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DATA COLLECTION METHODS USED FOR DETERMINING TRAINING NEEDS OF THE ORGANIZATION AND THE ADULT LEARNER IN BUSINESS AND INDUSTRY

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DATA COLLECTION METHODS USED FOR DETERMINING TRAINING NEEDS OF THE ORGANIZATION AND THE ADULT LEARNER IN BUSINESS AND INDUSTRY

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of the Ohio State University

By

Bartram Paul Beaudin, Dipl. of Tech., E.A., M.Ed.

* * * * *

The Ohio State University
1983

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This dissertation is dedicated to my wife and friend, Marilyn, and our children Amanda Jayne and Matthew. Their understanding, support, and tolerance gave me the strength to complete this work.
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This writer is indebted to many individuals for their contribution to this dissertation. The efforts of a number of individuals merit a specific note of appreciation.

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My family has helped me keep sane throughout this endeavor. A dearest thanks to Marilyn who listened, and listened, and was there when I was in need. To Amanda and Matthew for their help with data entry and their company on those frequent trips to the computer center, a special hug.
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Chapter I
INTRODUCTION

Economic sluggishness, demographic dislocation, increasing government regulations, and technological trends suggest that training within business and industry will likely receive increasing attention in the coming decades (Carnevale, 1982; Zenke, 1982). Billions of dollars are being spent by companies on training related activities each year. In addition, the federal government through the Job Training Partnership Act (1982) has authorized Private Industry Councils (PIC’s) to provide training programs for an underutilized workforce. The federal government is also providing training programs indirectly through the Targeted Jobs Tax Credit Act by providing relief to employers who employ young disadvantaged adults, welfare recipients, veterans, and the handicapped. Demands for effective and efficient training systems are created by these increased and expanded responsibilities.

The development and expansion of training programs can be successful and accountable to the degree they fulfill organizational needs and individual needs. Nadler (1982) identifies some of the sources that create needs for training in organizations: falling production and service;
new equipment or government regulations; product and service expansion; and what the competitors are doing. Needs are varied and determining what actually exists is a difficult process. Training needs analysis is the key to having an instructional system that is both effective and efficient. Theories of training needs analysis in business and industry indicate that training needs are exhaustively identified when inputs are taken from an organizational analysis, a task analysis, and a person analysis (Moore and Lutton, 1976).

Common to all analyses is the fact that input information must be available before the process can begin. The collection of that information is central to the needs analysis process. The purpose of this investigation is to identify and analyze data collection methods used for determining training needs in manufacturing and nonmanufacturing organizations found within business and industry.

1.1 STATEMENT OF THE PROBLEM
Training within business and industry, in most cases, is based on a systems approach to instruction. Some training programs are initiated on an intuitive assessment based on non-empirical data, many follow the most recent training "fad", and others are based on sound empirical information. Clarification is needed on what is being done to identify training needs in business and industry.
Determining instructional needs is the first step in the systems approach to instruction (Gagne and Briggs, 1979). Training needs analysis can only be meaningful if accurate and complete information is provided as a baseline. Judging whether baseline information is complete and accurate is best determined by experienced personnel. The data collection methods used by experienced personnel can also be judged as to which method may provide the best information for determining training needs. A number of suggested data collection methods have been identified in the literature. Data collection methods that have been empirically identified are needed.

Being able to identify the data collection methods currently in use to determine training needs will help provide a foundation that will build towards an effective and efficient instructional system. Empirical research identifying the methods presently being used by trainers within business and industry is needed. A preliminary review of the literature has demonstrated that little or no empirical research has been conducted in this area of study. Eventually the whole training needs analysis process will need to be empirically investigated.

**This study will determine data collection methods used by trainers in business and industry for completing**
TRAINING NEEDS ANALYSES AND ALSO IDENTIFY THE DEMOGRAPHIC AND ENVIRONMENTAL FACTORS THAT ARE ASSOCIATED WITH THE USE OF SPECIFIC METHODS.

1.2 RESEARCH QUESTIONS

1. What methods of data collection are used by trainers in business and industry when conducting a task or job needs analysis, an organizational needs analysis, and a person or individual needs analysis?

2. Does the selection of data collection methods vary according to some of the following environmental variables?
   a) Type of organization
   b) Size of organization
   c) Position of training department within the organizational structure
   d) Perceived priority given to training by top management
   e) Percentage of program development time spent collecting data
   f) Existence of data collection policies
   g) Origin of stimulus to collect data

3. Does the selection of data collection methods vary according to some of the following demographic variables?
a) Experience as a trainer
b) Percentage of time spent as a trainer
c) Professional preparation for learning skills to collect data
d) Educational level
e) Age
f) Gender

1.3 IMPORTANCE AND SIGNIFICANCE

Identification of data collection methods for determining training needs is important for the following reasons.

1. There is very little empirical research available concerning data collection methods used during the training needs analysis process in business and industry. Data collection is an integral part of the needs analysis process and needs to be researched.

2. Business and industry are assuming greater responsibility for training the workforce. Providing accurate and comprehensive baseline information will help this community obtain the measurable results it so strongly needs to justify the increased expenditure of resources needed for training.

3. Part-time and full-time training personnel need to have data collection methods that will accurately
and reliably collect data for determining training needs. Part-time training personnel have other responsibilities within the organization. These responsibilities may limit the amount of time that can be spent on the complete instructional process. The part-time trainer may choose to spend their energies organizing and improving their platform skills and ignoring the data collection process for determining training needs. Providing, empirically identified, practitioner used data collection methods may encourage part-time training personnel to use these methods.

4. Economic pressures have forced training departments to become more accountable. Producing empirical evidence that accurately describes pre and post training conditions will help departments become more comfortable when it comes to substantiating the effectiveness of their programs.

5. Providing training that does not fit a need is a waste of time and resources. Identifying efficient and effective data collection methods attempts to control the completeness and accuracy of input to the needs analysis process, therefore providing the opportunity to have meaningful results when the process is complete.
1.4 ASSUMPTIONS

The study will be based on the following assumptions.

1. Training needs analysis is an integral part of the systems approach to instruction.

2. A training needs analysis is most complete when it integrates the results of an organizational analysis, a task analysis, and a person analysis. At times, when one form of analysis may be predominant, the other analyses serve in supporting roles.

3. Each model of training needs analysis must have baseline information from which decisions are formulated. Data collected concerning a problem is the baseline information needed for a training needs analysis.

4. The process by which information is collected can affect the completeness of baseline data.

5. Providing information that is complete and accurate for use in a training needs model should generate an accurate and complete assessment.

6. The training needs analysis process in business and industry can become more effective if empirical research is communicated to practitioners.

7. Respondents to the questionnaire are all members of the American Society for Training and Development (ASTD). Respondents who choose to be members of
professional organization are more likely to be representative of a group of highly interested professionals. Therefore their opinion and reporting of actually what happens can be considered valid and accurate.

1.5 LIMITATIONS

The following limitations should be considered:

1. The research uses a study sample and therefore results are not generalizable to the population at large.

2. The study is limited to a selected sample of trainers who are members of the Central Ohio Chapter of the American Society for Training and Development and who have mailing addresses within business and industry.

3. The Central Ohio Chapter of the American Society for Training and Development may have members who have residential addresses and have not been identified by the Membership Committee Chairperson or ASID executive as being active trainers.

4. The questionnaire was carefully constructed, critiqued by numerous authorities, and field tested on practitioners in the field. It was not subjected to the longitudinal development found with commercially prepared instruments.
5. The population to be studied may not be representative of all the industries that have training programs.

6. The ASIC roster does not identify members as having experience with data collection methods for determining training needs.

7. The list of data collection methods was obtained by reviewing the literature and having the list verified by a panel of experts. The list is limited to data collection methods suggested to be in use within the training community found within business and industry.

8. There is a lack of historical data relating to the data collection methods used for determining training needs in business and industry.

9. The study is limited by using a mailed questionnaire to collect data.

1.6 DEFINITION OF TERMS

The following terms have been defined to provide clarification of meaning for the reader.

1.6.0.1 Advisory Committees

A committee representing various functional specialties (sales, clerical, technical) as well as supervisory and nonsupervisory positions is formed to provide advice in identifying training needs (Newstrom and Lillyquist, 1979).
1.6.0.2 Assessment Centers
This technique allows participants to engage in a variety of tasks, such as in-task exercises, decision-making simulations, case analyses, psychological tests, and group discussions. Trained observers assess the participants and present a formal report (Newstrom and Lilyquist, 1979).

1.6.0.3 American Society for Training and Development (ASTD)
This organization is a non-profit educational association serving the professional needs of practitioners, administrators, managers, educators, and researchers in the field of human resource development. The mission of ASTD is to advance the growth, competence, and effectiveness of the human resource development field (American Society for Training and Development, 1983).

1.6.0.4 Critical Incident
A critical incident is an observable job behavior that is considered critical for either effective or ineffective performance. Critical incidents are recorded at the workplace, usually by the immediate supervisor (Morrison, 1976).
1.6.0.5 Delphi Method
This technique is used for systematically soliciting, collecting, evaluating, and tabulating expert opinions (Morrison, 1976). It would be most useful for forecasting future training needs.

1.6.0.6 Job/Task Needs
These needs specify the knowledge, skills, and attitudes that should be learned to perform a job or task at a desired level.

1.6.0.7 Management Requests
These requests are solicited and unsolicited suggestions received from higher levels of management (Newstrom and Lillyquist, 1979).

1.6.0.8 Organizational Training Needs
These needs indicate where training can be used within the organization. They are derived from reviewing organizational objectives, human resource analyses, analyses of efficiency indices, and analyses of organizational climate (Moore and Dutton, 1978).

1.6.0.9 Person/Individual Needs
These needs outline what a particular employee should learn after reviewing objective records, situational
measures, and observational measures (Moore and Dutton, 1978).

1.6.0.10 Training
The function of training is to change behavior. The terminal objective is to help achieve the goals of the organization (Johnson, 1976).

1.6.0.11 Training and Development
This is a planned effort by organizations to facilitate learning of job-related behaviors (skills, knowledge, and attitudes) in order to meet individual and organizational goals (Wexley and Latham, 1981).

1.6.0.12 Training Need
A training need exists when a change in present human knowledge, skills, and attitudes can bring about the desired performance (Morriscr, 1976).
Chapter II

REVIEW OF THE RELATED LITERATURE

The literature reviewed for this study was selected on the basis of questions or issues related directly to the data collection methods used for determining training needs in business and industry. Educational and human services literature have not been cited unless they significantly clarify a position taken in the training literature or fill a gap in information not considered in the training literature. The literature review is divided into six sections. The concept of need is reviewed in the first section followed by sections devoted to an introduction to the training needs analysis literature, the relationship between training needs analysis and the systems approach to training, the theoretical basis for training needs analysis in business and industry, the sources of data for determining training needs, and a review of the data collection methods used for determining training needs.
2.1 CONCEPT OF NEED

Monette (1977) has clarified the concept of need found in the literature by generating four major categories: basic human needs, felt and expressed needs, normative needs, and comparative needs. Basic human need is considered similar to a "drive" that is unlearned. Felt needs are individualistic and are an inadequate measure of real need. Normative needs exist when there is a gap between a desirable standard and the situation that actually exists. A comparative need in a pure sense is not an adequate measure of real need. It is measured by comparing the characteristics of those receiving a service with those who are not. (See Appendix A for a detailed description.) As will be seen later in the review, training needs are linked more closely with the concept of normative need than any of the others.

Needs are also perceived from other viewpoints. Two kinds of need have meaning for adult educators in program development:

1. basic or organismic needs, and
2. educational needs (Krowles, 1980).

The basic or organismic needs must be taken into account when helping people learn. Krowles points out that an educational need is something people ought to learn for their own good, for the good of an organization, or for the good of society. Labeling a need as educational
implies that it can be satisfied by means of learning experiences that are designed to help an individual acquire appropriate knowledge, skills, or attitudes (Monette, 1977).

An educational need is the gap between the present level of competencies and a higher level required for effective performance as defined by individual adult learners, their organizations, or society (Knowles, 1980). Educational needs or learning needs are derived from needs assessment (Monette, 1977). Needs analysis, in comparison, can be considered to have a broader base of input. This concept will be reviewed more fully later in the review.

The philosophical perspectives of adult education may be of assistance in providing a philosophical bridge between the concepts of needs assessment and needs analysis. Darkenwald and Merriam (1982) in reviewing the philosophy of adult education literature suggest that there is an emphasis upon the individual, as in the cultivation of the intellect and personal development, or upon the individual in conjunction with society, as with the progressive and radical approaches. They go on to propose yet another focus -- Organizational Effectiveness.

Adults employed by public and private agencies and organizations are involved in educational programs designed to achieve the organization's goals. In the private sector, organizational and employee development programs are ultimately
aimed at realizing greater profit; in
the public sector the aim is enhancing
service to the public (Darkenwald and
Merriam, 1982, p. 64).

The main thrust of this chapter will focus on building on
this concept of organizational effectiveness and retraining
the individual as has been done in needs assessment
literature within much of the field of education.

2.2 TRAINING NEEDS ANALYSIS

A computerized search of relevant data bases within
the scope area of education, business, and dissertation
research was completed. The Educational Resources
Information Center (ERIC) thesaurus was used to identify
the following key words for the searches: Needs Assessment
or Systems Analysis; Training or Industrial Training or
On-the-Job Training; and Methods or Critical Incidents.

The following data bases were searched:

1. AEI/INFORM, August 1971 - 1983, 143,600 records,
   monthly updates (Data Courier, Inc.,
   Louisville, KY.)

2. COMPREHENSIVE DISSERTATION INDEX, 1861 - 1983,
   766,300 citations, monthly updated (Xerox
   University Microfilms, Ann Arbor, MI.)

3. ERIC, 1966 - 1983, 439,000 citations, monthly
   updates (National Institute of Education,
   Washington, DC)

4. MANAGEMENT CONTENTS, September 1974 - 1983, 96,100
   citations, monthly updates (Management Contents,
   Inc., Northbrook, IL.)
LITTLE OR NO EMPIRICAL RESEARCH HAS BEEN IDENTIFIED IN THE FIELD OF TRAINING NEEDS ANALYSIS IN BUSINESS AND INDUSTRY. NO EMPIRICAL STUDIES HAVE BEEN IDENTIFIED THAT LOOK SPECIFICALLY AT THE DATA COLLECTION METHODS FOR DETERMINING TRAINING NEEDS IN BUSINESS AND INDUSTRY.

MOORE AND DUTTON (1978) HAVE PROVIDED AN EXCELLENT REVIEW AND CRITIQUE OF TRAINING NEEDS ANALYSIS. THE REVIEW CONSIDERS ALL ASPECTS OF NEEDS ANALYSIS INCLUDING: DATA SOURCES, MEASURES, AND RESEARCH TECHNIQUES. THIRTY-NINE PRIMARY SOURCES WERE CONSULTED.


THE REMAINDER OF THIS CHAPTER WILL REVIEW THE LITERATURE THAT SUPPORTS THE POSITION THAT NEEDS ANALYSIS IS A CRITICAL COMPONENT OF THE TRAINING PROCESS AND THAT
there are identified data collection methods that are used and suggested to be effective when determining training needs.

2.3 NEEDS ANALYSIS IN THE SYSTEMS APPROACH TO TRAINING

Buskey and Scrb (1982) have developed an excellent matrix review of some ninety program planning models. The models are reviewed in terms of descriptive and evaluative dimensions. For example, each model is analyzed and categorized according to whether it fits into a specific environment (planning context) in which it is to be used. More than one-third of these models have been identified as being used in training within business and industry. All except one have a needs assessment component. This review conducted by Buskey and Scrb (1982) supports the concept that needs analyses are basic to all instructional systems.

From a research perspective the Comprehensive Dissertation Index search identified one hundred and eighty-one citations having Needs Analysis or Needs Assessment in the title. Unfortunately, only one title was concerned with business and industry.

Peters (1980) developed a systematic training needs analysis model for business and industrial training. Although developmental in nature, it is a good
contribution to the development of a working model once data have been collected.

Numerous studies have been completed in the field of education. Although the present study is not a direct extension of previous research in the field of education, there are some important conclusions that have been considered. Gilmore (1976) in his study to evaluate the methods employed to identify needs for program development in community colleges concluded that four of the sixteen methods considered were of the greatest utility (key informants, study of inter-organized relationships, observation-director participation, and surveying special interest groups). Gilmore's results gave greater confidence to this researcher when a selection of data collection methods were identified from non-empirical literature.

The problem of whether one method would provide better information than others was considered by Feudo (1982). Feudo's research focused on only three types of needs assessment methods. The three basic formats of the instruments used in Feudo's study were: (1) objective checklist, (2) open-ended questionnaire, and (3) Delphi approach. He concluded that for his particular population the three formats of needs assessment instruments obtain similar information. Results indicated that significant
levels of agreement existed in the rank ordering in five of seven areas assessed by the three instruments.

As was stated earlier, there is little or no empirical research found in the business and industry training literature concerning the data collection methods used for determining training needs in business and industry. Fortunately there is an abundance of non-empirical literature that describes the current state of techniques and theory with regard to training needs analysis (Moore and Dutter, 1978).

2.4 THEORETICAL BASIS FOR DETERMINING TRAINING NEEDS IN BUSINESS AND INDUSTRY

Moore and Dutter (1978, p. 536) have concluded that training theorists utilize essentially the same definition for training need. Stated as an equation: Standard or Desired Performance - Present or Actual Performance = Training Need. From an educational perspective, Kaufman and English (1979, p. 8), define needs assessment as "a formal process which determines the gaps between current outputs and required or desired outcomes or outputs; places these gaps in priority order; and selects the most important for resolution."

Some authors (Hager and Eipe, 1970; Gilbert, 1978), aligned more closely with the field of training in business and industry, would support the position that the
gaps can be interpreted as having some priority compared to others.

Kager and Pipe (1970) presented their argument in terms of training being only one of the possible remedies for a performance discrepancy. To determine if a performance discrepancy is a genuine skill deficiency the following questions could be asked.

1) Could he do it if he really had to?
2) Could he do it if his life depended upon it?
3) Are his present skills adequate for the desired performance? (Kager and Pipe, 1970, p. 21)

If all questions receive a negative response then a skill discrepancy does exist and training can assist in the solution to the problem.

Gilbert (1978) presented his perspective of needs analysis in terms of behaviors and accomplishments.

*Human competence is a function of worthy performance (W), which is a function of the ratio of valuable accomplishments (A) to costly behavior (E).* (Gilbert, 1978, p. 18)

This fits the discrepancy model mentioned earlier. Gilbert expanded his theorem into similar concerns considered by Kager and Pipe.
For any given accomplishment, a deficiency in performance always has as its immediate cause a deficiency in a behavior repertory (E), or in the environment that supports the repertory (E), or in both. But its ultimate cause will be found in a deficiency of the management system (M). (Gilbert, 1978, p. 76)

Gilbert proposes, as others do, that solutions to problems are not solved by training alone.

A needs analysis should be a systematic appraisal of type, depth, and scope of problems as perceived by study targets or their advocates (Fossi & Freeman, 1982). The systematic aspect of this approach is exemplified in the training needs analysis suggested for business and industry by McGehee and Thayer (1961). Goldestein (1980) suggests that most training analysts have been influenced by McGehee and Thayer's classic text and that they consider organizational analysis, operations or task analysis, and person analysis to be the three critical components of needs assessment. Many authors (Goldstein, 1974; Fossi & Vaughan, 1975; Wexley & Iatham, 1981; Glueck, 1982) propound this approach.

Moore and Batten (1978) have provided a succinct description of McGehee and Thayer's analyses.

Organization Analysis - This investigation determines where training can and should be used within the organization. It focuses on the entire business enterprise and consists of organizational objectives, human resources analysis, analysis of efficiency indices, and analysis of organizational climate.
Operations Analysis - This analysis involves systematic collection of data about a specific job or group of jobs. The purpose is to determine what an employee should be taught to perform the job at the desired level. It includes standards of performance, how the tasks are to be performed to meet the standards, and the skills, knowledge, and attitudes necessary.

Person Analysis - The objective of this analysis is to find out how well each employee is performing the tasks that make up his or her job. Objective records, situational measures, and observational measures are used in the person analysis (McCle and Butter, p.533).

Bass and Vaughan (1975) suggest that there are two questions that need answering in any assessment of training needs: "Who, if anyone, needs training?" and "What training do they need?" The authors derived these questions based on references made to McGehee and Thayer's original treatise. Wexley and Latham (1981) have added the question: "Where is training needed in the organization?" The fact that Wexley and Latham's question is added to Bass and Vaughan's questions emphasizes that the completeness of training needs analyses is difficult to obtain even with a guiding structure as proposed by McGehee and Thayer.
2.5 SOURCES OF DATA FOR DETERMINING TRAINING NEEDS

Numerous data sources for determining training needs in business and industry have been identified by Moore and Dutton (1978). Fourteen references were cited to construct the following list of data sources for conducting an organizational analysis.

1. Organizational Goals and Objectives
2. Manpower Inventory
3. Skills Inventory
4. Organizational Climate Indices
   a) Labor-Management Data
   b) Grievances
   c) Turnover
   d) Absenteeism
   e) Suggestions
   f) Productivity
   g) Accidents
   h) Short-term Sickness
   i) Observation of Employee Behavior
   j) Attitude Surveys
   k) Customer Complaints

5. Analysis of Efficiency Indices
   a) Costs of Labor
   b) Cost of Materials
   c) Quality of Product
   d) Equipment Utilization
e) Costs of Distribution
f) Waste
g) Down time
h) Late Deliveries
i) Repairs

6. Changes in System or Sub-system

7. Management Requests or Management Interrogation

8. Exit Interviews

9. MEC or Work Planning and Review Systems
   (McCree and Lutton, 1978, PP. 534-535)

Seventeen references were cited to construct the following list of sources to identify Operations or Job data. (This research will use Job/Task Information to have the same meaning.)

1. Job descriptions
2. Job Specifications or Task Analysis
3. Performance Standards
4. Perform the job
5. Observe job - Work Sampling
6. Review Literature Concerning the Job
   a) Professional journals
   b) Documents
   c) Government sources
   d) Ph.D. theses
7. Ask Questions about the job
a) Of the job holder
b) Of the supervisor
c) Of higher management

8. Training Committees of Conferences

9. Analysis of Operating Problems
   a) Down time reports
   b) Waste
   c) Repairs
d) Late Deliveries
e) Quality control

10. Card Sort
(Moore and Lutton, 1978, pp. 537-538)

Twenty-six references were consulted to construct the following list of sources to review when conducting an Individual or Person Analysis.

1. Performance Data or Appraisals as Indicators of "Sickness"
   a) Productivity
   b) Absenteeism or Tardiness
   c) Accidents
d) Short-term sickness
e) Grievances
f) Waste
g) Late Deliveries
h) Product Quality
i) Down Time  
j) Repairs  
k) Equipment Utilization  
l) Customer Complaints  
2. Observation - Work Sampling  
3. Interviews  
4. Questionnaires  
5. Tests  
   a) Job Knowledge  
   b) Skills  
   c) Achievement  
6. Attitude Surveys  
7. Checklists or Training Progress  
8. Rating Scales  
9. Critical Incidents  
10. Diaries  
11. Devised Situations  
   a) Role Play  
   b) Case Study  
   c) Conference Leadership  
   d) Business Games  
   e) In-Exasket Simulations  
12. Diagnostic Ratings  
13. Assessment Centers  
14. Coaching  
15. MEC or Work Planning and Review Systems
The above lists demonstrate the fact that a large number of variables has been identified. Unfortunately, there has been very little research on the utility of these variables (Goldstein, 1980).

2.6 DATA COLLECTION METHODS FOR DETERMINING TRAINING NEEDS

Many techniques of data collection for determining training needs in business and industry have been developed and many have proven to be successful. Newstrom and Lilyquist (1979) have identified 12 such methods that are used in business and industry.

- Advisory Committees
- Assessment Centers
- Attitude Surveys
- Group Discussions
- Employee Interview
- Exit Interview
- Management Requests
- Observations of Behavior
- Performance Appraisal
- Performance Documents
- Questionnaires
- Skill Tests

Alternative methods used in the health field are

- Critical Incident Techniques
- Log Diaries
- Checklists (Could be considered a questionnaire.)
- Observation Interview
- Work Participation
- Technical Conference
- Annotated References (Segall, et al., 1975)
The *Handbook for Analyzing Jobs* (1972) stresses the observation-interview as a key method for collecting data. In addition, it suggests reviewing books, periodicals, catalogs, flow charts, organizational charts, process descriptions, existing job descriptions within the company and those job descriptions developed by trade associations, trade unions, and professional societies (p. 11). McCormick (1974) would add to this list: reviewing equipment design information and recording of job activities on film, video tape, and records.

Knowles (1980) provides a general reinforcement to using the methods listed above by suggesting that interviews, written questionnaires, reviewing management records and reports, administering and reviewing test results, using group problem analysis, integrating job analysis with performance appraisal, using critical incident techniques, and by using the appraisal panel all have a place in the training needs analysis process (Knowles, pp. 101-105).

To bring the reader back to the context of business and industry, Morrison (1976) suggests that there are three ways to get at training needs: survey the potential trainees, their supervisors and subordinates, and the receivers of the product or service provided by the group; conduct an organizational audit; and assess the individual (Morrison, 1976, p. 5-2).
The possible sources of information that could be used to determine training needs have already been reported from the work of McCre and Rutten (1978). Lists of data collection methods have also just been identified by numerous authors (Knowles, 1980; Newstrom and Lilycist, 1979; Morrison, 1976; Segall, et al., 1975; and McCormick, 1974). What needs to be done now is to assign each method into one of the analyses propounded by McGehee and Trayner (1967). This will be presented in the research methodology chapter.

An arbitrary but logical point to start utilizing the source variables identified earlier and incorporating the data collection methods just reviewed is to think of the needs analysis process as a problem solving process. When solving a problem, data are collected and analyzed. Many times unwanted data that have been collected, show some significance at a later date. Therefore when considering a training needs analysis, all information that is available should be collected.

The nature of information to be collected is extremely important. But to provide some order, which should have a higher priority? The process by which information is collected and assigned a priority through needs analysis will provide this needed order (Kaufman and English, 1979).
Determining which data collection method serves best can be done by consulting lists such as those generated above. But of far greater importance would be the data collection methods used by practitioners in the field.

Therefore it is essential that research be conducted to identify the most appropriate data collection methods for supporting an organizational analysis, a task analysis, a person analysis; and ultimately determining training needs. This task should be completed before consideration is given to how the results will be integrated into the instructional design process.
Chapter III
RESEARCH METHODOLOGY

The study is descriptive and explanatory. The study is descriptive by identifying and ranking the methods used for data collection when conducting analyses of training needs and explanatory by analyzing the relationship between these methods and selected demographic and environmental characteristics. The basic design will be a cross-sectional survey with a single time description.

3.1 POPULATION
The study sample will be persons who are members of the Central Chic Chapter of the American Society for Training and Development and are employed at business and industry addresses.

3.1.1 Rationale for Using the Study Sample
The sampling frame or unit of analysis should ideally constructed from all businesses and industries that operate a training program for employees. For example, on a statewide basis, companies can be identified through membership in voluntary organizations such as the Chic Manufacturers Directory produced by Manufacturers' News,
Inc. and or the Harris Industrial Directory for a particular state. These documents do not include the person or persons responsible for training within a company, therefore creating potential problems with rate of questionnaire return. Several studies (Zemke, 1982; Chio Ecard of Regents, 1982; and Lusterman, 1977) that attempted to reach training personnel have had poor response rates. The Zemke research team sent out 10,500 questionnaires and received 957 qualified returns (p.21). The Chio Ecard of Regents study had the best response rate with forty-four percent. For this research there is a problem of providing a complete list of trainers and human resource developers who have had some experience in collecting data for determining training needs.

For this study, a sample will be sought from those trainers who have membership in a professional association. Members of a profession who voluntarily join a professional association can be considered to be representative of that particular profession. The largest professional organization that serves the needs of the human resource development field is the American Society for Training and Development (ASTD). The American Society for Training and Development (ASTD) is a nonprofit educational association of more than 25,000 persons representing more than 4,500 different organizations (ASTD, 1983). Individual trainers and human resource
developers that chose membership in the American Society for Training and Development (ASTD) accept the mission of the association to advance the growth, competence, and effectiveness of the human resource development field (ASTD, 1983).

A sampling frame can be constructed from a membership roster of an organization or association (Fabbie, 1973). The membership roster of the Central Chic Chapter of the American Society for Training and Development is to be considered the sampling frame for this study. The membership chairperson for the association was interviewed to ascertain the names of any members not listed in the 1983 Membership Roster. A supplementary list of new and withdrawn memberships was obtained. There were no members who were not listed in the updated membership roster revised by the researcher.

A study sample was taken from the membership roster of the Central Chic Chapter of the American Society for Training and Development. As was mentioned earlier, the sampling frame should ideally be obtained from trainers in business and industry. Enumeration of this population is difficult to obtain at this time. If the Central Chic Chapter of the American Society for Training and Development was used as the sampling frame, then members who are not trainers in business and industry would be
included in the sample. Some members of the chapter are employed in educational institutions, social service agencies, or are students. The following restrictions will placed on the purposive sample:

1. Membership in the Central Ohio Chapter of the American Society for Training and Development.

2. Respondents must have a mailing address indicating employment by a business or industry.

In consultation with experienced members of the Central Ohio Chapter of the American Society for Training and Development, the purposive sample was expanded to include those employed in training in business and industry but used their residences as a mailing address. This was achieved by asking members to review the list of members with residential addresses and identifying those that were employed in business and industry.

3.2 Composite List of Data Collection Methods

In the previous chapter data collection methods were identified from a review of literature found in the field of training in business and industry. McGee and Thayer (1961) have presented a framework from which to construct a list of data collection methods for determining training needs in business and industry.
3.2.1 **Organizational Analysis**

The purpose of conducting an organizational analysis is to ensure: that the human resources are adequate for the present and in the future; that the most effective performance possible takes place in all functional areas; that the climate of the organization is conducive for work (McGehee & Thayer, 1961, p.32). The organizational analysis looks at the organization as a whole and determines where training and development are needed and where they are likely to be successful (Wexley and Latham, 1981). The following is a synthesis of the data collection techniques used for conducting an organizational analysis:

- Interviews (Executives, Employees, Exiting Employees)
- Observation of behavior
- Review of Records and Reports (Internal/External Documents)
- Questionnaires (Attitude Surveys)
- Group Discussion (Nominal Group Technique)
- Assessment Centers
- Delphi Method
3.2.2 **Task Analysis**

The task analysis is determined by discovering which tasks constitute a job, how these tasks are to be performed, and the behavior required of the employee in order to perform the tasks (McGehee & Thayer, p.86).

The following data collection methods have been identified in the previous chapter. The list is a synthesis of the data collection methods suggested for determining operations, job, or task analyses.

- Observation-interview
- Review Records and Reports (Internal/External)
- Review Literature
- Perform the Job
- Diaries
- Video Taping
- Group Discussion
- Questionnaires
- Technical Conference

3.2.3 **Person Analysis**

Person Analysis is concerned with how well employees perform and which knowledge, skills, and attitudes need to be developed to improve their job performance (McGehee & Thayer, p.88).
The following data collection methods were identified in the previous chapter as being suggested methods for collecting data for a person analysis:

- Tests
- Records
- Interviews
- Questionnaires
- Critical Incident Reports
- Assessment Centers
- Appraisal Panel

The author's experience in conducting training needs analyses for the development of educational and training programs has led him to the conclusion that many of the data collection methods could be interchanged to obtain the same or better results. This position leads directly to the need for this present study to be conducted. The literature suggests methods, authorities propose different approaches, and personal experience dictates what is done. The following list of data collection methods has been carefully compiled by the researcher and validated by a panel of experts.

Advisory Committees (Formal)
Assessment Centers
Critical Incidents Reports
Delphi Method
Group Discussion (Ad Hoc)
Interviews (Employer/Employee)
Management Requests
Observation (No communication)
Observation-Interview
Questionnaires
Review Records and Reports
(Internal/External)

This list of data collection methods was used in the instrument designed for this study. Repeated reference to this list can be found in Section A of the mailed questionnaire.

3.3 Self-Administered Questionnaire

There were no instruments available for determining the data collection methods used by trainers within business and industry. Therefore an instrument was developed to collect information that would allow the researcher to describe data collection methods actually being used within the training community and to propose variables most influential in the selection of specific methods.

3.3.1 Validity

A measuring instrument is valid if it does what it is intended to do (Nunnally, 1978). The measuring instrument for this study was reviewed in terms of content validity and face validity. Content validity is the
representativeness or sampling adequacy of the instrument for measuring the subject matter (Kerlinger, 1973, p. 458). Although it was not possible to satisfy the definition of content validity, a reasonable degree of content validation was achieved by judging the representativeness of the items. This was accomplished for the list of data collection methods used in section A of the questionnaire (Appendix E) by appealing to authority (Nunnally, 1978). The list was validated by composing the list from authoritative literature and then having a panel of experts drawn from the field of training and development provide a critique.

Face validity refers to the degree to which an instrument appears to measure what it purports to measure (Gay, 1981). Face validity concerns judgments about an instrument after it is constructed (Nunnally, 1978). This was accomplished by having the instrument critiqued by the researcher's dissertation committee and three trainers working in the field. The reviewers were given the research questions to provide a guide for their review.

3.3.2 Questionnaire Format

Using a questionnaire for data collection was based on the concern for efficiency. A questionnaire is considered efficient in that it requires less time, is less
expensive, and permits the collection of data from a large sample (Gay, 1981).

The instrument for this study is divided into three sections. Section A consists of twelve items asking the respondents to

1. indicate whether they have used data collection methods during the past year.
2. identify which data collections have been used within their training departments to determine organizational needs, task needs, and person needs.
3. assign a ranking to methods used most often by indicating the percentage of total time each method was used.
4. identify data collection methods that are used when the length of time available is varied.
5. select the data collection methods that are most effective for their specific training departments.
6. rate each method as to their individual personal preferences.

Section B consists of twelve items seeking information about the environment in which the training departments operate when collecting data for determining training needs. Information will be collected concerning:

1. employer's field of business,
2. number of employees,
3. hierarchical level at which the training department is located within the organization,
4. the perceived support given to training by top management,
5. the percentage of program planning time used to collect data,
6. the percentage of resources allocated for data collection,
7. the existence of a training policy that specifies specific data collection methods for determining training needs, and
8. the originating source that prompted the collection of data for determining training needs.

Section C collected demographic information about the respondents. Experience as a trainer, professional preparation for collecting training needs data, gender, age, and educational level were the information areas sought in this section.

3.4 DATA COLLECTION
The questionnaire was submitted to a panel of experts who are representative of trainers from business and industry. These experts were drawn from the training community within Franklin County, Ohio. Identification of these respondents was completed in consultation with members of the executive committee of the Central Ohio Chapter of the American Society for Training and Development.
The questionnaire was sent to ASTD members who appeared on the ASTD Central Ohio Chapter membership roster and who have business or industry addresses. Follow-up letters and questionnaires were sent to non-respondents. Personal telephone calls and office visits were used in a final effort to obtain responses.

3.4.1 Response to the Questionnaire

One hundred and forty-one questionnaires were mailed to members of the Central Ohio Chapter of the American Society for Training and Development who have business and industry addresses. One hundred and twenty-nine respondents served as the population under study. Nine questionnaires were returned to the researcher not completed. These respondents were members of the ASTD but not actively involved in the training process. Three questionnaires were returned by the post office as not being deliverable. Follow-up letters and telephone calls to 46 nonrespondents yielded 12 returns.

After six weeks, 93 usable questionnaires were returned and used for analysis. This resulted in a seventy-two percent return rate. Table 1 summarizes the response rate to the questionnaire.
FREQUENCY DISTRIBUTION OF RESPONSES TO MAILED QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Mailed Questionnaires</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Sert</td>
<td>141</td>
</tr>
<tr>
<td>Total Deleted from Population</td>
<td>9</td>
</tr>
<tr>
<td>Total Returned, Not Deliverable</td>
<td>3</td>
</tr>
<tr>
<td>Total Population for the Study</td>
<td>129</td>
</tr>
<tr>
<td>Total Returned and Used for Analysis</td>
<td>53</td>
</tr>
<tr>
<td>Total No Response</td>
<td>36</td>
</tr>
</tbody>
</table>

3.4.2 Respondent Raffle

An opportunity to enter a raffle for twenty-five dollars was used to provide an incentive for the respondents to return their questionnaires. The raffle was used to encourage an immediate response. One third of the respondents did not enter the raffle.

3.5 METHODS OF ANALYSIS

The Statistical Analysis System (SAS) program was used to analyze the data. Initially the SAS descriptive procedures FREQ, FREQ and FREQ MEANS were used. With each item where categorical variables were measured, the FREQ procedure was used (Ray, 1982). The FREQ procedures were used to collect the following kinds of information (See Appendix B for the precise wording of the questions):
1. Whether the respondent has collected data or supervised the collection of data that have assisted in the design of a training program.

2. Identifying which of a list of data collection methods have been used by their training department during the past year.

3. Identifying the data collection methods used for collecting information concerning a specific job or task.

4. Identifying the data collection methods used for collecting information concerning the organizational needs for training.

5. Identifying the data collection methods used to determine training needs for an individual employee.


7. Indicating which of the data collection methods are considered most effective for the training department when determining each of the three need areas.

8. Indicate employer’s field of business.

9. Whether the employer has a formally recorded training policy.

10. Whether the training policy states that data be collected for training needs analyses.
11. Whether specific data collection methods are suggested to be used.

12. Where the respondents learned the skills to collect data.

13. Indicate their gender.

14. Specify their highest level of formal education.

The MEANS procedure accumulates means, standard deviations, and other statistics for continuous variables (Ray, 1962). This procedure was used for the remainder of the items in the instrument. For each of the questions that asked the respondent to indicate the data collection methods, a question followed that asked for an indication of the percentage of time each of the chosen methods were used (see above). The respondents also rated each method as to their preference of data collection method.

Environmental conditions were measured by having the respondent indicate:

1. the number of employees employed by the entire organization,

2. the number of employees served by the training department,

3. the number of administrative levels that exist between the training department and the Chief Executive Officer,

4. the number of administrative levels between the training department and the level at which final decisions are made to offer a training program,
5. level of support given to training by top management,
6. percentage of time allocated for program development spent collecting training needs data,
7. percentage of requests for data collection that come from outside the training department,
8. number of years as a trainer,
9. percentage of working time spent working directly with trainees,
10. the number of hours spent learning the skills necessary to collect data,
11. a rating of their expertise to collect data, and
12. the age of the respondent.

A key area for concern for this research is centered on the percent of time specific data collection methods are used within a training department. The mean percent of time each data collection method is used can be determined as described earlier. A problem arose when few respondents gave high ratings to specific data collection methods. This caused the results to give higher significance to chosen methods than were warranted on an overall inspection. A weighted mean rank for the percent of time each data collection method has been used has been calculated to provide a better representation of what actually exists. The weighted mean rank for the percent of time used was calculated by obtaining the product of the frequency and the mean percent of time used.
The data collected in this research violates the parametric and nonparametric assumptions required for appropriate parametric tests (Siegel, 1956). The main assumption that is violated and disallows both parametric and nonparametric statistical tests is that observations are not independent. This research has been exploratory in nature and has used the Statistical Analysis System (SAS) to provide frequency distributions and other statistics so as to make sense of the data. The IECF SCRT features of SAS have been used extensively to attempt to explain variations in the use of data collection methods by variations in demographic and environmental characteristics.
Chapter IV
FINDINGS

4.1 INTRODUCTION

The purpose of this study has been to identify the data collection methods used by trainers in business and industry to collect data for training needs analyses and to identify the demographic and environmental factors that are associated with the use of specific methods. This chapter has been organized to consider the series of research questions presented in chapter one.

To provide confidence that what was being indicated by the respondents was actually drawn from real life experiences, questions were asked in the form of a proxy. Obtaining factual information by proxy was used to insure that what was being reported was the method that was actually being used within a training department. In the first section the respondent was asked to indicate whether they had collected data or supervised the collection of data during the preceding twelve months. The results of this question are reported in Table 2. Ninety-eight percent of the respondents had collected or supervised the collection of data for determining training needs within their organization during the preceding 12 months.
TABLE 2

FREQUENCY DISTRIBUTION OF RESPONDENT'S PARTICIPATION IN TRAINING NEEDS DATA COLLECTION DURING THE PRECEDING 12 MONTHS

<table>
<thead>
<tr>
<th>Participation</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>91</td>
<td>57.64%</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>1.00%</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>1.00%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>93</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

4.1.1 Research Question Number One

What methods of data collection are used by trainers in business and industry when conducting a task or job needs analysis, an organizational analysis, and an individual or person analysis?

Instrument questions seeking answers to the above research question are found in Section A of the questionnaire. Respondents were given the opportunity to indicate which data collection methods were being used by their training department during the preceding 12 months. The choice of data collection methods were arranged in alphabetical order and the respondents were encouraged to only identify the methods their department has used.

Questions numbered two and three had the respondent indicate which of the data collection methods had been
used within their training department during the preceding year. The results for these questions have been compiled in Table 3. Mean percent of time used along with their weighted mean rank are shown. The weighted mean rank was obtained from the product of the number of respondents selecting a specific method and the mean percent of time value. \( \text{Weighted Mean Rank} = \text{Frequency} \times \text{Mean Percent of Time Used} \) The top five overall data collection methods used for determining training needs were:

1. Management Requests
2. Questionnaires
3. Group Discussion (Ad Hoc)
4. Observation-Interview
5. Observation (No Communication)

Requests for programs came from managers approximately one third of the time.

The next series of questions were focused more specifically on the three need areas discussed in the previous chapter: job or task needs, organizational needs, and individual needs. An introductory statement to these questions helped the respondent move from an all inclusive perspective to one of the specialized need areas. The mean values were obtained by taking all of the respondents' "percent of time used" values and dividing by the number of respondents who indicated that they used a
### Table 3

**Frequency Distribution of Means and Weighted Mean Ranks**

For the percent of time each data collection method is used to determine all training needs.

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Frequency</th>
<th>Mean</th>
<th>Weighted * Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>43</td>
<td>15.00</td>
<td>6</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>14</td>
<td>5.71</td>
<td>10</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>19</td>
<td>9.37</td>
<td>9</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>56</td>
<td>16.16</td>
<td>3</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>45</td>
<td>13.00</td>
<td>8</td>
</tr>
<tr>
<td>Management Requests</td>
<td>62</td>
<td>33.47</td>
<td>1</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
<td>35</td>
<td>20.66</td>
<td>5</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>38</td>
<td>19.47</td>
<td>4</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>56</td>
<td>20.63</td>
<td>2</td>
</tr>
<tr>
<td>Review Records and Reports</td>
<td>40</td>
<td>14.75</td>
<td>7</td>
</tr>
<tr>
<td>(Internal/External)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Weighted Mean Rank = Frequency X Mean Percent of Time Used

N=93 (Each respondent could identify more than one method)

Questions four and five focused specifically on the data collection methods used by the training department to collect data for specific jobs or tasks that need to be performed. The mean percent of time each method was used was determined along with a weighted mean ranking for each method. The weighted mean rank was obtained from the product of the number of respondents selecting a specific method and the mean percent of time value. (Weighted Mean Rank = Frequency X Mean Percent of Time Used)
of the data collection methods. The top five data collection methods used were:

1. Management Requests
2. Interviews (Employer/Employee)
3. Review Records and Reports
4. Observation-Interview
5. Critical Incident Reports

Approximately forty percent of the time input from management identified the details of the task or job that will be used to train trainees. Interviewing and reviewing records and reports also provided valuable input. Table 4 contains the mean percent of time each data collection method was used to collect data concerning task and job information by the training department during the preceding year along with the weighted mean rank for each method.

The data collection methods used for determining the training needs of the organization were obtained from the results of questions six and seven. The top five data collection methods used for determining organizational training needs were:

1. Management Requests
2. Review Records and Reports
3. Group Discussion (Ad Hoc)
4. Questionnaires
5. Observation-Interview
**Table 4**

**FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN RANKS FOR THE PERCENT OF TIME EACH DATA COLLECTION METHOD IS USED TO DETERMINE JOB OF TASK TRAINING NEEDS**

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Frequency</th>
<th>Mean</th>
<th>Weighted Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>25</td>
<td>21.72</td>
<td>7</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>12</td>
<td>10.83</td>
<td>10</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>28</td>
<td>26.57</td>
<td>5</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>27</td>
<td>23.15</td>
<td>6</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>50</td>
<td>21.62</td>
<td>2</td>
</tr>
<tr>
<td>Management Requests</td>
<td>36</td>
<td>38.89</td>
<td>1</td>
</tr>
<tr>
<td>Observation (No communication)</td>
<td>23</td>
<td>22.52</td>
<td>8</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>44</td>
<td>19.50</td>
<td>4</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>29</td>
<td>16.14</td>
<td>9</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
<td>51</td>
<td>18.55</td>
<td>3</td>
</tr>
</tbody>
</table>

*Weighted Mean Rank = Frequency X Mean Percent of Time Used

N=93 (Each respondent could identify more than one method)

Collecting data for use to determine organizational training needs relied heavily upon management requests and reviewing existing documents. Table 5 contains the mean percent of time each data collection method is used for determining organizational needs and their weighted mean ranks.

Questions eight and nine solicited responses to identify the data collection methods used for determining the training needs of the individual. Table 6 contains the mean percent of time each data collection method is
### Table 5

**Frequency Distribution of Means and Weighted Mean Ranks for the Percent of Time Each Data Collection Method Is Used to Determine Organizational Training Needs**

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Frequency</th>
<th>Mean</th>
<th>Weighted Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>22</td>
<td>25.00</td>
<td>6</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>13</td>
<td>29.62</td>
<td>9</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>1</td>
<td>10.00</td>
<td>10</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>29</td>
<td>26.00</td>
<td>3</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>15</td>
<td>35.67</td>
<td>7</td>
</tr>
<tr>
<td>Management Requests</td>
<td>61</td>
<td>36.28</td>
<td>1</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
<td>16</td>
<td>28.13</td>
<td>8</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>18</td>
<td>31.11</td>
<td>5</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>30</td>
<td>21.50</td>
<td>4</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
<td>46</td>
<td>30.50</td>
<td>2</td>
</tr>
</tbody>
</table>

*Weighted Mean Rank = Frequency x Mean Percent of Time Used |

N = 93 (Each respondent could identify more than one method)

Used and their weighted mean ranking. The top five data collection methods used for determining individual training needs were:

1. Management Requests
2. Review Records and Reports (Internal/External)
3. Assessment Centers
4. Interviews (Employer/Employee)
5. Observation (No Communication)

Again, management requests were identified as the greatest source of information for determining training needs for the individual.
TABLE 6

FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN BANKS FOR THE PERCENT OF TIME EACH DATA COLLECTION METHOD IS USED TO DETERMINE TRAINING NEEDS OF INDIVIDUAL TRAINEES

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Frequency</th>
<th>Mean</th>
<th>Weighted * Mean Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>13</td>
<td>16.39</td>
<td>9</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>23</td>
<td>51.30</td>
<td>3</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>9</td>
<td>12.22</td>
<td>10</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>27</td>
<td>21.46</td>
<td>7</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>31</td>
<td>27.07</td>
<td>4</td>
</tr>
<tr>
<td>Management Requests</td>
<td>37</td>
<td>35.54</td>
<td>1</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
<td>26</td>
<td>27.12</td>
<td>5</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>30</td>
<td>23.17</td>
<td>6</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>13</td>
<td>25.00</td>
<td>8</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
<td>48</td>
<td>26.46</td>
<td>2</td>
</tr>
</tbody>
</table>

* Weighted Mean Bank = Frequency x Mean Percent of Time Used

N=93 (Each respondent could identify more than one method)

The time allowed to collect data for determining training needs can control the data collection method used. Question 10 solicited the respondent to select the data collection methods the training department would use for different periods of allotted time. When the department was allowed one person-day the data collection methods that were most chosen were:

1. Management Requests
2. Interviews (Employer/Employee)
3. Group Discussion (Ad Hoc)
4. Review Records and Reports (Internal/External)

The five-person day option resulted in the following data collection methods to be chosen most often:

1. Review Records and Reports (Internal/External)
2. Group Discussion (Ad hoc)
3. Interviews (Employer/Employee)
4. Questionnaires
5. Management requests
6. Observation-Interview

The training department would most often use the following data collection methods if they were allowed 20-person days to collect training needs information:

1. Questionnaires
2. Group Discussion
3. Interviews (Employer/Employee)
4. Management Requests
5. Review Records and Reports (Internal/External)
6. Assessment Centers

Table 7 contains the preferred data collection methods for different time periods.

Question eleven solicited the respondents to indicate the most effective data collection methods their departments have used for determining training needs for a job or task, the organization, and for the individual trainee. The following data collection methods were considered to be the most effective for determining job or task needs:
TABLE 7
FREQUENCY DISTRIBUTION AND RANKING OF DATA COLLECTION
METHODS USED ACCORDING TO DIFFERENT TIME PERIODS: ALICERL K ON DATA COLLECTION

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>1-day</th>
<th>5-days</th>
<th>20-days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f Rank</td>
<td>f Rank</td>
<td>f Rank</td>
</tr>
<tr>
<td>Advisory Committees (Formal)</td>
<td>05</td>
<td>09</td>
<td>37</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>06</td>
<td>10</td>
<td>02</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>16</td>
<td>06</td>
<td>40</td>
</tr>
<tr>
<td>Delphi Method</td>
<td>00</td>
<td>10</td>
<td>04</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>33</td>
<td>03</td>
<td>50</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>38</td>
<td>02</td>
<td>43</td>
</tr>
<tr>
<td>Management Requests</td>
<td>45</td>
<td>01</td>
<td>40</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
<td>17</td>
<td>07</td>
<td>15</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>20</td>
<td>05</td>
<td>39</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>07</td>
<td>08</td>
<td>41</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
<td>25</td>
<td>04</td>
<td>56</td>
</tr>
</tbody>
</table>

1. Questionnaires
2. Management Requests
3. Review Records and Reports (Internal/External)
4. Group Discussion (Ad Hoc)
5. Interviews (Employer/Employee)
6. Observation-Interview

The data collection methods most often chosen when determining organizational need were:

1. Review Records and Reports (Internal/External)
2. Management Requests
3. Group Discussion (Ad Hoc)
4. Advisory Committees (Formal)
5. Questionnaires

The data collection methods most often chosen for determining individual training needs were:

1. Observation-Interview
2. Management Requests
3. Interviews (Employer/Employee)
4. Review Records and Reports (Internal/External)
5. Group Discussion (Ad Hoc)

The frequency distribution of data collection methods used according to the department's most effective data collection methods for each of the need areas are presented in Table 8.

Question twelve asked the respondent to rate each of the data collection methods from the perspective of their personal choice. Respondents were solicited to indicate their preference for each data collection method on a five point scale. A five rating specified that they strongly preferred the method. A one rating specified that they would not use the method. The respondent's personal preference for specific data collection methods are presented in Table 9. The following data collection methods are the top choices for collecting data to determine training needs:

1. Interviews (Employer/Employee)
**TABLE 8**

**Frequency Distribution and Ranking of Data Collection Methods Used According to the Department's Most Effective Data Collection Method For Each of the Three Need Areas**

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Job/Tasks</th>
<th>Org. Needs</th>
<th>Person Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>20</td>
<td>03</td>
<td>02</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>03</td>
<td>11</td>
<td>06</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>21</td>
<td>04</td>
<td>05</td>
</tr>
<tr>
<td>Delphi Method</td>
<td>12</td>
<td>07</td>
<td>06</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>42</td>
<td>04</td>
<td>02</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>35</td>
<td>05</td>
<td>06</td>
</tr>
<tr>
<td>Management Requests</td>
<td>48</td>
<td>02</td>
<td>01</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
<td>14</td>
<td>09</td>
<td>06</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>33</td>
<td>06</td>
<td>05</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>53</td>
<td>01</td>
<td>04</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
<td>44</td>
<td>03</td>
<td>01</td>
</tr>
</tbody>
</table>

2. Observation-Interview

3. Questionnaires

4. Management Requests

5. Review Records and Reports (Internal/External)
Table 9

Frequency Distribution of Means and Ranks of Means of the Respondent's Personal Preference for Data Collection Methods Used to Determine All Training Needs

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Preference of Respondent Mean</th>
<th>Frequency</th>
<th>Mean</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td></td>
<td>87</td>
<td>0.2.82</td>
<td>8</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td></td>
<td>83</td>
<td>0.2.81</td>
<td>9</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td></td>
<td>76</td>
<td>0.3.07</td>
<td>7</td>
</tr>
<tr>
<td>Delphi Method</td>
<td></td>
<td>58</td>
<td>0.2.93</td>
<td>10</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td></td>
<td>92</td>
<td>0.3.38</td>
<td>6</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td></td>
<td>91</td>
<td>0.4.17</td>
<td>1</td>
</tr>
<tr>
<td>Management Requests</td>
<td></td>
<td>91</td>
<td>0.3.71</td>
<td>4</td>
</tr>
<tr>
<td>Observation (Non-Communicative)</td>
<td></td>
<td>91</td>
<td>0.2.54</td>
<td>11</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td></td>
<td>90</td>
<td>0.4.10</td>
<td>2</td>
</tr>
<tr>
<td>Questionnaires</td>
<td></td>
<td>89</td>
<td>0.3.83</td>
<td>3</td>
</tr>
<tr>
<td>Review Records and Reports</td>
<td></td>
<td>92</td>
<td>0.3.53</td>
<td>5</td>
</tr>
</tbody>
</table>

4.1.2 Research Question Number Two

Does the selection of data collection methods vary according to some of the following environmental variables?

1. Type of organization
2. Size of Organization
3. Position of training department within the organizational structure
4. Perceived priority given to training by top management
5. Percentage of program development time spent collecting data
6. Existence of data collection policies
7. Origin of stimulus to collect data

A series of eleven questions were used in Section B of the instrument to assist in the answering of the above research question. Question one in section B of the questionnaire solicited information concerning the
employer's field of business. Over three quarters of the respondents were employed in a nonmanufacturing environment. Table 10 contains a frequency distribution of the employer's field of business.

**Table 10**

**Frequency Distribution of Employee's Field of Business**

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>12</td>
<td>12.90%</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>73</td>
<td>78.50%</td>
</tr>
<tr>
<td>Other</td>
<td>08</td>
<td>08.60%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>93</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

Questions two and three were used to determine the size of the organization and the number of employees served by the training departments. The number of employees within manufacturing organizations ranged between 20 and 4,000 with a mean of 1,437 employees. Approximately seventy percent of the manufacturing organizations had a total employment between 1,000 and 2,000 employees. The number of employees served by the training department ranged between 14 and 4,000 with a mean of 1,506 employees. Due to the low number of manufacturing organizations responding to the
questionnaire and incomplete information, these values are suspect. An average of 3,691 employees were employed by nonmanufacturing firms which have an average of 2,993 served by the training department. Approximately seventy percent of the nonmanufacturing organizations had total employments that ranged between 1,000 and 6,000 employees. The organizations that were not classified as manufacturing or nonmanufacturing were found to be utility companies or government departments. Their organizations had an average of 2,039 employees of which 1,788 were served by the training department. Later in the chapter organizations are considered in terms of those that have less than 500 employees and those that have more than 500 employees. From a total of eighty-nine respondents that indicated a response to that series of questions, eleven of the organizations had less than 500 employees and seventy-eight had more than 500 employees. Table 11 contains the frequency distribution and mean number of employees served compared to total employment according to field of business.

Question four solicited the administrative level of the training department in relation to the Chief Executive Officer (CEO) of the organization. The number of administrative levels that existed between the training department and the Chief Executive Officer (CEO) within manufacturing organizations ranged from one to six. The
TABLE 11

FREQUENCY DISTRIBUTION AND MEAN NUMBER OF EMPLOYEES SERVED
BY THE TRAINING DEPARTMENT AND TOTAL NUMBER OF EMPLOYEES
ACCORDING TO FIELD OF BUSINESS

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Served by Department</th>
<th>Total Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Mean</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>11</td>
<td>1505.64</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>72</td>
<td>2392.85</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>1788.00</td>
</tr>
<tr>
<td>No Response</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>93</td>
<td></td>
</tr>
</tbody>
</table>

greatest number of training departments had only one
administrative level between the training department and
the Chief Executive Officer (CEO) of the organization.
Nonmanufacturing organizations had between one and four
administrative levels between the training department and
the Chief Executive Officer (CEO) of the organization with
the largest number of organizations having two levels.
Table 12 contains the frequency distribution of the number
of administrative levels between the training department
and the Chief Executive Officer (CEO) of the organization
according to field of business.
TABLE 12

FREQUENCY DISTRIBUTION OF THE NUMBER OF ADMINISTRATIVE LEVELS BETWEEN THE TRAINING DEPARTMENT AND THE CHIEF EXECUTIVE OFFICER ACCORDING TO FIELD OF BUSINESS

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Frequency by Administrative Level Between Department and CEC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>-</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
</tr>
</tbody>
</table>

Question five of section E solicited the number of levels between the training department and the administrative level at which decisions are made to offer a training program. The number of administrative levels that exist between the training department and the decision making level at which decisions are made to offer a training program within a manufacturing setting range between zero and three with the greatest number of organizations having one level. The number of administrative levels that exist between the training department and the decision making level at which decisions are made to offer a training program within a nonmanufacturing setting range between zero and three with the greatest number of organizations having one level.
Table 13 contains the frequency distribution of the number of administrative levels between the training department and the administrative level at which final decisions are made to offer a training program.

**TABLE 13**

**FREQUENCY DISTRIBUTION OF THE NUMBER OF ADMINISTRATIVE LEVELS BETWEEN THE TRAINING DEPARTMENT AND THE LEVEL AT WHICH FINAL TRAINING DECISIONS ARE MADE ACCORDING TO FIELD OF BUSINESS**

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Frequency by Administrative Level Between Department and Decision Level</th>
<th>(0)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td></td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td></td>
<td>7</td>
<td>35</td>
<td>17</td>
<td>14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>17</td>
<td>45</td>
<td>20</td>
<td>17</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Question six solicited the rating of support given to training by top management within the organization. A five point Likert type scale was used with a rating of five indicating "strong support". Seventy-two nonmanufacturing organizations gave a support mean rating of 3.93 and twelve manufacturing firms gave a mean rating of 3.92. The frequency distribution and mean rating of top management support given to training are presented in Table 14.
Table 14

FREQUENCY DISTRIBUTION AND MEAN RATING OF TOP MANAGEMENT SUPPORT FOR TRAINING ACCORDING TO FIELD OF BUSINESS

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Frequency</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>12</td>
<td>3.92</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>72</td>
<td>3.93</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>3.57</td>
</tr>
<tr>
<td>No Response</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>53</strong></td>
<td></td>
</tr>
</tbody>
</table>

Question seven solicited the percentage of time allocated for program development that is spent on collecting training needs data. Manufacturing organizations spent an average of 14 percent of the total program development time collecting training needs data. Nonmanufacturing organizations spent 21.78 percent of the planning time collecting training needs data. Table 15 contains the frequency distribution and mean percent of time allocated for program development spent collecting training needs data.

Questions eight, nine, and ten solicited information to determine whether a formal training policy existed within the organization and whether that policy specified
Eleven manufacturing organizations had formal training policies of which six had statements that specified the collection of needs analysis data. Three of the six specified the data collection methods to be used. Seventy-three nonmanufacturing organizations had formal training policies in which 34 had statements that specified the need for collecting training needs data. Twenty-three of the thirty-four specified the data collection methods to be used. Table 16 contains the frequency distribution of the existence of a formal

### Table 15

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Percent of Data Collection Time</th>
<th>Frequency</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td></td>
<td>10</td>
<td>14.00</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td></td>
<td>71</td>
<td>21.67</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>8</td>
<td>24.28</td>
</tr>
<tr>
<td>No Response</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>93</strong></td>
<td></td>
</tr>
</tbody>
</table>
training policy with needs analysis and data collection methods specified.

TABLE 16

FREQUENCY DISTRIBUTION OF THE EXISTENCE OF A FORMAL TRAINING POLICY WITH NEEDS ANALYSIS AND DATA COLLECTION METHODS SPECIFIED ACCORDING TO FIELD OF BUSINESS

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Training Needs Analysis</th>
<th>Collection Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>73</td>
<td>34</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>92</td>
<td>43</td>
</tr>
</tbody>
</table>

Question eleven in section E solicited information that identifies the sources of data collection requests. Within manufacturing organizations, more requests for data collection came from inside the training department than from outside. Nonmanufacturing organizations have their data collection requests originating equally from within and outside the training department. Table 17 contains the frequency distribution of means of percent of time the source of requests came for data collection.
TABLE 17

FREQUENCY DISTRIBUTION OF MEANS FOR PERCENT OF TIME THE SOURCES OF REQUESTS COME FOR DATA COLLECTION ACCORDING TO FIELD OF BUSINESS

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Outside Depart. Frequency</th>
<th>Mean</th>
<th>Inside Depart. Frequency</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>10</td>
<td>46.00</td>
<td>9</td>
<td>62.22</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>50</td>
<td>51.50</td>
<td>47</td>
<td>51.49</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>60.00</td>
<td>4</td>
<td>45.00</td>
</tr>
</tbody>
</table>

4.1.3 RESEARCH QUESTION NUMBER THREE

Does the selection of data collection methods vary according to some of the following selected demographic variables of trainers?

1. Experience as a trainer
2. Percentage of time spent as a trainer
3. Professional preparation for learning skills to collect data
4. Educational level
5. Age
6. Gender

A series of eight questions were used in section C of the instrument to assist in answering the research question stated above. Questions were solicited the length of time the respondent had been a trainer. The eleven respondents that were employed within manufacturing had training experience that ranged from two to twenty-two years with an average of just over ten years. The
fifty-three that reported to be employed within nonmanufacturing organizations had an average of just under ten years as trainers with their experience ranging between two and twenty-seven years. The seven trainers that indicated other employer identifications had training experience that ranged from five to nine years with an average of six years. Table 18 contains the frequency distribution of experience as trainers according to field of business.

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Frequency</th>
<th>Number of Years Experience as a Trainer</th>
<th>Mean</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>11</td>
<td>10.91</td>
<td>6.30</td>
<td></td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>53</td>
<td>9.85</td>
<td>6.13</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>6.14</td>
<td>1.57</td>
<td></td>
</tr>
<tr>
<td>No Response</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>93</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question two in section C solicited the percent of time the respondent works directly with trainees. Trainers working within manufacturing organizations spent
25 percent of their time working directly with trainees while trainers in nonmanufacturing organizations spent thirty-six percent of their time with trainees. Both manufacturing and nonmanufacturing organizations had percent of time ranges between zero and ninety and zero and one hundred percent respectively.

**Table 1**

**FREQUENCY DISTRIBUTION OF MEANS AND STANDARD DEVIATIONS OF THE PERCENT OF TIME SPENT WORKING DIRECTLY WITH TRAINEES ACCORDING TO FIELD OF BUSINESS**

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Frequency</th>
<th>Percent of Time Working Directly with Trainees</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>11</td>
<td></td>
<td>24.55</td>
<td>3.71</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>63</td>
<td></td>
<td>35.92</td>
<td>7.28</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td></td>
<td>32.86</td>
<td>8.85</td>
</tr>
<tr>
<td>No Response</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>93</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Questions three and four determined where the respondent learned the skills to collect data for determining training needs. Learning on-the-job ranked highest for learning the skills for determining training needs. Reading books and periodicals were cited most often by respondents as the source of information for
determining skills to collect training needs data. Table 20 contains the average number of hours spent learning the skills to collect training needs information and also indicates the weighted mean rank that has been assigned to each learning environment.

**TABLE 20**

**FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN RANKS FOR THE NUMBER OF HOURS SPENT LEARNING TO COLLECT TRAINING NEEDS DATA ACCORDING TO LEARNING ENVIRONMENT**

<table>
<thead>
<tr>
<th>Learning Environment</th>
<th>Frequency</th>
<th>Hours Spent Learning</th>
<th>Weighted Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Courses/Seminars</td>
<td>16</td>
<td>23.78</td>
<td>4</td>
</tr>
<tr>
<td>Professional Association Courses and Seminars</td>
<td>22</td>
<td>18.41</td>
<td>5</td>
</tr>
<tr>
<td>Undergraduate Courses and Seminars</td>
<td>15</td>
<td>21.00</td>
<td>6</td>
</tr>
<tr>
<td>Graduate Courses and Seminars</td>
<td>16</td>
<td>195.61</td>
<td>2</td>
</tr>
<tr>
<td>Reading Books and Periodicals</td>
<td>38</td>
<td>63.74</td>
<td>3</td>
</tr>
<tr>
<td>On-The-Job</td>
<td>27</td>
<td>139.63</td>
<td>1</td>
</tr>
</tbody>
</table>

*Weighted Mean Rank = Frequency x Mean Hours Spent Learning*

Question five in section C solicited the trainers to rate their level of expertise, on a scale of one to five, to collect data for determining training needs. Trainers within the manufacturing organizations rated themselves with a mean score of 3.36. The non-manufacturing trainers rated themselves at a 4.03 level. The group that
classified themselves as "other" rated themselves at the 3.38 level. Table 21 contains the self-rating expertise of the trainers to collect training needs data according to their field of business.

**Table 21**

**Frequency Distribution of Means and Standard Deviations of Self-Rating of Expertise to Collect Training Needs Data According to Field of Business**

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Frequency</th>
<th>Self-rating level of Expertise to Collect Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>11</td>
<td>3.36</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>71</td>
<td>4.03</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>3.38</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question six determined the gender of the respondent. Seventy-three percent of the manufacturing trainers were male as compared to only fifteen percent with the nonmanufacturing group. In total there were more female trainers than male trainers. Table 22 contains the frequency distribution of respondents according to field of business.
Question seven in section C determined the age range in which each respondent could be assigned. In all fields of business the respondents most often placed themselves in the 31-40 age category. Table 23 contains the frequency distribution of respondents by age category according to field of business.

The final question in section C of the questionnaire determined the highest level of formal education of the respondents. Eighty-six percent of the trainers are college or university graduates. Approximately fifty percent of the trainers have a graduate degree. Only two respondents had an M.B.A. and only one respondent had a Ph.D. Table 24 contains the frequency distribution of respondents according to their level of formal education.

### Table 22

**FREQUENCY DISTRIBUTION OF RESPONDENTS BY GENDER ACCORDING TO FIELD OF BUSINESS**

<table>
<thead>
<tr>
<th>Field of Business</th>
<th>Male Frequency</th>
<th>Male Percent</th>
<th>Female Frequency</th>
<th>Female Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>8</td>
<td>72.73</td>
<td>2</td>
<td>27.27</td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>10</td>
<td>31.57</td>
<td>56</td>
<td>68.43</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>37.50</td>
<td>5</td>
<td>62.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21</strong></td>
<td></td>
<td><strong>62</strong></td>
<td></td>
</tr>
</tbody>
</table>

---

Question seven in section C determined the age range in which each respondent could be assigned. In all fields of business the respondents most often placed themselves in the 31-40 age category. Table 23 contains the frequency distribution of respondents by age category according to field of business.

The final question in section C of the questionnaire determined the highest level of formal education of the respondents. Eighty-six percent of the trainers are college or university graduates. Approximately fifty percent of the trainers have a graduate degree. Only two respondents had an M.B.A. and only one respondent had a Ph.D. Table 24 contains the frequency distribution of respondents according to their level of formal education.
### Table 23

**Frequency Distribution of Respondents by Age Category According to Field of Business**

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Field of Business</th>
<th>21-30</th>
<th>31-40</th>
<th>41-50</th>
<th>51-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>-</td>
<td>9</td>
<td>2</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Nonmanufacturing</td>
<td>4</td>
<td>43</td>
<td>16</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>6</td>
<td>57</td>
<td>19</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

### Table 24

**Frequency Distribution of Respondents According to Highest Level of Formal Education**

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some High School</td>
<td>1</td>
<td>1.09</td>
</tr>
<tr>
<td>High School Graduate</td>
<td>12</td>
<td>13.04</td>
</tr>
<tr>
<td>College or University Graduate</td>
<td>79</td>
<td>85.87</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Educational Degree</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.A./B.S.</td>
<td>32</td>
<td>46.38</td>
</tr>
<tr>
<td>M.A./M.Ed.</td>
<td>34</td>
<td>49.28</td>
</tr>
<tr>
<td>M.E.A.</td>
<td>2</td>
<td>2.90</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>1</td>
<td>1.42</td>
</tr>
<tr>
<td>No Response</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
4.1.4 Data Collection Methods and Selected Environmental and Demographic Characteristics

The findings reported up to this point have followed the design of the questionnaire. First the data collection methods were reported followed by the environmental and demographic characteristics. Many of the results were reported according to field of business. The remainder of this chapter will consider the findings in terms of a select number of environmental and demographic characteristics. The data collection methods that were identified by respondents as being the overall data collection methods will be used to provide a bases for comparison. The overall data collection methods were the methods indicated before respondents were asked to focus more specifically on the methods used for collecting information concerning a job or task, the organization, and the individual trainee. The Statistical Analysis System (SAS) was used to sort the data according to the different categories found for each of the environmental and demographic characteristics.

Organizations are often classified by the type of business in which they are involved. The mean percent of time each data collection method was used along with a weighted mean ranking for each of the data collection methods used were determined for two classifications: manufacturing and nonmanufacturing organizations. The
weighted mean rank was obtained from the product of the number of respondents selecting a specific method and the mean percent of time value. (Weighted Mean Rank = Frequency × Mean Percent of Time Used) The top five data collection methods used by training departments found within manufacturing organizations were:

1. Management Requests
2. Group Discussion
3. Observation-Interview
4. Interviews (Employer/Employee)
5. Critical Incidents Reports

The top five data collection methods used by training departments found within nonmanufacturing organizations were:

1. Management Requests
2. Questionnaires
3. Observation
4. Group Discussion
5. Observation-Interview

Manufacturing and nonmanufacturing organizations ranked management requests the top data collection method by being used the highest percentage of time. Table 25 contains the mean percent of time each data collection method was used to collect data concerning overall training needs along with the weighted mean rank for each type of organization.
Table 25

Frequency Distribution of Means and Weighted Mean Ranks by Type of Organization for the Percent of Time Each Data Collection Method is Used to Determine All Training Needs

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Manufacturing</th>
<th>Non-Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean WMF</td>
<td>Mean WMF</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Advisory Committees (Formal)</td>
<td>06.67</td>
<td>06.47</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>00.00</td>
<td>05.77</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>02.50</td>
<td>05.53</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>19.38</td>
<td>14.88</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>22.50</td>
<td>11.92</td>
</tr>
<tr>
<td>Management Requests</td>
<td>22.50</td>
<td>32.66</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
<td>06.33</td>
<td>21.94</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>25.00</td>
<td>18.71</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>21.43</td>
<td>20.95</td>
</tr>
<tr>
<td>Review Records and Reports</td>
<td>04.83</td>
<td>17.50</td>
</tr>
</tbody>
</table>

WMR = Frequency x Mean Percent of Time Used
WMR = Weighted Mean Rank

Organizations are sometimes compared by their number of employees. Most often companies with less than 500 employees are grouped together and others grouped with the more than 500 employee category. The top five data collection methods used by organizations with less than 500 employees were:

1. Management Requests
2. Questionnaires
3. Review Records and Reports
4. Observation-Interview

5. Interviews (Employer/Employee)

Approximately thirty-five percent of the time management requests were used to determine overall training needs for organizations with less than 500 employees.

Organizations with more than 500 employees had the following top five data collection methods as their choice for determining training needs:

1. Management Requests
2. Questionnaires
3. Group Discussion (Ad Hoc)
4. Observation (No Communicator)
5. Advisory Committees (Formal)

Organizations with more than 500 employees also found that management requests utilized approximately thirty-four percent of the time they used to collect data. Table 26 contains the mean percent of time each data collection method was used to collect data concerning overall training needs along with the weighted mean rank for each method for organizations with less than 500 employees and those organizations with more than 500 employees.

The number of trainees theoretically served by a training department usually varies from the total number of employees employed by the organization. The data have been grouped into categories of those organizations that
TABLE 26

FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN RANKS BY ORGANIZATION SIZE FOR THE PERCENT OF TIME EACH DATA COLLECTION METHOD IS USED TO DETERMINE ALL TRAINING NEEDS

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>02</td>
<td>17.50</td>
<td>07</td>
<td>41</td>
<td>14.88</td>
<td>05</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>01</td>
<td>05.00</td>
<td>09</td>
<td>13</td>
<td>05.77</td>
<td>10</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>00</td>
<td>00.00</td>
<td>10</td>
<td>15</td>
<td>09.37</td>
<td>09</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>02</td>
<td>10.00</td>
<td>08</td>
<td>53</td>
<td>15.76</td>
<td>03</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>09</td>
<td>13.89</td>
<td>05</td>
<td>33</td>
<td>12.56</td>
<td>08</td>
</tr>
<tr>
<td>Management Requests</td>
<td>10</td>
<td>34.50</td>
<td>01</td>
<td>50</td>
<td>34.20</td>
<td>01</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
<td>02</td>
<td>37.50</td>
<td>06</td>
<td>32</td>
<td>20.31</td>
<td>04</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>10</td>
<td>15.00</td>
<td>04</td>
<td>25</td>
<td>17.40</td>
<td>06</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>09</td>
<td>20.56</td>
<td>02</td>
<td>44</td>
<td>21.49</td>
<td>02</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
<td>09</td>
<td>17.78</td>
<td>03</td>
<td>31</td>
<td>13.67</td>
<td>07</td>
</tr>
</tbody>
</table>

WBR = Frequency X Mean Percent of Time Used
WMR = Weighted Mean Rank

have less than 500 employees being served by the training department and those that have more than 500 employees being served. The mean percent of time each data collection method was used was determined along with the weighted mean ranking for each of the data collection methods used by training departments that served less than 500 employees. The top five data collection methods used by departments that theoretically serve less than 500 employees were:
Management requests were used most often, with training departments using this method approximately thirty percent of the time. Table 27 contains the mean percent of time each data collection method is used and their weighted mean ranks for training departments that theoretically serve less than 500 employees.

Organizations that have training departments that serve more than 500 employees use a few different data collection methods from departments that serve less than 500 employees. The mean percent of time each data collection method was used was determined along with the weighted mean ranking for each of the data collection methods used by training departments that served more than 500 employees. The top five data collection methods used by departments that theoretically serve more than 500 employees were:

1. Management Requests
2. Questionnaires
3. Group Discussion
4. Observation (Not Communication)
5. Advisory Committees (Formal)
Management requests were the top data collection method for training departments that had more than 500 employees to train. This method was used approximately forty-two percent of the time when collecting data. Observation, as a data collection technique, was the second most often used data collection method with it being used approximately twenty-two percent of the time. Table 27 contains the mean percent of time each data collection method is used for determining training needs and their weighted mean ranks for training departments that serve more than 500 employees.

The position of the training department within the structure of the entire organization may affect the data collection method used for determining training needs. The position of the training department was considered in relation to the number of administrative levels that exist between the training department and the Chief Executive Officer (CEO) of the organization and the position of the training department in relation to the level of decision making when obtaining approval to offer a training program. In the first case, there seemed to be groupings of organizations that had less than three levels of administration between the training department and the Chief Executive Officer (CEO) and those that had more than three levels of administration. The mean percent of time data collection methods were used and their weighted mean
Ranks for organizations with less than three levels of administration between the training department and the Chief Executive Officer (CEO) are contained in Table 28. The top five data collection methods used by training departments that had less than three levels between their department and the CEO of the organization were:

1. Management Requests
2. Questionnaires
3. Group Discussion (Ad Hoc)
4. Advisory Committees
5. Observation-Interview

Management requests were used approximately thirty percent of the time as the data collection method for organizations that have less than three levels between the training department and the Chief Executive Officer (CEO) of the organization.

The top five data collection methods used by training departments that had three or more levels between their department and the CEO were:
1. Management Requests
2. Questionnaires
3. Group Discussion (Ad Hoc)
4. Observation (No communication)
5. Observation-Interview

Management requests were used approximately thirty-eight percent of the time to collect training needs data for organizations that had three or more administrative levels between the training department and the Chief Executive Officer (CEO). Questionnaires, as a data collection technique, ranked in second place with it being used approximately twenty-six percent of the time. Table 28 contains the mean percent of time each data collection method is used and the weighted mean ranking for those organizations that had three or more levels of
administration between the training department and the Chief Executive Officer (CEC) of the organization.

**TABLE 26**

FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN BANS BY LEVELS BETWEEN DEPARTMENT AND CEC FOR THE PERCENT OF TIME EACH DATA COLLECTION METHOD IS USED TO DETERMINE ALL TRAINING NEEDS

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Percent of Time Used for Number of Levels Between Training Department and Chief Executive Officer (CEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less Than Three Levels</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>f</td>
<td>Mean</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Advisory Committees (Formal)</td>
<td>19 18.65 04</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>03 08.33 10</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>06 06.66 09</td>
</tr>
<tr>
<td>Group Discussion (Ad hoc)</td>
<td>27 17.41 03</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>23 11.96 06</td>
</tr>
<tr>
<td>Management Requests</td>
<td>39 30.77 01</td>
</tr>
<tr>
<td>Observation (No communication)</td>
<td>16 16.25 08</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>18 16.39 05</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>35 17.86 02</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
<td>24 11.25 07</td>
</tr>
</tbody>
</table>

WRM = Frequency X Mean Percent of Time Used
WMR = Weighted Mean Rank

The position of the training department in relation to the level at which final decisions are made concerning the offering of a training program can provide an additional perspective. There was a grouping of organizations that
had less than two levels between the training department and the decision making level and those that had two or more levels between the training department and the decision making level at which approval was given to offer training programs. Table 29 contains the percent of time each data collection method is used and the weighted mean ranking for each method for departments that have less than two levels between the department and the decision making level at which approval is given to offer training programs and those departments that have two or more levels between themselves and the decision making level. The top five data collection methods used by departments that have less than two levels between themselves and the decision making level were:

1. Management Requests
2. Group Discussion
3. Questionnaires
4. Review Records and Reports (Internal/External)
5. Advisory Committees (Formal)

Management requests were used approximately twenty-nine percent of the time to collect data for determining training needs within organizations that had less than two administrative levels between the training department and the administrative level at which final decisions are made to offer training programs. The top five data collection methods used by departments that have more than two levels between themselves and the decision making level were:
1. Management Requests
2. Observation (No communication)
3. Observation-Interview
4. Questionnaires
5. Interviews (Employer/Employee)

Management requests were used approximately forty-one percent of the time by organizations that had two or more administrative levels between themselves and the decision making level at which decisions were made to offer training programs. Observation, as a data collection technique was the second most often used method with it being used approximately twenty-six percent of the time.

The priority given to training by top management may affect the data collection methods used for determining training needs. Respondents rated their perception of the level of support that was given to training by top management on a scale of one to five. For comparison purposes the data has been sorted into two categories: those with a rating of support of less than three on a five point scale and those with a rating of three or more.

The top five data collection methods used for determining training needs for those organizations that had less than a three rating were:

1. Management Requests
TABLE 29

FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN RANKS BY LEVELS BETWEEN DEPARTMENT AND PROGRAM DECISION MAKING LEVEL FOR PERCENT OF TIME EACH DATA COLLECTION METHOD IS USED TO DETERMINE ALL TRAINING NEEDS

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>f</th>
<th>Mean (%)</th>
<th>WMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>21</td>
<td>16.43</td>
<td>05</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>03</td>
<td>08.33</td>
<td>10</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>15</td>
<td>08.67</td>
<td>08</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>32</td>
<td>18.75</td>
<td>02</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>12</td>
<td>10.42</td>
<td>06</td>
</tr>
<tr>
<td>Management Requests</td>
<td>24</td>
<td>28.54</td>
<td>01</td>
</tr>
<tr>
<td>Observation (No communication)</td>
<td>14</td>
<td>13.93</td>
<td>07</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>18</td>
<td>14.17</td>
<td>06</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>31</td>
<td>15.97</td>
<td>03</td>
</tr>
<tr>
<td>Review Records and Reports</td>
<td>25</td>
<td>14.40</td>
<td>04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WMR=Frequency X Mean Percent of Time Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMR = Weighted Mean Rank</td>
</tr>
</tbody>
</table>

2. Observation (No communication)
3. Interviews (Employer/Employee)
4. Advisory Committees
5. Assessment Centers

The organizations that were given a rating of less than three used management requests as its top data collection method.
The top five data collection methods used for determining training needs for those organizations that had more than a three rating were:

1. Management Requests
2. Questionnaires
3. Group Discussion (Ad Ecc)
4. Observation-Interview
5. Review Records and Reports

Management requests were used most often by the group of organizations that had a level of support rating of three or more. Questionnaires came in second, with this method being used approximately twenty-one percent of the time. Table 3C contains the percent of time each data collection method is used and the weighted mean rank for those organizations that were assigned ratings of three or more and less than three on a five point scale indicating the level of support given to training by top management.

The years of experience as a trainer may affect the data collection method used for determining training needs. The number of years of experience as a trainer was reported earlier in Table 17. For purposes of comparison the data collection methods used by trainers who had less than ten years experience may be different from those with ten years or more experience. The top five data collection methods used by trainers with less than ten years experience were:
TABLE 5C

FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN RANKS BY SUPPORT GIVEN TO TRAINING BY TOP MANAGEMENT FOR PERCENT OF TIME EACH DATA COLLECTION METHOD IS USED TO DETERMINE ALL TRAINING NEEDS

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
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<td>09.62</td>
<td>04</td>
<td>21</td>
<td>16.21</td>
<td>06</td>
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<tr>
<td>Assessment Centers</td>
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<td>05.83</td>
<td>05</td>
<td>02</td>
<td>05.00</td>
<td>10</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>02</td>
<td>12.50</td>
<td>08</td>
<td>17</td>
<td>09.00</td>
<td>09</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>13</td>
<td>05.00</td>
<td>06</td>
<td>42</td>
<td>19.05</td>
<td>03</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>13</td>
<td>10.39</td>
<td>03</td>
<td>32</td>
<td>14.06</td>
<td>07</td>
</tr>
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<td>Management Requests</td>
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<td>01</td>
<td>47</td>
<td>30.64</td>
<td>01</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
<td>12</td>
<td>25.60</td>
<td>02</td>
<td>22</td>
<td>17.27</td>
<td>08</td>
</tr>
<tr>
<td>Observation-Interview</td>
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<td>30.00</td>
<td>07</td>
<td>36</td>
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<td>04</td>
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<td>Questionnaires</td>
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<td>05.00</td>
<td>10</td>
<td>54</td>
<td>21.11</td>
<td>02</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
<td>01</td>
<td>10.00</td>
<td>05</td>
<td>39</td>
<td>14.87</td>
<td>05</td>
</tr>
</tbody>
</table>

WMR = Frequency x Mean Percent of Time Used
WMR = Weighted Mean Rank

1. Management Requests
2. Questionnaires
3. Observation-Interview
4. Group Discussion (Ad Hoc)
5. Interviews (Employer/Employee)

Management requests and questionnaires ranked first and second as the data collection methods most often used by
trainers with less than ten years experience. The top five data collection methods used by trainers with ten years or more experience were:

1. Management Requests
2. Observation (No Communication)
3. Questionnaires
4. Group Discussion (Ad Hoc)
5. Interviews (Employer/Employee)

Management requests and observation ranked first and second as the data collection methods most often used by trainers with ten years or more experience. Table 31 contains the mean percent of time each data collection method is used and the weighted mean rank for those organizations that have trainers with less than ten years training experience and those that have ten years or more experience.

The percentage of time that a trainer actually works directly with trainees may control the data collection methods or processes used for determining training needs. It was reported earlier in Table 18 that the mean percent of time that a trainer actually works directly with trainees ranges between twenty-five and thirty-five percent. The mean percent of time that a trainer uses a specific data collection method has been considered from the perspective of those trainers that spend less than thirty percent of their time working directly with
TABLE 31

FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN RANKS BY YEARS OF EXPERIENCE AS A TRAINER FOR PERCENT OF TIME EACH DATA COLLECTION METHOD IS USED TO DETERMINE ALL TRAINING NEEDS

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
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<td>15.00</td>
<td>06</td>
<td>17</td>
<td>12.94</td>
<td>06</td>
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<td>Assessment Centers</td>
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<td>05.00</td>
<td>16</td>
<td>12</td>
<td>05.00</td>
<td>09</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>06</td>
<td>05.83</td>
<td>09</td>
<td>03</td>
<td>12.66</td>
<td>10</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>22</td>
<td>17.05</td>
<td>04</td>
<td>23</td>
<td>13.26</td>
<td>04</td>
</tr>
<tr>
<td>Interviews (Employee/Employee)</td>
<td>26</td>
<td>11.92</td>
<td>05</td>
<td>17</td>
<td>13.23</td>
<td>05</td>
</tr>
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<td>Management Requests</td>
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<td>31.32</td>
<td>01</td>
<td>23</td>
<td>38.26</td>
<td>01</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
<td>12</td>
<td>17.92</td>
<td>07</td>
<td>21</td>
<td>22.38</td>
<td>02</td>
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<tr>
<td>Observation-Interview</td>
<td>24</td>
<td>21.25</td>
<td>03</td>
<td>05</td>
<td>28.00</td>
<td>07</td>
</tr>
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<td>Questionnaires</td>
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<td>18.75</td>
<td>02</td>
<td>13</td>
<td>27.69</td>
<td>03</td>
</tr>
<tr>
<td>Review Records and Reports</td>
<td>24</td>
<td>11.25</td>
<td>06</td>
<td>05</td>
<td>13.00</td>
<td>08</td>
</tr>
</tbody>
</table>

WFR = Frequency & Mean Percent of Time Used
WFR = Weighted Mean Rank

trainees and those that spend more than thirty percent of their time working directly with trainees. The top five data collection methods that have been used by trainers that spend less than thirty percent of their time with trainees were:

1. Management Requests
2. Questionnaires
3. Group Discussion (Ad Hoc)
4. Observation (No Communication)

5. Interviews (Employer/Employee)

Management requests and questionnaires were ranked the top two data collection methods for those trainers that spend less than thirty percent of their time working directly with trainees. Management requests were used thirty-six percent of the time and questionnaires were used twenty-one percent of the time.

The top five data collection methods that have been used by trainers that spend more than thirty percent of their time with trainees were:

1. Management Requests
2. Observation-Interview
3. Questionnaires
4. Review Records and Reports
5. Advisory Committees

Management requests and observation-interview were ranked the top two data collection methods for those trainers that spend thirty or more percent of their time working directly with trainees. Management requests were used twenty-seven percent of the time and observation-interview were used nineteen percent of the time. Table 32 contains the percent of time each data collection method is used and the weighted mean rank for those trainers that work less than thirty percent of their time directly with trainees and those that work thirty or more percent of their time with trainees.
TABLE 32

FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN BAKKS BY TIME WORKING DIRECTLY WITH TRAINEES PERCENT OF TIME EACH DATA COLLECTION METHOD IS USED TO DETERMINE ALL TRAINING NEEDS

---

Percent of Time Method is Used for

Percent of Time Working Directly

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>f</th>
<th>Mean</th>
<th>WMB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>23</td>
<td>13.91</td>
<td>07</td>
</tr>
<tr>
<td>Assessment Centers</td>
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<td>09</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>06</td>
<td>05.00</td>
<td>10</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
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<td>14.57</td>
<td>03</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>35</td>
<td>11.71</td>
<td>05</td>
</tr>
<tr>
<td>Management Requests</td>
<td>48</td>
<td>35.63</td>
<td>01</td>
</tr>
<tr>
<td>Observation (No communication)</td>
<td>25</td>
<td>19.40</td>
<td>04</td>
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<tr>
<td>Observation-Interview</td>
<td>20</td>
<td>18.50</td>
<td>06</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>37</td>
<td>21.49</td>
<td>02</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
<td>22</td>
<td>12.05</td>
<td>06</td>
</tr>
</tbody>
</table>

WMR=Frequency X Mean Percent of Time Used

WMR = Weighted Mean Rank

Information was obtained to determine the self-perception of each respondent's level of expertise to collect data. These results have been reported earlier in Table 20. This information has been reinterpreted in this section by attempting to determine if the selection of data collection methods vary according to the self-rating of level of expertise. The trainers have been divided
between those that assigned themselves a rating of less than three on a five point scale with five being highest, and those that assigned themselves a rating of three or more on the five point scale. The top five data collection methods used by trainers that assigned themselves a rating of less than three were:

1. Management Requests
2. Advisory committees
3. Questionnaires
4. Group Discussion
5. Review Records and Reports

Even though there were few responses with those that assigned themselves with less than a three rating, management requests once again came out on top.

The top five data collection methods used by trainers that assigned themselves a rating of more than three were:

1. Management Requests
2. Questionnaires
3. Group Discussion (Ad Hoc)
4. Observation-Interview
5. Observation (No communication)

Management requests were used approximately thirty-three percent of the time for collecting data to determine training needs for those trainers with a three or more self-rating. Table 33 contains the percent of time each data collection is used to collect data for determining
training needs and the weighted mean rank for those trainers that assigned themselves a less than three rating for data collection expertise and a three or more rating.

### Table 33

**Frequency Distribution of Means and Weighted Mean Ranks by Self-Rating of Level of Expertise to Collect Training Needs Data for Percent of Time Each Data Collection Method is Used to Determine All Training Needs**

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
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<td>36.66</td>
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<td>13.37</td>
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<td>Assessment Centers</td>
<td>00</td>
<td>00.00</td>
<td>07</td>
<td>14</td>
<td>05.71</td>
<td>10</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>00</td>
<td>00.00</td>
<td>07</td>
<td>19</td>
<td>09.37</td>
<td>05</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>01</td>
<td>40.00</td>
<td>04</td>
<td>54</td>
<td>15.93</td>
<td>03</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>01</td>
<td>10.00</td>
<td>06</td>
<td>44</td>
<td>13.07</td>
<td>06</td>
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<tr>
<td>Management Requests</td>
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<td>46.67</td>
<td>01</td>
<td>57</td>
<td>32.54</td>
<td>01</td>
</tr>
<tr>
<td>Observation (No Communication)</td>
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<td>00.00</td>
<td>07</td>
<td>34</td>
<td>20.00</td>
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<td>00.00</td>
<td>07</td>
<td>37</td>
<td>19.19</td>
<td>04</td>
</tr>
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<td>Questionnaires</td>
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<td>20.00</td>
<td>03</td>
<td>51</td>
<td>20.39</td>
<td>02</td>
</tr>
<tr>
<td>Review Records and Reports (Internal/External)</td>
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<td>20.00</td>
<td>05</td>
<td>39</td>
<td>14.62</td>
<td>07</td>
</tr>
</tbody>
</table>

WMR = Frequency X Mean Percent of Time Used

W = Weighted Mean Rank

The gender of the respondent may control whether specific data collection methods are used. There were twenty-one male trainers and sixty-three female trainers.
that indicated their gender. The top five data collection methods that were reportedly used by the male respondent's training departments were:

1. Questionnaires
2. Group Discussion (Ad Hoc)
3. Observation-Interview
4. Observation (No communication)
5. Interviews (Employer/Employee)

Questionnaires were most often used with a thirty-one percent of the time used rating followed by group discussion being used twenty-five percent of the time.

The top five data collection methods that were reportedly used by female respondent's training departments were:

1. Management Requests
2. Questionnaires
3. Review Records and Reports
4. Group Discussion (Ad Hoc)
5. Advisory Committees (Formal)

Management requests were used approximately thirty-six percent of the time by female trainer's departments. Questionnaires were ranked in second place with them being used eighteen percent of the time. Table 34 contains the percent of time each data collection method is used and the weighted mean ranks for both male and female trainers.
The educational background of a trainer may affect the data collection methods used for determining training needs. The top five data collection methods used by departments that had respondents who had a university degree but not a graduate degree were:

1. Management Requests
2. Questionnaires
3. Review Records and Reports
4. Interviews
5. Observation-Interview

### Table 34

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Male Trainers</th>
<th>Female Trainers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>07 21.43 05</td>
<td>36 13.75 05</td>
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<tr>
<td>Assessment Centers</td>
<td>01 05.60 08</td>
<td>13 05.77 10</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>02 16.50 07</td>
<td>17 08.53 09</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>12 25.42 02</td>
<td>39 12.62 04</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>08 18.75 05</td>
<td>37 11.76 07</td>
</tr>
<tr>
<td>Management Requests</td>
<td>13 23.46 02</td>
<td>44 35.68 01</td>
</tr>
<tr>
<td>Observation (Non-communication)</td>
<td>09 22.22 04</td>
<td>21 20.46 08</td>
</tr>
<tr>
<td>Observation-Interview</td>
<td>11 25.00 03</td>
<td>27 17.22 06</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>12 30.83 01</td>
<td>39 17.56 02</td>
</tr>
<tr>
<td>Review Records and Reports</td>
<td>05 15.00 06</td>
<td>35 14.71 03</td>
</tr>
</tbody>
</table>

\[ \text{WMB} = \text{Frequency} \times \text{Mean Percent of Time Used} \]

\[ \text{WMB} = \text{Weighted Mean Rank} \]
Management requests were used most often by training departments that had respondents that had a university degree but not a graduate degree. Management requests were used thirty-five percent of the time.

Those respondents that had graduate degrees reported that the following top five data collection methods were used within their training department:

1. Management Requests
2. Group Discussion
3. Observation (No Communication)
4. Interviews
5. Advisory Committees

Management requests and group discussion were most often chosen with the percent of time used assigned at thirty-three and fourteen percent respectively. Table 35 contains the mean percent of time each data collection method is used and their weighted mean ranks for these training departments that had respondents with university or college degrees.
TABLE 35

FREQUENCY DISTRIBUTION OF MEANS AND WEIGHTED MEAN BANKS BY DEGREE FIELD BY TRAINER FOR THE PERCENT OF TIME EACH DATA COLLECTION METHOD IS USED TO DETERMINE ALL TRAINING NEEDS

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
<th>f</th>
<th>Mean</th>
<th>WMR</th>
</tr>
</thead>
<tbody>
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<td>10.00</td>
<td>07</td>
<td>24</td>
<td>12.29</td>
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<td>20.00</td>
<td>06</td>
<td>07</td>
<td>05.71</td>
<td>09</td>
</tr>
<tr>
<td>Critical Incidents Reports</td>
<td>13</td>
<td>16.15</td>
<td>06</td>
<td>26</td>
<td>12.31</td>
<td>04</td>
</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>16</td>
<td>14.69</td>
<td>04</td>
<td>26</td>
<td>12.31</td>
<td>04</td>
</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>24</td>
<td>34.79</td>
<td>01</td>
<td>25</td>
<td>33.00</td>
<td>01</td>
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<td>Management Requests</td>
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<td>17.31</td>
<td>05</td>
<td>11</td>
<td>17.73</td>
<td>07</td>
</tr>
<tr>
<td>Observation (No communication)</td>
<td>24</td>
<td>22.92</td>
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WMR = Frequency X Mean Percent of Time Used

WMR = Weighted Mean Bank
Chapter V
SUMMARY, CONCLUSIONS/DISCUSSION, AND RECOMMENDATIONS

5.1 SUMMARY

The main purpose of this study was to identify the data collection methods used by training departments in business and industry when conducting training needs analyses. The following research questions were used as a guide for the study:

1. What methods of data collection are used by trainers in business and industry when conducting a task or job needs analysis, an organizational needs analysis, and a person or individual needs analysis?

2. Does the selection of data collection methods vary according to some of the following environmental variables?
   a) Type of organization
   b) Size of organization
   c) Position of training department within the organizational structure
   d) Perceived priority given to training by top management

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e) Percentage of program development time spent collecting data
f) Existence of data collection policies
g) Origin of stimulus to collect data

3. Does the selection of data collection methods vary according to some of the following demographic variables?
   a) Experience as a trainer
   b) Percentage of time spent as a trainer
   c) Professional preparation for learning skills to collect data
d) Educational level
e) Age
f) Gender

5.1.1 Data Collection Methods
Training departments use a variety of data collection methods for determining training needs in business and industry. A series of questions were used to determine which data collection methods are actually being used in business and industry. Initially the respondents were asked to identify which data collection methods were being used by the training department to determine the overall training needs. This question was designed to provide an overall view of the data collection methods used by the training department. Later the respondents were asked to
identify data collection methods that were used specifically for identifying training needs for a task or job, the overall organization, and the individual. It should be noted that there may be a difference in the ranking position of percentage of time a data collection method is used and the report of whether a data collection method is used at all (frequency).

1. The overall data collection methods that were used most frequently are ranked as follows:
   a) Management Requests
   b) Questionnaires
   c) Group Discussion
   d) Interviews
   e) Advisory Committees
   f) Review Records and Reports
   g) Observation-Interview
   h) Observation
   i) Critical Incident Reports
   j) Assessment Centers

   Management requests were used the highest percentage of time when collecting data to determine overall training needs.

2. The following is a list of overall data collection methods ranked according to the weighted mean rank of the percentage of time used: (The Weighted Mean Rank incorporates both the mean percent of time a
data collection method is used and the number of times a data collection method has been selected.)

a) Management Requests
b) Questionnaires
c) Group Discussion
d) Observation-Interview
e) Observation
f) Advisory Committees
g) Review Records and Reports
h) Interviews
i) Critical Incident Reports
j) Assessment Centers

3. The data collection methods that were most frequently chosen to determine job and task needs were:

a) Review Records and Reports
b) Interviews
c) Observation-Interview
d) Management Requests
e) Questionnaires
f) Critical Incident Reports
g) Group Discussion
h) Advisory Committees
i) Observation
j) Assessment Centers
The following data collection methods were used to collect task and job information and are ranked according to their weighted mean percentage of time used:

a) Management Requests
b) Interviews
c) Review Records and Reports
d) Observation-Interview
e) Critical Incident Reports
f) Group Discussion
g) Advisory Committees
h) Observation
i) Questionnaires
j) Assessment Centers

The data collection methods most frequently chosen to determine organizational needs were:

a) Management Requests
b) Review Records and Reports
c) Questionnaires
d) Group Discussion
e) Advisory Committees
f) Observation-Interview
g) Observation
h) Interviews
i) Assessment Centers
j) Critical Incident Reports
6. The following data collection methods were used to collect information to determine organizational needs and are ranked according to their weighted mean percent of time used:
   a) Management Requests
   b) Review Records and Reports
   c) Group Discussion
   d) Questionnaires
   e) Observation-Interview
   f) Advisory Committees
   g) Interviews
   h) Observation
   i) Assessment Centers
   j) Critical Incident Reports

7. The data collection methods that were most frequently chosen to obtain information concerning individual trainees were:
   a) Review Records and Reports
   b) Management Requests
   c) Interviews
   d) Observation-Interviews
   e) Group Discussion
   f) Observation
   g) Assessment Centers
   h) Questionnaires
   i) Advisory Committees
j) Critical Incident Reports

8. The following data collection methods were used to collect information concerning the individual trainee and are ranked according to their weighted mean percentage of time used:

a) Management Requests
b) Review Records and Reports
c) Assessment Centers
d) Interviews
e) Observation
f) Observation-Interview
g) Group Discussion
h) Questionnaires
i) Advisory Committees
j) Critical Incidents Reports

Increasing the length of time allowed to collect information when determining training needs affected the choice of methods that could be used.

9. The overall data collection methods that would be used if the training department was only allowed one day to collect information are ranked as follows:

a) Management Requests
b) Interviews
c) Group Discussion
d) Review Records and Reports

e) Observation-Interview

f) Critical Incident Reports

g) Observation

h) Questionnaires

i) Advisory Committees

j) Assessment Centers

10. The overall data collection methods that would be used if the training department was only allowed five days to collect information are ranked as follows:

a) Review Records and Reports

b) Group Discussion

c) Interviews

d) Questionnaires

e) Management Requests

f) Critical Incidents Reports

g) Observation-Interview

h) Advisory Committees

i) Observation

j) Assessment Centers

11. The overall data collection methods that would be used if the training department was allowed twenty days to collect information are ranked as follows:

a) Questionnaires

b) Group Discussion
c) Interviews  
d) Management Requests  
e) Review Records and Reports  
f) Assessment Centers  
g) Observation  
h) Observation-Interview Advisory Committees  
i) Critical Incidents Reports  

Data collection methods that provided immediate results were chosen most often when time to collect data was limited. As the time allowed to collect training needs information increased, data collection methods that relied less on interpersonal interactions were more often used.

The most effective data collection methods for determining training needs for jobs or tasks, the organization, and the individual were indicated in Table 8 in Chapter IV.

12. The most effective data collection methods for collecting job or task information are ranked as follows:  
a) Questionnaires  
b) Management Requests  
c) Review Records and Reports  
d) Group Discussion
e) Interviews  
f) Observation-Interview  
g) Critical Incidents Reports  
h) Advisory Committees  
i) Observation  
j) Assessment Centers

13. The most effective data collection methods for collecting information to determine organizational needs are ranked as follows:
   a) Review Records and Reports  
   b) Management Requests  
   c) Group Discussion  
   d) Advisory Committees  
   e) Questionnaires  
   f) Interviews  
   g) Observation-Interview  
   h) Observation  
   i) Assessment Centers  
   j) Critical Incidents Reports

14. The most effective data collection methods for collecting information to determine training needs for individual trainees are ranked as follows:
   a) Observation-Interview  
   b) Management Requests  
   c) Interviews  
   d) Group Discussion
e) Review Records and Reports
f) Questionnaires
g) Assessment Centers
h) Critical Incidents Reports
i) Observation
j) Advisory Committees

Questionnaires and management requests were chosen to be most effective to collect information when determining task or job training needs. Management requests and reviewing records and reports were chosen to be most effective to collect information when determining organizational needs. Observation-interview and management requests were chosen to be most effective to collect information when determining individual needs.

15. Respondents' personal preferences for data collection methods relied heavily on methods that required interpersonal interactions. Interviews and observation-interview were selected most often as the respondents' personal preference for a data collection method.

The type of organization in which training departments are operating may control the choice of data collection methods.
16. The following data collection methods were used by manufacturing organizations and are ranked by the weighted mean percent of time used to collect overall training needs information:
   a) Management Requests
   b) Group Discussion
   c) Observation-Interview
   d) Questionnaires
   e) Interviews
   f) Critical Incidents Reports
   g) Review Records and Reports
   h) Observation
   i) Advisory Committees
   j) Assessment Centers

17. The overall data collection methods used by training departments within the manufacturing sector are ranked according to the number of departments using the method:
   a) Group Discussion
   b) Management Requests
   c) Questionnaires
   d) Observation-Interview
   e) Review Records and Reports
   f) Advisory Committees
   g) Observation
   h) Interviews
18. The following data collection methods were used by non-manufacturing organizations and are ranked by the weighted mean percent of time used to collect overall training needs information:
   a) Management Requests
   b) Questionnaires
   c) Observation
   d) Group Discussion
   e) Observation-Interview
   f) Advisory Committees
   g) Review Records and Reports
   h) Interviews
   i) Critical Incidents Reports
   j) Assessment Centers

19. The overall data collection methods used by training departments within the non-manufacturing sector are ranked according to the number of departments using the method:
   a) Management Requests
   b) Group Discussion
   c) Questionnaires
   d) Interviews
   e) Advisory Committees
   f) Observation
Training departments within manufacturing and nonmanufacturing organizations used management requests the highest percentage of time to collect information when determining all types of training needs. Their second choice of data collection methods differed. Training departments within manufacturing organizations used group discussion while the nonmanufacturing trainers used the questionnaire.

The position of the training department within the structure of the entire organization may affect the data collection methods used to determine the training needs. The position of the training department was considered in relation to the number of administrative levels that exist between the training department and the Chief Executive Officer (CEO) of the organization and the position of the training department in relation to the level of decision making when obtaining approval to offer a training program. In the first case, there
seemed to be groupings of organizations that had less than three levels of administration between the training department and the Chief Executive Officer (CEC) and those that had more than three levels of administration.

20. The mean percent of time data collection methods were used and their weighted mean ranks for organizations with less than three levels of administration between the training department and the Chief Executive Officer (CEC) are presented below. The top five data collection methods used by training departments that had less than three levels between their department and the CEO of the organization were:

- a) Management Requests
- b) Questionnaires
- c) Group Discussion (Ad Ecc)
- d) Advisory Committees
- e) Observation-Interview

The top five data collection methods used by training departments that had three or more levels between their department and the CEO were:

- a) Management Requests
- b) Questionnaires
- c) Group Discussion (Ad Ecc)
d) Observation (No communication)
e) Observation-Interview

The position of the training department in relation to the level at which final decisions are made concerning the offering of a training program can provide an additional perspective. There was a grouping of organizations that had less than two levels between the training department and the decision making level and those that had two or more levels between the training department and the decision making level at which approval was given to.

21. The top five data collection methods used by departments that have less than two levels between themselves and the decision making level were:
   a) Management Requests
   b) Group Discussion
   c) Questionnaires
   d) Review Records and Reports (Internal/External)
   e) Advisory Committees (Formal)

22. The top five data collection methods used by departments that have more than two levels between themselves and the decision making level were:
   a) Management Requests
   b) Observation (No communication)
   c) Observation-Interview
d) Questionnaires

e) Interviews (Employer/Employee)

The data collection method that was used the highest percentage of time remained the same regardless of the position of the training department within the organizational structure. Both the administrative level in relation to the Chief Executive Officer (CEO) of the organization and the administrative level at which final decisions are made were considered.

The priority given to training by top management may affect the data collection methods used for determining training needs. Respondents rated their perception of the level of support that was given to training by top management on a scale of one to five. For comparison purposes the data have been sorted into two categories: those with a rating of support of less than three on a five-point scale and those with a rating of three or more.

23. The top five data collection methods used for determining training needs for those organizations that had less than a three rating were:

a) Management Requests

b) Observation (No communication)
c) Interviews (Employer/Employee)
d) Advisory Committees
e) Assessment Centers

24. The top five data collection methods used for determining training needs for these organizations that had more than a three rating were:
   a) Management Requests
   b) Questionnaires
   c) Group Discussion (Ad Fcc)
   d) Observation-Interview
   e) Review Records and Reports

The years of experience as a trainer may affect the data collection method used for determining training needs. For purposes of comparison the data collection methods used by trainers who had less than ten years experience may be different from those with ten years or more experience.

25. The top five data collection methods used by trainers with less than ten years experience were:
   a) Management Requests
   b) Questionnaires
   c) Observation-Interview
   d) Group Discussion (Ad Fcc)
   e) Interviews (Employer/Employee)
26. The top five data collection methods used by trainers with ten years or more experience were:
   a) Management Requests
   b) Observation (No Communication)
   c) Questionnaires
   d) Group Discussion (Ad Fcc)
   e) Interviews (Employp Enumployee)

   Experience as a trainer did not alter the position of management requests as the data collection method used the highest percentage of time when collecting training needs information. The data collection methods that occupied the second position did differ for those trainers that had less than ten year experience and those that had ten years experience or more. The trainers with less than ten years experience used questionnaires and the trainers with ten years or more experience used observation.

   The percentage of time that a trainer actually works directly with trainees may control the data collection methods or processes used for determining training needs. The mean percent of time that a trainer uses a specific data collection method has been considered from the perspective of the those trainers that spend
less than thirty percent of their time working directly with trainees and those that spend more than thirty percent of their time working directly with trainees.

27. The top five data collection methods that have been used by trainers that spend less than thirty percent of their time with trainees were:
   a) Management Requests
   b) Questionnaires
   c) Group Discussion (Ad Ecc)
   d) Observation (No Communication)
   e) Interviews (Employer/Employee)

28. The top five data collection methods that have been used by trainers that spend more than thirty percent of their time with trainees were:
   a) Management Requests
   b) Observation-Interview
   c) Questionnaires
   d) Review Records and Reports
   e) Advisory Committees

The percentage of time a trainer spends with trainees did not affect the position of management requests as the data collection method used the highest percentage of time when collecting training needs information. The data collection methods that occupied the second
position did differ for those trainers that spent less than thirty percent of their time with trainees and those that spent thirty or more percent of their time with trainees. The trainers that spent less than thirty percent of their time used questionnaires and the trainers that spent thirty percent or more with trainees used observation-interview.

The gender of the respondents may control whether specific data collection methods are used. There were twenty-one male trainers and sixty-three female trainers that indicated their gender.

29. The top five data collection methods that were reportedly used by the male respondents' training departments were:
   a) Questionnaires
   b) Group Discussion (Ad Hoc)
   c) Observation-Interview
   d) Observation (No Communication)
   e) Interviews (Employer/Employee)

30. The top five data collection methods that were reportedly used by female respondents' training departments were:
   a) Management Requests
   b) Questionnaires
c) Review Records and Reports

d) Group Discussion (Ad Hoc)

e) Advisory Committees (Formal)

There was a difference between the data collection methods ranked according to percentage of time used by training departments that had female respondents and those training departments that had male respondents. The training departments that had male respondents used questionnaires, group discussion, and observation-interview while female respondent's departments used management requests, group discussion, and observation.

The educational background of a trainer may affect the data collection methods used for determining training needs.

31. The top five data collection methods used by departments that had respondents who had a university degree but not a graduate degree were:

   a) Management Requests
   b) Questionnaires
   c) Review Records and Reports
   d) Interviews
   e) Observation-Interview
Those respondents that had graduate degrees reported that the following top five data collection methods were used within their training department:

a) Management Requests
b) Group Discussion
c) Observation (No Communication)
d) Interviews
e) Advisory Committees

Training departments that had undergraduate respondents ranked the same data collection method (Management Requests) in first place, according to percentage of time used, as those training departments that had graduate respondents. The second and third rankings of data collection methods according to time used were different for respondent's departments that had undergraduate and graduate degrees. The undergraduate's training departments ranked questionnaires and reviewing records and reports as their next rankings and the trainers with graduate degrees used group discussion and observation as the data collection methods that would be ranked next.
5.1.2 **Environmental and Demographic Characteristics**

The following observations are provided to consolidate the environmental and demographic characteristics considered in this study.

The position of the training department in relation to the Chief Executive Officer (CEO) and the level at which decisions are made to offer training may reflect the importance placed on training within the organization.

33. Manufacturing and nonmanufacturing organizations had approximately fifty-five percent of their groups having two or less administrative levels between the training department and the Chief Executive Officer (CEO).

34. Manufacturing organizations had sixty-seven percent of their group with one or fewer administrative levels between the training department and the decision making administrative level at which decisions are made to offer training programs, while nonmanufacturing organizations had fifty-eight percent of their sector having the same number of administrative levels.

35. Requests for data collection within manufacturing and nonmanufacturing organizations come equally from outside the training department or are originated through departmental policy to collect data.
36. Nonmanufacturing organizations received a mean rating of 3.53 on a scale of one to five for their perceived support given to training while manufacturing organizations had a mean rating of 3.52.

37. Training departments found within manufacturing organizations reported using fourteen percent of the time allowed for program development collecting training needs data. Training departments found within the nonmanufacturing sector reported using twenty-two percent of the time allowed for program development collecting training needs.

38. Almost all of the organizations had a formally recorded training policy. Forty-seven percent of those that had a formally recorded training policy had statements that specified that data be collected for training needs analyses. Of this group, sixty-five percent had statements in the policy that stated the data collection methods to be used when determining training needs.

39. Trainers working within nonmanufacturing organizations had training experience that ranged between two and twenty-seven years with a mean number of years of experience of just under ten years. The eleven trainers that worked in manufacturing organizations had a mean number of years of experience of just over ten years.
40. Trainers within manufacturing organizations spend approximately twenty-five percent of their time working directly with trainees while trainers within the nonmanufacturing sector spend thirty-six percent of their time working directly with trainees.

41. Trainers learned the skills to collect training needs from different sources. Reading books and periodicals were chosen most often as the source for learning about the methods of data collection to determine training needs.

42. There were eighty-four respondents who indicated their gender. Seventy-three percent of the trainers within the manufacturing sector were males while twenty-seven percent were female. Within the nonmanufacturing organizations eighty-five percent were female and fifteen percent were male trainers.

43. Sixty-four percent of all the trainers were between thirty-one and forty years of age while only twenty-one percent were between the ages of forty-one and fifty. Inspection of the data indicated a preponderance of subjects in one group and therefore would make analysis meaningless.

44. Approximately eighty-five percent of the trainers were college or university graduates. Sixty-nine percent specified the degree which they held and of
those, over fifty percent had graduate degrees.

The top five data collection methods used by departments that had respondents who had a university degree but not a graduate degree were:

a) Management Requests
b) Questionnaires
c) Review Records and Reports
d) Interviews
e) Observation-Interview

Those respondents that had graduate degrees reported that the following top five data collection methods were used within their training departments:

a) Management Requests
b) Group Discussion
c) Observation (No Communication)
d) Interviews
e) Advisory Committees

5.2 CONCLUSIONS AND DISCUSSION

1. Conclusion: Management requests were used the highest percentage of time when collecting information to determine all types of training needs including: job or task needs, organizational needs, and individual or person needs. Management requests were never considered the most effective
data collection method used by training departments when determining job or task needs, organizational needs, and individual needs.

Discussion: Management requests are unsolicited and solicited suggestions given to the training department by management personnel. Training departments, in most cases, are in a service or support function within the organization and would naturally be responsive to requests made for service. Management requests were ranked in first position for the data collection method used most often and for the highest percentage of time used but DID NOT retain this position for the most effective data collection or the method preferred by the trainers. Management requests were relegated to the second position when reports of training departments' most effective data collection methods were indicated. This may suggest that the training departments within this study sample need to review their role within the organization. To the extent that responding to management requests represents a top-down process of data gathering, other methods of data gathering may need to be instigated which will insure a greater balance between employee-oriented and management-oriented data.
2. Conclusion: There were ten data collection methods identified as being used to collect information to determine training needs. No training departments used all ten methods to collect data.

Discussion: The literature has identified numerous data collection methods that may be used to collect data for determining training needs. The findings of this study suggest that there may be key data collection methods that are used by practitioners a large percentage of the time. For example, both management requests and the Delphi Method were suggested in the literature, but none of the training departments used the delphi method.

3. Conclusion: The data collection method identified as being the method used most often by different training departments to collect information to determine job or task needs was not the same method that was used the largest percentage of time to collect the same information. Reviewing records and reports was the data collection method most often used but management requests were used the highest percentage of time.

Discussion: Training departments may find more value in reviewing records and reports but organizational circumstances cause them to use more
input from management. It could be the case that the training department is consulted after a decision has been made by management to offer a training program. A training department that is part of the line function will be important as part of the data gathering process before or during the time that a training need is fully identified. Consulting records and reports during the fact finding stage before decisions are made can produce valuable input. The largest percentage of training departments agree with this process but reality seems to dictate that training department involvement, for the highest percentage of time, is through management requests.

4. Conclusion: The data collection methods used to collect information to determine organizational training needs were the same methods (approximately) that were identified as being used the highest percentage of time when collecting all organizational needs information. Management requests and reviewing records and reports were ranked in the top two positions while group discussion, questionnaires, observation-interview, advisory committees shared the remaining four positions.
Discussion: In the private sector, organizations and employee development programs are ultimately aimed at realizing greater profits. What better ways are there to meet that goal than to see what is happening and is needed from all perspectives? Training departments realize that one of the ways to collect data when determining organizational needs is to carefully listen to management requests. Those individuals that are directly involved in the management process can provide a valuable perspective. Organizations usually do not operate in isolation and therefore using the data collection method of reviewing records and reports provide additional information that can result in wiser decisions and ultimately in greater profits.

5. Conclusion: The data collection method most frequently chosen by training departments to collect information when determining individual needs was not the same method that was used the highest percentage of time. Reviewing records and reports was chosen most often by departments while management requests were used the highest percentage of time of all the methods chosen.

Discussion: While perceptions of management concerning individual trainee training needs may be accurate, the reviewing of records and reports can
provide a profile of the individual trainee's behavior that could result in indicating training needs.

6. Conclusion: The most favored data collection methods change when an increased amount of time is available or used for collecting information to determine overall training needs. An increase in time used results in training departments more likely using methods designed to gather data from prospective learners themselves.

Discussion: Management requests, as a data collection method, moved down at least three positions in rank order when the time allowed changed from one day, to five days, and then to twenty days. Increasing the length of time allowed broadens the input of information to the needs analysis process. This may indicate that if the design of the information input process can be altered by speeding-up data collection through changing how information is handled, this may result in better data collection. A standard questionnaire could be customized very quickly with the use of a word processor and be ready for administration within hours. The results could in turn be processed using statistical packages on a microcomputer. Information about a specific
department and all of its workforce could be stored ahead of time and retrieved with few person-hours, making it more likely that information be gathered from prospective learners themselves even when less time is used.

7. Conclusion: The most effective data collection method for collecting information when determining task or job needs was the questionnaire. Management requests were the most effective data collection method when collecting information to determine organizational needs and observation-interview was identified as the most effective data collection method when determining individual or person needs.

Discussion: There appear to be two orientations: one from the point of view of the organization and the other from the point of view of the individual. Both job or task needs and individual needs are more specifically interested in the individual's behavior than the concerns that are raised through the determination of organizational needs. It is understandable then that observation-interview and questionnaires directed to elicit information about a job are person oriented and the management requests are organization oriented.
8. Conclusion: Interviews were considered the trainers' preferred data collection method for collecting information to determine all types of training needs.

Discussion: Trainers would prefer to spend their time with other human beings. They appear to see value in collecting information verbally whether it is from a person in management providing an overall perspective or the potential learner who needs to do a job.

9. Conclusion: There was no appreciable difference between the highest ranked data collection method (management requests) when the following variables were considered:

a) Type of Organization (Manufacturing / Nonmanufacturing)

b) Size of Organization (Less than 500 employees / 500 employees or more; Less than 500 employees being served by the training department / More than 500 employees being served by the training department)

c) Position of the training department within the organizational structure (Less than three levels between the training department and the Chief Executive Officer (CEO) / More than three levels between the training department and the CEO;
Less than two levels between the training department and the program decision making level / Two levels or more between the training department and the program decision making level)

d) Perceived priority given to training by top management (Less than a three rating / more than a three rating on a five point scale)

e) Percentage of program development time collecting data (Less than thirty percent of time / Thirty percent or more of the program development time)

f) Experience as a trainer (Less than ten years / Ten years or more)

g) Percentage of time spent as a trainer (Less than thirty percent of time / Thirty percent of time or more)

h) Educational Level (Undergraduate degree / Graduate degree)

Discussion: A few cautionary notes should be added to assist in the interpretation of the above conclusion. First, only thirteen percent (N=12) of the respondents were employed within manufacturing organizations while seventy-nine percent (N=73) were employed within the nonmanufacturing sector. Second, Eleven of the
organizations had less than 500 employees and seventy-eight had more than 500 employees. There were four no-responses to this question.

It could be generalized that a trainer who is employed within a training department that is located at any hierarchical administrative level within either a manufacturing or nonmanufacturing environment, perceives that training is supported by management, collects data to determine training needs, has trainee contact time, and has an undergraduate or graduate degree will most likely use management requests when collecting information to determine training needs.

10. Conclusion: Male trainers reported their departments used questionnaires for data collection the greatest percentage of time while female trainers reported using management requests the greatest percentage of time when collecting information to determine overall training needs.

Discussion: There were twenty-one male trainers and sixty-three female trainers that indicated their gender. It would appear that male trainers are more likely to use processes that obtain information from potential learners themselves.
5.3 **Recommendations**

The following recommendations are presented based on the findings and conclusions of this study:

1. The data collection methods that are used the greatest percentage of time have been identified. This series of methods should be incorporated into programs designed for training trainers. Research is needed to identify those data collection methods that provide the best information in the shortest period of time.

2. Information storage and retrieval systems could be better utilized to assist in the collection and processing of training needs information. Research is needed to identify these systems and to provide a model that will reduce the time that it takes to generate a training needs profile.

3. This study should be replicated with different populations. The sample for this study consisted of members of the Central Chic Chapter of the American Society for Training and Development who had business and industry addresses. A sampling frame that is constructed from all businesses and industries in the State of Chic or grouping of states would allow for generalizability.

4. Almost all the organizations had a formally recorded training policy. Research could be
conducted to review these statements and do comparisons between the different types of organizations. Access to these statements would need to be accomplished through personal interviews with a trainer. A workshop could be offered to local groups, offering to help review their statements. This would provide the necessary data and also give the organizational representatives assistance in improving their policy statements.

5. Research could be conducted to further investigate how trainers learned how to collect training needs information. This study attempted to solicit the number of hours that were spent learning how to collect data. The results were not reliable. The learning methods or environment were identified but not the time spent to learn the methods. A different direction of research in this area is to identify the competencies needed to collect information for training needs analyses and then determine where and how these competencies were learned.

6. This research has given an indication of which data collection methods are actually being used within this specific business and industry population. The training needs analysis process needs to be investigated next. Before any investigation is
begun, the researcher should carefully review the percentage of training programs that are initiated from an original management request. This research has suggested that this method may be used due to the organizational climate where management is in a superior role within the organization. The identified needs analyses processes could be compared to theoretical models to determine the degree to which they actually match. A case study approach using qualitative research could be used to investigate the needs analysis process.

7. Some theoreticians have reported that training needs are determined intuitively by management. The area of intuition in decision making could be investigated to identify each stage in the process including comparing success rates.
Appendix A

CONCEPT OF NEED

Herein is provided a more detailed description of the concept of need as defined by Mcretie (1977).

Basic Human Need This term indicates a deficient state that initiates a motive on the part of an individual or a non-observable or inferred bio-psychological state rather similar to a "drive". This condition may be understood as a tension state of some kind which causes gratification seeking behavior. Need in this sense denotes an innate, unlearned condition which is natural to all.

Felt and Expressed Needs The term is most commonly used in the sense of an individual "want" or "desire" or "felt need"... In this context, need suggests a means of gratification (for example, a course in woodworking) and implies an ultimate goal (for example, "to qualify for employment as a carpenter")... The want or felt need alone is an inadequate measure of real need in that is limited by the perceptions of individuals, that is, their awareness of services available, their own self-awareness, and their willingness to depend on services.

Normative Needs A need may be called normative when it constitutes a deficiency or gap between a "desirable" standard and the standard that actually exists... That someone is in need is not a simple empirical fact, but rather a value judgement entailing three propositions: namely, that someone is in a given state, that this state is incompatible with the norms held by some group or by
society, and therefore the state of that someone should be changed. Evidently, normative standards also change with time depending on developments in knowledge and changes in the values of society.

Comparative Needs need is also measured by comparing the characteristics of those in receipt of a service with others who are not. If these others exhibit the same characteristics and are not receiving the service, they are said to be in need. Standardized provision, however, may still not correspond with need. The question of what level of supply is adequate remains to be answered. Comparative need, by itself, is not an adequate measure of real need. (Monette, 1977, p. 117-118)
APPENDIX E
MAILED QUESTIONNAIRE

The following pages include a copy of the mailed questionnaire sent to respondents. The respondent's copy of the questionnaire was organized in booklet form on three pages of 8 1/2 x 11 inch paper.
DATA COLLECTION METHODS FOR DETERMINING TRAINING NEEDS

WHICH METHODS HAVE YOU USED?
SECTION A DATA COLLECTION METHODS

Different methods are used for collecting data when determining training needs. This series of questions will explore your company's use of data collection methods. Please limit your selection to the methods used during the past 12 months.

1. Have you personally collected information or directed the collection of information that helped in the design of a training program?
   YES □ NO □
   If NO, please respond to all of the following items from your knowledge of what goes on within your training department concerning the collection of data to determine training needs.

2. Which of the following methods have been used in your department during the past year? PLEASE CHECK

   □ Advisory Committees (Formal) □ Assessment Centers □ Critical Incident Reports □ Delphi Method □ Group Discussion (Ad Hoc) □ Interviews (Employer/Employee) □ Management Requests □ Observation (No communication) □ Observation-Interview □ Questionnaires □ Review Records & Reports (Internal/External)

   □ None of the above

   Others (PLEASE SPECIFY) □ □

   100 % of Time

3. In the space to the right of the items you have selected in question 2, indicate the PERCENTAGE OF TIME each method was used.
Training needs are derived from

(1) the JOBS or TASKS to be performed,
(2) the needs of the ORGANIZATION, and
(3) the needs of the INDIVIDUAL.

An interdependence exists between these categories of needs. The first three questions asked about which methods were generally used by your department to collect data. The next series of questions will help you focus more specifically on each of the three areas cited above.

4. Which data collection methods have been used in your department to determine the specific details of a JOB or TASK for which persons need training? PLEASE CHECK

- Advisory Committees (Formal) ___ %
- Assessment Centers ___ %
- Critical Incident Reports ___ %
- Delphi Method ___ %
- Group Discussion (Ad Hoc) ___ %
- Interviews (Employer/Employee) ___ %
- Management Requests ___ %
- Observation (No Communication) ___ %
- Observation-Interview ___ %
- Questionnaires ___ %
- Review Records & Reports (Internal/External) ___ %
- None of the above
- Others (PLEASE SPECIFY) ___ %

5. In the space to the right of the items you have selected in question 4, indicate the PERCENTAGE OF TIME each method was used.
6. Some training programs result from reviewing the overall goals and objectives of the organization. Which data collection methods has your training department used to determine all of the ORGANIZATIONAL needs for training? PLEASE CHECK.

- □ Advisory Committees (Formal) __ %
- □ Assessment Centers __ %
- □ Critical Incident Reports __ %
- □ Delphi Method __ %
- □ Group Discussion (Ad Hoc) __ %
- □ Interviews (Employer/Employee) __ %
- □ Management Requests __ %
- □ Observation (No Communication) __ %
- □ Observation-Interview __ %.
- □ Questionnaires __ %
- □ Review Records & Reports (Internal/External) __ %
- □ None of the above
- □ Others (PLEASE SPECIFY) __ %

7. In the space to the right of the items you have selected in question 6, indicate the PERCENTAGE OF TIME each method was used.
Information is sometimes collected concerning individual employee development. Which data collection methods has your department used to determine the training needs of the INDIVIDUAL? PLEASE CHECK

- Advisory Committees (Formal) __ %
- Assessment Centers __ %
- Critical Incident Reports __ %
- Delphi Method __ %
- Group Discussion (Ad Hoc) __ %
- Interviews (Employer/Employee) __ %
- Management Requests __ %
- Observation (No Communication) __ %
- Observation-Interview __ %
- Questionnaires __ %
- Review Records & Reports (Internal/External) __ %
- None of the above

Others (PLEASE SPECIFY)
- ____________________________ __ %
- ____________________________ __ %
- ____________________________ __ %

100 % of Time

9. In the space to the right of the items you have selected in question 8, indicate the PERCENTAGE OF TIME each method was used.
Time available can control the data collection method used for determining training needs for all the need areas cited earlier.

10. Check which of the methods listed below your department would use if your department had one man-day, five man-days, or 20 man-days to accomplish the data collection process. Consider each of the time periods separately.

<table>
<thead>
<tr>
<th>Method</th>
<th>1 man-day</th>
<th>5 man-days</th>
<th>20 man-days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
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<td></td>
<td></td>
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<tr>
<td>Assessment Centers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Incident Reports</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Delphi Method</td>
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<tr>
<td>Group Discussion (Ad Hoc)</td>
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<tr>
<td>Interviews (Employer/Employee)</td>
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<tr>
<td>Management Requests</td>
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<tr>
<td>Observation (No Communication)</td>
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<td>Observation-Interview</td>
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<tr>
<td>Questionnaires</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review Records &amp; Reports (Internal/External)</td>
<td></td>
<td></td>
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<tr>
<td>None of the above</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (PLEASE SPECIFY)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11. Check those methods which have been MOST EFFECTIVE for your training department when determining JOB/TASK needs, ORGANIZATIONAL needs, and PERSON needs. Consider each need area separately.

<table>
<thead>
<tr>
<th>JOB/TASK NEEDS</th>
<th>ORGANIZATIONAL NEEDS</th>
<th>PERSON NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Committees (Formal)</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Assessment Centers</td>
<td>□</td>
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<tr>
<td>Critical Incident Reports</td>
<td>□</td>
<td>□</td>
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<tr>
<td>Delphi Method</td>
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<tr>
<td>Group Discussion (Ad Hoc)</td>
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<tr>
<td>Interviews (Employer/Employee)</td>
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<tr>
<td>Management Requests</td>
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<td>Observation (No Communication)</td>
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<tr>
<td>Observation-Interview</td>
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<tr>
<td>Questionnaires</td>
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<tr>
<td>Review Records &amp; Reports (Internal/External)</td>
<td>□</td>
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</tr>
<tr>
<td>None of the above</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Others (PLEASE SPECIFY)</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
12. The sources of information vary considerably when attempting to determine training needs. To what extent do you favor using the following data collection methods when determining training needs? PLEASE CIRCLE YOUR PREFERENCE FOR EACH METHOD.

<table>
<thead>
<tr>
<th>Method</th>
<th>STRONGLY PREFER (5)</th>
<th>PREFER (4)</th>
<th>ACCEPTABLE (3)</th>
<th>WOULD BE RELUCTANT TO USE (2)</th>
<th>WOULD NOT USE (1)</th>
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</thead>
<tbody>
<tr>
<td>Advisory Committee (Formal)</td>
<td>5 4 3 2 1</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Assessment Centers</td>
<td>5 4 3 2 1</td>
<td></td>
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<tr>
<td>Critical Incident Reports</td>
<td>5 4 3 2 1</td>
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<tr>
<td>Delphi Method</td>
<td>5 4 3 2 1</td>
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</tr>
<tr>
<td>Group Discussion (Ad Hoc)</td>
<td>5 4 3 2 1</td>
<td></td>
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</tr>
<tr>
<td>Interviews (Employer/Employee)</td>
<td>5 4 3 2 1</td>
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<tr>
<td>Management Requests</td>
<td>5 4 3 2 1</td>
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<tr>
<td>Observation (No Communication)</td>
<td>5 4 3 2 1</td>
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</tr>
<tr>
<td>Observation-Interview</td>
<td>5 4 3 2 1</td>
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</tr>
<tr>
<td>Questionnaires</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review Records &amp; Reports</td>
<td>5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Internal/External)</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Others (PLEASE SPECIFY)</td>
<td>5 4 3 2 1</td>
<td></td>
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</tbody>
</table>
SECTION B  ENVIRONMENTAL CONDITIONS

Next we would like to enquire about your work environment to see how it may affect the selection of data collection methods.

1. What is your employer's field of business? PLEASE CHECK.
   Manufacturing □  Nonmanufacturing □  Other □    (Specify)

2. How many people are employed by your entire organization?
   ______ employees.

3. How many people are "theoretically" served by your training department?
   ______ employees.

4. How many administrative levels exist between your training department and the Chief Executive Officer (CEO) of the organization? PLEASE SPECIFY.
   ______ level(s)

5. How many administrative levels exist between your training department and the level at which FINAL decisions are made to offer a training program? PLEASE SPECIFY.
   ______ level(s)

6. What support is given to training by top management?
   STRONG SUPPORT  LITTLE SUPPORT
   5  4  3  2  1
   (Please circle level of support)

7. What percentage of the training department's time allocated for program development is spent on collecting training needs data? PLEASE SPECIFY.
   ______ %
8. Does your company have a formally recorded training policy?
   □ YES □ NO (If NO, go to question 11.)

9. Does the policy state that data be collected for training needs analyses?
   □ YES □ NO (If NO, go to question 11.)

10. Does the policy specify the data collection methods to be used when determining training needs?
    □ YES □ NO

11. Data collection requests come from different sources. Please consider each of the following sources and indicate what PERCENT OF TIME data collection requests come from each source. PLEASE SPECIFY.

   A request from outside the training department. ___ %

   A company policy to collect data on a regular basis. ___ %

   Other sources. (Specify) _________________________________ ___ %

SECTION C YOUR BACKGROUND

Finally we would like to know just a little about YOU so we can see how different backgrounds may affect the selection of data collection methods.

1. How long have you been a trainer?
   YEARS
   If less than one year, indicate number of months: ___

2. At the present time what PERCENT of your total professional working time is spent working directly with trainees?
   ___ % of Time
3. Where did you learn the skills to collect data for determining training needs? PLEASE CHECK.

☐ Company courses/seminars ___ hrs.
☐ Professional Association courses/seminars ___ hrs.
☐ Undergraduate course/seminars ___ hrs.
☐ Graduate course/seminars ___ hrs.
☐ Reading books & periodicals (Not coursework) ___ hrs.
☐ On-the-job (Informal Instruction) ___ hrs.
☐ Other ___________________ ___ hrs. (Please Specify)
☐ None of the above

4. In the space to the right of item(s) you have selected in question 3, indicate the approximate number of hours you have spent learning data collection skills.

5. Rate your level of expertise to collect data for determining training needs. PLEASE CIRCLE.

WELL PREPARED  POORLY PREPARED
5  4  3  2  1

6. What is your gender?  ☐ MALE  ☐ FEMALE

7. AGE?  ☐ 21-30 years
☐ 31-40 years
☐ 41-50 years
☐ 51-60 years
☐ 61-70 years

8. What is your highest level of formal education? PLEASE CHECK.

☐ Some High School
☐ High School Graduate
☐ College or University Graduate

Degree: ___________________ Specialization ___________________

THANK YOU FOR ASSISTANCE

If you wish a summary of the results, print your name and address on the back of the return envelope.
RESPONDENT RAFFLE

In order to show our appreciation to the many generous people who have completed questionnaires on data collection methods, and in order to induce you to respond, the Project Director is personally sponsoring a $25.00 cash prize to the winners of our respondent raffle. During early July, 1983 one lucky person who has completed the questionnaire will be selected randomly and will receive the cash prize.

Raffle Rules

1. Only respondents who are bonafide trainers or human resource developers are eligible to participate.

2. A completed questionnaire received no later than June 30th qualifies you to be entered into the raffle. (Only one per person.)

ENTRY FORM

Name: ____________________________
Position Title: _____________________ Telephone: _________
Employer: __________________________
Employer's Address: __________________________

We are planning to continue our research in the field of training needs analyses. Please identify three or more persons who you feel are OUTSTANDING in the field. Please restrict your suggestions to residents of the State of Ohio.

_______________________________  ______________________________  ______________________________

_______________________________  ______________________________  ______________________________

THANK YOU FOR YOUR HELP!
Appendix C

COVER LETTER SENT TO RESPONDENTS

JUNE 6, 1983.

Dear Fellow ASTD Member:

You have been identified as an experienced professional in the field of Training and Human Resource Development. Your assistance is needed to provide information that will serve our training community.

The starting point for most training programs is a training needs analysis. From talking to many trainers in our chapter it became apparent that many different methods are used to identify training needs. There are over a dozen different methods that have been used. THIS RESEARCH PROJECT IS DESIGNED TO IDENTIFY THE DATA COLLECTION METHODS PRACTITIONERS FIND MOST USEFUL WHEN DETERMINING TRAINING NEEDS. A summary of the results will be reported in the ASTD Central Ohio Chapter Communicator as soon as the data analysis is complete.

To provide an additional incentive for you to participate respondents may enter a raffle for TWENTY-FIVE DOLLARS ($25.00). See the back of the questionnaire for details.

We ask that you return the completed questionnaire by JUNE 15TH. A stamped self-addressed envelope is enclosed for your convenience. Please be assured that all returns will be held in the strictest confidence.

Thank you for your personal contribution of time that will help our training community reach higher levels of effectiveness.

Sincerely,

Bart P. Beaudin, Project Director
ASTD Member

William D. Dowling, Project Sponsor
ASTD Member
BIBLIOGRAPHY


