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The Organizational Survey Process

General Steps and Practical Considerations

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The reader of this special issue will quickly conclude that conducting an organizational survey efficiently and effectively requires detailed planning. To that end, this article provides an outline of the general steps common to most organizational surveys, whatever the purpose in conducting the survey. This article is written primarily for the person who has little experience conducting surveys and is faced with the need to learn quickly. However, this article is not meant to be a guide for someone who has had *no* experience in conducting a survey. The complicated survey process cannot be explained in one short article.

Throughout the article, references are provided for additional information regarding issues in the survey process. In addition, the other articles in this special issue cover specific aspects of the survey process in greater detail. The reader interested in learning more about the various aspects of the survey process is directed to books such as Rossi, Wright, and Anderson's (1983) *Handbook of Survey Research*, Alreck and Settle's (1985) *The Survey Research Handbook*, Converse and Presser's (1986) *Survey Questions*, Fowler's (1988) *Survey Research Methods*, Bradburn and Sudman's (1988) *Polls and Surveys*, Fowler and Mangione's (1990) *Standardized Survey Interviewing*, Henry's (1990) *Practical Sampling*, and Devellis's (1991) *Scale Development*.

The survey process is complex, time-consuming, and expensive. There are several reasons for this conclusion. First, many survey steps require specialized knowledge and skills. Second, an urgent need for a particular type

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of information might suggest that an organization does not have adequate time for survey development. Third, the cost of developing a survey in-house may be prohibitive for small or medium-sized organizations.

Organizations have alternatives to developing and conducting a survey entirely in-house. One alternative is for organizations needing similar information to band together in a consortium and jointly underwrite the expense of developing a survey (see Morris & LoVerde, 1993 [this issue]). A second alternative would be to administer an off-the-shelf survey using in-house staff. With this alternative, an organization saves survey development time and avoids the cost of having external experts. A more expensive, but probably more immediate, alternative would be to hire an external consultant to administer the survey and provide feedback on the results.

Variations of these survey development and administration strategies provide additional options. Thus an organization can choose the strategy that fits its needs and budget. One major factor to be considered is the advantage of in-house versus off-the-shelf surveys. The survey developed specifically for use within a given organization can be tailored to meet the special needs of that organization. On the other hand, the psychometric characteristics (e.g., reliability and validity) of off-the-shelf instruments often exceed the characteristics found in home-grown organizational surveys. Also, off-the-shelf instruments are more likely to have norms. Norms allow an organization to compare itself against other organizations, possibly within the same industry.

Regardless of the approach taken, the steps in conducting a survey fall into five general phases. In the first phase, members of the organization identify the purpose(s) of the assessment, decide if a survey is the most effective method for accomplishing the organization's objective(s), and design a plan for conducting the survey (if a survey is deemed desirable). If a survey is desirable, a survey coordinator and/or survey team develops the survey during the second phase. (The term "survey team" will be used hereafter.) In the survey administration phase, the team identifies respondents and gives the survey. In the fourth phase, data are entered into a computer, verified, and analyzed. The last stage involves feeding the results of the survey back to customers.

PHASE 1: PRESURVEY ISSUES

PURPOSE OF SURVEY

There are many reasons for administering an organizational survey. A few examples include diagnosing the sources of organizational problems (e.g., a

high rate of absenteeism or turnover), obtaining frequency or importance information regarding an employee's duties (e.g., a task inventory), assessing potential customers' preferences for various goods and services (e.g., deciding what features to add to a new line of electronic testing equipment), or measuring key work-related attitudes on specific topics (e.g., potential incentive programs, alternative work schedules, recreational activities, and gender and race/ethnic issues related to a diverse work force). Different purposes suggest a need for organizational decision makers to determine whether a survey or another method is the optimum procedure for gathering the required information.

IS A SURVEY THE BEST METHOD FOR GATHERING DATA?

Although surveys are often the most effective and efficient means for gathering organizational information, the survey team should consider the relative advantages and disadvantages of all data-gathering methods before beginning instrument construction. For example, if few employees are to be the source of the data, it may be easier to interview each person. Similarly, providing an opinion box for anonymous suggestions might be a better means for gathering some information especially if the desired information is sensitive or rare. Once it has been decided (a) why data need to be gathered, (b) that a survey is the best vehicle for obtaining that information, and (c) whether the survey should be developed and conducted in-house, plans with deadlines can be developed for conducting the survey.

PLANNING A SURVEY

Figure 1 shows a 13-step strategy for conducting a survey totally in-house. If an organization decides to use consultants or external materials for part of the survey process, the 13 steps offer reminders regarding the concerns and tasks to be considered at each point. Similarly, the steps can assist decision makers as they determine which steps to perform under contract.

Readers can use Figure 1 to plan an organizational survey and a time line for accomplishing each step. In several instances, the time lines for steps will overlap. For example, a survey team can write statistical analysis programs and portions of the report during the period between distribution and return of the surveys. Working simultaneously on several steps allows the survey process to be accomplished in the shortest possible time. Different survey purposes, organization sizes, administration methods, and so on prevent us from offering general time lines. Each survey will be somewhat different.

Phase/Step	Nonpersonnel Cost (\$)	Month of the Survey Process														
		1	2	3	4	5	6	7	8	9	10	11	12			
Phase 1: Presurvey issues																
Phase 2: Survey construction																
Obtain content information																
Write items																
Pretest items																
Develop final survey instrument																
Obtain organizational approval of instrument																
Phase 3: Survey administration																
Select the respondents																
Prepare and distribute the surveys																
Await returns and mail return reminders																
Phase 4: Data entry and analysis																
Enter and verify the data																
Write and correct statistical analysis programs																
Run the analyses and interpret the results																
Phase 5: Presentation of findings																
Present the findings																
Write a report																

Figure 1: Five-Phase, 13-Step In-House Survey Procedure

PHASE 2: SURVEY CONSTRUCTION

OBTAIN CONTENT INFORMATION

With each different purpose comes a different domain of potential organizational survey dimensions and items. Thus a first task for a survey team is to identify the full range of dimensions that will be used when writing the survey items. Interviews with subject matter experts or job incumbents, critical incidents documented in performance evaluations, job analyses, findings from earlier surveys in the same organization, and literature reviews are useful techniques for identifying the dimensions to be included in an organizational survey.

WRITE ITEMS

The Items Themselves

Items are the basis of all surveys. As a result, the rigor that is required when developing items cannot be overemphasized. Any absence in rigor during item generation may result in later adverse consequences that will not be correctable. Therefore, the best prescription for developing an effective and efficient survey is to do it right the first time. Miller's (1991) and Fowler's (1988) books provide very good general guides to questionnaire construction.

Demographic items (i.e., items that provide descriptive information about each respondent) are needed for almost any survey. The survey team will determine which demographics to collect by examining what types of subgroup analyses are needed. For example, an organization doing a cultural diversity survey may be interested in the attitudes of subgroups broken down by gender, race, and level in the organizational hierarchy. Several authors (e.g., Frey, 1989; Miller, 1991) have recommended that demographic items be placed at the end of the survey.

A warning: If too much demographic data are requested, respondents may be suspicious about whether their answers are anonymous. Such suspicions can negatively affect return rates and respondent honesty and candidness, especially if the information requested is sensitive (e.g., substance abuse or sexual harassment).

Grammatical Issues in Item Writing

A method for ensuring that everyone will interpret the items as they are meant to be interpreted is to write in *short, simple, declarative sentences*. Another method is to write with *everyday language*, avoiding words that are not used in general speaking. One exception to this rule is that it is often advisable to use the jargon of the organization if all respondents are familiar with such terms. Fowler (1992) underscores the importance of writing clear, unambiguous items by demonstrating the bias in survey estimates that results when respondents are required to interpret unclear terminology. In addition, Schuman and Presser's (1981) book, *Questions and Answers in Attitude Scales: Experiments on Question Form, Wording, and Context*, provides other considerations for the item writer.

Readability Level

One such consideration is determining the readability level of the survey. Readability analyses determine the average grade level of schooling that someone will need to read and understand what is written. Among other things, such analyses might examine sentence and word length and the number of sentences per paragraph. Thus this type of analysis examines the words and how they are used together rather than how respondents answered the questions.

Until recently, readability analysis required special computer programs or hand scoring. Now, inexpensive programs that work with standard word processing software (e.g., Grammatik 5) include readability analyses. To illustrate, the readability level of this article is between the 11th and 13th grades. That is, someone with a reading level less than that of the average high school graduate would probably have difficulty reading this article.

When constructing Navy surveys, we attempt to keep the reading level low — around the level of seventh or eighth graders. This caution is used even though 99% of Navy enlisted personnel have at least a high school education and almost all Navy officers have at least a baccalaureate degree. Keeping the readability level low increases the likelihood that respondents will need to use little interpretation in answering the questions.

Rating Scales and Categorical Alternatives

The content of a survey determines the response format (i.e., the way in which items and answers are displayed). If suggestions are being sought or

a survey team does not have firm ideas about what the answers will be, the answer format should be open-ended. That is, a respondent is asked to write a narrative answer. If a survey team has some ideas about the general answers that will be supplied, it will probably be useful to supply the respondent with a prespecified list of categorical alternatives (e.g., pay, vacation time, types of insurance, etc., might be alternatives for a question asking the respondent to identify what is the best incentive for working in the organization). All possible alternatives should be listed. If this cannot be done, a space for "other" answers should be included. The major advantage of a prespecified list is that the data will not need to be coded into categories later. Such postsurvey coding is often time consuming and costly and may add error if an assistant codes the information differently than the respondent would have.

If quantitative information is sought, the respondent can supply numbers or use any of a variety of rating scales. Although research has been performed to learn if one rating scale is better than another and how many points a rating scale should have, there is no consensus on this issue. Trite as it may sound, the best rule is to use the number of points and scale anchors that make sense.

One of the most commonly employed rating scales for attitude measurement uses five points. This Likert-format rating scale is anchored with adjectives that allow the respondent to describe how much he or she agrees or disagrees with an item. The points and anchors for such a rating scale are typically 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, and 5 = *strongly agree*. Some organizations may want to force a respondent to agree or disagree. If this is the case, a rating scale with no midpoint or midpoint anchor would be used. Using a scale (i.e., continuum) without a midpoint can, however, also cause problems. A respondent may be forced to respond positively or negatively when the individual's attitude is really neutral regarding the issue being addressed. Sheatsley (1983) offers information about other rating scale formats for surveys.

Positively and Negatively Worded Items

One popular technique for minimizing response bias is to include both positively and negatively worded items when measuring a particular dimension. The respondent's answers to negatively worded items are then reverse scored. Underlying this procedure is an assumption that acquiescence or positive response bias (i.e., the tendency to agree with items) will be minimized by forcing a respondent to use both ends of a rating scale.

Although this process may avoid a *systematic* error, it may add *unsystematic* error. This unsystematic error may be caused by at least two problems.

First, a negative answer to a negatively worded statement may not be equivalent to the positive answer to a positively worded statement. For example, disagreeing with the statement "My work is not meaningful" does not necessarily mean that the same individual would have agreed with the statement "My work is meaningful." Second, forcing a person to disagree with a negative statement may confuse respondents.

Reverse-scored items can cause an artificial "dimension" to appear (in a factor-analytic solution) when as few as 10% of the respondents fail to notice that a few of the items are opposite in meaning (i.e., negatively rather than positively worded) from the other items (Schmitt & Stults, 1985). Such an artificial "dimension" is less likely for respondents who have high levels of education and better reading ability (Fried & Ferris, 1986, as cited in Idaszak & Drasgow, 1987).

Other Item Issues

This chapter cannot go into depth about all of the decisions that must be made when writing items. Other considerations include whether questions should be direct or indirect, general or specific, and personal or impersonal. In addition, care must be taken to avoid writing biased or leading questions, or items that are unintentionally offensive to respondents. Miller (1991) has provided examples of appropriate and inappropriate items.

Survey Length

Each survey dimension should contain multiple items, but the length of the survey cannot be limitless. Often, it is very easy to add dimensions and items. Eventually, a survey would become so long that respondents would not complete it, even if they can do so on company time. If nonmembers of the organization (e.g., potential customers) are required to respond to the survey voluntarily on their own time, a long survey will almost surely have a lower response rate (i.e., the proportion of surveys returned) than a short survey.

Several factors determine the length of a survey. The time and cost for a respondent to complete the survey is an important consideration. Whenever we administer a Navy survey, we are required to compute the cost of respondents' time. Another issue influencing survey length is the nature and purpose of the survey. A survey measuring the prevalence of workplace sexual harassment might be contained on the front and back of a single page. If the purpose is defined more broadly as an assessment of equal opportunity, the survey might be 5-10 times as long and assess multiple dimensions. A few of the many other considerations are whether the survey (a) requires time

for writing narrative answers, (b) is to be completed by organization members or external respondents, and (c) is influenced by situational concerns such as an immediate need for information on specific issues.

PRETEST ITEMS

Increasing the Reliability of Measurement

Reliability is a measurement property that shows how consistently a dimension is measured. There are three types of reliability. Internal consistency reliability indicates the degree to which all items in a given dimension measure a common factor. Test-retest reliability assesses the degree to which respondents could be expected to have the same dimension score from one time to another. The third type of reliability, alternate forms reliability, is probably of little interest to the survey developer as the organization will develop only one version of a survey. Alternate forms reliability indicates the degree to which respondents' scores would vary from, say, Form A to Form B of a survey. Murphy and Davidshofer's (1991) book is an excellent source for more information on reliability and its measurement.

There are three steps during the preadministration phase that will increase the reliability of dimension scores. These three steps are writing multiple items for each dimension, determining whether other organizational members would assign an item to the same dimension for which it was written, and grouping all items from a single dimension together.

For most surveys, *multiple items* should be used to measure each dimension. The multiple items allow the respondent to express different concerns about the various aspects of a single dimension. For example, the dimension "satisfaction with compensation" might include at least one item each to measure satisfaction with pay; annual, sick, and holiday leave policies; health and life insurance; and so on. If, however, a survey is to be completed by someone outside the organization (e.g., a customer at a hotel or restaurant), single-item dimensions would probably be more appropriate. Although single-item dimensions are not as good as multiple-item dimensions in terms of reliability, a short survey with several single-item dimensions is more likely to be completed than is a longer survey.

Once the items have been written, it is a good idea to determine whether the items measure the intended dimensions. This step could be accomplished by randomizing the items into a checklist format and preparing definitions of the dimensions. Two or three survey team members would then indicate (in the margin) to which dimension each item belonged. Later, the survey

team would determine which items were inconsistently assigned to a given dimension. Those items would be eliminated or rewritten to fit the dimension better.

For attitude surveys, we generally advocate placing all of the items that measure a single dimension into a homogeneous module.¹ This grouping of items makes it easier for the respondent to determine what the survey is attempting to measure.

Experimental Administration of the Preliminary Survey

Preliminary to the actual survey administration is deciding how information will be obtained from the respondents. Surveys can be administered using any of five common methods: paper and pencil, scanner (bubble) sheets, computers, telephones, and personal interviews (see Rosenfeld, Booth-Kewley, & Edwards, 1993 [this issue], for a description of these methods and a review of the relative advantages of each method). The experimental administration of the preliminary survey should use the administration method that will be used in the full-scale administration.

Accomplishment of all tasks to this point has resulted in a preliminary survey. The survey team now administers the organizational survey to a very small sample of people, perhaps 20 people who are representative of the respondents who will be surveyed later. This pretest has several goals. One, the respondents will be asked to tell how long the survey took to complete. This issue is often addressed when the survey team seeks final management approval for the survey. Two, the respondents are asked to comment about the content of the survey, the phrasing of the items, rating scales, instructions, the display of the information in the survey, and other concerns that came to mind when completing the survey. The survey team modifies the survey based on the comments and possibly the statistical findings of the responses to the items. Even the most well-designed organizational survey should be pretested. There are often unanticipated responses that may require changes.

OBTAIN ORGANIZATIONAL APPROVAL OF INSTRUMENT

Although this step should be perfunctory, it can be long and torturous. It is assumed that the survey team has been providing intermittent updates to management and obtaining information from people to develop the survey items and dimensions. Such tasks require at least informal approval to be accomplished. Formal approval may be an entirely different matter. Sometimes, it appears as if everyone in the organization needs to approve the instrument formally. Furthermore, when one group makes changes, the

survey may need to be rereviewed by others who approved an earlier version. Three types of players – top management, institutional review boards, and unions – are particularly important at this formal approval stage.

Top Management

Higher-level management decided that a survey was needed. Also, they have probably been given progress reports as tasks on the survey plan have been completed. These implicit approvals of early steps are not equivalent to approval for the final survey or the administration plan once they are presented in their “final” forms. Morris and LoVerde (1993) [this issue] discuss some of the problems that can occur when higher-level management seeks to change survey items.

Institutional Review Boards (IRBs)

IRBs exist to protect the rights (e.g., privacy) of the respondents or subjects in data-gathering exercises/experiments. Many organizations (e.g., universities and military personnel research centers) require that all experiments and formal data gathering be coordinated with their IRBs. If the items have no justification (e.g., a survey team member thinks that it might be useful for some future but unidentified project), permission to gather the data might not be granted. At such times, survey team members may view an IRB as a nuisance, but potential respondents might value the concern expressed by IRB members.

The following example illustrates how an IRB balances the needs of the surveyor and the respondent. One of the authors of this article sought IRB approval to gather data that would be used in a doctoral student’s dissertation. A member of the university IRB wanted the student to leave selected items out of a widely used personality inventory. The IRB member thought some items would elicit bad memories for handicapped respondents. After explaining that (a) the instrument had been administered to tens of thousands of respondents, (b) leaving out items would preclude the use of the dimension norms, and (c) all of the dimensions were important to the study, the IRB permitted the use of the full instrument.

Unions

If at least some of the respondents are unionized, the survey coordinator may need to seek input from union representatives. The input may be required as part of the labor-management contract. Alternatively, an organization with

a good working relationship with its union(s) may notify the union representative as a matter of courtesy.

One of the authors had a problem when conducting a survey at 30 sites located across the United States. Some unions approved the survey instrument whereas others did not. After many telephone conversations, all of the unions agreed to allow their members to participate. This incident highlights the fact that the objections of a single union may delay data gathering.

DEVELOP THE FINAL SURVEY INSTRUMENT

Survey revisions resulting from the experimental administration and approval steps are often minor. These revisions may, however, require time, especially when seeking high-level approval. During the slow periods in these stages, the survey team should have begun finalizing arrangements for the actual administration.

PHASE 3: SURVEY ADMINISTRATION

For the survey administration section, many of the examples involve the most common administration method—standard paper and pencil. Our concentration on this administration method should not be a problem for survey teams that use other methods. Regardless of method, administration requires three general steps: selecting the respondents, preparing and distributing the survey, and awaiting returns and reminding the potential respondents to complete their surveys.

SELECT THE RESPONDENTS

Among other concerns, the choice of respondents will depend on the purpose of the survey, the cost of obtaining data, and the availability of respondents. The general classes of survey participants might include one or more of the following groups: organization members, potential or actual customers, and recognized experts in a given occupational field. (In addition to the basic sampling issues presented below, the reader might wish to consult Kalton's [1983] *Introduction to Survey Sampling* or Henry's [1990] *Practical Sampling* for additional information on sampling.)

Sample Versus Population

Before administering a survey, the survey team must decide whether to survey everyone in only a part (i.e., a sample) of a relevant population. If an organization is very small, a census would probably be desirable. In small organizations, the opinions of each individual have relatively more weight than the opinions of a single individual in a larger organization. Also, as sample sizes get progressively smaller, it becomes more likely that *sampling error* will influence the results. Sampling error is a measure of the degree to which a statistic from a sample can be expected to vary from the value that would have been obtained if data were gathered from the population.

If a sample is to be surveyed, a question arises as to which individuals to pick for the survey. If the sample is unrepresentative of the population, erroneous conclusions will probably be drawn (i.e., sampling error will be high). In the classic example of a biased sample, a 1936 political poll predicted that Franklin Roosevelt would lose a presidential election that he won by a landslide. In that instance, surveys were mailed to 10 million households that were listed in telephone directories or state automobile registries; of these, 2.4 million surveys were completed and returned (Bradburn & Sudman, 1988). In large part, the very different opinions of affluent potential voters (i.e., people who could afford telephones and automobiles during the Depression) versus the general U.S. population led to erroneous prediction.

One large U.S. firm has a unique method that uses sampling to obtain "census" information. The firm administers the same attitude survey every year, but in any given year, employees from only one third of its stores are surveyed. Thus information is obtained at each store every third year. This procedure maintains up-to-date information on every organizational unit, minimizes survey cost for conducting a census, and avoids the concerns that might arise if an organization administers a survey only when a problem is perceived.

Method of Sampling

Henry (1990) identified five types of sampling: simple random, systematic, stratified, cluster, and multistage. Simple random and systematic sampling are the easiest methods to use. With simple random, everyone in the survey population has the same probability to be chosen. The actual choices regarding who will be administered a survey can be accomplished with statistical packages that randomly assign a different number to everyone in

the population and then select people based on their number. For the systematic sampling method, every n th person from a list is selected.

The stratified method is also frequently employed. To use this method, each individual is assigned to a group according to some set of relevant characteristics (e.g., organizational level, male versus female, type of job, and remote office versus headquarters). A specified number of people will then be selected randomly from each group. The variables used in the stratification will vary according to the organization, purpose of the survey, and so on. Sometimes, it is desirable to *oversample* members of some groups. For example, in Navy-wide surveys, Black women are usually oversampled to decrease sampling error for this relatively small group. In other instances, it is desirable to oversample groups who are less likely to respond. For many surveys, individuals at lower organizational levels are less likely to respond to a survey. To offset this lower response rate (and higher probability of large sampling error), surveys can be distributed to more people at the lower levels to get back the same number of surveys for both the lower- and higher-level groups. Besides providing more accurate statistics for the subgroups, the data from the subgroups can be weighted to develop representative statistics for the entire sample.

The two other methods of sampling identified by Henry (1990) are variations of the three methods just reviewed. For cluster sampling, individuals are assigned to a group or cluster. All members of a cluster are then either selected or not selected randomly. Finally, multistage sampling requires the formation of clusters and the random sampling of individuals from the clusters. The clustering in the multistage sampling can be done at more than one level of grouping.

PREPARE AND DISTRIBUTE THE SURVEY

Most of the tasks in this step should have been arranged during an earlier step in the survey process. These tasks often require coordination with people in other departments or external organizations. The tasks included below are basic to most surveys; other tasks might be included, depending on the specific situation:

1. Logistical arrangements must be made. Conducting a large-scale survey might require special orders of supplies and a place to store them.
2. The survey must be duplicated. The method of copying will determine the amount of lead time necessary. For example, customized scanner sheets may require several weeks for production, whereas plain photocopying would probably require much less time.

3. Survey packets must be assembled. If the survey is to be administered by mail, each packet should include a mailing envelope, the survey, and a preaddressed return envelope. Furthermore, address labels may need to be printed for each envelope, and postage must be affixed to (or printed on) each mail-out and return envelope (especially for surveys going to respondents outside the organization).
4. The organization mailroom may desire to save money by presorting and bundling the surveys by ZIP code. Much of the personnel time here can be saved by sorting the addresses with a computer before printing them (if the addresses are computerized).

AWAIT RETURNS AND MAIL FOLLOW-UP NOTICES

Approximately 3 weeks to 1 month after a mail-out survey, follow-up notices should be sent to all potential respondents if the survey was to be completed anonymously. These reminders increase the return rate.

ALTERNATIVES TO SURVEY DISTRIBUTION METHODS

If the survey is being conducted in-house, company mail can be used for distribution, especially if all organization members are in a single location. Alternatively, surveys could be administered to groups of respondents who assemble in a single room. This method would probably result in a higher response rate than would mail-out surveying. A potential disadvantage of this method could be a perceived lack of anonymity if a "boss" or his or her designate is the one overseeing the organizational survey administration.

If the organization has multiple locations, a point of contact could administer the survey to members in groups or distribute and collect surveys at each group. Another alternative is to administer the survey with computers. This method can use personal computers (a) stored in a location that has to be visited by respondents or (b) connected to a central computer or bulletin board (see Rosenfeld et al., 1993 [this issue]).

PHASE 4: DATA ENTRY AND ANALYSIS

ENTER AND VERIFY DATA

During the early survey planning process, the survey team should have decided who will be responsible for data entry and verification. This issue is avoided with some survey administration methods such as computers and scanner sheets (see Rosenfeld et al., 1993 [this issue]). If data must be entered

following the survey administration, the people involved will likely include members of the survey team and their clerical assistants, employees from the organization's data processing department, or external contractors. It is seldom cost-beneficial to use the survey team for data entry as they probably do not possess the clerical skills required to enter data quickly. Also, their skills and organizational levels are probably such that the organization should be expecting more than data entry for their salaries.

Early planning will increase the likelihood that an organization's own data processing department can arrange to enter the data. If the data are personal and the respondents can be identified from answers to the questions, external contractors might be a better alternative. It must be made clear to whomever is responsible for data entry that 100% verification of data is required. Even with the most careful data entry personnel, occasional errors can be expected.

A data entry horror story highlights what can go wrong at this step. A federal agency once asked for bids for data entry. Because of a federal law, the contract was to be completed by inmates at a prison in the same state. Despite a contract specification of 99% accuracy, over 50% of the data from the initial forms was entered incorrectly. The completion of the project was delayed as a result of canceling that contract and issuing a new one.

Coding and Entering Open-Ended Data

The information given in this section thus far has assumed that all of the data were categorical, rating scale based, or simple counts. Entering and coding narrative information, such as comments, is much more labor intensive (Geer, 1991). However, narrative information mixed with items containing precoded answers often compensates the company for the added costs of coding and entering the data. Narrative information adds flesh to the sometimes sterile numbers and deductions that are drawn from precoded qualitative information or quantitative data. Numbers alone often do not tell the whole story (Geer, 1991). Narrative data provide suggestions for management and material for future surveys.

The first step in analyzing narrative information is to sort the comments using any of several criteria. For some questions, the comments might be sorted along a favorableness-unfavorableness continuum. In other cases, the comments might be sorted according to the content of the comments. Frequently, such sorting would be done on a subset of the returned surveys. A coding scheme would then be designed for each question eliciting narrative information. All of the comments from all the surveys would be coded before the narrative and quantitative data are entered into the computer.

Dealing With Missing Data

Whenever respondents leave selected items unanswered, they cause analysis problems. The problems involve questions about why the items were not answered and how the items should be scored. An item might be left blank for several reasons:

- The respondent simply forgot to answer the question.
- The question was not relevant for the respondent.
- The question was of such a personal nature that the respondent did not wish to share the information.
- The respondent was concerned about the retribution that might occur if his or her answer and name were linked.
- Responding to the question would have required a long answer that the respondent did not have the time to provide.

This partial list of reasons highlights the fact that very different motives may cause a respondent to leave an item unanswered. Survey planning can provide ways to minimize the number of nonresponses. Some ways in which nonresponding can be minimized are by allowing the respondent to answer the items anonymously, keeping the survey length to a minimum, providing a precoded categorical response of “not applicable/don’t know,” and providing precoded response categories so that a respondent can answer an item with a single mark rather than with a narrative answer.

A data analyst will rarely be able to learn why an item has been left blank. As a result, all nonresponses for a given item will probably be assigned the same missing value code. Items that have a larger number of nonresponses than do other items should be examined for potential nonresponse reasons. If very sensitive questions have a higher nonresponse rate, such a finding may suggest that respondents have fears about what the organization will do to them if they answer honestly.

Missing data are especially a problem when dimension scores are computed. For instance, a respondent answers each of the 10 satisfaction-with-supervision dimension items with a “1” (*strongly disagree*) on a 5-point scale. Another respondent answers only 2 of the same 10 questions, for which the respondent assigns a “5” (*strongly agree*). If a dimension mean or total score were taken without regard for the number of items answered, both respondents would have the same mean score of 1.0. It is, however, very unlikely that the two respondents would be describing the same degree of (dis)satisfaction with supervision. There is no single right answer on how to treat missing data. This section was written only as a caution to analysts.

WRITE AND CORRECT THE STATISTICAL ANALYSIS PROGRAMS

In many cases, the statistical analyses can probably be performed on a personal computer. Common data base management programs (e.g., Excel and Lotus 1-2-3) have subroutines that compute most, if not all, of the statistics that are required to analyze survey information. If more complex analyses (e.g., reliabilities) are required, special statistical programs (e.g., SPSS-X and SAS) can be used. In either case, an analyst is no longer faced with the intimidating task of writing computer programs in specialized language, such as FORTRAN or COBOL.

To use time optimally, the analysis programs can be written, tested, and corrected in the period between the survey's finalization and the time at which data is entered into the computer. This efficient use of time can speed the survey process to its end more quickly than if the programs are written after the data are entered.

RUN THE ANALYSES AND INTERPRET THE RESULTS

Overall and Subgroup Analyses

As was suggested in the section on sampling, organizations usually want information on their various subgroups in addition to findings pertaining to the full organization. When these subgroup analyses are conducted, care must be exercised to protect the respondent. If the subgroup analyses are broken into very small groups, it might be possible for the answers given by an individual respondent to be identified. To avoid retribution and other problems, many surveying firms have a general rule that they will not provide analyses that result in less than eight respondents per subgroup. Providing this degree of anonymity should enhance the probability that respondents will give honest answers. Another reason for not computing statistics on small groups is that the estimates from the sample can be very unstable. That is, the addition of a single response can dramatically affect the statistics for very small groups.

Types of Statistics

Even though higher-level management will not be concerned with reliability, one of the first analysis tasks of the survey team is to compute the reliability of each dimension. The reliabilities will tell the team whether all of the items assigned to a dimension should really be used to compute the mean for the dimension. The reliabilities would be computed on the entire sample.

Sampling error is an important statistic for interpreting the means or percentages for the dimensions and items. It represents the margin of error that is associated with a finding. By using sampling error in conjunction with a mean or standard deviation, a survey team can determine how sure the organization can be that the result would have been obtained had the whole organization been surveyed. In our surveys, we try to use a sampling error of $\pm 5\%$ or less. This means that responses in the survey estimate the entire population within + or - 5 percentage points. Dutka and Frankel (1993 [this issue]) present an example showing how sampling error and other errors are computed and interpreted. Fowler (1988) presents an in-depth discussion regarding the computation of survey sampling errors.

When computing dimension scores, the survey team generally should compute means (i.e., averages) rather than total scores. Relative to totals, means provide three advantages. First, means allow interpretations against a rating scale or other original data-gathering standard. For example, if the 5-point agreement scale discussed previously were used and the dimension mean were "2," the survey team could conclude that the average respondent "disagreed" with the item. Second, dimension means provide a frame of reference when examining the item means within each dimension. Third, means allow dimensions with unequal numbers of items to be ranked from largest to smallest. However, in presentations before managers, key findings may be easier to follow if percentages are used. For example, a 5-point *strongly agree* to *strongly disagree* response scale could be collapsed into three categories: *agree*, *neutral*, and *disagree*.

Constructing Norms

If a survey is administered more than once, organization decision makers will probably wish to know how findings from the current administration compare with the findings from previous years. Such questions speak to the need for norms. Morris and LoVerde (1993 [this issue]) present many of the issues that will confront an organization attempting to construct norms.

PHASE 5: PRESENTATION OF FINDINGS

ISSUES

When preparing the findings for a presentation or report, the survey coordinator needs to keep in mind "Who is the user/customer of the information?" The answer to this question is not always clear. The situation

becomes especially fuzzy if the survey team is faced with multiple customers who have very different agendas. For example, a company faced with high turnover that has affected productivity conducts a survey. The instrument provides information about specific areas of worker dissatisfaction; in addition, the general consensus is that morale is low and that many people are job-hunting. This information, provided to the right personnel, could result in policy changes that would eventually affect turnover. However, should this information be provided to the board of directors? Even though they may request that the survey be performed, do those in upper management really want answers to their questions if the survey responses paint a negative picture of the organization? Some knowledge of organizational politics is often necessary when decisions are made about how and to whom survey results are presented.

Another issue involves how much information will be fed back to the survey respondents. If the purpose of the survey is to measure the perceived quality of some job training, respondents may not expect feedback—only that the training will be modified. If the purpose of the survey is to gather attitudinal information and solicit suggestions for improving the work climate of the organization, respondents may rightly expect feedback in exchange for their participation. Decisions about the recipients and degree of feedback need to be addressed during the presurvey construction phase, and the survey team needs to get the commitment of higher-level management to such feedback. Otherwise, the survey team may find itself without the authority to provide feedback while being confronted by respondents wanting information about results. Although upper-level management may be hesitant to provide negative feedback to respondents, providing quick and accurate feedback is one way to reinforce future survey efforts. Respondents who spend time completing surveys they never hear about again might be reluctant when called on to complete a later survey.

PRESENTING THE FINDINGS

Survey findings are generally presented orally and/or as a written report. Whatever the form of feedback, the following format, which is based on the style developed by the American Psychological Association (1983) might be followed. The degree of detail within each category will depend on the audience to whom the findings are being presented. In our Navy work, we often write detailed reports of our survey findings. Our briefings to sponsors are generally less “dense,” focusing only on the highlights of the survey process—more a “management report” than a research paper.

Background/Introduction

This section should discuss why the survey was conducted. Details might include such topics as conditions, problems, or questions that led to the decision to conduct the survey, who requested the survey, and information about previous findings in the survey subject area. Also, the objectives of the project should be stated explicitly.

Method

The method section should describe who was surveyed, the development of the survey, and the procedure used to conduct it.² The sample section will include a description of how people were selected to receive the survey (e.g., census, random sample, stratified sample), how many surveys were administered, and how many were returned (response rate). In addition, important demographic characteristics of the survey respondents should be summarized (e.g., numbers of men and women, mean age, frequency count of personnel in different work centers), if these demographics are important for interpretation of the results.

The development of the survey should then be described. If standardized scales were used, it may be useful to discuss why the particular scales were chosen and to present reliabilities. If the survey was developed in-house, a presentation of the findings should include definitions of the dimensions, a description of why particular dimensions were chosen, how items were written (e.g., Did the survey team write all the items? Did they solicit items from different departments?), and how the survey was pretested.

Finally, the procedures used to administer the survey (e.g., paper and pencil, computers, etc.) should be discussed.

For most oral presentations, the method section will be brief because the focus will be on results. In written reports, the method section is more important. The method section in the written report should be detailed to the extent that someone reading the report could replicate the survey using only the information from the report.

Results

This section consists of a presentation of findings from the obtained data. The format and depth of the presentation will depend on the audience and purpose. In our Navy briefings, the focus is usually on answering the questions that prompted the original research (e.g., what percentage of Navy women are pregnant at a given point in time?). Our analyses are generally

simple; for example, we might present the percentages of people falling into different categories, such as marital status. We often use tables and figures to illustrate the results. For much of our work, statistics and significance tests are not appropriate and might not be understood fully by some of our audience. Morris and LoVerde (1993 [this issue]) note that their consortium uses a similar level of simplicity when reporting findings. So, know your audience! Tailor your presentation to their interests, needs, and level of sophistication.

Discussion, Conclusions, and Recommendations

The final section of any presentation or report should discuss how the obtained results relate to the original purpose of the survey. If the results suggest a course of action, such conclusions would be discussed at this time. Some general topics to cover might include the following: What overall conclusions can be drawn from the survey results? What questions remain unanswered? Were there problems in the survey process, and how might they be avoided in the future? What is the next step to take?

The organizational policymakers who authorized the survey will expect more than just numbers—they will expect answers to the organizational concerns that originally led to the administration of the survey. Although some survey teams are hesitant to make recommendations, stating clear, action-oriented recommendations is one of the most important functions of a survey team. The team should know more about what the survey findings mean than anyone else in the organization. After all, the survey team wrote the items and spent much time analyzing the data. In making recommendations, the survey team should, however, be careful to base their recommendations firmly on the data.

Again, it is important to remember that these are general guidelines for presentations or reports. The actual form that any presentation or report takes will be guided by the organization, the purpose of the survey and presentation, and the time and resources available.

SUMMARY AND CONCLUSIONS

Planning a survey takes time and effort. Such planning is required to ensure that the process runs as smoothly as possible. Allow adequate time and resources to accomplish the survey. A proper survey cannot be constructed, administered, and analyzed overnight.

Follow-through is crucial. If the goal of a survey is to determine what areas in the organization require change, it is important that the results of the survey be used to highlight these areas. Feedback to respondents (and, of course, visible changes as the result of the survey) will increase the chances that the next survey will be taken seriously. If personnel are surveyed regularly but see no tangible results, they will begin to question the need for their participation.

Finally, it is extremely important to have organization-wide involvement in the survey. Use personnel at different levels of the organization as "subject matter experts" when writing survey items. Try to obtain a commitment from all who have a stake in the organization—from upper management to unionized employees. Organization-wide cooperation will help to ensure that the survey results will accurately reflect respondents' opinions and attitudes.

The purpose of this article was to give the reader a glimpse of the complexities involved in the survey process. Despite these complexities, the organizational survey is a powerful tool to gather information about vital organizational issues.

NOTE

1. Many surveys mix items from different dimensions in order to "hide" the measured dimensions. The logic for hiding attitude survey dimensions is probably similar to the logic for hiding the dimensions in performance-evaluation rating formats. Landy (1989) noted, "The logic for the mixed standard format is derived from some early findings indicating that halo errors [an inability to distinguish among dimensions] are smaller when ratings are not made on an obvious scale. The random arrangement of performance statements is thought to make it difficult for the rater to determine the exact nature of the performance scale" (p. 139). An equally strong case can be put forth for making the dimensions overt. The positive side of halo is that it results in greater internal consistency of measurement (Bartlett, 1982). Also, survey respondents might give more accurate, well-thought-out answers if they know precisely what dimensions the survey is assessing. Basic to surveying are assumptions that people have opinions that they wish to express and that the organization believes that these opinions are important to gather. Items grouped into dimensions might provide a better opportunity for respondents to formulate and report their opinions.

Although hiding dimensions may be desirable in tests/inventories that measure social deviancy, use of this procedure for attitude surveys may have undesirable order effects (e.g., see Schuman & Presser, 1981). A question-order effect occurs when the answer to an item is influenced by previous items and answers. Thus, if (a) a survey instrument is constructed using dimensions that were embedded in previously published instruments and (b) an order effect is operating, item and dimension means might differ from those obtained in other organizations even if the attitudes/opinions in the two organizations are similar.

2. A copy of the survey should be included in an appendix.

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