors.

Objective information about the characteristics of candidate descriptors is available from several studies reported in the psychological literature (e.g., Altemeyer, 1970; Cliff, 1959; Dodd & Gerberick, 1960; Gividen, 1973; Jones & Thurstone, 1955; Myers & Warner, 1968; Mosier, 1941; and U.S. Army Test and Evaluation Command, 1973). Much of the relevant data in the literature (including the objective contents of this report) (Matthews, Wright, & Yudowitch, 1975) has been abstracted or cited in a comprehensive literature survey prepared for the Army Research Institute (ARI) by Dyer, Matthews, Stulac, Wright, and Yudowitch (1976) and integrated into the ARI Questionnaire Construction Manual (Dyer, Matthews, Wright, Yudowitch, & Nystrom, 1976).

The primary purpose of this ARI study was to complement previously published studies dealing with the characteristics of response alternatives and scale anchors. More specifically, it was desirable for ARI to obtain norms, based on military respondents, regarding the perceived characteristics of descriptors that denote degrees of acceptability, adequacy, and relative goodness. The following are examples of these three types of descriptors.

Acceptability descriptors	Adequacy descriptors	Goodness descriptors
Wholly acceptable	Extremely inadequate	Best of all
Slightly acceptable	Somewhat inadequate	Alike
Highly unacceptable	Completely inadequate	Absolutely worst

Of primary concern in this study was the extent to which such descriptors are perceived by respondents as signifying favorable or unfavorable (positive or negative) attitude. Thus, the primary procedural objective of the study was to determine for each of a sizable selection of the three types of candidate descriptors a scale value on a bipolar (positive to negative) scale of favorableness.

A secondary purpose associated with this study was to demonstrate the construction of response alternative sets from normative data.

PROCEDURES

Pilot Test

An original pool of 220 descriptors representing the three aforementioned categories was prepared by Operations Research Associates (ORA). Individual items were garnered from the literature or created especially for this study. The intent was to generate a list for each category that would contain most of the descriptors of that type that researchers might use in the construction of questionnaires. The 220 items contained 62 acceptability descriptors, 62 adequacy descriptors, and 96 relative goodness descriptors.

The three original lists were pilot tested by ARI, using 10 Army officers as respondents. Each respondent was asked to rate each of the 220 descriptors on an 11-point favorableness scale ranging from 1 to 11, with 6 as the neutral point. The respondents read the following instructions prior to rating.

> Given on the following pages are three lists of phrases. To the right of each phrase is an 11-point scale ranging from 1 to 11 on which 1 means Most Unfavorable, 6 means Neither Unfavorable nor Favorable, and 11 means Most Favorable. The distance between each number should be regarded as equal. Indicate by circling <u>one</u> number for each phrase the degree of favorableness expressed by that phrase. Cross out any phrase the meaning of which is unclear to you.

Following the rating procedure, comments regarding the items and rating procedure were solicited from the respondents.

The data from the rating procedure were analyzed by calculating the standard deviation of the 10 (or fewer) responses for each of the 220 descriptors. In addition, the number of times each descriptor was crossed out (rejected as unclear or unratable) was recorded.

Subsequent to the analysis, the three lists were edited by eliminating each descriptor whose standard deviation was 1.00 or greater or that was rejected as ambiguous by two or more of the respondents.

The comments of the respondents indicated that the third list of descriptors--the relative goodness items--contained two general types of items, some expressing degrees of likeness, or equality, others expressing degrees of relative goodness. Furthermore, the respondents reported having experienced difficulty in attempting to rate the former type on the favorableness scale. Consequently, the list was further edited to eliminate items of the likeness type that caused respondents confusion.

The editing yielded 48 acceptability, 49 adequacy, and 41 relative goodness descriptors.

The comments of the respondents also indicated that the favorableness scale would probably be more compatible with the required rating task if the scale values ranged from -5 (most unfavorable) to +5 (most favorable), with 0 as neutral, instead of from 1 to 11.

Main Test

Test Lists. Two of the descriptors in the acceptability list (mildly acceptable and highly unacceptable) were included twice, creating a 50-item list. One descriptor in the adequacy list (exceptionally inadequate) was included twice, also creating a 50-item list. No repetitions were incorporated into the relative goodness list, so the final test version contained only the 41 items that resulted from the pilot-test revisions. In addition to the repetitions within lists, there were certain repetitions across lists: The descriptors neutral and borderline occurred in all three lists; the descriptor marginal occurred in the acceptability and relative goodness lists but was inadvertently left off the adequacy lists. These repetitions within and across lists permitted a crude assessment of intrasubject response consistency.

Each list was prepared so that the descriptors were presented in a haphazard serial order.

Administration of Test Lists. Questionnaires containing the three lists were distributed to 50 Army officers and 50 Army enlisted men assigned to the Modern Army Selected Systems Test, Evaluation, and Review (MASSTER), Fort Hood, Tex. These subjects were randomly sampled from the MASSTER telephone directory. A cover letter accompanying the questionnaire included the following statement.

> A significant portion of the data collected in MASSTER tests is subjective and judgmental in nature. Collection of this type of data frequently requires construction of questionnaires. In order to generate a list of response alternatives which have been evaluated in terms of their meanings to respondents, your cooperation is needed in evaluating the enclosed phrase lists. Please return the completed phrase list to the ARI Field Unit . . . .

The questionnaire itself contained the same instructions as those used in the pilot test (see above), except that the favorableness scale was described as ranging from -5 to +5, with a midpoint of 0.

Completed questionnaires were returned by 92 of the 100 subjects. Unfortunately, however, 60 of the returned questionnaires had been completed under an apparent misunderstanding about the intent of the instructions. The respondents involved obviously had not rated the candidate

descriptors on the extent to which they were perceived as signifying favorable or unfavorable attitudes. Rather, the descriptors appeared to have been assessed on the basis of the respondents' personal preferences for them. Therefore, questionnaires were redistributed to those respondents and to the few respondents who had not returned questionnaires from the first distribution.

The cover letter accompanying the second questionnaire contained statements intended to clear up the misunderstanding. They read as follows.

> As part of its support to MASSTER, ARI and a contractor are investigating various factors which influence obtaining judgments and subjective evaluations of equipment, procedures and concepts by participants/observers in MASSTER tests.
>
> Attached . . . are three lists of phrases which were sent . . . earlier . . . . The same lists of phrases are being sent out again with additional guidance because there was apparently a misunderstanding by many respondents concerning the task involved. Many of the phrase lists were returned with the phrases rated according to whether the respondent approved or disapproved of the phrase as a descriptor--while what was desired was their judgment of how positive/favorable or negative/unfavorable each rating phrase would be if it were given as a rating of some equipment, procedure or concept. Please process the attached lists of rating phrases in accordance with the guidance below and return to the ARI Field Unit . . . .
>
> Guidance. List A consists of phrases used to express different degrees of adequacy or inadequacy. List B consists of phrases used to express different degrees of acceptability or unacceptability. List C consists of phrases used to compare an item with a standard in terms of better or worse. Opposite each rating phrase are eleven numbers, -5 to +5, which constitute a scale for you to use to tell us how negative/unfavorable or positive/favorable each rating phrase would be for you if you used it to rate some equipment, procedure or concept. A rating of -5 stands for the most negative or unfavorable rating possible, and +5 stands for the most positive or favorable rating possible, with less extreme degrees of favorableness or unfavorableness represented by the numbers in between. A rating of 0 means that the phrase is neither negative/unfavorable nor positive/favorable. For each rating phrase, circle the number which describes how negative/unfavorable or positive/favorable the rating phrase is when applied to you. For example, if you saw in a list the phrase highly satisfactory and you considered it to be a very positive/favorable descriptor, you would record your response by circling a +4 or +5 as shown below.
>
> Highly satisfactory -5 -4 -3 -2 -1 0 +1 +2 +3 (+4) +5

On the other hand, if you saw the phrase highly unsatsifactory, you might give it a -4 or -5 as shown below since it is an unfavorable/negative descriptor.

Highly unsatisfactory -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

If you saw the phrase neither satisfactory or unsatisfactory, you might consider it to be a neutral descriptor and give it a rating of 0 on the 11-point scale.

Note that the dimension on which the phrases are to be rated is their meaning--not your personal approval or disapproval of the phrases as descriptors.

If you have any questions concerning these rating phrase lists or how to process them please call Dr. [name] at [phone number].

RESULTS

Sample Characteristics

The number of completed questionnaires obtained from the second distribution was 22. Two of these were eliminated from the analysis because more than half the items were crossed out by the respondents. Another was eliminated because more than 10% of the responses were judged unrealistic (e.g., completely adequate was rated -5, and extremely inadequate was rated +5). Thus the second distribution yielded 19 valid questionnaires. These, combined with the 32 valid questionnaires from the first distribution, produced a total of 51 usable questionnaires.

Specific items on some of these questionnaires were eliminated from the analyses because the response was considered very unreasonable, more than one scale value had been circled by the respondent, or the item had been crossed out as ambiguous by the respondent. Table 1 shows the candidate descriptors that were crossed out by two or more respondents. Fourteen of the 141 descriptors were crossed out, but never by more than 4 of the 51 respondents. It appears, then, that most of the descriptors were sufficiently unambiguous to most of the respondents. It should also be noted that 6 of the crossed-out descriptors contained the adverb modifier pretty or rather.

Normative Attributes of the Candidate Descriptors

Tables 2, 3, and 4, respectively, portray the acceptability, adequacy, and relative goodness lists and the results of the primary analyses. In each table the first four columns of figures describe the distribution of responses for each candidate descriptor. Consider, as an example, the first row of Table 2: the mean 4.73 indicates that, on the average, the subjects felt that wholly acceptable denoted a highly positive attitude or degree of favorableness (recall that the favorableness scale extended from

Table 1

CANDIDATE DESCRIPTORS WHOSE MEANINGS WERE UNCLEAR TO TWO OR MORE RESPONDENTS

Descriptor	No. of respondents
"Acceptability" descriptors:	
Pretty acceptable	2
Reasonably unacceptable	2
"Adequacy" descriptors:	
Considerably inadequate	3
Exceptionally adequate	2
Mildly adequate	2
Pretty adequate	2
Pretty inadequate	2
Rather adequate	2
Rather inadequate	2
Somewhat adequate	2
"Relative goodness" descriptors:	
Rather better	2
Descriptors for scale midpoints:	
Borderline	4
Marginal	3
Neutral	2

Note. Descriptors within each category are listed alphabetically.

Table 2

RESULTS PERTAINING TO "ACCEPTABILITY" DESCRIPTORS

Descriptor	Mean	SD	Range Min.	Range Max.	No. of subjects
Wholly acceptable	4.73	.56	3	5	51
Completely acceptable	4.69	.61	3	5	51
Fully acceptable	4.41	.87	2	5	51
Extremely acceptable	4.39	.72	3	5	51
Most acceptable	4.16	.92	2	5	51
Very very acceptable	4.16	.83	2	5	51
Highly acceptable	4.04	.63	3	5	50
Quite acceptable	3.22	.96	1	5	51
Largely acceptable	3.14	.99	1	5	51
Acceptable	2.39	1.46	0	5	51
Reasonably acceptable	2.29	.72	1	4	51
Moderately acceptable	2.28	.72	1	3	50
Pretty acceptable	2.00	1.13	-3	4	49
Rather acceptable	1.94	.82	0	4	49
Fairly acceptable	1.84	.92	0	4	50
Mildly acceptable	1.80	.95	-1	4	51
Mildly acceptable	1.69	.70	-1	4	51
Somewhat acceptable	1.46	1.24	-2	3	48
Barely acceptable	1.08	.52	-1	3	51
Slightly acceptable	1.04	.52	-1	2	51
Sort of acceptable	.94	.65	-1	2	50
Borderline	.00	.20	-1	1	50
Neutral	.00	.00	0	0	51
Marginal	- .12	.52	-2	1	50
Barely unacceptable	-1.10	.30	-2	-1	50
Slightly unacceptable	-1.26	.59	-4	-1	51
Somewhat unacceptable	-1.77	.67	-3	-1	51
Rather unacceptable	-2.02	.84	-4	0	50
Fairly unacceptable	-2.16	.88	-5	-1	50
Moderately unacceptable	-2.34	.68	-3	-1	50
Pretty unacceptable	-2.41	.66	-4	-1	51
Reasonably unacceptable	-2.44	.75	-4	-1	50
Unacceptable	-2.67	1.38	-5	0	51
Substantially unacceptable	-3.24	.90	-5	-1	51

(Continued)

Table 2 (cont)

Descriptor	Mean	SD	Range Min.	Range Max.	No. of subjects
Quite unacceptable	-3.39	1.07	-5	0	49
Largely unacceptable	-3.39	.82	-5	-1	51
Considerably unacceptable	-3.44	.78	-5	-2	50
Notably unacceptable	-3.50	1.04	-5	-1	50
Decidedly unacceptable	-3.84	1.02	-5	-1	49
Highly unacceptable[a]	-4.22	.58	-5	-3	50
Highly unacceptable[b]	-4.29	.54	-5	-3	51
Most unacceptable	-4.42	.72	-5	-2	50
Very very unacceptable	-4.49	.50	-5	-4	51
Exceptionally unacceptable	-4.54	.61	-5	-3	50
Extremely unacceptable	-4.69	.46	-5	-4	51
Completely unacceptable	-4.90	.36	-5	-3	50
Entirely unacceptable	-4.90	.36	-5	-3	50
Wholly unacceptable	-4.92	.27	-5	-4	51
Absolutely unacceptable	-4.92	.33	-5	-3	51
Totally unacceptable	-4.94	.24	-5	-4	51

[a]First usage in test list.
[b]Second usage in test list.

Table 3

RESULTS PERTAINING TO "ADEQUACY" DESCRIPTORS

Descriptor	Mean	SD	Range Min.	Range Max.	No. of subjects
Totally adequate	4.62	.85	2	5	50
Absolutely adequate	4.54	.92	1	5	50
Completely adequate	4.49	.83	2	5	51
Extremely adequate	4.41	.72	3	5	51
Exceptionally adequate	4.38	.87	2	5	50
Entirely adequate	4.34	.86	2	5	50
Wholly adequate	4.31	1.04	1	5	51
Fully adequate	4.29	.91	2	5	51
Very very adequate	4.06	.88	1	5	48
Perfectly adequate	3.92	1.03	2	5	51
Highly adequate	3.84	.61	2	5	51
Most adequate	3.84	.98	2	5	51
Very adequate	3.42	.85	1	5	50
Decidedly adequate	3.14	1.54	-4	5	50
Considerably adequate	3.02	.87	1	5	51
Quite adequate	2.98	.98	1	5	49
Largely adequate	2.86	.99	-1	4	51
Substantially adequate	2.61	1.03	-1	5	51
Reasonably adequate	2.41	.77	1	4	51
Pretty adequate	2.31	.86	0	5	49
Rather adequate	1.76	.89	0	4	49
Mildly adequate	1.57	.67	1	3	49
Somewhat adequate	1.32	.79	-2	3	49
Slightly adequate	1.20	.57	-1	3	50
Barely adequate	.63	.93	-4	2	51
Neutral	.00	.00	0	0	50
Borderline	- .02	.32	-1	1	50
Barely inadequate	-1.16	.64	-4	0	51
Mildly inadequate	-1.35	.62	-3	0	51
Slightly inadequate	-1.38	.77	-4	1	50
Somewhat inadequate	-1.88	.73	-3	0	51
Rather inadequate	-2.10	.97	-4	0	49
Moderately inadequate	-2.16	1.02	-4	2	51
Fairly inadequate	-2.22	.80	-4	1	51
Pretty inadequate	-2.35	.96	-4	1	49
Considerably inadequate	-3.60	.68	-5	-2	45

(Continued)

Table 3 (cont)

Descriptor	Mean	SD	Range Min.	Range Max.	No. of subjects
Very inadequate	-3.74	.78	-5	-2	49
Decidedly inadequate	-3.78	.94	-5	-1	50
Most inadequate	-3.98	1.55	-5	4	49
Highly inadequate	-4.20	.74	-5	-3	51
Very very inadequate	-4.46	.54	-5	-3	50
Exceptionally inadequate[b]	-4.56	.64	-5	-3	50
Extremely inadequate	-4.60	.53	-5	-3	51
Fully inadequate	-4.67	.68	-5	-2	51
Exceptionally inadequate[a]	-4.68	.51	-5	-3	50
Wholly inadequate	-4.78	.50	-5	-3	51
Entirely inadequate	-4.79	.64	-5	-2	48
Completely inadequate	-4.80	.53	-5	-3	50
Absolutely inadequate	-4.88	.43	-5	-3	50
Totally inadequate	-4.90	.41	-5	-3	50

[a]First usage in test list.
[b]Second usage in test list.

Table 4

RESULTS PERTAINING TO "RELATIVE GOODNESS" DESCRIPTORS

Descriptor	Mean	SD	Range Min.	Range Max.	No. of subjects
Best of all	4.90	.51	2	5	48
Absolutely best	4.84	.46	3	5	51
Truly best	4.60	.72	3	5	50
Undoubtedly best	4.57	.82	2	5	51
Decidedly best	4.37	.84	2	5	51
Best	4.22	1.46	-3	5	51
Absolutely better	4.06	.99	2	5	50
Extremely better	3.92	.88	2	5	51
Substantially better	3.70	.92	2	5	50
Decidedly better	3.41	.93	1	5	51
Conspicuously better	3.06	.80	2	5	51
Moderately better	2.26	.74	1	4	51
Somewhat better	1.84	.80	1	4	51
Rather better	1.82	.72	1	4	49
Slightly better	1.16	.78	-1	4	51
Barely better	.96	.66	-1	3	51
Absolutely alike	.59	1.62	-1	5	51
Alike	.22	.85	0	5	51
The same	.16	.80	0	5	51
Neutral	.00	.00	0	0	50
Borderline	- .06	.31	-1	1	49
Marginal	- .18	.92	-4	2	49
Barely worse	-1.04	.82	-3	4	51
Slightly worse	-1.22	.50	-3	-1	51
Somewhat worse	-2.08	.86	-4	-1	51
Moderately worse	-2.22	.94	-4	2	50
Noticeably worse	-2.53	1.04	-4	2	51
Worse	-2.67	1.42	-5	-1	51
Notably worse	-3.02	1.04	-5	-1	51
Largely worse	-3.22	1.11	-5	3	51
Considerably worse	-3.28	1.21	-5	4	51
Conspicuously worse	-3.28	.89	-5	-1	51
Much worse	-3.29	.81	-5	-1	49
Substantially worse	-3.46	.90	-5	-2	50

(Continued)

Table 4 (cont)

Descriptor	Mean	SD	Range		No. of subjects
			Min.	Max.	
Decidedly worse	-3.76	.91	-5	-2	50
Very much worse	-3.94	.75	-5	-2	51
Absolutely worse	-4.43	.82	-5	-2	51
Decidedly worst	-4.43	.75	-5	-2	51
Undoubtedly worst	-4.51	.87	-5	-2	51
Absolutely worst	-4.69	1.29	-5	4	51
Worst of all	-4.78	1.30	-5	4	49

-5 to +5); the standard deviation (SD) .56 indicates that differences among the subjects' responses for this item were, on the average, a little more than one-half scale unit; the range columns give the smallest and the largest scale value given to this item by any subject. The last column in each table shows the number of subjects whose responses were analyzed for each candidate descriptor.

Each of the means given in Tables 2, 3, and 4 is, in effect, a compromise among different estimates of many respondents. The standard deviations, on the other hand, measure the degree of consensus among the respondents. Thus, the standard deviations permit examination of the "clarity" of the descriptors in a manner different from that used to derive Table 1. Table 1 shows the descriptors that were considered ambiguous by the respondents. In contrast, the standard deviations in Tables 2, 3, and 4 show whether the respondents agreed on the scale values on those descriptors that they considered unambiguous. Descriptors with large standard deviations possess favorableness values that vary considerably from subject to subject and, therefore, would often be less desirable as point anchors for rating scales.

Table 5 lists all candidate descriptors with standard deviations greater than 1.25 (an arbitrary cutoff). Note that for the most part, the terms listed seem to be characterized by extremeness or generality.

Table 5

CANDIDATE DESCRIPTORS WITH STANDARD DEVIATIONS GREATER THAN 1.25

Descriptor	SD
Acceptable	1.46
Unacceptable	1.38
Most inadequate	1.55
Decidedly adequate	1.54
Absolutely alike	1.62
Best	1.46
Worse	1.42
Worst of all	1.30
Absolutely worst	1.29

Note. The descriptors within subgroups are listed in order of decreasing SD.

Intrasubject Consistency

The results pertaining to descriptors that were repeated either within or across test lists have been gathered together in Table 6. The table shows that the two means for each of the three descriptors repeated within lists were quite similar, considering the 11-point range of the favorableness scale. The same holds true for descriptors repeated across lists. The standard deviations reveal a similar pattern. The variabilities associated with repetitions of a given descriptor appear quite similar--the largest discrepancy is .40, between the two repetitions of marginal. Thus the subjects' responses seemed to exhibit a satisfactory degree of consistency with respect to the few items repeated within or across lists. Because of the limited data available regarding intrasubject consistency, further analyses were not conducted.

Example Sets of Minimally Overlapping Response Descriptors

The construction of good questionnaire items of the type under consideration requires that the denotations of response alternatives or scale anchors located at different points on the response scale do not overlap to an extent that might cause respondents to attribute the same meaning to any two different points on the scale. Hence it is often desirable to choose descriptors that occupy narrow bands along the response dimension. In this section, several examples of lists of minimally overlapping descriptors are presented.

Nonoverlapping or minimally overlapping descriptors can be chosen by different methods and with different criteria that depend upon the purpose of the questionnaire, the theoretical orientation of the investigator, the statistical methods employed, etc. Two illustrative procedures are described here in connection with Tables 7 and 8, which present two differently scaled lists of descriptors denoting degrees of acceptability.

Consider Table 7. This table was constructed on the basis of the information presented in Table 2, using the following procedure. First, no candidate from Table 2 was considered if its standard deviation was 1.00 or greater. This arbitrary restriction limited the candidates to those occupying relatively narrow bands on the favorableness dimension along which they were evaluated. Second, from the remaining candidates, the one having the largest mean (i.e., wholly acceptable) was chosen for the positive extreme of the response dimension. The rest of the descriptors were then selected in descending order so that the interval between each pair of adjacent means was greater than zero but as small as possible without being less than the larger standard deviation of the pair. This rule guaranteed that the descriptors would be at least one standard deviation apart in all cases.

Table 8 portrays another list constructed from the candidate descriptors in Table 2. In this case, however, the midpoint (i.e., neutral) was chosen as the starting place, and the selection process proceeded in both

Table 6

RESULTS PERTAINING TO INTRASUBJECT RESPONSE CONSISTENCY

Descriptor	Within list		Across list		
	1st usage	2nd usage	"Acceptability"	"Adequacy"	"Goodness"
			Mean responses		
Mildly acceptable	1.80	1.69	--	--	--
Highly unacceptable	-4.22	-4.29	--	--	--
Exceptionally inadequate	-4.68	-4.56	--	--	--
Neutral	--	--	.00	.00	.00
Borderline	--	--	.00	-.02	-.06
Marginal	--	--	-.12	--	-.18
			Standard deviations		
Mildly acceptable	.95	.70	--	--	--
Highly unacceptable	.58	.54	--	--	--
Exceptionally inadequate	.51	.64	--	--	--
Neutral	--	--	.00	.00	.00
Borderline	--	--	.20	.32	.31
Marginal	--	--	.52	--	.92

Table 7

EXAMPLE SET OF MINIMALLY OVERLAPPING DESCRIPTORS
DENOTING DEGREES OF "ACCEPTABILITY"

Descriptor	Mean	SD
Wholly acceptable	4.73	.56
Highly acceptable	4.04	.63
Reasonably acceptable	2.29	.72
Barely acceptable	1.08	.52
Neutral	.00	.00
Barely unacceptable	-1.00	.30
Somewhat unacceptable	-1.77	.67
Substantially unacceptable	-3.24	.90
Highly unacceptable	-4.22	.58
Completely unacceptable	-4.90	.36

Note. This table is based on Table 2.

Table 8

ANOTHER EXAMPLE SET OF MINIMALLY OVERLAPPING DESCRIPTORS
DENOTING DEGREES OF "ACCEPTABILITY"

Descriptor	Mean	SD
Very very acceptable	4.16	.83
Largely acceptable	3.14	.99
Mildly acceptable	1.69	.70
Sort of acceptable	.94	.65
Neutral	.00	.00
Barely unacceptable	-1.10	.30
Rather unacceptable	-2.02	.84
Substantially unacceptable	-3.24	.90
Highly unacceptable	-4.29	.54
Completely unacceptable	-4.90	.36

Note. This table is based on Table 2.

directions from the middle. The fact that the lower halves of Tables 7 and 8 are identical results from the fortuitous fact that neutral occurred as the midpoint in Table 7.

Tables 9 and 10, constructed in the same manner as Table 7, portray sets of descriptors denoting, respectively, degrees of adequacy and degrees of relative goodness. The norms in these tables were obtained from Tables 3 and 4, respectively.

DISCUSSION AND CONCLUSIONS

The return rate of 92% on the first administration of the test lists was reduced to 54% after the readministration. Other attrition reduced the final number of usable questionnaires to 51% of the original total. The precise effect of this loss on the normative data presented in this report is, of course, unknown. Some amount of reduction in the variability of responses to each item would be expected; but the item means may have been largely unaffected, since no systematic relevant bias due to the attrition appears obviously noteworthy.

The number of descriptors that were considered ambiguous was quite small, as was the number of respondents who considered any descriptor ambiguous. Therefore, the descriptors listed in Table 1 are not necessarily unsuitable for use as scale anchors or response alternatives. Nevertheless, it may be wise to exercise discretion in using the modifiers pretty and rather, which occurred in more than half the nonmidpoint descriptors in the table. Three of the descriptors in Table 1--mildly adequate, considerably inadequate, and neutral--were used in the example sets given in Tables 7, 8, and 9. However, those three tables (along with Table 10) were intended to be not so much examples of universally ideal lists of descriptors as illustrations of possible methods for constructing good questionnaire items.

As regards descriptors for scale midpoints, the term neutral appears, at first glance, to be ideal: both its mean and standard deviation were zero on all three test lists. However, in a study described by Gividen (1973), subjects (Army test officers) displayed some confusion about the precise meaning of the term. Some interpreted it as denoting no opinion rather than as an opinion halfway between scale extremes. Furthermore, a majority of the subjects held the opinion that because of the ambiguity in the term it should not be used in questionnaires. Thus, although the mean and standard deviations observed in the present study favor the use of neutral as a scale midpoint, in practical situations its use may sometimes make the interpretation of obtained data difficult or impossible. Consequently, neutral should be employed only after prior consideration indicates that confusion would not exist within the particular context.

According to Gividen (1973), the term borderline does not suffer the potential disadvantage of ambiguity associated with neutral. In the present study, borderline was reported as confusing by 4 out of the 51 subjects;

Table 9

EXAMPLE SET OF MINIMALLY OVERLAPPING DESCRIPTORS
DENOTING DEGREES OF "ADEQUACY"

Descriptor	Mean	SD
Totally adequate	4.62	.85
Very adequate	3.42	.85
Reasonably adequate	2.41	.77
Mildly adequate	1.57	.67
Barely adequate	.63	.93
Barely inadequate	-1.16	.64
Somewhat inadequate	-1.88	.73
Considerably inadequate	-3.60	.68
Very very inadequate	-4.46	.54

Note. This table is based on Table 3.

Table 10

EXAMPLE SET OF MINIMALLY OVERLAPPING DESCRIPTORS
DENOTING DEGREES OF "RELATIVE GOODNESS"

Descriptor	Mean	SD
Best of all	4.90	.51
Extremely better	3.92	.88
Moderately better	2.26	.74
Slightly better	1.16	.78
Alike	.22	.85
Barely worse	-1.04	.82
Somewhat worse	-2.08	.86
Conspicuously worse	-3.28	.89
Absolutely worse	-4.43	.82

Note. This table is based on Table 4.

neutral by 2. Regardless, it does not seem likely that borderline would be used by subjects to indicate no opinion. This conclusion, coupled with the fact that the means and standard deviations observed in the present study for borderline were close to zero, suggests that the term is generally appropriate as a midpoint descriptor. In contrast, neutral may be normally inappropriate.

An examination of Tables 2, 3, and 4 revealed that the descriptors with the greatest amount of item variability tended to be characterized by extremeness or generality (see Table 5). Why descriptors such as best, absolutely worst, and the like should be interpreted so differently by different respondents is unclear. It is interesting to speculate that there is considerable variability among subjects in the tendency to assign extreme values. As to terms like acceptable and unacceptable, it may be that such unmodified common terms of moderate degree possess relatively little specificity of meaning. The variability of the terms in Table 5 would perhaps shrink to some extent if the terms were located among other terms in actual questionnaire items.

The two methods for selecting descriptors, which were illustrated in Tables 7, 8, 9, and 10, are easily subjected to reasonable variations. One, for example, would be to begin by choosing from the candidate pool the two descriptors that have the highest and lowest means and the descriptor with the mean closest to zero. Low-variability intermediate descriptors would then be selected from the rest of the pool in a manner similar to that used for Tables 7, 8, 9, and 10.

Note that the scale values (means) obtained in this study should not be used as scale values in the analysis of questionnaire items. Rather, they should be used only as aids in selecting response alternatives or scale anchors for questionnaire items.

Note also that the descriptor sets presented in Tables 7, 8, 9, and 10 were derived using criteria related only to scale position and item variability. There may be other important considerations related to the selection of response alternatives or scale anchors for any given real questionnaire. Many of these potential considerations are discussed in the ARI Questionnaire Construction Manual (Dyer et al., 1976). That manual also presents sample lists of descriptors selected with regard to other criteria.

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