

Chapter 4

Planning and Developing the Job Analysis Survey

The NBCE Survey of Chiropractic Practice was originally designed for and administered to practitioners within the United States. At the request of the Australasian Council on Chiropractic Education (formerly the Australian Council on Chiropractic and Osteopathy) the survey was subsequently modified and administered to chiropractic practitioners throughout Australia and New Zealand.

This chapter addresses the process utilized in designing and producing the job analysis survey instrument first in the United States, and later in Australia and New Zealand. Typically, it is the survey instrument which forms the basis for a job analysis and allows a job to be dissected into component parts which reveal the nature of the profession and the tasks and functions performed by its practitioners.

Job Inventory

In performing a job analysis, one of the most frequently used methods for analyzing jobs is the job inventory approach. A job inventory is a “comprehensive list of the tasks that are performed to accomplish a job or set of jobs -- a list that is cast in the form of a questionnaire:”

“The rationale underlying the job inventory approach is that it enables the surveyor to gather information about on-the-job activities actually performed by the job incumbents at different geographical locations; job tasks can be stated and listed in a questionnaire; as large a sample as is desired can be surveyed in order to obtain information about each task listed in the job inventory questionnaire; and accurate and reliable job descriptions can be developed by systematically and thoroughly analyzing the task data collected with a job inventory” (Gael 1987).

The job analysis requires that a list of separate and distinct job-related tasks be defined. Designing the list of tasks is one of the most critical elements in the job analysis process; the list ensures a complete and accurate description of the job.

Task Statements

According to Gael, three methods for compiling task statements and obtaining task data are suggested (and were incorporated into the NBCE survey): observation, content analysis, and interviews:

- **Observation** involves the observance of job incumbents performing their duties at work, and the reporting of these duties by job incumbents. Photographs or videotapes may be taken if needed. This technique is best employed when the job is composed of physically active tasks.
- **Content analysis** is the obtaining of data that have been written about the job, such as job descriptions, training materials, and company practices. This is an important information resource for understanding the academic and registration authorities' views of the job being analyzed.
- **Interviews** involve asking job incumbents, supervisors, managers, and others knowledgeable about the job pertinent questions regarding the actual work activities performed by the job incumbents (Gael 1987).

As previously stated in this report, testing guidelines indicate that registration 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 registration and certification process, other means of determining test content are appropriate. For example, NBCE examinations which are utilized to assess academic proficiency (Part I, Part II, Physiotherapy) utilize a Delphi study to determine content.

The United States job analysis was conducted 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 exam content.

Rating Scales

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

“Rating scales attempt to get appraisals on a common set of attributes for all raters and ratees and to have these expressed on a common quantitative scale ... Almost universally, a rating involves an evaluative summary of past or present experiences in which the ‘internal computer’ of the rater processes the input data in complex and unspecified ways to arrive at the final judgment... The most common pattern of rating procedure presents the rater with a set of trait

names, perhaps somewhat further defined, and a range of numbers, adjectives, or descriptions that are to represent levels or degrees of possession of the traits” (Thorndike and Hagen 1977).

As is frequently used in job analyses, five-point scales (with values ranging from zero to four) were utilized in the NBCE survey. Major issues addressed by 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. 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 return 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.

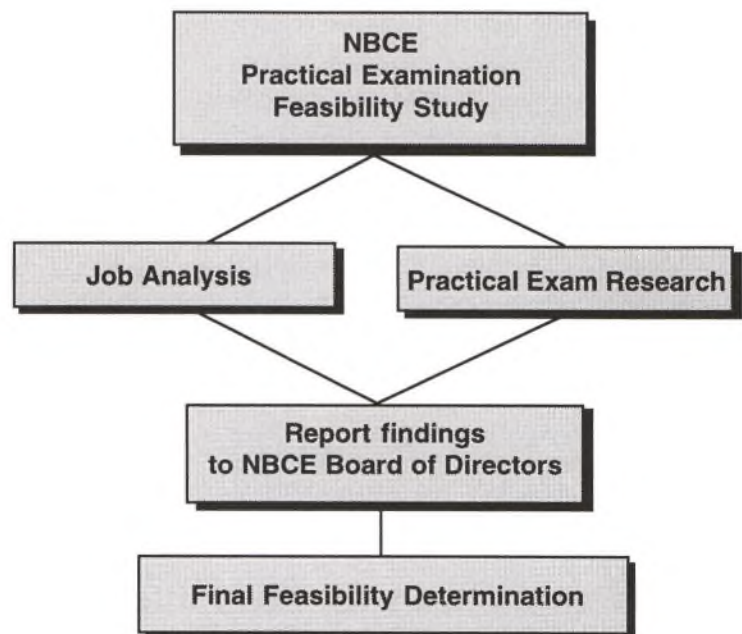


FIGURE 4.1
The NBCE Practical Examination Feasibility Study

The Practical Exam Feasibility Study

In 1989, the Federation of Chiropractic Licensing Boards (FCLB) in the United States issued a resolution requesting that the NBCE initiate a study to determine the feasibility of developing and administering a national segmented practical examination for chiropractic. A job analysis was an essential part of this feasibility study and possible development of such an examination.

As of this writing, the practical examination feasibility study is still in progress. As indicated in Figure 4.1, the job analysis study was one of several major components in various NBCE studies aimed at determining the feasibility of administering a national practical exam. Individual components of a job analysis are indicated in the next section of this report.

Components of a Job Analysis

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

- Form a **Job Analysis Steering Committee**.
- Form a **National Job Analysis Advisory Board**.
- **Review available literature** pertaining to a job analysis.
- Prepare and administer a **Practice Model Log**.
- Compile an **interim survey form**.
- Revise the interim survey form as indicated and prepare a **draft Survey of Chiropractic Practice**.
- Administer a **field test** of the job analysis survey form and revise as indicated.
- **Prepare** a final form of the Survey of Chiropractic Practice.
- **Print** the questionnaire booklets in a machine-scorable form.
- **Send** the survey forms for distribution to randomly selected practitioners.
- **Collect, machine score, and analyze** the survey **data**.
- **Publish a Job Analysis Report** of questionnaire findings under the guidance of the Steering Committee and Advisory Board.

Job Analysis Steering Committee

The first elements deemed critical to the success of a chiropractic job analysis were the participation and cooperation of experienced practitioners, educators, and examining board

members. To address this need, the Job Analysis Steering Committee was created to guide the project. The committee was composed of members of the Board of Directors of the National Board of Chiropractic Examiners (USA), with the President of the Federation of Chiropractic Licensing Boards (USA) as Committee Chairperson:

D. Brent Owens, DC, *Chairperson*
James J. Badge, DC
Frank G. Hideg, Jr., DC
Louis P. Latimer, DC
Titus Plomaritis, DC

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

- 1) 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;
- 2) the Survey of Chiropractic Practice adequately and fairly represented conditions seen, procedures utilized, and the activities and tasks performed by practicing chiropractors;
- 3) 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;
- 4) the data obtained from the questionnaire would provide demographic characteristics of practitioners and chiropractic patients, and also provide information concerning the work environment, experience, and orientation of practitioners;
- 5) the demographic data obtained from the survey could be used to study subgroups of respondents.

National Advisory Committee

In addition to forming a steering committee to oversee the entire job analysis project, the NBCE also created a National Advisory Committee encompassing the five regional NBCE districts. The Committee was composed of representatives from state examining boards, chiropractic educational institutions, and private practice. Committee members

included:

Arizona	Elva M. Gamino, DC, private practitioner
California	Alfred D. Traina, DC, Chairperson, Clinical Sciences Division, Los Angeles College of Chiropractic
Delaware	H. Bruce Carrick, DC, Past President, Delaware Board of Chiropractic Examiners
Florida	Theodore F. Durling, DC, Vice Chairman, Florida State Board of Chiropractic
Georgia	William N. Willis, DC, Professor/Division Chair, Chiropractic Sciences Division, Life College, School of Chiropractic
Illinois	Daniel R. Driscoll, DC, Dean of Student and Alumni Affairs, National College of Chiropractic
New Hampshire	Vincent E. Greco, DC, Secretary/Treasurer, New Hampshire Board of Chiropractic Examiners
New York	Ann M. Carpenter, DC, New York State Board of Chiropractic Examiners
Ohio	Peter D. Ferguson, DC, President, Ohio Board of Chiropractic Examiners; District 2 Director, Federation of Chiropractic Licensing Boards
Oregon	Ravid Raphael, DC, Staff Clinician/Associate Professor, Western States Chiropractic College
South Carolina	David H. Mruz, DC, Chairman, District 4 Representative, South Carolina State Board of Chiropractic Examiners
Wisconsin	Meredith H. Bakke, DC, Chairperson, Wisconsin Chiropractic Examining Board

These individuals were selected to reflect 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:

- 1) to ensure that checklists of conditions seen, activities performed, chiropractic techniques, supportive techniques, and demographic data were not biased in terms of gender, ethnicity, regional or state characteristics, or professional background;
- 2) to review checklists of conditions seen, activities performed, chiropractic techniques, supportive techniques, and demographic data to determine their relevancy to practice, and ensure that the vocabulary

and terminology were appropriate for practicing chiropractors throughout the United States;

- 3) to review, critique, and approve the report of survey results.

Review of Literature

Literature pertaining to the protocol of conducting a job analysis survey was reviewed. Additionally, literature pertaining to job analyses in chiropractic and other professions was considered in the preparation of the survey instrument and in the collection of the data. A list of literature reviewed can be found in the bibliography. Following the review of literature, the Practice Model Log was developed.

The Practice Model Log

The Practice Model Log was an instrument developed to be self-administered by a small number of practicing chiropractors in their private offices.

As the survey instrument was originally designed to be administered in the United States, American practitioners were asked to fill out a Practice Model Log sheet on each of ten consecutive patient visits. The data elicited on each patient visit included the patient's reason for seeking chiropractic care, the nature of the patient's condition, diagnostic and treatment procedures performed, and patient biographical data.

The data gathered from this study were used as an additional source of information about the profession as well as a basis for developing the interim survey form.

The Interim Survey Form

The interim survey form was developed by the NBCE and mailed to the American 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 practitioners 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

After careful analysis of the results of the Practice Model Log project and critique of the preliminary survey instrument (the interim survey form), a draft Survey of Chiropractic Practice was prepared. At that time, a meeting was convened at the NBCE headquarters with representatives of the Steering Committee and the National Advisory Committee to review and revise the instrument for distribution in the United States.

One of the issues addressed during this meeting was whether presenting conditions for which the patient might be seeking chiropractic health care should be included with conditions that might be encountered by the chiropractic physician incidental to or in tandem with the presenting condition.

A major factor in the decision to include both presenting and concurrent conditions in the survey was that the chiropractor is a primary care provider in every state; patients may seek chiropractic consultation without a referral or diagnosis by another health care provider. It was noted that once the patient is presented for chiropractic health care, the chiropractor as primary care provider is responsible for:

- identifying the condition(s) that may appropriately be treated within the scope of practice in his/her state;
- making appropriate recommendations or referrals for conditions outside the scope of practice in his/her state.

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

A pilot or field test of the Survey of Chiropractic Practice was designed and administered in the United States to a sample of licensed practitioners of chiropractic to provide data that would be useful in determining the effectiveness of the questionnaire in gathering information on chiropractic practice.

The major points of interest in the field test (Appendix B) were:

- relevancy of the survey to practice
- appeal of the questionnaire to the chiropractors chosen to participate (e.g., would they 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.

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

Thirty chiropractic practitioners in the United States were selected at random to participate in the field test. Each of the practitioners 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 NBCE for the chiropractic profession.

These surveys were completed by practitioners with reference only to the written directions included with the survey. After the questionnaires were returned, telephone interviews were conducted with all participants to identify any problems they might have experienced in understanding and completing the checklists. Final revision of the United States survey document followed the field test.

The Survey of Chiropractic Practice

Based upon the information obtained from the field test, the Survey of Chiropractic Practice was prepared in the form of a questionnaire which could be self-administered by a large number of practicing chiropractors.

The first two questions on the United States survey asked the current mailing address of the practitioner and whether the practitioner would like a news release sent to a local newspaper indicating their participation in the survey. The survey text then asked the chiropractic practitioners to provide biographical data about themselves: place of birth, gender, level of education, specialty board certification or other specialty qualifications, and length and type of practice experience. The practitioners were also asked to assess their patients in reference to several demographic variables. These questions were included in order to gain a picture of the sample of chiropractors and of their patients, and to allow the comparison of data by various subgroups.

The Printing of the Questionnaire

The approved survey text was then integrated into the desired survey format (Appendix C). This took the form of a 16-page computer-scannable booklet on which doctors of chiropractic were asked to record their responses to survey questions. Aware that thousands of responses would need to be read and recorded accurately, the scannable form was prepared and printed in accordance with all applicable specifications.

to a floppy disk. The data were analyzed using the Statistical Package for the Social Sciences (SPSS). This elaborate set of programs was ideally suited to the computations necessary to the job analysis.

The Publication of the U.S. Job Analysis Report

A report of the survey results was prepared by representatives of the NBCE staff for review and editing by the Steering and Advisory Committees. Following their review, a *Job Analysis of Chiropractic in the United States* was published.

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Conversion of the Survey for Australia and New Zealand

Following the administration of the Survey of Chiropractic Practice in the United States, officials of the Australasian Council for Chiropractic Education (ACCE) requested that the NBCE conduct a similar job analysis in Australia and New Zealand. The NBCE agreed to this request, and provided the necessary funds and personnel to conduct the study.

As in the United States, the Job Analysis of Chiropractic in Australia and New Zealand was viewed as a means of serving chiropractic by assisting the ACCE and the profession in defining the activities performed by chiropractors, and as a guide to understanding the unique skills and knowledge that chiropractors must possess to successfully perform chiropractic tasks safely and effectively. Through its focus on patient conditions and typical chiropractic activities, the survey data also provided a sound basis for the development and validation of the ACCE's clinically oriented examinations.

In revising the survey instrument to meet Australian/New Zealand needs, and in maintaining accuracy of terminology and relevancy of text, Professor Andries M. Kleynhans, D.C., Head, School of Chiropractic and Osteopathy at the Royal Melbourne Institute of Technology (RMIT University), James W. Stinear, D.C., Executive Director of the New Zealand Chiropractors' Association, and Stephen Bardsley, D.C., Executive Secretary of the ACCE were called upon to act as liaisons between the NBCE and their respective organizations. Following an evaluation of the survey instrument administered in the United States, these two individuals reviewed the survey and conveyed the desired revisions.

The original NBCE survey was then modified in accordance with the expressed needs. Reference to the respondent's mailing address and an optional press release were deleted. In their place, respondents were asked to indicate *what trends or developments during the next decade would be most beneficial and most detrimental to the chiropractic profession*. In addition, the *ethnic origin* of the practitioner and patient was changed to ask their *place of birth*, and alterations of a minor nature were made to more appropriately reflect the diversity of ethnic backgrounds applicable to Australia and New Zealand.

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Because the reliability and validity of the NBCE survey instrument were verified in the development and administration of the U.S. survey, additional reliability and validity studies were not undertaken in preparing the survey for administration in Australia and New Zealand.

A copy of the final survey as distributed to registered chiropractic practitioners throughout Australia and New Zealand appears in an Appendix of this report.

The Australia and New Zealand Job Analysis Report

A report of the Survey of Chiropractic Practice in Australia and New Zealand was prepared by the NBCE. In addition, a panel of representatives reviewed the material pertaining to education and state/territory registration and assessment requirements and made suggestions for modifications. Following their review, the *Job Analysis of Chiropractic in Australia and New Zealand* was published. The panel consisted of:

Jim Atkinson

*Chiropractors Registration Board
of Tasmania*

Ahmad Didi

*Chiropractors & Osteopaths Registration
Board of Victoria*

Colin D. Emmott

Chiropractic Board of Western Australia

Andries M. Kleynhans, D.C.

*Royal Melbourne Institute
of Technology*

Wanda Lawler

*Chiropractic Board of the Australian
Capital Territory*

Bernadette McKirdy

*Chiropractors & Osteopaths Board of the
Northern Territory*

Richard Robinson

*Chiropractors & Osteopaths Board of
Queensland*

James W. Stinear, D.C.

New Zealand Chiropractors' Association

Michael Walsh

*New South Wales Chiropractors
& Osteopaths Registration Board*

Arcady Turczynowicz

*Chiropractors' Association of Australia
South Australia*