Chapter 4

Planning and Developing the Job Analysis Survey

It is the survey instrument that typically forms the basis for a job analysis and allows a job to be dissected into component parts that reveal the nature of a profession and the tasks and functions performed by its members. This chapter describes the procedures followed in designing the survey instrument.

In 1991, the National Board of Chiropractic Examiners (NBCE) conducted a job analysis survey and published the data in the 1993 publication *Job Analysis of Chiropractic* (Christensen and Morgan 1993). In 1998, the NBCE used a redeveloped and expanded survey instrument to conduct a new job analysis survey; in 2003, the instrument was modified and reduced in length. While this publication mainly presents the 2003 data, it also refers to the 1991 and 1998 survey data for comparison. In this chapter and the following chapters, all references to survey data are labeled according to the year the data were collected. For example, all data from the *Job Analysis of Chiropractic 2005* are labeled as the 2003 survey data in order to accurately reflect when the data were obtained.

This chapter reviews the steps followed to develop the 1991 survey, which formed the foundation for the development of the 1998 and 2003 surveys; the procedures used to create the present 2003 form are also described.

Job Inventory

In conducting a job analysis, the survey's authors frequently use the job inventory approach, also called a Functional Job Analysis (FJA). The FJA approach was first proposed by Fine and Wiley in 1971 and has been used by the U.S. Employment Service since 1977 to categorize occupations.

> The first step taken in conducting a FJA is defining the purpose and goals of the occupations. A trained job analyst then identifies what must be done to accomplish the purpose and goals, by determining what the worker does (i.e., processes or procedures used to perform a task) and how it is done (i.e., physical, mental, interpersonal skills required during the processes and procedures). Job information is obtained through interviews with job incumbents and supervisors and direct observation of job-related activities. The goal of FJA is to analyze

> an occupation in terms of the degree to which it deals with data (e.g., numbers, narrative information), people (e.g., customers, co-workers), and things (e.g., computers, machinery) (Knapp and Knapp 1995, p. 97).

These essential components were incorporated into the NBCE job analysis survey instrument.

As previously stated in this report, testing guidelines presented in the *Uniform Guidelines on Employee Selection Procedures* and by the private testing community indicate that licensure and certification test plans should be based upon a "job analysis," documenting the characteristics of a profession as defined by the customary practices of its members. For examinations not used in the licensure and certification process, other means of determining test content are appropriate. For example, in order to determine content, NBCE examinations that are used to assess academic proficiency (Part I, Part II, and Physiotherapy) utilize a Delphi study.

Delphi studies are widely used to obtain consensus. In the NBCE context, a Delphi survey of chiropractic college faculty was utilized to obtain consensus about the subject matter and emphasis to be given in the testing of academic knowledge via NBCE examinations.

The NBCE conducted the first job analysis of chiropractic (1991) to document the content for a potential practical examination, to provide documentation for a special purposes (post-licensure) examination test plan, and to further assess the emphasis given to the Part III examination content. The purpose of the current job analysis (2003) is to document the content and emphasis for the Part III and Part IV examinations, and the Special Purposes Examination for Chiropractic (SPEC). Additionally, the job analysis serves to document trends and developments in the profession.

Rating Scales

Rating scales, which are generally part of job analysis survey instruments, are important in the final analysis of the survey data:

> Ratings of frequency of task performance, amount of time spent engaged in a task, and the importance and criticality of a task, knowledge, or skill are the most commonly used scales on practice analysis surveys (Knapp and Knapp 1995, p. 108).

Five-point scales (with values ranging from zero to four) are frequently used in job analyses and were utilized in the present study. Major issues addressed with a five-point scale include:

- Providing an efficient method of obtaining and processing data. In a large study with thousands of participants, it would be virtually impossible to manage unique responses from each individual.
- Matching the accuracy of a respondent's data with the accuracy of the scale on which the data are recorded. For example, practitioners were asked to recall the frequency with which they saw various types of conditions or the frequency with which they performed various activities. In both instances, the five-point scale approximately matched the accuracy of practitioners' recollections.
- Increasing the likelihood of response by developing an instrument which could be completed within 30 to 40 minutes in the first job analysis, 60 to 75 minutes in the second survey, and 50 to 60 minutes in the third survey. The five-point scale met this requirement. If individuals had been asked to provide unique responses that were not linked to a scale, this would have required additional time on the part of the respondent and might have affected the response rate.

The chiropractic practitioners who participated in the study were asked to utilize five-point scales to provide data about their patients, the types of conditions they typically saw in their practices, and the types of activities they commonly performed. The importance of knowledge about specific conditions addressed in the second survey was eliminated in the 2003 survey to reduce the survey's length. Finally, the survey addressed adjunctive procedures, passive adjunctive care, and active adjunctive care.

The Practical Exam Feasibility Study

In 1989, the Federation of Chiropractic Licensing Boards (FCLB) issued a resolution requesting that the NBCE initiate a special study to determine the feasibility of developing and administering a national practical examination for chiropractic. A job analysis was essential to this feasibility study and the possible development of such an examination. The job analysis study was one of several major components in various NBCE studies used to determine the feasibility of administering a national practical exam (Figure 4.1). The next section of this report outlines the individual components of the NBCE job analysis project.

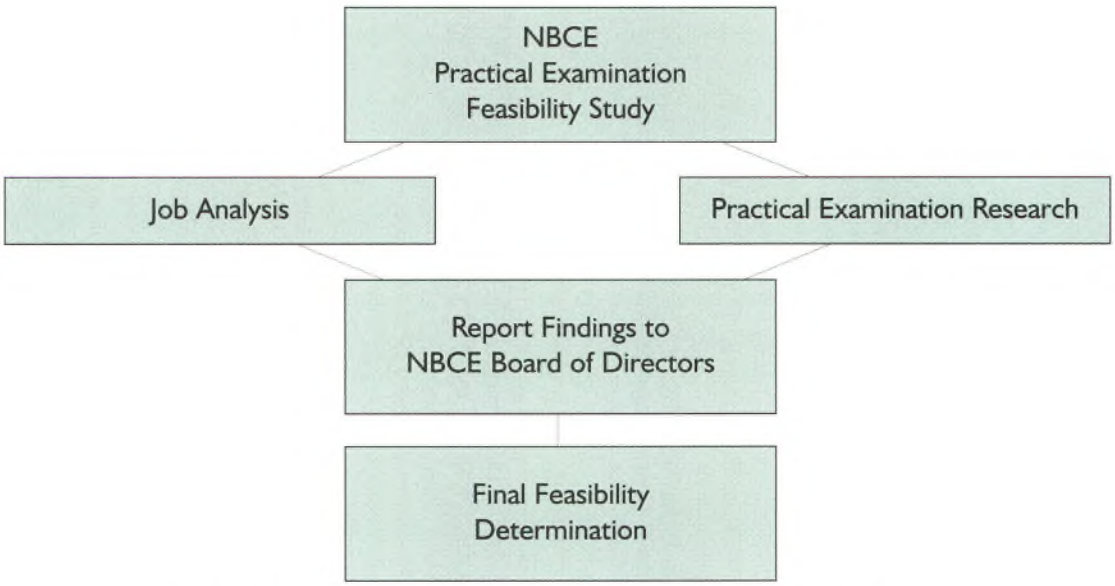

Figure 4.1 The NBCE Practical Examination Feasibility Study

Components of a Job Analysis

The following is a list of procedures followed in conducting the NBCE job analysis:

- Forming a **Job Analysis Steering Committee**.
- Forming a **Job Analysis Advisory Committee**.
- **Reviewing available literature** pertaining to job analyses.
- Preparing and administering a **Practice Model Log**.
- Compiling an **interim survey form**.
- Revising the interim survey form and preparing a **draft** ***Survey of Chiropractic Practice***.
- **Field testing** the *Survey of Chiropractic Practice* and revising as appropriate.
- **Preparing** the final form of the *Survey of Chiropractic Practice*.
- **Printing** the *Survey of Chiropractic Practice* in a machine-scorable format and **distributing** the survey to randomly selected United States practitioners.
- Collecting, machine scoring, and analyzing the survey **data**.
- **Publishing a report** of survey findings under the guidance of the Steering and Advisory Committees.

Job Analysis Steering Committee (1991)

The first elements deemed critical to the success of a chiropractic job analysis were the participation and cooperation of experienced practitioners, educators, and state examining board members. The NBCE created the Job Analysis Steering Committee to guide the project. The committee was comprised of members of the Board of Directors of the National Board of Chiropractic Examiners, with the President of the Federation of Chiropractic Licensing Boards as Committee Chairperson:

Job Analysis Steering Committee (1991)

D. Brent Owens, D.C., Chair

James J. Badge, D.C.

Frank G. Hideg, Jr., D.C.

Louis P. Latimer, D.C.

Titus Plomaritis, D.C.

The primary responsibilities of the NBCE Job Analysis Steering Committee were to ensure that:

- The content of the questionnaire, by nature or intent, was not biased or offensive to any respondent on the basis of personal characteristics such as gender or ethnicity.
- The *Survey of Chiropractic Practice* adequately and fairly represented conditions seen, procedures utilized, and activities and tasks performed by practicing chiropractors in the United States.
- The randomly selected chiropractor would, by completing the questionnaire, be able to indicate
  - the frequency with which presenting and concurrent conditions are seen in practice;
  - the frequency and perceived risk associated with specific activities performed in practice;
  - adjustive and non-adjustive techniques utilized in practice.
- The data obtained from the questionnaire would provide demographic characteristics of practitioners and chiropractic patients and also provide information concerning the work environments, experience, and orientation of practitioners.
- The demographic data obtained from the survey could be used to study subgroups of respondents.

National Advisory Committee (1991)

In addition to forming a steering committee to oversee the entire job analysis project, the NBCE also created a National Advisory Committee encompassing the NBCE's five regional districts. The committee was composed of representatives from state examining boards, chiropractic educational institutions, and private practice. The committee members reflected diverse viewpoints within the field, including representation by gender, ethnic/racial background, and geographic area. The primary responsibilities of the NBCE National Advisory Committee members were:

- to ensure that checklists of patient conditions, activities performed, chiropractic techniques, supportive techniques, and demographic data were not biased in terms of gender, ethnicity, regional or state characteristics, or professional background;
- to review checklists of conditions seen, activities performed, chiropractic techniques, supportive techniques, and demographic data to determine their relevance to practice, and ensure that the vocabulary and terminology were appropriate for practicing chiropractors throughout the United States;
- to review, critique, and approve the report of survey results.

Review of Literature (1991, 1998, and 2004)

Literature pertaining to the protocol of conducting a job analysis survey was reviewed. Additionally, literature pertaining to chiropractic and other professions was considered in the preparation of the survey instrument and in the collection of the data. The bibliography at the end of this report contains a list of literature reviewed.

The Practice Model Log (1991)

The Practice Model Log was an instrument developed to be self-administered by a small number of practicing chiropractors in their private offices. The doctors were asked to fill out a Practice Model Log sheet during each of 10 consecutive patient visits. The data elicited during each patient visit included the patient's reason for seeking chiropractic care, the nature of the patient's condition, the diagnostic and treatment procedures performed, and patient biographical data.

The data gathered from the Practice Model Log provided an additional source of information about the profession as well as a basis for developing the interim survey form.

The Interim Survey Form (1991)

The interim survey form was developed by the NBCE and mailed to chiropractors who had participated in the Practice Model Log project. In addition, this survey was distributed to the members of the NBCE Part II Clinical Sciences Test Committees (National Board Test Committees meet once each year to select items that will appear

on NBCE examinations). These doctors were asked to fill out the survey form and to provide written and oral critique of the instrument.

Based on the results of this investigation, the format and content of the preliminary instrument were revised and a draft *Survey of Chiropractic Practice* was developed.

The Draft *Survey of Chiropractic Practice* (1991)

Subsequently, representatives of the Steering Committee and the National Advisory Committee convened at NBCE headquarters to review and revise the instrument.

Participants at this meeting deliberated whether the survey should include the conditions for which a patient seeks chiropractic care alone, or be included with other health conditions encountered by the chiropractor during the patient's visit.

A major factor in the decision to include both presenting and concurrent conditions in the survey was that chiropractic physicians are considered primary care providers in every state; patients may seek a chiropractic consultation without prior referral or diagnosis by another health care provider. Once the patient has presented for chiropractic health care, chiropractors as primary care providers are responsible for:

- identifying the condition(s) that may appropriately be treated within the state's scope of practice;
- making appropriate recommendations or referrals for a condition outside the scope of practice.

Based on this and other relevant topics of discussion, a final draft was proposed, and the *Survey of Chiropractic Practice* was prepared for a field test.

The Field Test (1991)

A pilot or field test of the *Survey of Chiropractic Practice* was designed to provide useful data to determine the questionnaire's effectiveness in gathering information on chiropractic practice.

The major points of interest in the field test were:

- relevance of the survey to chiropractic practice;
- appeal of the questionnaire to the doctors chosen to participate (e.g., would doctors complete and return the questionnaire to the NBCE);
- clarity of instructions;
- ease of filling out the questionnaire;
- consistency of the data received from practitioners participating in the field test with what was already known or hypothesized about the profession.

In addition, the field test provided an opportunity for the NBCE to set up the internal organization necessary to produce and distribute the questionnaires and to receive and process the completed questionnaires.

Thirty licensed chiropractic practitioners were selected at random to participate in the field test. Each of the doctors was notified that he or she would be receiving a *Survey of Chiropractic Practice* questionnaire and that this was part of an important research project being conducted by the National Board of Chiropractic Examiners for the chiropractic profession.

The doctors completed these surveys by using only the written directions included. After the questionnaires were returned, telephone interviews were conducted with all participants to identify any problems they might have encountered in understanding and completing the checklists. Final revision of the survey document followed the field test.

The *Survey of Chiropractic Practice* (1991, 1998, and 2003)

The final approved *Survey of Chiropractic Practice* instrument was then prepared in the form of a questionnaire which could be self-administered by a large number of respondents. This took the form of a 16-page computer-scannable booklet in 1991, and a 25-page computer-scannable booklet in 1998, and a 16-page form in both written and computer formats in 2003. Licensed, full-time chiropractors were asked to record their responses to the survey questions. Aware of the need to read and accurately record thousands of responses, the NBCE prepared and printed the scannable survey form within all applicable specifications. A copy of the final 2003 survey form as distributed to the selected population of licensed chiropractic practitioners throughout the United States appears in Appendix D of this report.

The Collection and Analysis of the Survey Data (1991, 1998, and 2003-2004)

The National Board utilized a National Computer Systems OpScan 21 to scan the data from the thousands of completed surveys returned in 1991 and 1998. The 2003-2004 survey data were electronically captured with a Kodak Digital Science 3500 Scanner. The 1991, 1998, and 2003-2004 data were analyzed utilizing the most current edition of SPSS, a comprehensive set of programs ideally suited for the computations necessary to analyze and report the job analysis.

The Publication of the Job Analysis Report (1992, 1999, and 2004)

A report of the survey results was prepared by representatives of the NBCE staff for review and editing by the Steering Committee. Following their review, the final *Job Analysis of Chiropractic 2005* report was prepared.

Preparations for the 2003 Job Analysis Study

Appointment of the Job Analysis Steering Committee

Essential to the job analysis project was the participation and cooperation of experienced practitioners and state examining board members; consequently, a Job Analysis Steering Committee was created to guide the 2003 project. The committee was comprised of members of the Board of Directors of the National Board of Chiropractic Examiners. The committee is chaired by Dr. James Badge, NBCE President and District IV Director.

Job Analysis Steering Committee

James J. Badge, D.C., Chair
Richard Cole, D.C.
Donna Craft, D.C.
Frank G. Hideg, Jr., D.C.
Rick Murphree, D.C.
N. Edwin Weathersby, D.C.
Wayne Wolfson, D.C.

To begin the 2003 job analysis project, the Steering Committee reviewed all of the components of the 1998 survey and focused on changes and developments in the profession since 1998. The committee was presented with a list of changes that had occurred in the profession during the period from 1998 to 2002. Several parts of the form required modification, either to clarify information requested in the previous form or to obtain additional vital information that had become indispensable to chiropractic practice during the period between 1998 and 2002.

Major alterations to the 2003 survey instrument were as follows:

- expanding the section that concerns other health professionals who most frequently refer patients to chiropractors;
- expanding the section that documents other health professionals to whom chiropractors most frequently refer patients;
- deleting an entire section for rating the importance of knowledge in nine clinical areas (deleted to decrease the time required to complete the survey);
- adding a separate section addressing health promotion and wellness.

The changes required several weeks of intensive work prior to finalization. Content alterations and form modifications led to significant revisions.