

# Survey Construction and Analysis, Part I: How to Conceptualize and Design a Survey

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**O**NE OF THE MOST common ways of gathering information about large numbers of people is through the use of surveys. Mental health, work behavior, and political beliefs are examples of areas in which survey data are used extensively. If appropriate sampling procedures are used, survey results are assumed to generalize to an entire population of individuals (e.g., athletic trainers and therapists, college students, athletes). This column is the first in a two-part series that takes readers through the process of designing a survey. As a way of highlighting the important steps in constructing and analyzing survey data, an example is presented about how to design a survey that assesses how athletic trainers and therapists cope with the stress of work.

## Step 1: Develop an Operational Definition of the Topic

As shown in Table 1, there are six basic steps involved in survey construction and analysis. An important first step in developing any survey is to logically define and analyze the topic you intend to assess. This involves a thorough literature review of the topical area of interest and some creativity. With regard to new or exploratory areas, a researcher might interview experts in the field. The results of these interviews could lead to the development of an operational definition of the topic and a theoretical framework that could guide survey-item construction.

For topics such as stress and coping, you could develop a definition from a theoretical framework already developed by an expert in the field. For example, Capel (1986) and Hunt (2000) have discussed the stress involved with working as an athletic trainer or therapist. How athletic trainers and therapists cope

with or adapt to these challenges has not been widely studied. A researcher interested in assessing their coping behaviors using survey methods would first need to define *coping* or modify a previously existing definition (e.g., see Lazarus & Folkman, 1984). One widely cited definition views coping as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, p. 141). If a researcher in athletic training or therapy wishes to adopt this definition, survey items should be tailored to the specific cognitive, emotional, and behavioral demands faced in this profession. Such a highly contextualized survey would yield greater predictive validity than general coping measures, and it would most likely yield greater predictive estimates about who will experience burnout and drop out of the profession than would more general surveys.

## Step 2: Develop a Theory About the Topic

Scientific theories are distinct, informed, and tentative speculations phrased in a way that offers specific testable hypotheses that can be proved or disproved by observation and experimentation (Wilson, 1998). During the development and validation of any survey, it is important to develop a theory concerned with the nature of the topic under study and its proposed relationship with other similar topics. This enables researchers to learn more about the topic being studied and how it is functionally related to other similar topics (Nunnally & Bernstein, 1994). In the case of the coping responses of athletic trainers and therapists, it is very possible that individuals who have

**Table 1. Important Steps in Developing Surveys**

Step	Methodological Procedure	Purpose
1	Develop an operational definition of the topic you intend to study.	Helps guide the creation of survey items
2	Develop a theory.	Elaborates on the importance of the topic and how it might advance knowledge
3	Develop survey items.	Writing items that fit the operational definition
4	Have experts review items.	Assesses fit between operational definition and items (e.g., item-content relevance) and item clarity
5	Pilot test on a small sample.	Assesses item clarity
6	Administer to a large sample and check descriptive statistics.	Reveals out-of-range values and assesses normality of data

experienced the signs and symptoms of burnout use maladaptive coping behaviors. In other words, the stress associated with the symptoms of burnout *might* be related to certain ineffective coping behaviors. As part of a survey to assess the coping behaviors of athletic trainers and therapists, one should clearly specify any theoretical relationships that might be related to the coping behaviors used by athletic trainers and therapists (e.g., sources of stress, emotional reactions, symptoms of burnout) and how certain coping responses reduce or worsen stress reactions. This will help advance knowledge about how athletic trainers and therapists cope with stress.

### Step 3: Develop Survey Items

Survey items should be created directly from your operational definition. In addition, a host of preliminary factors should be considered when writing survey items. These include the material to be tested, the reading level of potential respondents, the test format, positively and negatively worded items, and clarity of scoring procedures (Nunnally & Bernstein, 1994). Most experts maintain the importance of item clarity because it applies to how each item is phrased, relates to the domain that is being investigated, and points the respondent to what is demanded (Nunnally & Bernstein). Item clarity begins with a clear operational definition of the topic you are trying to learn more about.

Initially, the number of items written should be two to four times the desired amount. Another rule

of thumb is that during the beginning stages of survey construction, you need at least 5 research participants per item on the survey (Schutz, 1999). Oftentimes 10 or more participants per survey item are sampled.

The COPE, by Carver, Scheier, and Weintraub (1989), has been established as a valid and reliable measure of coping. Its validity in athletic training or therapy settings has not been assessed. A researcher could adapt the items in the COPE with specific phrases and words that reflect the demands of the athletic training or therapy profession. For instance, Item 2 on the COPE, “I turn to work or other substitute activities to take my mind off things,” might not be appropriate for assessing how athletic trainers and therapists cope with the stress associated with work. A more contextualized item could read, “I turn to recreational activities to take my mind off my athletic training responsibilities.” The original 4-point Likert scale (1 = *I usually don't do this at all*, 2 = *I usually do this a little bit*, 3 = *I usually do this a medium amount*, and 4 = *I usually do this a lot*) could be retained for our newly developed scale.

### Step 4: Have Experts Review Items

Before any survey is used, it is important to assess item clarity and relevance by employing experts to rate the degree of match between survey items and the operational definition developed in Step 1 (Hambleton, 1984). A second rating scale should be employed to assess the clarity of each item. It is im-