



CHAPTER THIRTY-TWO



Constructing Effective Questionnaires

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Written questionnaires are popular and versatile in the analysis and evaluation of performance-improvement initiatives. They are instruments that present information to a respondent in writing or through the use of pictures, then require a written response such as a check, a circle, a word, a sentence, or several sentences.

Questionnaires can collect data by (1) asking people questions or (2) asking them to agree or disagree with statements representing different points of view (Babbie, 2001). As a diagnostic tool, questionnaires are used frequently for needs assessment, training-program evaluations, and many other purposes in HRD practice (Hayes, 1992; Maher and Kur, 1983; Witkin and Altschuld, 1995).

Questionnaires are an indirect method of collecting data; they are substitutes for face-to-face interaction with respondents. Questionnaires provide time for respondents to think about their answers and, if properly administered, can offer confidentiality or anonymity for the respondents. Questionnaires can be administered easily and inexpensively, and can return a wealth of information in a relatively short period of time (Babbie, 1990; Smith, 1990; Witkin and Altschuld, 1995). They are useful for estimating feelings, beliefs, and preferences about HRD programs as well as opinions about the application of knowledge, skills, and attitudes required in a job. Questionnaires can generate sound and systematic information about the reactions of participants to an HRD program as well as describe any changes the participants experienced in conjunction with the program.

It is important that questionnaires be designed properly to satisfy their intended purposes. To be used as an analysis and evaluation tool in measuring participants' attitude or feelings about performance improvement, questionnaire items have to meet a high degree of applicability, accountability, and technical quality (McBean and Al-Nassri, 1982). This means that the questions asked should be suited to the intended purposes of improving performance and should show high levels of statistical validity and reliability. This chapter covers developing and administering questionnaires for analysis and evaluation in the field of human resource development (HRD). It focuses on the essential elements for designing a good questionnaire and administrative issues to improve the effectiveness of collecting information using questionnaires.

THE PROCESS OF QUESTIONNAIRE CONSTRUCTION

Questionnaire construction is one of the most delicate and critical research activities in the field of HRD. Asking the right questions, questions that provide valid and reliable information for making a decision, testing a theory, or investigating a topic, is probably as much of an art as any aspect of HRD research (Payne, 1951). A well-made questionnaire has several attributes. It is well-organized, the questions are clear, response options are well-drawn and exhaustive, and there is a natural order or flow to the questions that keeps the respondent moving toward completion of the questionnaire. These desirable attributes, though deceptively simple when they occur in a quality questionnaire, are the result of a great deal of painstaking development work. According to Peterson (2000), there are seven distinct tasks that are needed to achieve such a result. Each of these tasks requires a series of decisions and activities:

1. Review the information requirements necessitating a questionnaire.
2. Develop and prioritize a list of potential questions that will satisfy the information requirements.
3. Assess each potential question carefully.
4. Determine the types of questions to be asked.
5. Decide on the specific wording of each question to be asked.
6. Determine the structure of the questionnaire.
7. Evaluate the questionnaire.

As these tasks imply, an analyst or evaluator must be systematic when constructing a questionnaire. Each task of the process must be completed before subsequent ones are undertaken. The following sections focus on the first three tasks, which provide a foundation or context for constructing a

questionnaire. Discussion of the remaining four tasks is integrated into later sections of the chapter.

Review the Information Requirements Necessitating a Questionnaire

The first step in constructing an effective questionnaire is to review and understand the information requirements of the problem, opportunities, or decisions that led to the need for a questionnaire. Such information identification will depend on the nature of the project goals as they pertain to human performance improvement and HRD. Theory and previous research will be major guides in this area, as will conversations with knowledgeable individuals. It is also at this initial stage that the population of interest that will be studied needs to be identified. In particular, the first thing to do when reviewing information requirements is to be sure that any unusual terms, constructs, and jargon have the same meaning to you as a performance technologist as they do to a project sponsor or client (Peterson, 2000). Unless you understand the information requirements—what information is needed and how that information will be used—no attempt should be made to construct a questionnaire; the results would be of little value.

Develop and Prioritize a List of Potential Questions That Will Satisfy the Information Requirements

Assuming that a decision has been made to use a questionnaire to gather information as a result of a conscious and deliberate process, it is then necessary to translate the information into questions that can elicit the desired information. These questions should be as specific as possible. The more specific the questions are, the easier their evaluation will be, and the easier it will be to translate the questions into a form that can be readily administered in a questionnaire. Each potential question should be screened with respect to (1) how the answers to it will be analyzed, (2) the anticipated information it will provide, and (3) how the ensuing information will be used. Part of the screening process consists of prioritizing the questions according to their information relevancy.

Assess Each Potential Question Carefully

Potential questions surviving the preliminary screening process should then be examined for their administrative viability or how participants might react to them. Each potential question should be evaluated by posing three sequential interrogatives: (1) Can participants understand the question? (2) Can participants answer the question?, and (3) Will participants answer the question? For a question to be administratively viable, the answer to each interrogative must be “yes.” When evaluating the administrative viability of a potential question, an analyst or evaluator should consider the mode of administration that will be

used and the characteristics of the participants. Most potential questions are amenable to being self-administrated or other-administrated.

ESSENTIAL ELEMENTS IN CONSTRUCTING A GOOD QUESTIONNAIRE

According to Swisher (1980), the following criteria are important in constructing quality questionnaires: format and layout, question writing, question sequencing and organization, and a cover letter. Covert (1984) also suggests a checklist for developing questionnaires: title, introductory statement, directions, demographic section, writing items, and structure and format. Covert suggests that the most important part is the question items: the more clear and understandable the questions; the better the results.

Analysis and evaluation in HRD programs seek both quantitative and qualitative data that must be analyzed and interpreted for meaning. The type of data analysis necessary is usually decided on when an analysis or evaluation is planned (Phillips, 1997). There are three steps that must be carefully thought through at the beginning stages of questionnaire development: (1) the specification of the questions to be answered; (2) the operationalization of the specific concepts for data analysis; and (3) the selection of appropriate data-analysis methods. Variables must properly represent the concepts expressed in the questions, and statistical techniques must be appropriate for the variables and their measurement level (Weisberg, Krosnick, and Bowen, 1996). If these three steps are followed, it will facilitate appropriate analysis of the data.

Combining the advice of the aforementioned authors, one might conclude that at least five essential elements should be considered in designing and developing a good questionnaire for improving performance in HRD programs: (1) introduction, directions, and closing; (2) question construction; (3) question format and rating scale; (4) questionnaire layout or format; and (5) data analysis.

Introduction, Instructions, and Closing Statement

A questionnaire should contain introductory statements, clear instructions, and a closing statement as appropriate.

Introduction. An introductory statement may include information about the general purpose, a request for cooperation, and information about anonymity or confidentiality procedures. This information can be presented at the beginning of the questionnaire or in a cover letter. If a cover letter is used, a short introduction should also be printed on the questionnaire so that the questionnaire is self-sufficient (Plumb and Spyridakis, 1992).

“Anonymity” means that there is no feasible way to identify a respondent. In other words, the questionnaires are administered in such a way that the analyst or evaluator cannot identify a given questionnaire with a given respondent. It also means that there is no identifying information asked for and questions are structured in such a way that one could not match responses with a particular individual. These are difficult criteria to meet. When they are not feasible, one can offer to the respondents’ confidentiality. This means that the analyst or evaluator will not report data or information that ties given individuals with their responses. If anonymity or confidentiality can be provided, the respondents need to know this up front. If not, they need to be told that the questionnaire is not anonymous or confidential.

The cover letter or introductory statement is the analysts’ or evaluators’ chance to ask for cooperation from participants. It should be clear and brief, given the goal of using as little of the respondents’ time as necessary. If a questionnaire is arranged into content subsections, it is useful to introduce each section with a short statement concerning its content and purpose (Babbie, 1990).

An example of an introductory statement included on a questionnaire is shown in Figure 32.1. Additional information to consider for an introduction or a cover letter can include an appeal for cooperation, a few words to introduce the analysts’ or evaluators’ credibility, and information about deadlines. Expressed deadlines increase questionnaire response rates (Spitzer, 1979).

Instructions. Every self-administered questionnaire should begin with instructions on completing it. For closed-ended questions including multiple choice, yes or no, and rating scales, respondents should be given instructions about answer formats, such as placing a check mark or an X in the box beside the appropriate answer or writing in their answers when called for. For open-ended questions such as fill-ins, short answers, and essays, respondents should be given some guidance as to whether brief or lengthy answers are expected. If a

As the one-week human resource development (HRD) program comes to a close, please share with us your frank reactions about this HRD program. Your input will help us to evaluate our efforts, and your comments and suggestions will help us to improve future programs. As director of the HRD Department, I appreciate you taking time to respond. This questionnaire will take about ten minutes to complete. I will read your answers carefully. All responses to the questionnaire will remain anonymous. If you want to obtain a summary of the results, please let us know and we will share them with you. Thank you for your cooperation!

Figure 32.1. Example of a Questionnaire Introductory Statement.

given question varies from the general instructions pertaining to the whole questionnaire, special instructions for that subsection will be required to facilitate a proper response (Babbie, 1990). Instructions should be complete, unambiguous, and concise.

Closing Statement. A questionnaire also needs a closing statement that thanks participants for completing the questions. A closing statement is also related in part to logistics. Questionnaires could include what to do with completed answers (Dixon, 1990). An example is, “When you have completed the questionnaire, please return it to the blue box located at the front exit of the room.”

Question Construction

Writing questionnaire items is more of an art than a science (Neuman, 1997; Payne, 1951; Sheatsley, 1983). It takes skill, practice, patience, and creativity. Neuman (1997) suggests two main principles for developing questions: “avoid confusion and keep the respondent’s perspective in mind” (p. 233). There is a temptation to add superfluous words and items to a questionnaire, but developers are urged to resist the temptation.

Questionnaires should be short, containing only questions that yield answers that are going to actually be used in the analysis or evaluation. Avoid “interesting” and “nice to know” questions (Psacharopoulos, 1980). Also avoid including questions that appeared on prior or similar questionnaires, unless they pertain directly to the objectives of your study. Interesting, nice-to-know, and everyone-else-asks-them types of questions are the biggest culprits in questionnaires that the users judge to be long and laborious. The wording of questions is a critical factor in the respondent’s interpretation of questions. Kent (1993, p. 78) provides three conditions to maximize the possibility of obtaining valid responses:

- Respondents must understand the questions and understand them in the same way as other respondents.
- Respondents must be able to provide the answers.
- Respondents must be willing to provide the information.

Analysts and evaluators of HRD programs want all respondents to read and understand in the same ways the same questions, but it is difficult for the question developer to make the questions equally clear, relevant, and meaningful to all respondents (Neuman, 1997). An extensive review of research on guidelines for questionnaire construction (Babbie, 1990, 2001; Biner, 1993; Brace, 2004; Dixon, 1990; Kent, 1993; Labaw, 1980; Lees-Haley, 1980; Maher and Kur, 1983; Moran, 1990; Neuman, 1997; Newby, 1992; Oppenheim, 1992; Pershing, 1996; Peterson, 2000; Rea and Parker, 1992; Richardson, 1994;

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Sheatsley, 1983; Smith, 1990; Spitzer, 1979; Thomas, 2004; Weisberg, Krosnik, and Bowen, 1996), can be summarized by noting that there are a number of general principles of question writing that need to be used to avoid common errors in writing items for questionnaires. These principles will enable analysts and evaluators to design questionnaires that will yield better responses. Following is a selection of “do’s,” or appropriate use, and “do not’s” that are sound guidelines for writing good question items for analysis and evaluation in HRD programs.

Write Simple, Clear, and Short Questions. Ambiguity, confusion, and vagueness bother most respondents (Neuman, 1997). To avoid these problems, questions for questionnaires should be simple, clear, and kept as short as possible. The longer the question, the more difficult is the task of answering. Fewer words are better than more, and shorter questions produce higher response rates (Pershing, 1996; Sheatsley, 1983). Although there is no magic number of words, Payne (1951), for one example, insists on using twenty-five or fewer words for a question.

Make Specific and Precise Questions. Specific questions are usually better than general questions because of their accuracy and similar interpretation by all respondents. Question items should be worded specifically with a particular audience in mind: the group you expect to answer the questions (Lees-Haley, 1980). The more general the question, the wider will be the range of interpretations (Converse and Presser, 1986). Questions with specific and concrete wording are more apt to communicate the same meaning to all respondents. Avoid words that may be interpreted differently by each respondent, such as “frequently,” “most,” “sometimes,” or “regularly” (Dixon, 1990; Pershing, 1996).

Use Appropriate Language. Questions should be worded at the appropriate level for respondents. Professional jargon, slang, technical terms, and abbreviations can carry many different meanings to respondents who vary in life, work experiences, and education (Edwards, Thomas, Rosenfeld, and Booth-Kewley, 1997; Neuman, 1997). Avoid questions with such terms unless a specialized population is being used as respondents. If the questionnaire is designed for a specialized group, it is acceptable to use the jargon or technical terms of that group, provided all respondents are familiar with them.

Ensure Respondents’ Ability to Answer. Respondents must be competent to answer questions. In making questions, we should continually ask ourselves whether the respondents are able to provide useful information (Babbie, 1990; 2001). Asking questions that few respondents can answer frustrates the respondents and results in poor-quality responses. Asking the respondents to recall past details, answer specific factual information, and make choices about something

they know little or nothing about may result in an answer, but one that is meaningless (Neuman, 1997).

Include Only One Topic or Idea per Item. Each question should be related to only one topic or idea. Items that contain two separate ideas or try to combine two questions into one are called “double barreled” questions (Babbie, 1990; 2001; Neuman, 1997). The problem with double-barreled questions is that agreement or disagreement with the item implies agreement or disagreement with both parts of it. The best way of dealing with double-barreled questions is to break the item up and list each part as separate items; that is, one question per idea or topic. As a general rule, whenever the word *and* appears in a question or statement, question developers should check whether they are asking a double-barreled question.

Use Appropriate Emphasis for Key Words in the Question. The use of appropriate emphasis tools such as boldfaced, italicized, capitalized, or underlined words or phrases within the context of a question can serve as a constructive way to clarify potential confusion within the questionnaire (Rea and Parker, 1992). Appropriate emphasis for key words can add clarity to questions.

Take Care with Sensitive Questions. Asking sensitive questions on questionnaires has always been a difficult issue (Edwards, Thomas, Rosenfeld, and Booth-Kewley, 1997). People vary in the amount and type of information they are willing to disclose about their salary, race, ethnicity, and so on. In dealing with these kinds of sensitive questions, special care should be taken. It is also necessary to consider avoiding questions that use words or phrases of regional terminology, or occupational or social class differences (Pershing, 1996).

Avoid Negative Questions or Double Negatives. The appearance of a negation, for example the word *not*, in a questionnaire item paves the way for easy misinterpretation. Double negatives in ordinary language are grammatically incorrect and confusing (Neuman, 1997). Questions with double negatives are also confusing and difficult to answer. A double negative question may ask respondents to disagree that something in a question statement is false or negative. This situation can result in “an awkward statement and a potential source of considerable error” (Sheatsley, 1983, p. 217).

Avoid Biased or Loaded Questions and Terms. The way in which questions are worded, or the inclusion of certain terms, may encourage some respondents more than others. Such questions are called “biased or loaded” and should be avoided in question development (Babbie, 1990, 2001; Neuman, 1997). Words

have implicit connotative as well as explicit denotative meanings. Titles or positions in society can carry prestige or status, and can bias questions. There are many ways to bias a question, such as identification of a well-known person or agency and social desirability. Words with strong emotional connotations and stands on issues linked to people with high social status can color how respondents hear and answer questions (Neuman, 1997).

Avoid Questions with False Premises or Future Intentions. Respondents who disagree with the premises will be frustrated when attempting to answer a question. If it is necessary to include questions with a potentially false premise, the question should explicitly ask the respondents to assume the premise is true; then ask for a preference. Answers to a hypothetical circumstance or future intentions are not very reliable, but being explicit will reduce respondents' frustration (Kent, 1993; Neuman, 1997). In general, questions for analysis and evaluation should be specific and concrete, and should relate to the respondents' experiences.

Question Format and Rating Scales

Question Formats. Questionnaire item responses fall into two general categories: (1) closed-ended, or structured, fixed-response questions; and (2) open-ended, or unstructured, free-response questions. In closed-ended questions, including those with multiple choice, yes or no, and true or false answers, and questions with rating scales, respondents are asked to select their answer from a fixed set of response alternatives. Closed-ended questions are very common in questionnaires designed for analyses and evaluations because of a greater uniformity of responses and easy administration. Their main drawback can be in the structuring of responses (Babbie, 1990; Edwards, Thomas, Rosenfeld, and Booth-Kewley, 1997; Weisberg, Krosnick, and Bowen, 1996).

Open-ended questions, such as those requiring fill-ins, short answers, and essays, ask respondents to provide answers to questions using their own words. They provide respondents an opportunity to answer using their own frame of reference without undue influence from prefixed alternatives (Sheatsley, 1983; Weisberg, Krosnick, and Bowen, 1996). In answering and interpreting open-ended questions, there is the problem that some respondents will give answers that are irrelevant to the purposes of the analysis or evaluation.

Sometimes questionnaire developers combine closed-ended responses with an open category or option. Such questions are called "semistructured," and they are used when the questionnaire developer is concerned that the set of closed-ended options is not exhaustive.

Closed-ended questions take longer to develop, require a single specific answer or choice from several specified options, and take a shorter time to complete by the respondents. Open-ended questions provide in-depth responses and

Table 32.1. Characteristics of Closed-Ended and Open-Ended Questions.

<i>Question Type</i>	<i>Advantages</i>	<i>Limitations</i>
Closed-ended	Easier and quicker to answer More likely to get answers about sensitive topics Easier to code and statistically analyze Easier to compare different respondents' answers Easier to replicate	Frustration without desired answer Confusing if many response choices are offered Misinterpretation of a question without notice Simplistic responses to complex issues Blurred distinctions between respondents' answers
Open-ended	Opportunity for respondents to give their opinion Unanticipated findings to be discovered Adequate for complex issues Creativity, self-expression, and richness of detail are permitted Respondents' logic, thinking processes, and frames of reference are revealed	Different degrees of detail and irrelevance in answers Difficulty with response coding Difficulty with comparison and statistical analysis A greater amount of respondent time, thought, and effort is necessary Requires space for answers

unanticipated information, take longer to be completed by the respondents, and take longer to analyze. Each form of question has advantages and limitations (Babbie, 2001; Neuman, 1997; Sudman and Bradburn, 1982). Table 32.1 summarizes advantages and limitations for the two major types of question formats.

Rating Scales. A rating scale yields “a *single score* that indicates both the direction and intensity of a person’s attitude” (Henerson, Morris, and Fitz-Gibbon, 1978, p. 84). Because the scoring method for most rating scales is based on the idea of measuring the intensity, hardness, or potency of a variable (Dwyer, 1993; Neuman, 1997), each item must differentiate those respondents with a favorable attitude from those with an unfavorable attitude. In addition, the question items must allow for expression of a broad range of feelings, from strongly favorable through neutral to strongly unfavorable.

According to Weisberg, Krosnick, and Bowen (1996), if a rating scale is to be used in a questionnaire, three decisions must be made. The first decision is how

many points to include in the scale. It is usually a good idea to construct scales with fewer than seven points, because psychological research indicates that people have difficulty reliably making more than seven distinctions (Miller, 1956). The second decision is whether to provide a middle alternative in a scale. It is generally good to include a middle alternative because it represents the best description of some respondents' feelings. The third decision is how many points to assign to the labeled words. Verbal labels help to clarify the meanings of scale points for respondents. It is best not to mix labeling words with numbers.

There are several measurement techniques that have been used to assess beliefs, attitudes, and intentions (Fishbein and Ajzen, 1975). However, three major rating scales are commonly used in questionnaire development: (1) Thurstone, (2) Likert, and (3) the semantic differential.

Thurstone Scaling. Thurstone equal appearing interval scales, originally developed by Thurstone and Chave (1929), are based on the law of comparative judgment. Several steps are needed to arrive at a series of statements, each with its own weight or value. The Thurstone technique begins with a set of belief statements regarding a target subject. An analyst or evaluator can construct an attitude scale or select statements from a longer collection of attitude statements. Next, these statements are classified into one of eleven categories or dimensions from most favorable to neutral to least favorable through a judgment procedure of subject-matter experts (Miller, 1991). Third, the analyst or evaluator computes a mean or median rating and assigns the value to the statement. Statements are discarded if the assignment of the statement is variable across experts. The Thurstone scale is then developed by selecting statements with a scale value evenly spread from one extreme to the other, that is, 1 to 11 (Edwards and Kenney, 1946; Edwards, Thomas, Rosenfeld, and Booth-Kewley, 1997; Miller, 1991). An example of a Thurstone scale is shown in Figure 32.2. Although the weights or values in parentheses are not provided to respondents, they indicate the Thurstone values assigned to each question item.

Thurstone scaling approximates an interval level of measurement (Miller, 1991). Developing a true Thurstone scale is considerably more difficult than describing one (Nunnally, 1978). Nevertheless, economy and effectiveness of data reduction, if adequately developed and scored, are its strengths. The method is not often used by analysts and evaluators today because of the labor intensiveness of the dimension-construction process and the need for a large number of content experts to do the item rating and sorting (Babbie, 2001; Edwards, Thomas, Rosenfeld, and Booth-Kewley, 1997).

Likert Scale. Rensis Likert's scale (1932), called a summated rating or additive scale, is widely used and very common in questionnaires because of its easy construction, high reliability, and successful adaptation to measure many types of affective characteristics (Edwards and Kenney, 1946; Nunnally, 1978). On the Likert rating scale, a respondent indicates agreement or disagreement with a

Below are five statements about the training materials used in this human resource development program. Please indicate your feeling by circling either "A" or "D" for each statement. There are no right or wrong answers.

A = Agree, or agree more than disagree D = Disagree, or disagree more than agree

Training Materials Used in This Human Resource Development Program

• Training materials are enjoyable. (5.5)	A	D
• Training materials are simple (1.3)	A	D
• Training materials are traditional style. (2.8)	A	D
• Training materials are up-to-date. (10.7)	A	D
• Training materials are well organized. (7.3)	A	D

Figure 32.2. Example of Thurstone Scaling.

Below are five statements about the training materials used in this human resource development program. Please indicate your opinion by circling "SA," "A," "U," "D," or "SD." There is no right or wrong answers.

SA = Strongly agree A = Agree U = Undecided D = Disagree
SD = Strongly disagree

Training Materials Used in This Human Resource Development Program

• Training materials are enjoyable.	SA	A	U	D	SD
• Training materials are simple.	SA	A	U	D	SD
• Training materials are traditional style.	SA	A	U	D	SD
• Training materials are up-to-date.	SA	A	U	D	SD
• Training materials are well organized.	SA	A	U	D	SD

Figure 32.3. Example of Likert Scale.

variety of statements on an intensity scale. The five-point "strongly agree" to "strongly disagree" format is used. Responses are then summed across the items to generate a score on the affective instrument. An example of the Likert scale is presented in Figure 32.3.

The simplicity and ease of use of the Likert scale is its real strength. The Likert scale can provide an ordinal-level measure of a person's attitude (Babbie,

2001; Miller, 1991). Gathering and processing the Likert responses are efficient. When several items are combined, more comprehensive multiple-indicator measurement is possible. The rating scales have the advantage of providing data that use values rather than merely categories (Edwards, Thomas, Rosenfeld, and Booth-Kewley, 1997). This feature can provide greater flexibility for data analysis.

The Likert scale has a limitation. Different combinations of several items may result in the same or similar overall score or result, and therefore the response set presents a potential danger (Neuman, 1997). To effectively combine items to enhance the measurement of a characteristic, items included in the same dimension should have a strong relationship to the characteristic they are supported to measure, and the items should be logically related to each other.

Other modifications to anchor rating scales are possible: people might be asked whether they approve or disapprove, or whether they believe something is almost always true or not true. Table 32.2 gives additional sets of anchors that can be used with Likert-type questions for questionnaires (Bracken, 1996; Edwards, Thomas, Rosenfeld, and Booth-Kewley, 1997; Gable and Wolf, 1993).

Semantic Differential Scale. Charles Osgood's semantic differential scale (1952) provides an indirect measure of how a person feels about a concept, object, or other person. The scale measures subjective feelings about something by using a set of scales anchored at their extreme points by words of opposite meaning (Edwards, Thomas, Rosenfeld, and Booth-Kewley, 1997). To use the semantic differential, an analyst or evaluator presents target subjects with a list of paired opposite adjectives in a continuum of five to eleven points. Respondents mark the place on the scale continuum between the adjectives that best expresses their perceptions, attitudes, feelings, and so on. The results of semantic differential scales can be used to assess respondents' overall perceptions of various concepts or issues. Examples of semantic differential scales are presented in Figure 32.4.

Studies of a wide variety of adjectives in English found that they fall into three major classes of meaning: evaluation, or "good-bad"; potency, or "strong-weak"; and activity, or "active or passive" (Neuman, 1997). Of the three classes of meaning, evaluation is usually the most significant. Semantic differential scales yield interval data that are usable with virtually any statistical analysis. However, it is often difficult to give concise written directions for semantic differentials, especially to respondents unfamiliar with the rating scale.

Questionnaire Layout or Format

Questionnaire layout or format is just as important as the wording of questions (Babbie, 1990; 2001). The appearance and arrangement of the questionnaire should be clear, neat, and easy to follow. Often respondents seem to decide whether or not they will participate based on the appearance of the

Table 32.2. Various Likert-Type Response Formats.

<i>Type of Scale</i>	<i>Points with a Scale Continuum</i>				
	5	4	3	2	1
Agreement	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Frequency	Always	Often	About half the time	Seldom	Never
Importance	Very important	Important	Moderately important	Of little importance	Unimportant
Truth	True	Often true	True about half the time	Seldom true	False
Satisfaction	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
Effectiveness	Very effective	Effective	Neither effective nor ineffective	Ineffective	Very ineffective
Quality	Very good	Good	Average (Barely acceptable)	Poor	Very poor
Expectation	Much better than expected	Better than expected	As expected	Worse than expected	Much worse than expected
Extent (Likelihood)	To a very great extent	To a great extent	To a moderate extent	To a small extent	To no extent (Not at all)
Strength	To a very great strength	To a great strength	To a moderate strength	To a small strength	To no strength

questionnaire (Moran, 1990). A professional appearance with high-quality graphics, space between questions, and good layout improves accuracy and completeness, helps the questionnaire flow, and gets a higher response rate (Kent, 1993; Neuman, 1997; Spitzer, 1979; Swisher, 1980).

An efficiently constructed questionnaire will also facilitate the processing, tabulation, and analysis of the data (Harty, 1979). A questionnaire should be spread out and uncluttered, with a lot of “white space” to make it appear less formidable (Babbie, 1990, 2001; Moran, 1990; Weisberg, Krosnick, and Bowen,

Please read each pair of adjectives below that describes the training materials used in this human resource development program. Then place a mark in the box between them that comes closest to your first impression or feeling. There are no right or wrong answers.

How do you feel about the training materials used in this human resource development program?

Enjoyable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unenjoyable
Simple	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Complex
Traditional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Modern
Out-of-date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Up-to-date
Organized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unorganized

Figure 32.4. Examples of Semantic Differential Scales.

1996). Squeezing as many questions as possible onto a page makes the questionnaire shorter in pages, but the clutter may result in overlooked questions or in respondents deciding not to participate. This means it is important to leave enough room for answers to be written out.

It is also important that instructions be distinguishable from the questions themselves. A convention to follow is “use capitals underlined for instructions, capitals for the responses, and lower case for the questions themselves” (Kent, 1993, p. 83). Responses are usually listed one underneath the other, and the response categories are placed in columns.

Questionnaire layout is especially crucial for self-completed and mailed questionnaires because there is no person available to interact with the respondent. Instead, the questionnaire’s appearance persuades the respondent to answer. Mailed questionnaires should include a polite and professional cover letter on letterhead stationery, identification of the analyst or evaluator, telephone or facsimile numbers for questions, and a statement of appreciation for participation (Neuman, 1997).

While the actual physical length of a questionnaire is important, the respondent’s perception of its length is more important (Swisher, 1980). The developer should keep the questionnaire as short as possible without sacrificing the other criteria for format and layout. The format and layout must be physically and logically consistent. The length of a questionnaire should reflect the purposes of the analysis or evaluation.

Data Analysis

Data analysis of questionnaires involves coding questions and responses and deciding how to aggregate the data for use by the analyst or evaluator. Using

simple frequency counts for closed-ended questions or using a categorization of the written answers to open-ended questions often suffice (Newby, 1992). Based upon Kent's suggestions for qualitative data reduction (1993, pp. 165–166), open-ended questions can be analyzed with the following activities:

- Paraphrasing and summarizing what respondents have answered
- Classifying responses into suitable categories
- Converting questionnaire data into quasi-quantitative data
- Undertaking content analysis

The response patterns for closed-ended questions can be presented in graphs or histograms. Items that use scales can be reduced to a mean response for purposes of comparison. Data for open-ended questions can be reported in the form of quoting extracts from the text, producing checklists or tables, or rearranging or reordering lists (Kent, 1993). It may be necessary in some cases to use more complex inferential statistical analyses of data from questionnaires if the respondents represent a sample and there is a need to generalize to the larger population.

USEFUL ADMINISTRATIVE GUIDELINES FOR USING A QUESTIONNAIRE

Self-completion questionnaires, whether paper-based or electronic, benefit from the absence of an interviewer from the process. This removes a major source of potential bias in the responses and makes it easier for a respondent to be honest about sensitive subjects. A questionnaire can either be delivered by e-mail or be accessed via a Web page. Each form of media provides its own opportunities in terms of questionnaire construction, but equally each has its own drawbacks (Brace, 2004; Fehily and Johns, 2004; Thomas, 2004).

In addition to the elements of a good questionnaire development, there are several helpful administrative guidelines to improve the effectiveness of using questionnaires to collect data in the analysis and evaluation of HRD programs (Newby, 1992; Phillips, 1997). Useful administrative guidelines for using questionnaires for improving HRD programs can be briefly summarized, based on the suggestions of Phillips (1997).

Explain the Purpose of a Questionnaire. Spell out for the respondents the questionnaire's use as part of an HRD analysis or evaluation project, including how the results will be put to use. This is not always understood by respondents, and it is useful to explain to them who will see the results and how the results will be used in the organization.

Have a Neutral Person or Third Party Administer the Questionnaire. In some cases, it is important and helpful to have a person other than the analyst or evaluator administer the questionnaire. A program coordinator or study sponsor instead of the analyst or evaluator can be used. This method increases the objectivity of the feedback on the HRD program and decreases the likelihood of the analyst or evaluator being perceived as reacting unfavorably to criticism expressed in feedback. This idea particularly extends to instructors in the administration of course evaluations at the end of a program.

Provide a Copy of the Questionnaire in Advance. For lengthy questionnaires covering HRD programs that span days or weeks, it is helpful to distribute the questionnaire early in the program so that participants can familiarize themselves with questions and statements. Respondents should be cautioned not to reach a final conclusion regarding their input until the end of the HRD program data-gathering activities.

Consider Quantifying Program Ratings for Comparisons. Analysts and evaluators often find it advantageous to attempt to solicit feedback from questionnaires in terms of numerical ratings. Although questionnaire data are still subjective, overall numerical ratings can be useful in monitoring performance and making comparisons with other, similar programs.

Provide Enough Time for Completing the Questionnaire. A “time crunch” can cause problems if participants are asked to complete a questionnaire in a rush at the end of an HRD program or data-gathering activity. To avoid this problem, analysts and evaluators should provide ample time to complete the questionnaire in a scheduled session as feasible. Pretesting the questionnaire will provide guidance as to how much time will be required. If the questionnaire is mailed, time information should be included as part of the introduction or instructions.

CONCLUSION

This chapter explores a range of design and administrative issues regarding the construction of questionnaires. Constructing effective questionnaires involves a concerted effort, a certain amount of time, and careful attention. When a questionnaire appears to be clear and logical to the respondents and those that will use the data that the questionnaire provides, this is invariably the result of a long and often complicated process of development and tryout. Well-designed questionnaires cannot be developed in a short time or at the last minute. A questionnaire is only as good as the questions it contains. When the design guidelines presented in this chapter are followed, the questionnaire becomes a powerful diagnostic and evaluation tool for the performance-improvement professional.

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